



Public mental health: Evidence, practice and commissioning

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Key messages for public mental health practice and commissioning

- 1 Proportion of UK disease burden due to mental disorder is 23.8% as measured by Years Lived with Disability (YLD's) (WHO, 2018a) although this underestimates burden by more than a third (Vigo et al, 2016). This costs the English economy at least £105 billion a year (CMH, 2010). Estimated global annual economic cost of mental illness in 2010 was US\$2,493 billion which is projected to increase to US\$6,046 billion by 2030 (Bloom et al, 2011). Such a large disease burden is due to:
 - a) Mental disorder affecting almost 1 in 4 of the adult population at any one time
 - b) Most lifetime mental disorder starting before adulthood which should inform age of delivery of both treatment and prevention
 - c) Broad range of impacts across the life course including health risk behaviours such as smoking, poor physical health, reduced life expectancy, poorer education and employment outcomes, antisocial behaviour and discrimination
 - d) Low coverage of effective public mental health interventions
 - 2 Mental wellbeing is associated with a wide range of improved outcomes in health, education and employment, as well as reduced crime and antisocial behaviour.
 - 3 Public mental health interventions can be divided into mental disorder prevention and mental wellbeing promotion. Mental disorder prevention includes:
 - Prevention of mental disorder from arising (primary prevention)
 - Early treatment of mental disorder and associated impacts such physical illness (secondary prevention)
 - Prevention of relapse and associated impacts such as premature mortality (tertiary prevention)
- Mental wellbeing promotion includes:
- Promotion of protective factors for mental wellbeing (primary promotion)
 - Early intervention to promote wellbeing in those with poor wellbeing (secondary promotion)
 - Promotion for those with long standing poor wellbeing (tertiary promotion)
- All interventions require more targeted approaches for higher risk groups.
- 4 A range of effective public mental health interventions exist which results in broad impacts and associated economic savings across different sectors even in the short term. Such interventions can be implemented by different sectors including primary care, secondary care, social care, public health and local authorities, third sector providers, education providers, employers and criminal justice.
 - 5 Despite the existence of such interventions, only a minority with mental disorder receive any treatment (McManus et al, 2016; NHSD, 2018a) which is in stark contrast to cancer where almost all receives some intervention. Even fewer receive interventions to prevent associated impacts while far less provision occurs for interventions to prevent mental disorder from arising or to promote mental wellbeing. As well as resulting in a broad range of impacts and associated costs, this implementation gap contravenes the 2010 Equality Act and right to health declarations (Campion & Knapp, 2018).
 - 6 Reasons for the public mental health implementation gap include:
 - Lack of public mental health knowledge and training for professionals and trainees in public health, primary care, secondary mental health care, social care and commissioning
- Lack of understanding of the size of the gap at national and local level
 - Lack of appropriate policy targets to reflect required coverage and parity
 - Lack of appropriate resource: Although at least 23.8% of UK disease burden is due to mental disorder (WHO, 2018a), 12.0% of the NHS budget in England was spent on mental health in 2017/18 (NHSE, 2018a). In England, only 1.6% of the public health budget was allocated to mental health in 2018/19 (DCLG, 2018) while local authority expenditure reduced by 28.6% in real terms between 2010/11 and 2017/18 (NAO, 2019)
 - Specific causes of treatment gap including lack of clinical skills, poor mental health literacy and perceived need, poor concordance with and negative attitudes towards treatment, treatment provided not meeting minimal standards, and stigma and discrimination
- 7 Population impact of public mental health interventions depends on their coverage and outcomes. Public mental health practice supports coordination, planning and resource allocation across a range of organisations to improve coverage and outcomes in four key steps (Campion & Knapp, 2018; Campion, 2018a)
 - a) Mental health needs assessment (MHNA) which includes
 - Assessment of level of mental disorder and wellbeing, associated impacts, risk and protective factors, numbers from higher risk groups, as well as impacts and costs of mental disorder
 - Assessment of size, impact and cost of the public mental health intervention gap
 - Estimation of impacts and associated economic savings of improved

- coverage of a range of public mental health interventions to address the gap including where such savings occur and timeframes
- b) Use of such information to inform the JSNA, mental health policy development and implementation, commissioning, inter-agency coordination and wider advocacy in order to improve coverage and outcomes of public mental health interventions
 - c) Implementation at population level
 - d) Evaluation of coverage and outcomes of interventions
- 8 Clinical Commissioning Groups (CCGs) and local authorities have equal and joint statutory duties under the Health and Social Care Act (DHSC, 2012) to provide information about local levels of health and social needs and their broader determinants in Joint Strategic Needs Assessments (JSNA's). However, poor mental health representation in JSNAs contributes to perpetuation of the public mental health intervention gap (Campion et al, 2017a). Furthermore, CCGs and local authorities and CCGs must prepare a Joint Health and Wellbeing Strategy to meet the identified needs (DHSC, 2012).
- 9 Although the five year forward view for mental health set out plans for improved treatment coverage, this will still result in a minority of those with mental disorder receiving treatment. For instance, 2020/21 targets include 35% of children with mental disorder receiving treatment and 25% of adults with common mental disorder receiving talking therapies.
- 10 A key action to sustainably reduce burden of mental disorder and promote mental wellbeing is to provide the required level of resource to enable population coverage of effective public mental health interventions. In order to inform local provision, a mental health needs assessment is first required at national level to (Campion & Knapp, 2018):
- Assess size, impact and cost of public mental health unmet need
 - Estimate impact and associated net economic savings of a range of cost effective public mental interventions provided to all those who would benefit including timeframes and where such savings accrue. For instance, comprehensive coverage across England of just nine public mental health interventions outlined in England's mental health strategy (HMG, 2011; Knapp et al, 2011) would result in conservative net savings of £45 billion (Campion & Knapp, 2018)
 - Inform transparent agreement about national acceptable standards for minimum level of coverage of different evidence based public mental health interventions
 - Inform required level of funding to implement public mental health interventions to agreed coverage levels
- 11 Other actions to improve public mental health practice and commissioning include:
- Provision of information about local public mental health intervention coverage and size of unmet need on the national MHIN website
 - Improved population understanding about public mental health although mental health literacy interventions have limited impact on help-seeking
 - Training: Since at least 23.8% of UK disease burden is due to mental disorder (WHO, 2018a), public mental health should be a key part of training for professionals and trainees in public health, primary care, secondary mental health care, social care, criminal justice and commissioning including:
 - Impact of mental disorder and wellbeing
 - Risk and protective factors
 - Evidence for effective public mental health interventions
 - Assessment of size, impact and cost of public mental health unmet need as well as impact and associated economic savings from improved coverage
- Conducting mental health needs assessments, integrating relevant information into commissioning decisions and implementation at both national and local levels
 - Dissemination and implementation
 - Evaluation of coverage and outcomes
 - Settings based approaches: Targeting certain settings such as antenatal/postnatal settings, schools, workplaces, neighbourhoods, gardens, primary care, older people's care homes and libraries. Prioritising childhood and adolescence is important since most lifetime mental disorder has arisen by early adulthood. Primary care is a particularly important health care setting for improving coverage of public mental health interventions and referral to secondary mental health care if required.
 - Integrated approaches at national and local level
 - Use of digital technology to improve mental health literacy and provide evidence based public mental health interventions
 - Maximising existing resources including through self-help, task-shifting, improved concordance with treatment and less intense intervention
 - Addressing socioeconomic inequalities
 - Specific interventions including parenting programmes, addressing parental mental disorder and child adversity, and promoting physical activity
 - Legislation, regulation and a human rights approach: It is important to ensure compliance with legal duties under the Equality Act (2010) to not discriminate against people with disability including mental disorder by not providing appropriate coverage of evidence based public mental health interventions. Such a rights approach to mental health is supported by the United Nations (UNHRC, 2016)
 - Funded public mental health lead roles for primary care, secondary mental health care and public health in every locality

Foreword

A colleague, who studied psychosocial causes of physical illness, became ill. After much medical investigation ruling out physical illness he accepted that he was depressed. He commented that he had thought he was “the rock of Gibraltar”, too strong to become mentally ill. It was difficult to accept that even he – secure childhood, high socioeconomic position, successful at work, strong family ties – could have mental illness. The problem was that neither he nor the doctors investigating his symptoms thought of mental illness, and when they did, the attached stigma was sufficient to account for reluctance to accept it. But he did have mental illness, just like a quarter of the population at any one time. If someone does not have the advantages that my colleague had, they are even more likely to have mental illness – it is a prominent component of health inequalities. The question is what can we do about it.

For a start we can treat it. There has been justified criticism of the lack of resources for treatment of mental relative to those available for physical illness. But what about prevention?

A dozen years before my 2010 review of health inequalities, *Fair Society Healthy Lives*, *The Marmot Review*, I was a member of a health inequalities group, chaired by Sir Donald Acheson. We consulted experts on what we could recommend to prevent social inequalities in mental illness. “Nothing”, was the short answer. Equalising access to treatment might reduce inequalities in health, we were told, but there are no prospects for prevention of mental illness and thereby reducing inequalities.

Most certainly that is not the message from this thorough and comprehensive review of the causes of mental illness and evidence for prevention. I must confess to a frisson of excitement as I went through this report. More than a frisson. Two clear messages stand out. Half of lifetime mental illness, except dementia, arises by age 14; and there is a great deal that can be done in early childhood to prevent it.

The report also gives encouragement to those of us concerned about inequalities in mental illness. There is evidence for interventions to support parents: promoting good practice, preventing child abuse, reducing alcohol and drug problems, and treating mental illness in the parents; and interventions aimed at children, from pre-school through school. Each of these will reduce the likelihood of children developing mental illness and going on to have a lifetime of problems. Reducing social and economic inequalities more generally set the context for reduction on inequalities in mental illness.

Separately, the report looks at promotion of wellbeing and mental health. There is overlap, but mental health is not simply the lack of illness. That said, those with positive wellbeing are less likely to succumb to illness; and mental illness will detract from well-being.

When it comes to health inequalities in general, and reducing inequalities in early child development and health, in particular, I have been arguing the moral case for action. We should aim to reduce health inequalities not because it might save money, but because it is the right thing to do. I would apply the same thinking to prevention of mental illness.

There is, in addition, a strong economic case for action, as this report makes clear. In England, the annual cost of mental illness is estimated at £105 billion. It is worth spending some money to save some of that. Intervening in childhood is particularly rewarding economically as well as being effective. For each £1 spent, the potential savings are several times that.

I have emphasised the report’s contribution to understanding what we can do in primary prevention, but there is great potential benefit to detecting mental illness and treating it early. As well as relieving suffering, it will reduce the risk of further adverse consequences.

The other clear message from the report is that although action must involve health services, it must also involve actions in other sectors to address the social determinants of health. The moral case for action is clear. This report gives the evidence of what can be done. It is most welcome.

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Authorship and acknowledgements

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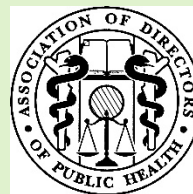
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Introduction

The first three versions of this document (2012, 2013 and 2015) were written for the Joint Commissioning Panel for Mental Health (JCPMH) which was a collaboration co-chaired by the Royal College of General Practitioners and Royal College of Psychiatrists and involved a range of leading organisations and individuals including:

- Afiya Trust
- Association of Directors of Adult Social Services
- British Psychological Society
- Department of Health
- Healthcare Financial Management Association
- Mental Health Providers Forum
- Mind
- National Involvement Partnership
- National Survivor User Network
- New Savoy Partnership
- NHS Confederation
- Representation from Specialised Commissioning
- Representatives of the English Strategic Health Authorities
- Rethink Mental Illness
- Royal College of Nursing
- Service users and carers

The JCPMH was part of the implementation arm of the government mental health strategy *No Health without Mental Health (HMG, 2011)*. The JCPMH:

- provided practical guidance and a developing framework for mental health
- supported commissioners of public mental health to deliver the best possible outcomes for community health and wellbeing
- published a series of short guides describing ‘what good looks like’ in various mental health service settings

The current update is based on a review of more recent literature particularly review level evidence, reports and public mental health practice involving assessment of mental health need for several million population across England. The JCPMH finished in December 2016 so this update is published as a Royal Society for Public Health report.

WHO IS THIS DOCUMENT FOR?

This public mental health document supports the work of:

- A range of providers of public mental health interventions including primary care, secondary mental health care, social care, third sector providers, education providers, employers, criminal justice system, as well as public health and local authorities
- Clinical Commissioning Groups (CCGs) and Local Authorities – which have equal and joint statutory duties under the Health and Social Care Act (DHSC, 2012) to assess health and social need through JSNA's and then prepare Joint Health and Wellbeing Strategies to meet identified need
- Health and Wellbeing Boards (HWBs) – which have a key role in transforming health and care and achieving better population health and wellbeing through their responsibility for preparing Joint Strategic Needs Assessments (which should be strategic and take account of the current and future health and social care needs of the entire population) (DH, 2011a), Joint Strategic Asset Assessments and Joint Health and Wellbeing Strategies although many local authorities now refer to Joint Strategic Needs and Asset Assessment (JSNAA) rather than separate documents
- Public Health – as reducing mental disorder and promoting wellbeing is an important part of its role and contributes to a range of other public health priorities, as underlined by the public health white paper which outlined a new approach for public health by positioning mental health as an integral and complementary part of the proposed new direction for public health in England (DH, 2010)
- NHS England which supports and holds to account the work of CCGs
- Government and treasury to highlight the opportunities for a broad range of impacts and associated economic savings even in the short term through improved coverage of public mental health interventions

HOW CAN THIS DOCUMENT HELP?

The original version was written in 2012 by Jonathan Campion (Director for Public Mental Health and Consultant Psychiatrist) and Chris Fitch (former Policy Advisor at Royal College of Psychiatrists) who consulted with a group of public mental health experts, patients and carers. It was updated in 2013 and 2015.

This update had been more extensive, involved searches for best level (ideally review) and most recent evidence across all sections of the report, and has incorporated relevant reports, practice and policy development.

This document will support readers to become more familiar with the concept of public mental health and better equipped to understand assess:

- Proportion affected by mental disorder and poor mental wellbeing
- Impact of mental disorder and wellbeing
- Cost of mental disorder
- Proportion affected by different risk factors for mental disorder and protective factors for mental wellbeing
- Proportion from higher risk groups
- Proportion receiving evidence based interventions to treat mental disorder, prevent associated impacts of mental disorder, prevent mental disorder and promote mental wellbeing including from higher risk groups
- Outcomes of public mental health interventions
- Size, impact and cost of the public mental health intervention gap
- Impact and associated economic savings of improved coverage of public mental health interventions

This supports:

- Development of public mental health commissioning and strategic plans
- Implementation of these plans
- Evaluation of associated impacts
- Recommissioning
- Achieving the aims of the mental health, public health, NHS, and social care strategies

DEFINITIONS

The terms 'mental illness', 'mental disorder' and 'mental wellbeing' are used in this document with the following definitions:

- **Mental illness** refers to depression and anxiety (which may also be referred to as 'common mental disorder') as well as psychosis, schizophrenia and bipolar disorder (which may also sometimes be referred to as severe mental illness)
- **Mental disorder** includes mental illnesses as well as personality disorder, eating disorder, and alcohol and drug dependency
- **Mental wellbeing** has several definitions including
 - ... a state in which the individual realises his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community (WHO, 2001)
 - ... the combination of feeling good and functioning effectively (Huppert, 2008). The concept of feeling good incorporates not only the positive emotions of happiness and contentment, but also such emotions as interest, engagement, confidence and affection. The concept of functioning effectively (in a psychological sense) involves the development of one's life, having a sense of purpose such as working towards valued goals, and experiencing positive relationship
 - A positive state of mind and body, feeling safe and able to cope, with a sense of connection with people, communities and the wider environment (HMG, 2010a)

What is public mental health?

Public mental health takes a population approach to mental health which includes assessment and strategic decisions to improve coverage, outcomes and coordination of different levels of mental disorder prevention and mental wellbeing promotion (see Box 1). It aims to sustainably improve population mental health through coordinated working with a range of public, third sector, other organisations, local communities and individuals.

BOX 1: PUBLIC MENTAL HEALTH INTERVENTIONS

Public mental health interventions can be considered at primary, secondary and tertiary levels. For each level, interventions need to target groups at higher risk of mental disorder and poor mental wellbeing.

Mental disorder prevention

- 1 Primary prevention aims to prevent mental disorder from happening in the first place by addressing risk factors
- 2 Secondary prevention involves the early identification and treatment of mental disorder
- 3 Tertiary prevention involves the prevention of relapse and associated impacts of mental disorder including reduced life expectancy from physical illness, health risk behaviour, suicide and stigma

Mental wellbeing promotion

- 1 Primary promotion involves promoting protective factors for mental wellbeing
- 2 Secondary promotion involves early promotion of mental wellbeing in people with recent reduction in mental wellbeing
- 3 Tertiary promotion involves promotion of mental wellbeing in people with longstanding poor mental wellbeing

There is some overlap with interventions to prevent disorder and promote mental wellbeing since people with poor mental wellbeing are at several-fold increased risk of mental disorder (England national survey) (McManus et al, 2016) (Table 6) and mental wellbeing promotion for people with mental disorder is important for recovery.

WHAT IS PUBLIC MENTAL HEALTH?

Public mental health practice:

- Takes a population approach to mental health which includes three levels of mental disorder prevention and mental wellbeing promotion outlined in Box 1
- Considers both coverage and outcomes of public mental health interventions including for higher risk groups
- Involves assessment of size, impact and costs of unmet need for effective public mental health interventions
- Estimates impact and associated economic savings from improved coverage of effective public mental health interventions
- Uses this to inform strategic development, commissioning and inter-agency coordination
- Facilitates implementation of commissioning and strategic plan
- Includes evaluation of coverage and outcomes of commissioned public mental health interventions

Outcomes of public mental health practice include:

- Improved provision and coordination of public mental health interventions
- Sustainable reduction of mental disorder and poor mental wellbeing
- Improved population mental wellbeing
- Improved coordination and collaboration between the broad range of organisations providing public mental health interventions

Since proportion of disease burden from mental disorder is 23.8% for UK and 20.6% globally (WHO, 2018a), public mental health is fundamental to public health and health improvement (RCPsych, 2010).

Public mental health importance

The issues

1. Mental disorder is responsible for almost a quarter of UK disease burden
2. Size of burden is due to a combination of prevalence, most lifetime mental disorder arising before adulthood and broad range of impacts
3. Mental disorder results in significant economic costs
4. Levels of mental disorder are increasing
5. Mental wellbeing results in broad range of impacts

The solutions

6. Effective interventions exist to prevent mental disorder and promote mental wellbeing at primary, secondary and tertiary levels
7. However, coverage of these interventions is poor with most people with mental disorder in the UK receiving no treatment and far less coverage of interventions to prevent associated impacts of mental disorder, prevent mental disorder from arising or promote mental wellbeing
8. Clinical Commissioning Groups and local authorities have equal and joint statutory duties under the health and Social Care Act (DHSC, 2012) to provide information about the size of health and social need including broader determinants as well as prepare a Joint Health and Wellbeing Strategy to meet identified need
9. National assessment of the size, impact and cost of the public mental health intervention gap as well as economic savings from improved coverage can inform transparent agreement about national acceptable standards of public mental health coverage and required resource
10. Other key actions include improved population public mental health literacy, professional training, settings based approaches, integrated approaches, use of digital technology, maximising existing resources, compliance with legislation and funded public mental health lead roles for primary care, secondary mental health care and public health in every locality

MENTAL DISORDER AND ASSOCIATED IMPACTS

23.8% of UK disease burden is attributable to mental disorder and self-harm as measured by Years Lived with Disability (YLD's) (WHO, 2018a) and is as follows for different mental disorder:

- Childhood behavioural disorders 0.6%
- Depressive disorders 6.4%
- Anxiety disorders 3.9%
- Bipolar disorder 1.9%
- Schizophrenia 1.6%
- Eating disorder 0.6%
- Autism and Asperger's syndrome 1.1%
- Alcohol use disorder 1.4%
- Drug use disorders 2.4%
- Other mental and behaviour disorder 1.4%
- Alzheimer's and other dementias 2.4%
- Self-harm 0.1%

However, this underestimates the burden of mental disorder by more than a third (Vigo et al, 2016) since it does not include some mental disorders, sub-threshold mental disorder and associated excess mortality. It does not reflect the connection between mental illness and other health conditions (review) (Prince et al, 2007), does not appreciate overlap between psychiatric and neurological disorders, groups suicide and self-harm as a separate category, conflates all chronic pain syndromes with musculoskeletal disorders, excludes personality disorder and inadequately considers impact on mortality. Furthermore, global absolute Disability Adjusted Life Years due to mental and neurological disorders increased by 41% between 1990 and 2010 (Whiteford et al, 2016).

The large burden is due to a combination of high prevalence of mental disorder, comorbidity, early onset during the life course and the broad range of associated impacts.

Mental disorders are common

- In 2017, 12.8% of 5-19 year olds in England experienced at least one mental disorder (England national survey) (NHSD, 2018a) which equates to 1.25 million individuals (ONS, 2018a). Rates are similar for under 5 year olds (local US survey) (Egger et al, 2006)
- Almost a quarter of the adult population in England experienced at least one mental disorder each year (Table 1). However, several-fold variation in local rates occurred depending on socio-economic and other risk factors
- One in two people experienced a mental disorder during their lifetime (review) (Jones, 2013)
- Prevalence of adult mental disorder peaked in middle age and then declines. For common mental disorder, prevalence in over 75 year olds (8.1%) was half that of adults below 65 years (England national survey) (McManus et al, 2016)
- Certain groups are at a several-fold higher risk of mental disorder (see higher risk section on pages 53-58)

Trends

- Number of people in England experiencing a mental disorder is projected to increase by 14% from 8.65million in 2007 to 9.88 million in 2026 (McCrone et al, 2008)
- Child and adolescent mental disorder: Prevalence of mental disorder among 5-15 year olds increased from 9.7% in 1999 to 11.2% in 2017 (England national survey) (NHSD, 2018a). During this period, emotional disorder increased from 4.3% to 5.8% while prevalence of other disorders remained stable. Analysis of repeated cross sectional national health surveys across the UK showed relatively little change (Pitchforth et al, 2018)

- Common mental disorder (CMD): Adults rates of CMD in women have steadily increased since 2000 but remained constant for men (England national survey) (McManus et al, 2016). Proportion of people with severe CMD symptoms increased from 6.9% in 1993, to 7.9% in 2000, to 8.5% in 2007 and 9.3% in 2014
- Gender gap in mental illness among young people has widened in recent years so that women have been disproportionately affected (Lessof et al, 2016/ longitudinal study; McManus et al, 2016/ England national survey). Levels of emotional difficulties in girls in secondary schools in England also increased between 2009 and 2014 (cross-sectional studies) (Fink et al, 2015). Among 17-19 year olds, girls were more than twice as likely to have a mental disorder than boys (23.9% vs 10.3%) (England national survey) (NHSD, 2018a)
- Alcohol misuse: Although levels of alcohol misuse have remained stable, alcohol associated admissions were 15% higher and alcohol associated deaths 16% higher compared to 10 years previously (NHSD, 2019a). However, rates of non-drinking in people aged 16-24 years in England increased from 18% in 2005 to 29% in 2015 while not drinking in the past week increased from 35% in 2005 to 50% in 2015 (annual cross sectional surveys) (Fat et al, 2018)
- Drug misuse: Although levels of drug misuse declined in the last 10 years, there was a 58% rise in drug related deaths since 2006 (NHSD, 2018b)
- Dementia: Number of people with dementia in England and Wales is projected to increase by 57% between 2016 and 2040 (Ahmadi-Abhari et al, 2017)
- Smoking is the single largest preventable cause of death in England (NHSD, 2018c). Although smoking rates in the general population have fallen, this has not occurred for

people with mental disorder (Szatkowski & McNeill, 2015/ analysis of surveys)

- Suicide rate in the UK in 2017 was 10.1/100,000 which is one of the lowest since 1981 when the rate was 14.7/100,000 (ONS, 2018b). Regarding trends by country (ONS, 2018b), suicide rate for:
 - England reduced by 37% from 14.6/100,000 in 1981 to 9.2/100,000 in 2017
 - Wales was higher in 2017 than in most years since 1981
 - Scotland was lowest in 2017 at 13.9/100,000 since 1981
- Self-harm
 - Annual incidence of self-harm in 13-16-year-old girls increased by 68% between 2011 and 2014 (England population cohort study) (Morgan et al, 2017a)
 - Adult levels of self-harm reached their lowest recorded level in 2007 but doubled between 2007 and 2014 (England national survey) (McManus et al, 2016). However, proportion of adults reporting non-suicidal self-harm increased from 2.4% in 2000 and 3.8% in 2007 to 6.4% in 2014 (McManus et al, 2019)
- Mortality rates for people with schizophrenia and bipolar disorder worsened between 2000 and 2014 (UK cohort study) (Hayes et al, 2017)
- Number of detentions under the Mental Health Act in England rose by 40% between 2005/6 and 2015/16 (CQC, 2018a)

Comorbidity

Comorbidity amplifies impact of mental disorder. Proportion of children and adolescents in 2017 with (England national survey) (NHSE, 2018a):

- Two or more mental disorders was 5.0% of 5-19 year olds, 3.4% of 5-10 year olds, 6.2% of 11-16 year olds and 6.4% of 17-19 year olds
- One mental disorder was 60.7%, two mental disorders 26.6% and three or more mental disorders 71.0%
- Two or more mental disorders included 71.0% with hyperactivity disorder, 48.2%

with emotional disorder, 54.0% with behavioural disorder and 55.4% with less common mental disorder

In 2007, of the 23.0% of the adult population in England experiencing at least one mental disorder (England national survey) (McManus et al, 2009):

- 68.7% met criteria for one mental disorder
- 19.1% met criteria for two disorders
- 12.2% met criteria for three or more mental disorder

Mental disorder is also associated with comorbid substance use disorders with 75% of users of drug services and 85% of users of alcohol services experiencing mental health problems (small UK cross-sectional survey) (Weaver et al 2003).

Sub-threshold mental disorder

This refers to conditions with some symptoms of mental disorder not currently severe enough to meet criteria for diagnosis of mental disorder and which could develop into full mental disorders without intervention. At national level:

- Sub-threshold conduct disorder: In the UK, 28.8% of children and adolescents in the UK had mild externalising disorder (sub-threshold conduct disorder) (British national cohort study) (Colman et al, 2009)
- Sub-threshold mental disorder: In the USA, 42.3% of 11-17 year olds had sub-threshold mental disorder (survey) (Roberts et al, 2015)
- 17% of adults in England experienced sub-threshold common mental disorder (England national survey) (McManus et al, 2009) which contributed to almost half the UK burden of functional disability and over 32 million days lost from work in a single year (longitudinal study) (Rai et al, 2010)
- Sub-threshold generalised anxiety disorder (GAD) prevalence was twice that of GAD (systematic review) (Haller et al, 2014)
- 7.2% had psychotic experiences (systematic review and meta-analysis) (Linscott van & Os et al, 2013)

Early onset of mental disorder

Most lifetime mental disorder arises before adulthood (Table 3) and then often persists for long periods:

- 50% of lifetime mental disorder (except dementia) arose by age 14 (Kessler et al, 2005/ national US survey; Jones, 2013/review)
- 75% of lifetime mental disorder arose by the mid 20's (review) (Kessler et al, 2007)
- Mental disorders arising later were likely to be secondary to other issues (review) (Jones, 2013)
- Severe mental disorders were preceded by less severe disorders (review) (Jones, 2013)
- Prevalence rates peaked for (England national survey) (McManus et al, 2016)
 - Common mental disorder in 25-34 year old men and 16-24 year old women
 - Psychosis in 35-44 year olds
 - Antisocial and borderline personality disorder in 16-24 year olds

MENTAL DISORDER RESULT IN BROAD IMPACTS

The next section outlines the impacts of mental disorder which can be prevented. They include:

- Impact of mental disorder arising in childhood and adolescence
- Impacts of mental disorder in childhood and adolescence occurring in adulthood
- Impacts of mental disorder in adulthood

Impacts of mental disorders arising in childhood and adolescence

Compared to children and adolescents without mental disorder, those with mental disorder experienced:

- Several fold higher levels of health risk behaviour including smoking, alcohol consumption and drug misuse (England national survey) (NHSD, 2018a) (Table 4) a large proportion of which starts before adulthood
- Higher risk of self-harm and suicide:
 - Suicide is a leading cause of death in adolescence (Wolfe et al, 2014)
 - Mental disorder in 12-26 year olds was associated with increased risk of suicide (OR 10.83: 95% CI 4.69-25.00) and suicide attempt (OR 3.56: 95% CI 2.24-5.67) (meta-analysis and systematic review) (Gili et al, 2019)
 - Proportion of 11-16 year olds who had ever self-harmed or attempted suicide was 25.5% for those with mental disorder compared to 3.0% without (England national survey) (NHSD, 2018a)
- Increased mortality: Adjusted Mortality Ratio Rates for those with ADHD compared to those without was 1.86 (95% CI 0.93-3.27) for under 6 year olds and 1.58 (95% CI 1.21-2.03) for 6-17 year olds (Danish nationwide cohort study) (Dalsgaard et al, 2015)
- Poorer general health (England national survey) (NHSD, 2018a)
- Worse educational outcomes
 - Reduced educational outcomes: Increased proportion who were behind in their overall scholastic ability at school (Green et al, 2005)
 - School drop-out which occurred more from substance use and disruptive behaviour disorders than mood or anxiety disorders (systematic review) (Esch et al, 2014)
 - Truancy was higher for children with a mental disorder (8.5%) compared to those without (0.8%) (England national survey) (NHSD, 2018a)
 - Failure to complete high school (systematic review and meta-analysis) (Erskine et al, 2016)
 - ADHD (OR 3.7: 95% CI 2.0-7.0)
 - Conduct disorder (OR 2.7: 95% CI 1.5-4.7)
- School exclusion (systematic review) (Whear et al, 2013) was higher for children with a mental disorder (6.8%) compared to those without (0.5%) (England national survey) (NHSD, 2018a). During 2015/16, there were 9,250 permanent and fixed period exclusions issued for substance offences in England compared to 8,580 in 2006/7 (DfE, 2017a)
- Lack of social inclusion: Participation among 11-19 year olds (England national survey) (NHSD, 2018a) in:
 - School clubs was lower in those with mental disorder (65.9%) than those without disorder (78.6%)
 - Clubs outside school was lower in those with mental disorder (51.5%) than those without disorder (62.4%)
- Antisocial and offending behaviour, crime (British and Brazilian cohort studies) (Murray et al, 2015) and violence (Ferguson et al, 2005/ New Zealand cohort study; SCMH, 2009; Murray et al, 2015)
- Bullying: Young people aged 11-19 with mental disorder were more likely to bully others in the past year (28.3%) than those without mental disorder (14.0%) and more likely to be bullied in the past year (59.1%) compared to those without mental disorder (32.7%) (England national survey) (NHSD, 2018a)
- Lower wellbeing (England national survey) (NHSD, 2018a)
 - Mental wellbeing was lower in 11-19 year olds with a mental disorder (43.1) compared to those without mental disorder (53.0). Wellbeing levels varied by disorder and were higher for neurodevelopmental disorder (48.4) and lowest for emotional disorder (41.8)
 - High self-esteem was five times less common in 11-19 year olds with mental disorder (5.2%) compared to those without mental disorder (25.1%). High self-esteem levels varied by disorder from 14.1% for neurodevelopmental disorder to 3.7% for emotional disorder

Impacts of mental disorders in childhood and adolescence arising in adulthood

Mental disorder in childhood impacts on young people's development, and stops them realising their potential. It leads to poorer outcomes and inequalities in adulthood in the following areas.

- Adult mental disorder
- Health risk behaviour and obesity
- Premature mortality
- Education
- Earnings and unemployment
- Poor relationships and parenting
- Violence and crime

Mental disorder during adulthood

- Mental disorder at age 9-12 was associated with at least three-fold increased risk of mental disorder in adulthood (three longitudinal studies) (Copeland et al, 2013a)
- Anxiety and depression
 - Child/ adolescent conduct disorder was associated with later depression/ anxiety (OR 2.10: 95% CI 1.03-4.28) (systematic review and meta-analysis of longitudinal studies) (Erskine et al, 2016)
 - Depression in young adulthood was associated with prior early onset persistent conduct problems (OR 2.24: 95% CI 1.67-3.01) and adolescent onset conduct problems (OR 1.58: 95% CI 1.19-2.08) (systematic review and meta-analysis) (Bevilacqua et al, 2018)
 - Child/ adolescent ADHD was associated with later depression (OR 2.3: 95% CI 1.3-3.7) and panic disorder (OR 2.5: 95% CI 1.1-5.5) (systematic review and meta-analysis) (Erskine et al, 2016)
 - Adolescent depression was associated with increased risk of adult depression (OR 2.78: 95% CI 1.97-3.93) (systematic review) (Johnson et al, 2018a)
 - 70% of 13 and 15 year olds with anxiety and depression had mental disorder at age 36 compared with 25% of mentally healthy adolescents (British cohort study) (Colman et al, 2007)
- Bipolar disorder
 - Child/ adolescent ADHD was associated with subsequent bipolar disorder (OR 7.1: 95% CI 2.0-24.8) (systematic review and meta-analysis) (Erskine et al, 2016)
 - Anxiety and ADHD: Adult bipolar

disorder incidence rate (per 10,000 person years) increased from 2.2 in those without anxiety or ADHD at age 16, to 23.9 in people with prior diagnosis of ADHD only, 26.1 in people with prior diagnosis of anxiety only and 66.2 in people with prior diagnosis of both ADHD and anxiety (Danish cohort study) (Meier et al, 2018)

- Psychosis
 - Child and adolescent mental disorder was associated with subsequent schizophrenia spectrum disorder (IRR 4.93: 95% CI 4.37-5.54) (Danish national register) (Maibing et al, 2015)
 - Child and adolescent mental disorder was associated with subsequent schizophrenia (English and Dutch cohort studies) (Nivard et al, 2017). At age 7, association was strongest for depression. Association increased with age and increase was steepest for ADHD and conduct disorder
- Substance use disorder
 - Alcohol use in young adulthood was associated with early onset persistent CPs (OR 1.85: 95% CI 1.04-3.28) and adolescent onset CPs (OR 1.72: 95% CI 1.23-2.41) (systematic review and meta-analysis) (Bevilacqua et al, 2018)
 - Anxiety and depression increased risk of adult alcohol use disorder (review) (Hussong et al, 2011)
 - Cannabis use in young adulthood was associated with prior adolescent onset conduct problems (CPs) (OR 3.78: 95% CI 2.54-5.63) and early onset persistent CPs (OR 3.34: 95% CI 2.53-4.41) (systematic review and meta-analysis) (Bevilacqua et al, 2018)
- Personality disorder: Child/ adolescent conduct disorder was associated with increased risk of antisocial personality disorder (OR 3.19: 95% CI 2.23-4.57) (systematic review and meta-analysis of longitudinal studies) (Erskine et al, 2016)
- Suicidal attempt and ideation
 - Child/ adolescent ADHD was associated with increased subsequent suicide attempt (OR 2.5: 95% CI 1.6-3.77) (systematic review and meta-analysis) (Erskine et al, 2016)
 - Childhood internalising disorders

predicted adult suicidal ideation (OR 1.51: 95% CI 1.10-2.07) (Dutch cohort study) (Ormel et al, 2017)

- Psychiatric hospitalisation during adulthood was predicted by childhood internalising disorder (OR 2.17: 95% CI 1.51-3.11) (Ormel et al, 2017)

Adult health risk behaviour and obesity

- Childhood externalising disorders predicted adult frequent smoking (OR 2.71: 95% CI 2.11-3.49), problematic alcohol use (OR 1.42: 95% CI 1.08-3.87) and problematic cannabis use (OR 2.76: 95% CI 1.97-3.87) after adjustment for current disorder (Dutch cohort study) (Ormel et al, 2017)
- Adult obesity was predicted by childhood mental disorder (Ternouth et al, 2009; White et al, 2012/ British cohort study)

Premature mortality

- Excess overall mortality was associated with childhood internalising and externalising problem behaviours (British cohort study) (Jokela et al, 2009)
- Premature mortality from physical illness occurs in adolescents with conduct problems (British cohort study) (Maughan et al, 2014)
- Severe adolescent affective symptoms were associated with increased mortality after 53 years compared with mild or no symptoms (Adj HR 1.61: 95% CI 1.20-2.15) (UK cohort study) (Archer et al, 2018)
- Adjusted Mortality Ratio Rates for adults who had childhood ADHD compared to those without was 4.25 (95% CI 3.05-5.78) for those aged over 17 (Danish nationwide cohort study) (Dalsgaard et al, 2015)

Education

- Poorer educational achievement:
 - Occurred particularly for early externalising disorder (systematic review) (Esch et al, 2014)
 - In young adulthood was associated with prior early onset persistent conduct problems (CPs) (OR 4.14: 95% CI 1.95-8.82), adolescent onset CPs (OR 2.35: 95% CI 1.44-3.82) and childhood-limited CPs (OR 1.83: 95% CI 1.26-2.65) (systematic review and meta-analysis)

(Bevilacqua et al, 2018)

- Leaving school without qualifications was more likely for those with mild externalising behaviour (Adj OR 2.3: 95% CI 1.9-2.8) and severe externalising behaviour (Adj OR 4.0: 95% CI 2.9-5.5) (British national cohort study) (Colman et al, 2009)
- Drop-out from school occurred more from substance misuse and disruptive school behaviours while internalising disorders resulted from school drop-out (systematic review) (Esch et al, 2014). Poor mental health was associated with dropout in vocational (OR 1.8: 95% CI 1.0-3.2) and higher education (OR 2.0: 95% CI 1.0-4.2) (Danish cohort study) (Hjorth et al, 2016)

Earnings and unemployment

- Lower earnings: Conduct problems were associated with 30% lower earnings and higher economic inactivity (three national birth cohort studies) (Richards & Abbott, 2009)
- Poor employment outcomes in young adulthood were associated with prior early onset persistent conduct problems (2.00: 95% CI 1.43-2.79) (systematic review and meta-analysis) (Bevilacqua et al, 2018)
- Poor adult economic and social outcomes were predicted by co-morbid childhood internalising and externalising disorder (Dutch cohort study) (Ormel et al, 2017)
- Unemployment
 - Child ADHD was associated with increased unemployment (OR 2.0: 95% CI 1.0-3.9) and work dismissal (OR 6.4: 95% CI 2.6-15.7) (systematic review and meta-analysis) (Erskine et al, 2016)
 - Child mental disorder was associated with inability to keep a job in adulthood (Adj OR 4.2: 95% CI 1.3-13.7) (US longitudinal study) (Copeland et al, 2015)
 - Depression frequency at ages 16-21 was associated with higher unemployment and welfare dependence (birth cohort study) (Fergusson et al, 2007)

Poor relationships and parenting

- Adolescent externalising behaviour was significantly associated with teenage

parenthood, being unhappy with family life and divorce (British national cohort study) (Colman et al, 2009)

- Child mental disorder was associated with relationship instability (Adj OR 2.0: 95% CI 0.7-5.7) (US longitudinal study) (Copeland et al, 2015)
- Conduct disorder was associated with increased pregnancy before age 23 (OR 3.3: 95% CI 2.3-4.7) (systematic review and meta-analysis) (Erskine et al, 2016)
- Childhood internalising disorders predicted adult loneliness (OR 1.75: 95% CI 1.41-2.17) after adjustment for current disorder (Dutch cohort study) (Ormel et al, 2017)
- Parental personality disorder was associated with impaired parenting (systematic review) (Laulik et al, 2013)
- Adolescents with conduct problems were at increased risk of coercive styles of parenting (British Birth Cohort Study) (Byford et al, 2014)

Violence

- Violence related arrest or self-reported violent behaviour was associated with childhood conduct disorder (OR 3.52: 95% CI 2.34-5.31) (systematic review and meta-analysis) (Erskine et al, 2016)
- Self-reported aggression in young adulthood was more common in those with childhood-limited conduct problems (CPs) (OR 1.75: 95% CI 1.21-2.53), adolescent onset CPs (OR 3.55: 95% CI 2.07-6.08) and early onset persistent CPs (OR 5.40: 95% CI 2.80-10.43) (systematic review and meta-analysis) (Bevilacqua et al, 2018)
- Conduct problems at age 7-9 years resulted in increased rates of violent offending (four-fold higher) and domestic violence (three-fold higher) at age 21-25 (New Zealand cohort study) (Fergusson et al, 2005)
- Depression during adolescence was associated with two-fold increased risk of violent behaviours over four years (three longitudinal cohorts) (Yu et al, 2017a)

Crime

- Childhood mental disorder was

associated with serious criminality (Adj OR 2.4: 95% CI 0.9-6.5) and incarceration (Adj OR 4.7: 95% CI 1.4-16.2) (US longitudinal study) (Copeland et al, 2015)

- Conduct disorder/ problems
 - Self-reported aggression in young adulthood was more common in those with childhood-limited conduct problems (CPs) (OR 1.75: 95% CI 1.21-2.53), adolescent onset CPs (OR 3.55: 95% CI 2.07-6.08) and early onset persistent CPs (OR 5.40: 95% CI 2.80-10.43) (systematic review and meta-analysis) (Bevilacqua et al, 2018)
 - Conduct problems at age 5 predicted subsequent criminal conviction (British cohort study) (Murray et al, 2010)
 - Conduct problems at age 7-9 years resulted in several fold higher rates of offending, arrest/ conviction and imprisonment at age 21-25 after adjustment for covariates (New Zealand cohort study) (Fergusson et al, 2005)
 - Criminal conviction rates were higher for conduct disorder (RR 2.0: 95% CI 1.2-3.4) and hyperkinetic disorder (RR 2.7: 95% CI 1.6-4.4) (30 year Norwegian follow up study) (Mordre et al, 2011)
- ADHD during childhood/ adolescence was associated with increased arrest (OR 2.43: 95% CI 1.62-3.65) and conviction (OR 2.01: 95% CI 1.25-3.24) (systematic review and meta-analysis) (Erskine et al, 2016)
- 80% all crime (including violent crime) in Britain was estimated to be by people who had conduct disorder and sub-threshold conduct disorder in childhood and adolescence (SCMH, 2009)

Impacts of sub-threshold mental disorders in childhood and adolescence arising in adulthood

Childhood sub-threshold mental disorder was associated with adult adverse outcomes (US longitudinal study) (Copeland et al, 2015). Adolescent sub-threshold depression increased risk of adult major depressive episode, reduced quality of life (systematic review) (Bertha & Balazs, 2013) and outcomes were equally as poor as for threshold depression (systematic review) (Wesselhoeft et al, 2013).

Health related impacts of mental disorders in adulthood

Mental disorder during adulthood leads to poorer outcomes and inequalities. Health related impacts below occur in the following areas:

- Premature birth
- Health risk behaviour
- Physical illness
- Increased suicide and self-harm
- Reduced life expectancy
- Increased mortality

Premature birth

Increased risk of premature birth, lower birth weight and stillbirth occur in women with mental disorder during pregnancy with worse outcomes where mental disorder remains untreated (NICE, 2014a). Antenatal stress was also associated with low birth weight (systematic review and meta-analysis) (Lima et al, 2018).

Health risk behaviour

Health risk behaviour increased risk of physical illness and premature death. Several fold higher rates of health risk behaviours occur in people with mental disorder including smoking (England national survey) (McManus et al, 2010), alcohol and drug misuse, physical inactivity (systematic review and meta-analysis) (Schuch et al, 2017) and unhealthy eating. Obesity prevalence was increased by 40% in children with ADHD and 70% in adults with ADHD (systematic review and meta-analysis) (Cortese et al, 2016). Adolescent depression was associated with increased risk of obesity (RR 1.70: 95% CI 1.40-2.07) (systematic review and meta-analysis of longitudinal studies) (Mamun et al, 2016). Depression was found to be the only convincing risk factor for developing obesity (meta-analysis) (Solmi et al, 2018).

In particular, tobacco dependence is the single largest preventable cause of death in England with 16% of deaths (77,900) and 484,700 hospital admissions were attributable to smoking during 2016/17 (NHSD, 2018c). Smoking is responsible for 11.5% of global deaths (6.4 million) (GBD, 2017). Smoking is also the primary driver of health inequalities (analysis of four

countries survey data) (Jha et al, 2006). Since 42% of adult tobacco consumption in England is by people with mental disorder (England national survey) (McManus et al, 2010), smoking disproportionately affects this group. Furthermore, decreases in smoking in the general population have not occurred to the same degree as people with mental disorder (RCP & RCPsych, 2013).

Physical illness

Mental disorder increases risk of both non-communicable and communicable physical illness (review) (Prince et al, 2007). Past mental ill-health has stronger effects on present physical health than physical activity or education (English Longitudinal Survey of Ageing) (Ohrnberger et al, 2016). Comorbid mental disorder worsens outcomes of physical health conditions. Furthermore, 46% of people with a mental health problem have a long-term physical health condition (report) (Naylor et al, 2012).

Mental disorder is associated with increased risk of physical illness. For instance:

- Mental illness resulted in ten-fold increased risk of developing physical illness over 10 years (Canadian cohort study) (Matheson et al 2013)
- Depression was associated with increased risk of:
 - Coronary heart disease (RR 1.30: 95% CI 1.22-1.40) (meta-analysis) (Gan et al, 2016)
 - Diabetes (RR 1.41: 95% CI 1.25-1.59) (meta-analysis) (Yu et al, 2015)
 - Infection (IRR 1.61: 95% CI 1.49-1.74) (Danish prospective population study) (Andersson et al, 2016)
 - Autoimmune disease (IRR 1.25: 95% CI 1.19-1.31) (Danish prospective population study) (Andersson et al, 2015)
- Anxiety was associated with increased risk of:
 - Coronary heart disease (HR 1.26; 95% CI 1.15-1.38) and cardiac death (HR 1.48; 95% CI 1.14-1.92) after confounder adjustment (meta-

analysis) (Roest et al, 2010)

- Cardiovascular disease (HR 1.52: 95% CI 1.36-1.71) (critical review and meta-analysis) (Batelaan et al, 2016)
- Schizophrenia was associated with increased risk of incidence of (meta-analysis) (Fan et al, 2013):
 - Cardiovascular disease (RR 1.53: 95% CI 1.27-1.86)
 - Stroke (RR 1.71; 95% CI 1.19-2.46)
 - Congestive heart failure (RR 1.81: 95% CI 1.42-2.29)
- Severe mental illness was associated with increased risk of:
 - Cardiovascular disease incidence: Adj HR 1.78 (95% CI 1.60-1.98) (meta-analysis) (Correll et al, 2017)
 - Metabolic syndrome (RR 1.58: 95% CI 1.35-1.86) which is highly predictive of cardiovascular disease (systematic review and meta-analysis) (Vancampfort et al, 2015)
 - Type 2 diabetes (RR 1.85: 95% CI 1.45-2.37) (systematic review and meta-analysis) (Vancampfort et al, 2016). Adjusted prevalence of type 2 diabetes was 11.3% among people with SMI compared to 2.9% in antipsychotic naïve individuals
- Atypical antipsychotic use was associated with increased cardiovascular disease: Men Adj HR 15% (95% CI 7-23%), women Adj HR 29% (95% CI 21-38%) (England prospective cohort study) (Hippisley-Cox et al, 2017)

Increased suicide and self-harm

The majority of the annual global 804,000 suicides (WHO, 2016a) are by people with mental disorder (Cavanagh et al, 2003/ systematic review; Hawton & van Heeringen, 2009; Phillips, 2010). Furthermore, mental and substance use disorders were responsible for 62% of DALYs allocated to suicide (Global Burden of Disease Study) (Ferrari et al, 2014). During 2005 and 2015, 28% of UK suicides were by mental health patients (NCISH, 2017).

Suicide risk was increased in people with:

- Depression: Standardised Mortality Ratio (SMR) 19.7 (95% CI 12.2-32.0) (meta-

- review) (Chesney et al, 2014). A meta-analysis of longitudinal studies found depression was associated with increased risk of suicidal ideation (OR 1.96: 95% CI 1.81-2.13), attempt (OR 1.63: 95% CI 1.55-1.72) and death (OR 1.33: 95% CI 1.18-1.49) (Ribeiro et al, 2018)
- Anxiety disorder: OR 3.3 (95% CI 2.1-5.3) (systematic review and meta-analysis) (Kanwar et al, 2013)
 - Bipolar disorder: SMR 14.4 (95% CI 12.4-16.8) (systematic review and meta-analysis) (Hayes et al, 2015)
 - Schizophrenia: SMR 12.9 (90% CI 0.7-174.3) (systematic review) (Saha et al, 2007)
 - Ultra-high risk (UHR) of developing psychosis: 66% had recent suicidal ideation, 49% had lifetime self-harm and 18% had lifetime suicide attempts (systematic review and meta-analysis) (Taylor et al, 2015)
 - Borderline personality disorder: SMR 45.1 (95% CI 29.0-61.3) (meta-analysis) (Pompili et al, 2005)
 - Eating disorder (women) (meta-review) (Chesney et al, 2014)
 - Anorexia nervosa: SMR 31.0 (95% CI 21.0-44.0)
 - Bulimia nervosa: SMR 7.5 (95% CI 1.6-11.6)
 - Substance use disorder
 - Alcohol use disorder: OR 2.59 (95% CI 1.95-3.23) (meta-analysis) (Darvishi et al, 2015)
 - Moderate tobacco smoking: RR 1.8 (95% CI 1.5-2.2) (meta-review) (Chesney et al, 2014)
 - Drug use: Suicidal ideation (OR 2.04: 95% CI 1.59-2.50), suicide attempt (OR 2.49: 95% CI 2.00-2.98) and suicide death (OR 1.49: 95% CI 0.97-2.00) (meta-analysis) (Poorolajal et al, 2016)
 - Opioid use: SMR 13.5 (95% CI 10.5-17.2) (meta-review) (Chesney et al, 2014)
 - Previous self-harm: HR 1.68 (95% CI 1.38-2.05) (systematic review) (Chan et al, 2016)
 - Post-discharge from psychiatric facilities: Suicide rates remained higher with pooled suicide rates per 100,000 patient years 654 after 3 months to one year, 494 after one to five years, and 366 after five to ten

years (systematic review and meta-analysis) (Chung et al, 2017a)

Rates of self-harm and attempted suicide in 17-19 year olds were five times higher in those with mental disorder (46.8%) than those without mental disorder (9.0%) (England national survey) (NHSD, 2018a).

Reduced life expectancy

Globally, more than 8 million people die from mental disorder each year (systematic review and meta-analysis) (Walker et al, 2015).

Mental disorder is associated with 7-25 years reduced life expectancy (Table 5) which worsened for people with psychosis in the UK between 2000 and 2014 (UK cohort study) (Hayes et al, 2017). Analysis of longitudinal national psychiatric case registers from Denmark, Finland, and Sweden found that life expectancy for people with mental disorder was 15 years shorter for women and 20 years shorter for men (Nordentoft et al, 2013). Other studies have found that depression is a risk factor for all major disease-related causes of death (Norwegian cohort study) (Mykletun et al, 2007).

Increased mortality

Mental disorder at age 36 was associated with 84% higher mortality risk at age 60 after adjusting for potential confounders (British birth cohort study) (Henderson et al, 2011). Mortality rates are increased for the following mental disorders:

- Depression: SMR 1.52 (95% CI 1.45-1.59) (Cuipers et al, 2014) and in the elderly, SMR 1.6 (95% CI 1.4-1.8) (meta-analytic review) (Baxter et al, 2011). Major depression and sub-threshold depression had comparable impacts on excess mortality (meta-analysis) (Cuipers et al, 2013)
- Anxiety and depression: OR 1.4 (95% CI 1.2-1.7) (Norwegian cohort study) (Mykletun et al, 2009)
- Bipolar disorder: All cause SMR 2.01 (95% CI 1.89-2.23) including deaths from

circulatory disease (SMR 1.73: 95% CI 1.54-1.94), respiratory disease (SMR 2.92: 95% CI 2.00-4.23) and infection (SMR 2.25: 95% CI 1.70-3.00) (systematic review and meta-analysis) (Hayes et al, 2015)

- Schizophrenia: SMR 2.5 (95% CI 2.2-2.4) (systematic review) (Saha et al, 2007)
- SMI (cohort study) (Das-Munshi et al, 2017)
 - Respiratory disease: SMR 3.38 (95% CI 3.04-3.74)
 - Cardiovascular disease: SMR 2.65 (95% CI 2.45-2.86)
 - Suicide: SMR 7.65 (95% CI 6.43-9.04)
 - Non-suicide unnatural causes: SMR 4.01 (95% CI 3.34-4.78)
 - Cancer: SMR 1.45 (95% CI 1.32-1.60); SMR 1.40 (95% CI 1.29-1.52) (systematic and meta-analysis) (Zhuo et al, 2017)
 - All-cause mortality was higher in cohort identified from secondary care hospital admissions (SMR 2.9: 95% CI 2.8-3.0) than from primary care (SMR 2.2: 95% CI 2.1-2.3) compared to the general population (analysis of 4 million UK population between 2004 and 2013) (John et al, 2018)
- Personality disorder: SMR 4.2 (95% CI 3.0-5.6) (London case register) (Fok et al, 2012)
- Autism spectrum disorder: SMR 2.8 (95% CI 1.8-4.2) (systematic review) (Woolfenden et al, 2012)
- Eating disorders (meta-review) (Chesney et al, 2014)
 - Anorexia nervosa: SMR 5.9 (95% CI 4.2-8.3)
 - Bulimia nervosa: SMR 1.9 (95% CI 1.4-2.6)
- Substance use disorder
 - Smoking
 - Moderate smoking: RR (weighted average) 2.0 (men), 2.0 (women)
 - Heavy smoking: RR (weighted average) 2.4 (men), 2.7 (women) (meta-review) (Chesney et al, 2014)
 - Tobacco linked SMR (US inpatient records linked to death certificate data) (Callaghan et al, 2014)
 - Depression: 1.95 (95% CI 1.93-1.98)
 - Schizophrenia: 2.45 (95% CI 2.41-

2.48)

- Bipolar disorder: SMR 1.57 (95% CI 1.53-1.62)
- Alcohol use disorder (OR 4.6: 95% CI 2.7-7.7) (meta-review) (Chesney et al, 2014)
- Opioid use: SMR 14.7 (95% CI 12.8-16.5) (meta-review) (Chesney et al, 2014)
- Amphetamine use: SMR 6.2 (95% CI 4.6-8.3) (systematic review) (Singleton et al, 2009)
- Reduced survival rates from cancer (London cohort study) (Chang et al, 2014)
- Learning disability
 - Adj HR 3.1 (95% CI 2.7-3.4) (cohort study from 343 general practices in England) (Hosking et al, 2016): 37.0% of deaths were classified as being amenable to intervention
 - SMR 2.98 (England national GP practice data) (NHSD, 2016)

Broader impacts of mental disorders in adulthood

Broader impacts of mental disorder in adulthood occur in the following areas:

- Educational
- Employment and unemployment
- Debt and reduced financial capability
- Violence
- Stigma and discrimination
- Homelessness
- Intergenerational impacts

Educational

Mental disorder is associated with exclusion from higher education (OECD, 2012; Hjorth et al, 2016/ Danish cohort study).

Employment

- Lower rates of employment (England national survey) (McManus et al, 2016) (Table 7)
- Work absence with 15.8 million days lost to mental health issues in 2016 (11.5% of total days lost to sickness) (ONS, 2017a)
- In 2017/18, stress, depression or anxiety accounted for 44% of all work-related ill health cases (595,000 workers) and 57% of all working days lost due to ill-health in Great Britain (15.4 million working days) (HSE, 2018)
- Presenteeism (being at work with mental disorder) is the largest cause of impact on productivity (report) (Black, 2008) and is a risk factor for absenteeism as well as poor mental and physical health (systematic review) (Skagen & Collins, 2016)
- Poorer quality of patient care in mental health settings (narrative review) (Johnson et al, 2018b)

Unemployment

Common mental disorder was associated with increased unemployment over the subsequent four years (Australian prospective cohort study) (Butterworth et al, 2012). Mental disorder was associated with (Table 7):

- Unemployment (Meltzer et al, 2010/ (national England survey; OECD, 2012; McManus et al, 2016/ England national survey)
- Claiming benefits (McManus et al,

2016): 47% of UK benefit claims in 2014 were due to mental disorder (analysis of UK government data) (Viola & Moncrieff, 2016)

- Economic inactivity (England national survey) (McManus et al, 2016)

Debt and financial capability

As well as reduced income from lower employment, mental disorder is associated with:

- Increased risk of debt (Fitch et al, 2011/ systematic review; Richardson et al, 2013/ systematic review and meta-analysis)
- Reduced financial capability (report) (Holkar, 2017)

Violence

Mental disorders are among the strongest risk factors for interpersonal violence with risk varying by mental disorder (review of meta-analyses) (Fazel et al, 2018):

- Substance abuse (OR 7.4: 95% CI 4.3-12.7)
- Schizophrenia (OR 5.5: 95% CI 4.1-7.5)
- Non-schizophrenia psychosis (OR 4.9: 95% CI 3.6-6.6)
- Bipolar disorder (OR 4.1: 95% CI 2.9-5.8)
- Any personality disorder (OR 3.0: 95% CI 2.6-3.5)
- Hyperkinetic disorder (OR 1.8: 95% CI 1.6-1.9)

Highest population attributable fractions for violence were substance misuse, witnessing or being a victim of violence in childhood, and personality disorder (Fazel et al, 2018).

Other evidence for mental disorder being associated with perpetration of violence include the following:

- 2-13% of outpatient attenders with mental illness had perpetrated acts of violence in the previous 6 months to 3 years (review) (Chloe et al, 2008)
- Much of the risk to others from mental health patients was due to co-existing drug or alcohol misuse rather than the mental illness itself (NSISH, 2017)
- Perpetration of partner violence was 2-3 times higher in people with mental disorder than the general population (systematic review and meta-analysis) (Oram et al, 2014)

- Violence was associated with particular mental disorders including alcohol use disorder, drug use disorder and personality disorder (England national survey) (Coid et al, 2006). A large proportion of violence was perpetrated by people with personality disorder with substance dependence and/or hazardous drinking (Coid et al, 2006): Proportion of violent events associated with:
 - Hazardous drinking (56%)
 - Personality disorder (48%)
 - Drug use (42%)
 - Alcohol dependence (29%)
 - Affective/ anxiety disorder (27%)
 - Antisocial personality disorder (22%)
 - Drug dependence (22%)
 - Psychosis (2%)
 Comorbidity increases risk so that the proportion who were violent was:
 - 7% with no disorder are violent
 - 14% with one disorder
 - 25% with two disorders
 - 47% with three or more disorder
- Schizophrenia and other psychoses were associated with violence and violent offending although most of the excess risk was mediated by comorbid abuse (systematic review and meta-analysis) (Fazel et al, 2009)
- Alcohol was associated with 53% of violent crime in England and Wales (ONS, 2015a)
- Between 2005 and 2015, 11% of homicide convictions in the UK were in mental health patients (NCISH, 2017)

Mental disorder was also associated with increased risk of being of victim of violence:

- 21% of people with self-reported chronic mental illness reported past year actual or threatened violence compared with 9.9% of those without mental illness (national England and Wales survey) (Khalifeh et al, 2013)
- 20-34% of outpatient attenders with mental illness had been the victims of violence in the previous 6 months to 3 years (review) (Chloe et al, 2008)
- One third of people with mental disorder receiving psychiatric treatment had been assaulted by a partner during their lifetime

(systematic review and meta-analysis) (Oram et al, 2013)

- Rates of victimisation were particularly high for those with severe mental illness (Khalifeh et al, 2015a/ England and Wales survey; Khalifeh et al, 2015b/ British national survey)

Stigma and discrimination

A survey of mental health service users in England highlights continuing high levels of discrimination and stigma (Corker et al, 2016):

- 86.7% experienced discrimination in 2014 compared to 92.3% in 2008
- 74% felt the need to conceal their illness with no significant change in 2014 from 2008
- 46.7% reported feeling the need to stop oneself from starting relationships with no significant difference since 2008 (49.2%)
- Comparing 2014 with 2008, there were significantly fewer experiences of discrimination reported with respect to friends, family, dating, mental health staff, finding a job, keeping a job, police, education, religious activities, social life, privacy, starting a family or being shunned in 2014

Stigma has a small to moderate sized negative impact on help seeking (systematic review) (Clement et al, 2015). Negative attitudes towards mental health help-seeking (OR 0.80: 95% CI 0.73-0.88) and stigmatizing attitudes towards people with mental illness (OR 0.82: 95% CI 0.69-0.98) were associated with less active help seeking (systematic review and meta-analysis) (Schnyder et al, 2017). Stigma and discrimination perpetuates inequalities experienced by people with mental disorder (Hatzenbuehler et al, 2013). Effects of discrimination on common mental disorder were worse for particular BME groups (London 5 year cohort study) (Hatch et al, 2016).

Reduced mental wellbeing

Adults with mental disorder were 8-30 times more likely to have mental

wellbeing in lowest 15% population distribution compared to those without mental disorder (national survey) (England McManus et al, 2016) (See Table 6).

Homelessness

See section on Higher risk groups.

Intergenerational impacts

These impacts on health and attainment are also transferred across generations. For example, parental mental disorder is associated with increased risk of child mental disorder (see Risk factor section) and leads to poor infant growth (review) (Stein et al, 2014).

TABLE 1: NATIONAL PREVALENCE OF MENTAL DISORDERS

Age group	Mental disorder	% affected nationally
Child and adolescent mental disorder (England)	Conduct disorder (5-19 year olds)	4.6% (NHSD, 2018a)
	Emotional disorder (5-19 year olds)	8.1% (NHSD, 2018a)
	Hyperactivity disorder (5-19 year olds)	1.6% (NHSD, 2018a)
	Autism spectrum disorder (5-19 year olds)	1.2% (NHSD, 2018a)
	Eating disorder (5-19 year olds)	0.4% (NHSD, 2018a)
	Psychosis (5-19 year olds)	0.1% (NHSD, 2018a)
	Alcohol use <ul style="list-style-type: none"> At least once/ past week) (11-15 years) At least once/ past week) (11-16 years) 	44%/10% (NHSD, 2017a) 24.2%/1.8% (NHSD, 2018a)
	Drug use <ul style="list-style-type: none"> Ever/ past month (11-15 year olds) Ever (11-16 year olds) 	24%/10% (NHSD, 2017a) 5.2% (NHSD, 2018a)
	Tobacco smoking (England) <ul style="list-style-type: none"> Regular (11-15 years) Regular (11-16 years) Regular (17-19 years) 	3% (NHSD, 2017a) 1.4% (NHSD, 2018a) 13.9% (NHSD, 2018a)
Adult mental disorder	Common mental disorder (any) (England) <ul style="list-style-type: none"> Depression Generalised anxiety disorder Phobias Obsessive compulsive disorder 	15.7% (McManus et al, 2016) 3.3% (McManus et al, 2016) 5.9% (McManus et al, 2016) 2.4% (McManus et al, 2016) 1.3% (McManus et al, 2016)
	Post-traumatic stress disorder	4.4% (McManus et al, 2016)
	Attention deficit hyperactivity disorder	9.7% (McManus et al, 2016)
	Bipolar disorder	2.0% (McManus et al, 2016)
	Psychotic disorder (in previous year)	0.7% (McManus et al, 2016) 0.4% (Kirkbride et al, 2012)
	Personality disorder (any) <ul style="list-style-type: none"> Borderline personality disorder Antisocial personality disorder 	13.7% (McManus et al, 2016) 2.4% (McManus et al, 2016) 3.3% (McManus et al, 2016)
	Autism spectrum disorder	0.7% (McManus et al, 2016)
	Eating disorder	6.7% (McManus et al, 2009)
	Dementia (in over 65 year olds) (UK)	7.1% (Prince et al, 2014)
	Alcohol use disorder (England) <ul style="list-style-type: none"> Hazardous drinkers Harmful/ mild dependent drinkers Alcohol dependence 	16.6% (McManus et al, 2016) 1.9% (McManus et al, 2016) 1.2% (McManus et al, 2016)
	Drug use disorder (England) <ul style="list-style-type: none"> Any drug use in past year Drug dependence Cannabis dependence 	8.5% (NHSD, 201bc) 3.1% (McManus et al, 2016) 2.3% (McManus et al, 2016)
	Tobacco smoking (UK)	15.1% (ONS, 2018c)
	Gambling (England) <ul style="list-style-type: none"> Problem gamblers Pathological gamblers 	3.2% (McManus et al, 2007) 0.3% (McManus et al, 2007)

TABLE 2: NATIONAL PREVALENCE OF SELF-HARM AND SUICIDE IN ENGLAND

Age group	Mental disorder	% affected nationally
Adolescents	Self-harm (ever self-report) <ul style="list-style-type: none"> 15 year olds 11-16 year olds 17-19 year olds 	22% (PHE, 2017a) 5.5% (NHSD, 2018a) 15.4% (NHSD, 2018a)
Adults	Suicide and self-harm <ul style="list-style-type: none"> Completed suicide Attempted suicide (lifetime) Suicidal thoughts (in past year) Self-harm (ever) 	9.2/100,000 (ONS, 2018b) 6.7% (McManus et al, 2016) 5.4% (McManus et al, 2016) 7.3% (McManus et al, 2016)

TABLE 3: AGE OF ONSET OF 25-75% OF LIFETIME MENTAL DISORDERS (JONES, 2013)

Mental disorder	Age at which 25-75% of lifetime mental disorder arises	Proportion of population who develop different mental disorder over their lifetime
Impulse control disorders	7-15 years	25.4%
Anxiety disorders	6-21 years	31.5%
Mood disorders	18-43 years	28.0%
Substance disorders	18-27 years	16.3%
Any mental disorder	7-24 years	50.8%

TABLE 4: LEVELS OF HEALTH RISK BEHAVIOUR AND EXCLUSION IN 11-16 YEAR OLDS IN ENGLAND WITH DIFFERENT MENTAL DISORDER COMPARED TO THOSE WITHOUT DISORDER (NHSD, 2018a)

Health risk behaviour in 11-16 year olds in England	Any mental disorder	Emotional disorder	Behavioural disorder	No disorder
Smoking <ul style="list-style-type: none"> Ever used/tried cigarette Ever used/tried e-cigarette Regular smoker 	22.5% 24.1% 6.9%	27.0% 25.4% 8.8%	28.1% 34.1% 10.2%	7.3% 11.2% 0.7%
Alcohol <ul style="list-style-type: none"> Consumed an alcohol drink Weekly consumption 	36.3% 2.9%	39.7% 3.3%	41.8% 4.2%	22.7% 1.6%
Illicit drug use (ever)	13.9%	16.7%	17.8%	4.1%
Self-harm or suicide attempt (ever) (self-report)	25.5%	34.0%	27.5%	3.0%
School related <ul style="list-style-type: none"> School exclusion (once) Truancy 	3.0% 8.5%	2.6% 9.7%	4.2% 11.2%	0.4% 0.8%

TABLE 5: NUMBER OF YEARS REDUCED LIFE EXPECTANCY FOR PEOPLE WITH DIFFERENT MENTAL DISORDERS

Mental disorder	Number of years reduced life expectancy
Depression (Chang et al, 2011) (UK)	10.6 years for men, 7.2 years for women
Bipolar disorder (Chang et al, 2011) (UK)	10.1 years for men, 11.2 years for women
Schizophrenia (Chang et al, 2011) (UK)	14.6 years for men, 9.8 years for women
Anorexia nervosa (Harbottle et al, 2008) (Canada)	25 years for women
Personality disorder (Fok et al, 2012) (UK)	17.7 years for men, 18.7 years for women
Substance misuse disorders (Chang et al, 2011) (UK)	13.6 years for men, 14.8 years for women
Alcohol use disorders (Hayes et al, 2011) (UK)	17.1 years for men, 10.8 years for women
Opioid use disorders (Hayes et al, 2011) (UK)	9.0 years for men, 17.3 years for women

TABLE 6: PREVALENCE OF MENTAL DISORDER AND PHYSICAL CONDITIONS IN ENGLAND BY LEVEL OF MENTAL WELLBEING (McMANUS ET AL, 2016)

Mental disorder or chronic physical health condition	Prevalence in population with lowest mental wellbeing (lowest 15% in population distribution)	Prevalence in population with highest mental wellbeing (highest 15% in population distribution)
Mental disorder		
• Common mental disorder	57.3%	1.1%
• Probable psychotic disorder	4.8%	0.1%
• Personality disorder	37.6%	3.6%
• Attention Deficit Hyperactivity Disorder	25.9%	2.0%
• Post-traumatic Stress Disorder	21.0%	0.8%
• Harmful drinking/ alcohol dependence	5.9%	0.9%
• Drug dependence signs	6.0%	0.8%
• Suicide attempt (ever)	20.6%	1.6%
Physical health conditions		
• Asthma	13.3%	7.7%
• Diabetes	11.0%	4.9%
• Hypertension	23.3%	14.5%

TABLE 7: LEVELS OF EMPLOYMENT, UNEMPLOYMENT AND ECONOMIC INACTIVITY IN ENGLAND BY MENTAL DISORDER (McMANUS ET AL, 2016)

	Employed full time	Employed part time	Unemployed	Economically inactive	Benefit claimant (without disorder)
Common mental disorder (age standardized)	14.1% Men 10.9%, women 19.8%	16.3% Men 14.7%, women 16.9%	28.8% Men 24.5%, women 34.6%	33.1% Men 33.1%, women 33.0%	Any out of work benefit 47.8% Employment and Support Allowance (ESA) 66.1% Housing benefit 35.1%
PTSD (age standardized)	2.7%		9.4%	10.5%	Any out of work benefit 21.4% ESA 34.0% Housing benefit 15.5%
Psychosis	0.1%		0.6%	2.3%	Any out of work benefit 7.3% (0.2%) ESA 13.4% (0.3%) Housing benefit 14.8% (0.3%)
Autism (age standardized)	0.7%		0.3%	1.2%	
Personality disorder	12.1%		30.5%	22.7%	Any out of work benefit 38.1% (13.1%) ESA 47.9% (14.0%) Housing benefit 29.9% (12.1%)
ADHD	0.6%		1.2%	0.9%	Any out of work benefit 1.0% (0.6%) ESA 1.0% (0.7%) Housing benefit 1.3% (0.6%)
Bipolar disorder	1.9%		3.9%	4.3%	Any out of work benefit 8.0% (1.9%) ESA 12.4% (2.0%) Housing benefit 7.1% (1.6%)
Harmful and dependent drinking (age standardized)	3.7%		6.0%	4.2%	Any out of work benefit 7.8% (3.4%) ESA 10.2% (3.5%) Housing benefit 4.6% (2.9%)
Drug dependence	3.3%		6.1%	5.7%	Any out of work benefit 9.8% (3.2%) ESA 13.3% (3.4%) Housing benefit 8.0% (2.5%)

MENTAL WELLBEING AND ASSOCIATED IMPACTS

Various definitions exist for mental wellbeing (see page 5). Mental wellbeing comprises several constituents including satisfaction, pleasure, engagement, relationships, meaning and achievement (Seligman, 2011).

Hedonic wellbeing refers to present and more transient state of pleasure. Although important, it is limited in several ways including being transitory, not always leading to fulfillment, and being potentially acquired through unsustainable means. However, this term has been replaced by affective wellbeing which refers to present or experienced state of wellbeing not solely focused on pleasure.

Eudaimonic wellbeing refers to meaning, self-realisation and the degree to which a person is fully functioning. This term has been replaced by evaluative wellbeing defined as a global, long-term assessment of wellbeing reflective of quality of life, not at a given point of time but instead over the life course.

Engagement refers to absorption in activities such as work, exercise or relationships while meaning links more broadly to wisdom and for some spiritual/ religious traditions. Orientation to meaning and engagement was more robustly associated with life satisfaction than orientation to pleasure (Park et al, 2009/ survey of 27 countries; Vella-Brodrick et al, 2009/ survey of two countries). Similarly, only the eudaimonic (but not hedonic) dimension significantly predicted wellbeing after regression analysis (McMahan & Estes, 2011). This has relevance to both measurement and intervention focus.

Mental wellbeing has broad impacts

Health benefits of mental wellbeing

- Reduced mental disorder in children and adolescents including persistence
- Reduced mental disorder and suicide in adults
- Reduced heart disease
- Reduced mortality and increased life expectancy
- Improved recovery from physical illness
- Reduced health care utilisation

Mental wellbeing is associated with a range of health benefits (Lyubomirsky et al, 2005a/ review; Campion et al, 2012; DH, 2014a; DH, 2014b; Diener et al, 2017/ review) including:

- Reduced emotional and behavioural problems in children and adolescents (follow up of GB national survey) (Parry-Langdon et al, 2008) including persistence (3 year follow up of sample of British children) (Vidal-Ribas et al, 2015)
- Reduced levels of mental disorder in adulthood (Lyubomirsky et al, 2005a/ review; Keyes et al, 2010/two US cross-sectional surveys; Lamers et al, 2015/ Dutch longitudinal panel study)
- Reduced suicide risk (Koivumaa-Honkanen et al, 2001/ Finnish 20 year follow up study; You et al, 2014/ Chinese cross-sectional study)
- Reduced coronary heart disease (Davidson et al, 2010/ Canadian 10 year prospective study; Yanek et al, 2013/Canadian 5-25 year cohort study), reduced cardiovascular disease independent of traditional risk factors (review) (Boehm & Kubzansky, 2012) and improved health outcomes in people with cardiovascular disease (systematic review) (DuBois et al, 2015)
- Improved recovery from physical illness (meta-analysis) (Lamers et al, 2012)
- Reduced mortality (Chida & Steptoe, 2008/ meta-analysis; Wiest et al, 2011/ German survey; Steptoe et al, 2015/ global survey; Martin-Maria et al, 2017/ meta-analysis of longitudinal surveys). However, the 'million women study' found that happiness and wellbeing had no direct effect on mortality (UK prospective cohort) (Liu et al, 2016)

- Longer life expectancy (Lyubomirsky et al, 2005a/ review; Chida & Steptoe, 2008/ meta-analysis; Diener & Chan, 2011/ review; DH, 2014b): Analysis of data from the English Longitudinal Study of Ageing found that 29.3% of people in the lowest wellbeing quartile died over the average follow-up period of 8.5 years compared with 9.3% of those in the highest quartile (Steptoe et al, 2015). Associations were independent of age, gender, demographic factors, and baseline mental and physical health
- Reduced health service utilisation: Higher life satisfaction was associated with fewer doctor visits (US prospective, national panel study) (Kim et al, 2014)
- Improved patient experience was associated with staff wellbeing (NHS surveys analysis) (Raleigh et al, 2009). Physician occupational wellbeing can contribute to better patient satisfaction and interpersonal care (systematic review) (Scheepers et al, 2015)

Different aspects of wellbeing have distinct health impacts:

- Optimism was associated with better physical outcomes (ES 0.17) including improved mortality, survival, cardiovascular outcomes, cancer outcomes, pregnancy outcomes, physical symptoms and pain (meta-analysis) (Rasmussen et al, 2009)
- Sense of purpose was associated with reduced risk of all-cause mortality (Adj RR 0.83: 95% CI 0.75-0.91) and cardiovascular events (Adj RR 0.83: 95% CI 0.75-0.92) (meta-analysis) (Cohen et al, 2016)
- Meaning in life had weak/moderate association with physical health (average effect 0.258) (systematic review and meta-analysis) (Czekierda et al, 2017)

Wider benefits of mental wellbeing

Improved wellbeing is also associated with benefits in areas other than health including:

- Improved educational outcomes (NICE, 2008a; NICE, 2009b; Gutman & Vorhaus, 2012/ England longitudinal cohort study; PHE, 2014a)
- Healthier lifestyle and reduced health risk behaviour (Lyubomirsky et al, 2005a/ review; Gran et al, 2009/ international

survey; Boehm et al, 2012a/ review; Stranges et al, 2014/ Health Survey for England) including reduced smoking (Chanfreau et al, 2013/ England longitudinal survey; Lappan et al, 2018/ US longitudinal study) and substance use (England cross-sectional study) (Farmer & Hanratty, 2012)

- Increased physical activity (English Longitudinal Study of Aging follow up for 11 years) (Kim et al, 2017)
- Employment related
 - Increased productivity at work (Lyubomirsky et al, 2005a/ review; Boorman, 2009; NICE, 2009c; Tenney et al, 2016/ review)
 - Reduced absenteeism (Keyes & Grzywacz, 2005; Mills et al, 2007; NICE, 2009c; Tenney et al, 2016/ review)
 - Increased self-regulation and motivation, positive relationships, and lower turnover (review) (Tenney et al, 2016)
 - Reduced burnout (Lyubomirsky et al, 2005a/ review; Farragher et al, 2005/ meta-analysis)
 - In the NHS, mental wellbeing was associated with lower staff turnover and higher patient satisfaction wellbeing (NHS surveys analysis) (Raleigh et al, 2009). In Germany, employees with higher or improved job satisfaction levels felt healthier and more satisfied with their health and took less sick leave (prospective survey) (Fischer & Sousa-Poza, 2009)
- Higher income (review) (Lyubomirsky et al, 2005a)
- Social impacts
 - Stronger social relationships (Lyubomirsky et al, 2005a/ review; Pressman & Cohen, 2005/ review; Dolan et al, 2006/ review; Fowler & Christakis, 2008/ US 20 year longitudinal study)
 - Wellbeing of one person impacts on wellbeing of others around them (longitudinal study) (Chanfreau et al, 2013): Maternal mental wellbeing was a significant predictor of wellbeing in 11-15 year olds after controlling for other factors and people whose partner had high wellbeing were more likely to have higher wellbeing

- Increased social/community participation (review) (Huppert, 2008)
- Higher life satisfaction was associated with higher likelihood of marriage and childbirth and lower likelihood of marital separation, job loss, starting a new job and relocating (longitudinal data from three nationally representative panel surveys (Luhmann et al, 2013)
- Improved resilience and ability to cope with adversity (review) (Lyubomirsky et al, 2005a): Optimistic people had more effective coping styles (book chapter) (Rius-Ottenheim et al, 2012)

Childhood wellbeing also predicted subsequent adult wellbeing (British birth cohort study) (Richards & Huppert, 2011).

Levels of mental wellbeing

A systematic review identified 99 wellbeing measures which included 196 dimensions (Linton et al, 2016).

National levels of wellbeing

Levels of child and adolescent wellbeing

- The UK Millennium Cohort Survey of 7 year olds found that 36% felt happy 'all of the time', 62% felt happy 'some of the time' and 2% never felt happy (Chanfreau et al, 2013)
- Proportion of 13-15 year olds in England with high or very high scores was 81% for life satisfaction, 78% for feeling that the things they did were worthwhile and 74% for feeling happy yesterday (Health Survey for England) (Morris & Fuller, 2016)
- Proportion of 11-19 year olds with highest self-esteem was 22.5%, two thirds moderate self-esteem and 11.1% low self-esteem (England national survey) (NHSD, 2018a)

Levels of adult wellbeing across the UK vary although national average scores for four personal wellbeing measures during 2017 were (ONS, 2018d):

- 7.7/10 for life satisfaction
- 7.9/10 for feeling that what you do in life is worthwhile
- 7.5/10 for happiness yesterday
- 2.9/10 for anxiety yesterday

Using different cut off levels for adult wellbeing during 2017 (ONS, 2018d):

- Satisfaction with life overall: 30.1% rated as very high, 51.9% as high, 13.5% as medium and 4.5% as low
- How worthwhile they felt things they do: 35.7% rated as very high, 48.6% as high, 12.1% as medium and 3.6% as low
- Happiness yesterday: 35.1% rated as very high, 40.4% as high, 16.3% as medium and 8.3% as low
- Anxiety yesterday: 40.2% rated as very low, 23.1% as low, 16.6% as medium and 20.1% as high

Levels of wellbeing in UK compared to other countries

Across Europe, the UK ranked 16th out of 29 European countries for child wellbeing (UNICEF, 2013). Another international survey of 30,000 children across fifteen countries found that compared with other

countries, proportion in UK was (Rees & Main, 2015):

- 12th lowest for low wellbeing (5.5%) and high wellbeing (53.4%)
- 14th lowest for satisfaction with life as a whole (8.4/10)
- 14th lowest for proportion with low life satisfaction (7.1%)
- 11th lowest for happiness level in the last two weeks
- 14th lowest for proportion with low happiness (8.9%)
- 11th lowest for feeling positive about the future (8.2)
- 12th lowest for level of satisfaction with school experience

Compared to other European countries in 2011, proportion in the UK with different measures of adult wellbeing was (ONS, 2014a):

- 71.8% for life satisfaction 7 or more out of 10 compared to 69.3% across the EU–28
- 8.2/10 for satisfaction with family life compared to the EU–28 average of 7.8/10
- 62.7% rated their health status as very good or good compared to 60.4% EU–28 average
- 58.4% reported that they felt close to other people in the area where they lived compared to 66.6% EU–28 average
- 20.2% of households reported great difficulty or difficulty in making ends meet compared to 27.7% EU–28 average
- 79% scored very high, high or medium on an index of cultural practice (measuring frequency of cultural participation) compared to 66% EU–27 average

Relationship between mental disorder and wellbeing

Mental disorder and wellbeing are interrelated with mental disorder associated with lower mental wellbeing and mental wellbeing associated with reduced risk of mental disorder.

Although mental illness and wellbeing in children were weakly correlated (r 0.2) (UK Millennium Cohort Study) (Patalay & Fitzsimons, 2016), adults with mental wellbeing levels in the lowest 15% population distribution were 8–30 times more likely to have mental disorder compared to those with mental wellbeing in the highest 15% population distribution (England national survey) (McManus et al, 2016) (Table 6).

Given the population levels of mental disorder (Table 1), people with mental disorder represent a large proportion of people with poor mental wellbeing and therefore require more targeted mental wellbeing promotion to facilitate recovery.

Resilience

Emotional resilience can be defined as a process of negotiating, managing and adapting to significant sources of stress or trauma (review) (Windle, 2010). It therefore protects against mental disorder, poor mental wellbeing and associated impacts. Emotional resilience arises through the interaction between factors at the individual, family and community level. Different levels of emotional and cognitive resilience or ‘capital’ include:

- Emotional and cognitive which includes optimism, self-control and positive personal coping strategies
- Social which includes networks and resources that enhance trust, cohesion, influence and cooperation for mutual benefit within communities
- Physical health
- Environmental which includes features of the natural and built environment which enhance community capacity for wellbeing
- Spirituality which incorporates a sense of meaning, purpose and engagement as well as religious belief for some

Resilience is negatively correlated with negative indicators of mental health and positively correlated with positive indicators of mental health (meta-analysis) (Hu et al, 2015). Resilience has an important relationship with mental disorder and wellbeing including:

- Promotion of mental wellbeing which supports resilience
- Prevention of mental disorder by addressing risk factors which also affect resilience
- Early intervention to treat mental disorder which reduces impact on resilience
- Safeguarding mental wellbeing particularly at times of adversity

Therefore, interventions to promote mental wellbeing and prevent mental disorder at different levels are likely to promote resilience.

Genes and environment have similar impact on psychiatric resilience (US longitudinal twin study) (Amstadter et al, 2014). Environmental factors influencing resilience can be

considered during different parts of the life course as well as at individual, family and community levels (review) (Benzies & Mychasiuk, 2009).

Resilience in young people is associated with the following (review) (Sapienza & Masten, 2011):

- Positive relationships with caring adults
- Effective caregiving and parenting
- Intelligence and problem-solving skills
- Self-regulation skills
- Perceived efficacy and control
- Achievement motivation
- Positive friends or romantic partners
- Faith, hope, spirituality
- Beliefs that life has meaning
- Effective teachers and schools

A more recent review identified that factors which confer resilience to emotional distress in response to failure included higher self-esteem, more positive attributional style and lower socially-prescribed perfectionism (Johnson et al, 2016). Another systematic review identified protective factors against development of mental disorder and alcohol or drug abuse in children of parents with alcohol and drug use disorders included child's ability to engage with adults, a secure parent-child attachment, family cohesion and adaptability, an accepting mother, a mother's who was high in the controlling parenting style and a father's who was low in the controlling parenting style, lower parenting stress and high social support for the child (Włodarczyk et al, 2017) (see page 105 for interventions which promote resilience).

Self-compassion was associated with reduced risk of psychopathology ($r=-0.54$: 95% CI -0.57 to -0.51) (meta-analysis) (MacBeth & Gumley, 2012) and therefore potentially an important contributory factor towards resilience.

RISK AND PROTECTIVE FACTORS

The population impact of risk and protective factors depends on both the size of impact, the proportion affected by such factors and the level of intervention to address such factors. This can be assessed in a structured way to support an appropriate strategy to address such factors or target those affected with evidence based interventions to prevent mental disorder (Campion, 2013; Campion et al, 2017a).

Risk factors for mental disorder during pregnancy, childhood and adolescence

Genetic, psychological, social and environmental factors interact to mediate risk. They often cluster in particular groups. During childhood, the following factors are associated with increased risk of mental disorder:

- Genetic
- Pregnancy
- Demographic
- Family
- Personality features
- Inequality
- Socioeconomic
- Parental
- Child adversity
- Stressful life events
- Physical illness
- Health risk behaviour
 - Smoking, alcohol and drug use
 - Physical inactivity
 - Dietary
 - Screen time
- Insomnia
- Obesity
- Body image
- Social relationships
- Educational

Genetic

Many mental disorders have significant genetic component (Fryers & Brugha, 2013/review; CDGPGC, 2013; Ripke et al, 2014).

Pregnancy

- Smoking during pregnancy increased risk of:
 - Conduct disorder: OR 2.06 (95% CI

1.67-2.54) (meta-analysis) (Ruisch et al, 2018)

- ADHD: RR 1.58 (95% CI 1.33-1.88) (systematic review and meta-analysis) (He et al, 2017) and OR 1.60 (95% CI 1.45-1.76) (meta-analysis) (Huang et al, 2018)
- Child depressive and anxiety behaviours at age 18 and 36 months (Norwegian population cohort study) (Moylan et al, 2015)
- Schizophrenia (OR 3.41: 95% CI 1.86-6.24) (Finnish national birth cohort) (Niemelä et al, 2016)
- Low birth weight (see below)
- Alcohol
 - Alcohol use during pregnancy increased risk of conduct disorder (OR 2.11: 95% CI 1.42-3.15) (meta-analysis) (Ruisch et al, 2018)
 - Alcohol use during pregnancy increased risk of conduct disorder (RR 10), hyperkinetic disorder (RR 8) and intellectual disability (RR 97) (systematic review and meta-analysis) (Popova et al, 2016)
 - Prenatal alcohol exposure increased risk of ADHD beyond that due to parental alcohol dependence (meta-analysis) (Wetherill et al, 2018)
- Cannabis use during pregnancy associated with:
 - Increased risk of conduct disorder (OR 1.29: 95% CI 0.93-1.81) (meta-analysis) (Ruisch et al, 2018) and increased behavioural problems (review) (Warner et al, 2014)
 - Reduced growth of fetal and adolescent brains (review) (Jacques et al, 2014)
- Prenatal infection (review) (Flinkkilä et al, 2016)
- Low birth weight (Abel et al, 2010/ Nordic population birth cohort; Class et al, 2014/ Swedish population-based sibling comparison; Pettersson et al, 2019/one million, sibling comparison register study). However, a British birth cohort study found low birth weight was not directly associated with adult depression but instead with development delay

which increased risk of depression in adolescence and adulthood (Colman et al, 2014)

- Pre-eclampsia was associated with increased risk of child autism-spectrum disorder (RR 1.32: 95% CI 1.20-1.45) (meta-analysis) (Dachew et al, 2018)
- Premature birth: Compared with term births (37-41 weeks), those born at 32-36 weeks' gestation were at increased risk of depressive disorder (RR 1.3: 95% CI 1.1-1.7), non-affective psychosis (RR 1.6: 95% CI 1.1-2.3), and bipolar affective disorder (RR 2.7: 95% CI 1.6-4.5) (Swedish population cohort study) (Nosarti et al, 2012). Those born at less than 32 weeks' gestation were at higher risk of depressive disorder (RR 2.9: 95% CI 1.8-4.6), non-affective psychosis (RR 2.5: 95% CI 1.0-6.0) and bipolar disorder (RR 7.4: 95% CI 2.7-20.6)
- Antenatal parental mental disorder (NICE, 2014a): Child socioemotional problems were associated with maternal depression (OR 1.79: 95% CI 1.61-1.99) and anxiety (OR 1.56: 95% CI 1.36-1.64) during pregnancy (meta-analysis) (Madigan et al, 2018). Antenatal depression was associated with increased risk of premature delivery (systematic review and meta-analysis) (Grigoriadis et al, 2013)
- Low vitamin D during pregnancy was associated with child:
 - Reduced language development (MD -1.12: 95% CI -1.82 to -0.42) and birthweight (MD -87.8: 95% CI -119.7 to -55.9) (systematic review and meta-analysis) (Tous et al, 2019)
 - Autism spectrum disorder (OR 2.42: 95% CI 1.09-5.07) (Dutch birth cohort study) (Vinkhuyzen et al, 2017)
- Nutrition during pregnancy
 - Unhealthy food consumption during pregnancy (Jacka et al, 2013/ Norwegian prospective cohort study; Steenweg-de Graaf et al, 2014/ Dutch population-based cohort study)
 - Malnutrition during pregnancy: Famine increased schizophrenia risk (OR 1.60:1.50-1.70) (systematic review and meta-analysis) (Li & Lumey, 2017)

Demographic

a) Age

Prevalence of mental disorder increased with age and was highest among 17-19 year olds (16.9%) compared to 2-4 year olds (5.5%) (England national survey) (NHSD, 2018a):

- 2-4 year olds: 5.5% had at least one mental disorder with oppositional defiant disorder (1.9%) and autism spectrum disorder (1.4%) the most common
- 5-10 year olds: 9.5% had at least one mental disorder including behavioural disorder (5.0%) and emotional disorder (4.1%). 3.4% had two or more mental disorders
- 11-16 year olds: 14.4% had at least one mental disorder with emotional disorder the most common affecting 9.0%. 6.2% had two or more mental disorders
- 17-19 year olds: 16.9% had at least one mental disorder with emotional disorder the most common affecting 14.9% (13.1% anxiety disorder, 4.8% depression). 6.4% had two or more mental disorders
- Prevalence of behavioural disorders peaked in 11-16 year olds (6.2%) and reduced in 17-19 year olds (0.8%)
- Prevalence of less common disorder in males decreased from 3.4% in 5-10 year olds to 1.4% in 17-19 year olds but in females increased from 1.0% in 5-10 year olds to 2.2% in 17-19 year olds

b) Gender

Prevalence of mental disorder varied by age group (England national survey) (NHSD, 2018a)

- 2-4 year olds: 6.8% boys, 4.2% girls
- 5-10 year olds: 12.2% boys, 6.6% girls
- 11-15 year olds: 14.2% boys, 13.0% girls
- 5-15 year olds: 13.1% boys, 9.3% girls
- 5-19 year olds: 12.6% boys, 12.9% girls
- 17-19 year olds: 10.3% male, 23.9% female
- 5-10 year olds: 12.2% boys, 6.6% girls: Hyperactivity disorder (boys 2.6%, girls 0.8%), behavioural disorder (boys 6.7%, girls 3.2%)
- 11-15 year olds: 14.2% boys, 13.0% girls: Emotional disorder (boys 6.9%, girls

9.4%), behavioural disorders (boys 7.8%, girls 5.8%), hyperactivity disorders (boys 3.3%, girls 0.8%)

- 17-19 year olds: 10.3% male, 23.9% female: 22.4% of 17-19 year old women had emotional disorder and 5.6% body dysmorphic disorder
- Autism spectrum disorder: 1.9% male, 0.4% female (5-19 year olds)
- Eating disorder: 0.1% male, 0.7% female (5-19 year olds)
- Self-harm
 - Rates for 15 year olds were three times higher for girls (32%) than boys (11%) (PHE, 2017a)
 - 52.7% of 17-19 year old women with mental disorder reported self-harm or suicide attempt

c) Ethnicity

- White children were at higher risk of mental disorder than children from different ethnic groups (Green et al, 2005; Patalay & Fitzsimons, 2016/ UK Millennium Cohort Study)
- Proportion of 2-4 year olds with mental disorder was higher in White (6.1%) than BME (3.9%) (England national survey) (NHSD, 2018a)
- Proportion of 5-19 year olds with mental disorder was highest for White British (14.9%) followed by Mixed/Other (12.1%), White Other (8.3%) and lowest for Black/Black British (5.6%) and Asian/Asian British (5.2%) (England national survey) (NHSD, 2018a)

d) Region

Prevalence of mental disorder varied by region (England national survey) (NHSD, 2018a)

- Mental disorder in 2-4 year olds varied from 3.3% in South of England to 9.2% in North of England
- Mental disorder in 5-19 year olds varied from 9.0% in London to 15.6% in East of England
- Emotional disorder in 5-19 year olds varied from 6.0% in West Midlands to 10.7% in South West
- Behavioural disorder in 5-19 year olds

varied from 1.7% in London to 6.5% in East of England

- Hyperactivity disorder in 5-19 year olds varied from 0.9% in London to 2.6% in East of England

Family factors

- Family functioning: Living in families with least healthy functioning compared to children living in families with most healthy functioning resulted in increased risk of mental disorder for (England national survey) (NHSD, 2018a)
 - 2-4 year olds: 10.2% vs 4.8%
 - 5-19 year olds: 38.2% vs 8.3%
- Family type
 - Children from lone parent (previously married) families were at 1.75 times higher risk of mental disorder compared with children from two parent families which extended into adulthood (Swedish population study) (Wietoft et al, 2003).
 - Children living in a single-parent household were at increased risk of symptoms of mental disorder in childhood (UK Millennium Cohort Study) (Patalay & Fitzsimons, 2016)
 - Children from families with stepchildren were at 1.52 times higher risk of mental disorder compared to children from families without stepchildren (Great Britain national survey) (Green et al, 2005)
- Father absence when child was age 3 was associated with increased risk of child problem behaviour age 5 and 7 (UK Millennium Cohort Study) (Flouri et al, 2015a)
- Parental divorce (review) (Fryers & Brugha, 2013)

Personality features including neuroticism (review) (Fryers & Brugha, 2013)

Inequality

- Inequality underpins many risk factors for mental disorder (Campion et al, 2013; Allen et al, 2014/ review) (page 36)
- Social inequality accounted for 41% of child and adolescent population limiting long term illness/disability (UK census-based cross-sectional study) (Spencer et al, 2010)

Socioeconomic

a) Low household income

- Low income was associated with internalising behaviour problems ($r = -0.18$: 95% CI -0.31 to -0.04) but not externalising problems ($r = -0.02$: 95% CI -0.31 to -0.04) (meta-analysis) (Korous et al, 2018)
- Proportion of children aged 3 and 5 years with socioemotional difficulties was 2.4% and 2.0% from highest 20% household income compared to 16.4% and 15.9% from lowest 20% household income (UK Millennium Cohort study) (Kelly et al, 2011). Children from higher household income also had higher school readiness, verbal ability, non-verbal ability and spatial ability. However, statistical adjustment for home learning, family routines and psychosocial environments explained the income gap more for socioemotional difficulties than cognitive scores
- Higher income predicted lower symptoms of mental illness (UK Millennium Cohort Study) (Patalay & Fitzsimons, 2016)
- Equivalised household income (EHI) (England national survey) (NHSD, 2018a): Association with EHI existed for emotional, behavioural and autism spectrum disorders but not for hyperactivity or eating disorders
 - Proportion of 2-4 year olds with mental disorder was 8.9% in lowest EHI tertile compared to 4.0% in middle/highest tertile
 - Proportion of 5-19 year olds in lowest 20% EHI compared to highest 20% EHI was 14.7% vs 6.8% for any mental disorder, 9.0% vs 4.1% for emotional disorder, 6.1% vs 1.7% for behaviour disorder, and 2.4% vs 1.3% for autism spectrum disorder

b) Low socioeconomic status

- Socioeconomically disadvantaged children were 2-3 times more likely to develop mental disorder (systematic review) (Reiss, 2013)
- If all children had the same risk as the most socially advantaged, this would result in reduction of 59% for conduct

disorder, 34% for emotional disorder and 54% for hyperkinetic disorder (based on Great Britain national survey) (Spencer, 2008)

- Proportion of children with psychological disorders was higher in those from low socioeconomic status (SES) compared to high SES (OR 1.88: 95% CI 1.68-2.10) (systematic review and meta-analysis) (Spencer et al, 2015)
- Lower SES was associated with increased risk of child internalising behaviour (g 0.08: 95% CI 0.01-0.16), aggression (g 0.06: 95% CI 0.02-0.11), and reduced literacy and language development (g 0.35: 95% CI 0.24-0.46) (meta-analysis) (Letourneau et al, 2013)
- Lower SES was associated with increased child antisocial behaviour (systematic review and meta-analysis) (ES -0.099: 95% CI -0.116 to -0.082) (Piotrowska et al, 2015). However, analysis of UK Millennium Birth Cohort Study found effect of socioeconomic disadvantage was mediated by harsh parental discipline (Flouri & Midouhas, 2017)
- Children in families of low SES were 1.85-2.21 times more likely to have ADHD than children in families of high SES which was likely to be mediated by factors including parental mental health and maternal smoking during pregnancy (systematic review) (Russell et al, 2016)
- Although children with learning disability had 6.5-fold increased risk of mental disorder, 20–50% of this increased risk was accounted for by low SES (analysis of last two national British mental health surveys) (Emerson & Hatton, 2007)

c) Poverty

- Persistent poverty and transition into poverty was strongly associated with levels of and transitions into child mental disorder (UK Millennium Cohort study) (Fitzsimons et al, 2017)
- Transition into poverty increased the risk of socioemotional behavioural problems in children (OR 1.41: 95% CI 1.02-1.93) as well as maternal psychological distress (OR 1.44: 95% CI 1.21-1.71) (UK Millennium Cohort study) (Wickham et al, 2017)

d) Benefits status (England national survey) (NHSD, 2018a)

- Proportion of 2-4 year olds with mental disorder was 10.4% with parents in receipt of benefits compared to 2.8% with parents not in receipt of benefits
- Low income benefits: Proportion of 5-19 year olds with mental disorder from a household with a parent on low income benefits was 18.2% compared to 9.8% not on benefits
- Disability benefits: Proportion of 5-19 year olds with mental disorder from a household with parent on disability benefits was 31.8% compared to 9.8% not on benefits

e) Household debt (birth cohort and other data) (Pinter et al, 2016)

f) Poor neighbourhood and inadequate housing

- Poor neighbourhood: Comparison of those in least and most deprived neighbourhood quintile showed mental disorder prevalence of 4.5% vs 6.7% for 2-4 year olds and 11.8% vs 13.1% for 5-19 year olds (England national survey) (NHSD, 2018a)
- Neighbourhood social housing was related to emotional, conduct and hyperactivity problems (birth cohort) (Flouri et al, 2015b)
- Overcrowding at home in early childhood was associated with both increased risk stressful events in childhood and economic deprivation in adulthood which in turn were associated with increased risk of adult depression (British birth cohort study) (Colman et al, 2014)

g) Food insecurity (FI)

Household FI even at marginal levels was associated with increased risk of child behavioural, emotional and academic problems after controlling for confounders (systematic review) (Shankar et al, 2017).

h) Other deprivation impacts

ACEs and health harming behaviours were both associated with deprivation with four or ACEs reported by 4.3% of individuals in most affluent quintile increasing to 12.7% in most deprived quintile (English national survey) (Hughes et al, 2016a).

Parental factors

Parental factors are divided into the following sections

- a) Poor quality of early attachment
- b) Poor quality relationship with parent
- c) Parental mental disorder
- d) Parenting
- e) Parental unemployment

a) Poor quality of early attachment

Insecure and disorganised attachment was associated with:

- Externalising problems (d 0.31: 95% CI 0.23-0.40) (meta-analysis) (Fearon et al, 2010)
- Internalising symptoms: d 0.15 (95% CI 0.06-0.25) (meta-analysis) (Groh et al, 2012) and Adj d 0.19 (95% CI 0.09-0.29) (meta-analysis) (Madigan et al, 2013)
- Borderline personality disorder (prospective study) (Carlson et al, 2009)
- Poor peer relationships (meta-analysis) (Groh et al, 2014)

Poor attachment to parents was also strongly associated with

- Delinquency in boys and girls (r 0.18) (meta-analysis) (Hoeve et al, 2012)
- All types of criminality (i.e. sexual offending, violent offending, non-violent offending, and domestic violence) even in the absence of psychopathology (meta-analysis) (Ogilvie et al, 2014)

Risk factors for and trans-generational impact of poor parental attachment style

- Childhood adversities (see next pages 29-31), parental depression (Whitehall II study) (Stansfield et al, 2008) and antenatal depression
- Insecure adult attachment was associated with child maltreatment (OR 2.93) (meta-analysis) (Lo et al, 2017) which is a major risk factor for mental disorder as outlined later in this section.

Prevalence of disorganised attachment was 15-19% in the general population (meta-analysis) (De Wolff & Van Ijzendoorn, 1997) and 80% in maltreated populations (meta-analysis) (Cyr et al, 2010).

b) Poor quality relationship with parent

- Relationship with parent
 - Disengaged interaction of father with their infant as early as third month of life predicted early behavioural problems in children (UK longitudinal cohort study) (Ramchandani et al, 2013)
 - Children who quarreled with their mother more than once a week were three times more likely to have symptoms of mental ill-health than children who quarreled less frequently (UK longitudinal survey) (ONS, 2015b)
 - Arguing with parents was associated with increased level of symptoms of mental disorder (UK Millennium Cohort Study) (Patalay & Fitzsimons, 2016)
 - Poor child-parent relationships which fell short of abuse or neglect were predictive of 20-80% increased risk of children developing mental disorder in adulthood with increasingly poor relationships associated with increasing risk (two UK national birth cohorts) (Morgan et al, 2012). Positive child-parent relationship was predictive of low risk of adult mental disorder
- Poor inter-parent relationship quality (birth cohort) (Garriga & Kiernan, 2014) and inter-parental conflict (Rhoades, 2008/ meta-analysis; Yap et al, 2014/ systematic review and meta-analysis). For instance, inter-parent and family conflict mediated association between postnatal depression and child externalising behaviour (England cohort study) (Hanington et al, 2012)
- Parental factors associated with increased risk of both depression and anxiety in young people include less warmth, more inter-parental conflict, over-involvement, and aversiveness (systematic review and meta-analysis) (Yap et al, 2014). Additionally, for depression factors included less autonomy granting and monitoring.

c) Parental mental disorder

Parental mental disorder is associated with a range of impacts on children which

contribute to increased risk of child mental disorder (review) (Stein et al, 2014)

- Parental mental disorder accounted for 12.4% of offspring mental disorder with every parent mental disorder associated with increased risk of every offspring mental disorder (international surveys) (McLaughlin et al, 2012). Impact was higher in high/upper-middle than low/lower-middle-income countries, and consistently higher for behaviour (11.0–19.9%) than other disorders (7.1–14.0%)
- Parental mental disorder in Great Britain was associated with increased risk of child mental disorder (OR 3.99: 95% CI 3.13-5.09) (Great Britain survey) (Vostanis et al, 2006)
- Parental GHQ score of 4 or more (indicative of common mental disorder) compared to 1-3 was associated with approximately three-fold increased risk of (England national survey) (NHSD, 2018a)
 - Any mental disorder in 2-4 year olds (14.9% vs 4.1%)
 - Any mental disorder in 5-19 year olds (27.9% vs 9.4%)
 - Behavioural disorder in 5-19 year olds (12.4% vs 3.6%)
 - Emotional disorder in 5-19 year olds (17.5% vs 5.3%)
 - Less common disorders in 5-19 year olds (5.7% vs 1.5%)
- Parental depression
 - Maternal depression was associated with increased risk of child internalising problems (r 0.23: 95% CI 0.22-0.24), externalising problems (r 0.21: 95% CI 0.20-0.22), general psychopathology (r 0.24: 95% CI 0.22-0.26), negative affect behaviour (r 0.15: 95% CI 0.12-0.17) and reduced positive affect/behaviour (r -0.10: 95% CI -0.07-0.14) (meta-analytic review) (Goodman et al, 2011)
 - Postnatal depression resulted in a range of cognitive impacts on the child including inability to learn as well as delayed milestones, language and cognitive development (review) (Stein et al, 2014)
- Children exposed to a parent with mental health problems had higher rates of depression in late adulthood (Adj OR 1.45: 95% CI 1.16-1.82) (international surveys) (Angelini et al, 2016)

- Parental psychosis: 32% of offspring of parents with schizophrenia, bipolar disorder and major depressive disorder developed these mental disorders by early adulthood (meta-analysis) (Rasic et al, 2014)
- Level of increased risk of child mental disorder was similar for paternal and maternal mental disorder (Ramchandani & Psychogiou, 2009/ review; Velders et al, 2011/ birth cohort; Lewis et al, 2017/ two population-based cohorts). Paternal depressive symptoms occurred in 3.6% of men with 9 month old children, 1.2% of men with 3 year old children and 2.0% of men with 7 year old children (UK Millennium Cohort Study) (Nath et al, 2016)
- Persistence: Children of mothers with poor mental health were more likely to have a persistent emotional problem (OR 3.4) and conduct problem (OR 6.9) (follow up of GB national survey) (Parry-Langdon et al, 2008). Parental psychological distress and burden, neurodevelopmental disorder and intellectual disability predicted persistence of childhood mental disorder after 3 years (follow up of GB national survey) (Ford et al, 2016)
- Perinatal mental disorder was associated with increased rates of domestic violence which impacted on child mental health (systematic review and meta-analysis) (Howard et al, 2013)
- Mental disorder in parents with higher socioeconomic status was less likely to result in offspring mental disorder (review) (Stein et al, 2014)

d) Parenting

- Poor parenting was associated with 4-5 fold increased risk of conduct disorder in childhood (follow up of national survey) (Meltzer et al, 2003) and negative emotional outcomes in children (systematic review) (Rose et al, 2017)
- Harsh parental discipline predicted conduct problems (0.210: 95% CI 0.199-0.221), hyperactivity (0.235: 95% CI 0.220-0.250) and emotional problems (0.074: 95% CI 0.001-0.013) in both high and low risk children, and moderated

effects of socioeconomic disadvantage and child adversity (UK Millennium Cohort Study) (Flouri & Midouhas, 2017)

- Non-physical punishment was associated with increased child mental disorder risk (OR 1.50: 95% CI 1.27-1.76) and conduct disorder (OR 3.19: 95% CI 2.55-3.97) (Great Britain survey) (Vostanis et al, 2006)
- Perinatal mental disorder could compromise quality of parenting which was associated with disturbances in child development (review) (Stein et al, 2014)

e) Parental unemployment

Children with both parents working were at 0.61 of the risk of mental disorder of children with neither parent working (Green et al, 2005). Association between parental education and child mental disorder was insignificant after accounting for parental income and child's cognitive ability (UK Millennium Cohort Study) (Patalay & Fitzsimons, 2016).

Early (to age 5) psychosocial risk factors strongly predictive of both conduct problems and criminal conviction in boys and girls included (British cohort study) (Murray et al, 2010):

- Smoking during pregnancy (OR 1.6-2.4)
- Hyperactive child (OR 1.3-3.7)
- Teenage mother (OR 1.9-2.4)
- Single mother at birth (OR 1.9-3.1)
- Family deprivation (OR 1.9-2.9)
- Poor neighbourhood (1.4-2.3)

Follow up of the 2004 national child and adolescent psychiatric morbidity survey (Green et al, 2005) found the following risk factors independently associated with onset of (Parry-Langdon et al, 2008):

- Conduct disorder
 - Male
 - Physical illness (OR 2.9)
 - Special Educational Need (OR 3.7)
 - Living in reconstituted family (OR 1.5)
 - Living in rented accommodation (OR 3.5)
 - Mother with poor mental health: Increased risk for children and young people whose mothers scored highly on GHQ12 (OR 2.2). Risk was

increased if GHQ 12 score was low and then subsequently high (OR 3.5) or persistently high (OR 2.3)

- Number of significant life events (SLE): Risk increased with three or more SLEs (OR 2.7) or two to three SLEs (OR 1.5)
- Risk factors independently associated with persistence of conduct disorder (for three years) included special educational needs (OR 2.1) and maternal mental health (OR 6.9) (after controlling for family and household characteristics)
- Emotional disorder
 - Age of child (oldest vs youngest OR 2.2)
 - Gender (girls more than boys (OR 1.8)
 - Special educational needs (a two-fold increased level of risk)
 - Physical illness (OR 1.7)
 - Change in number of parents with increased risk in families reduced from two parents to one (OR 4.5)
 - Number of children in the family with reduced risk for family with two children compared to one child family (OR 0.6) and three or more children compared with one child (OR 0.8)
 - Mother with poor mental health: Increased risk for children and young people whose mothers scored highly on GHQ12 (OR 2.2). Risk was increased if GHQ 12 score was low and then subsequently high (OR 3.5) or persistently high (OR 2.3)
 - Number of significant life events (SLE): Risk increased with three or more SLEs (OR 2.7) or two to three SLEs (OR 1.5)
 - Poor maternal mental health was the only risk factor independently associated with persistence of emotional disorder (for three years) (OR 3.4)

Childhood adversity

Child adversity accounted for 30% of adult mental disorder and is one of the strongest predictors of mental disorder particularly when associated with maladaptive family functioning (such as parental mental disorder, child abuse, neglect) (analysis of international surveys) (Kessler et al, 2010). Child adversities were associated with 44.6% of all child-onset disorders and 25.9-32.0% of later-onset disorders (US national survey) (Green et al, 2010).

Childhood adversities are highly prevalent and interrelated (Green et al, 2010) and include (editorial) (Read & Bentall, 2012):

- Maternal mental ill-health, poor nutrition and high stress during pregnancy
- Dysfunctional parenting particularly affectionless over-control (see previous section)
- Parental substance misuse, mental health problems (see previous section) and criminal behaviour
- Child emotional or physical neglect
- Bullying
- Medical illness
- Early loss of parents
- Witnessing parental violence
- War

Child adversity was (systematic review and meta-analysis) (Hughes et al, 2017):

- Moderately associated with adult smoking, heavy alcohol use, poor self-related health, cancer, heart disease and respiratory disease (OR 2-3)
- Strongly associated with adult mental ill-health, problematic alcohol use and sexual risk taking (OR 3-6)
- Most strongly associated with adult problematic drug use and interpersonal and self-directed violence (OR >7)
- Associated with psychosis (OR 2.78: 95% CI 2.34-3.31) (meta-analysis) (Varese et al, 2012)

Child adversity also accounts for a large proportion of health harming behaviour in England (England national survey) (Bellis et al, 2014):

- 11.9% of binge drinking, 13.6% of poor diet, 22.7% of smoking, 52.0% of

violence perpetration, 58.7% of heroin/crack cocaine use, and 37.6% of unintended teenage pregnancy prevalence in England could be attributed to ACEs

- Four or more ACEs predicted smoking (OR 3.29: 95% CI 2.54-4.27), violence perpetration (OR 7.71: 95% CI 4.90-12.14) and unintended teenage pregnancy after adjusting for socio-demographics (OR 5.86: 95% CI 3.93-8.74)

Impact of different abuse on risk of mental disorder

Child abuse was associated with increased risk of depression (OR 2.9), PTSD (OR 4.0), psychosis (OR 2.7), alcohol dependence (OR 1.8) and drug problems (OR 2.1) (England national survey) (Jonas et al, 2011). Next section covers impact of child maltreatment, sexual abuse and bullying on risk of mental disorder.

a) Maltreatment

Child maltreatment was associated with increased risk of:

- Depressive disorder
 - Physical abuse (OR 1.54: 95% CI 1.16-2.04) (systematic review and meta-analysis) (Norman et al, 2012) (OR 1.49: 95% CI 1.29-1.72) (systematic review and meta-analysis) (Lindert et al, 2014), emotional abuse (OR 3.06: 95% CI 2.43-3.85), neglect (OR 2.11: 95% CI 1.61-2.77) (Norman et al, 2012)
 - Maltreatment (OR 2.03: 95% CI 1.37-3.01) (systematic review and meta-analysis) (Li et al, 2016)
 - Maltreated children were more likely to develop depression (OR 2.5-3.7), had 4 year earlier depression onset and were twice as likely to develop chronic depression (OR 2.05: 95% CI 1.40-3.00) or treatment-resistant depression (OR 1.90: 95% CI 1.05-3.46) (meta-analysis) (Nelson et al, 2017)
- Anxiety disorder
 - Physical abuse (OR 1.70: 95% CI 1.33-2.18) (systematic review and meta-analysis) (Lindert et al, 2014)

- Maltreatment increased risk of anxiety (OR 2.70: 95% CI 2.10-3.47) (systematic review and meta-analysis) (Li et al, 2016)

- Depression and anxiety disorders: Physical abuse (OR 2.00: 95% CI 1.25-3.19), sexual abuse (OR 2.66: 95% CI 1.88-3.75), neglect (OR 1.74: 95% CI 1.35-2.23) (systematic review and meta-analysis) (Li et al, 2016)
- Psychosis: Physical abuse (OR 2.95: 95% CI 2.25-3.88), emotional abuse (OR 3.40: 95% CI 2.06-3.88), neglect (OR 2.90: 95% CI 1.71-4.92) (meta-analysis) (Varese et al, 2012)
- Bipolar disorder: Physical abuse (OR 2.86: 95% CI 2.22-3.69), emotional abuse (OR 4.04: 95% CI 3.12-5.22), physical neglect (OR 2.26: 95% CI 1.74-2.93) and emotional neglect (OR 2.62: 95% CI 2.03-3.38) (systematic review and meta-analysis) (Palmier-Claus et al, 2016)
- Drug use: Physical abuse (OR 1.92: 95% CI 1.67-2.20), emotional abuse (OR 1.41: 95% CI 1.11-1.79), neglect (OR 1.36: 95% CI 1.21-1.54) (systematic review and meta-analysis) (Norman et al, 2012)
- Eating disorder: Child abuse (OR 3.21: 95% CI 2.29-4.51) (systematic review and meta-analysis) (Caslini et al, 2016)
- Suicide attempt: Physical abuse (OR 3.40: 95% CI 2.17-5.32), emotional abuse (OR 3.37: 95% CI 2.44-4.67), neglect (OR 1.95: 95% CI 1.13-3.37) (systematic review and meta-analysis) (Norman et al, 2012)
- Sexually transmitted infections and risky sexual behaviour: Physical abuse (OR 1.78: 95% CI 1.50-2.10), emotional abuse (OR 1.75: 95% CI 1.49-2.04), neglect (OR 1.57: 95% CI 1.39-1.78) (systematic review and meta-analysis) (Norman et al, 2012)

Maternal history of childhood maltreatment was associated with offspring internalising and externalising difficulties (England birth cohort) (Plant et al, 2017). Maternal antenatal depression, postnatal depression and offspring child maltreatment independently mediated this association. Maternal mental disorder was also associated with increased childhood injury (UK Millennium Cohort Study) (Hope et al, 2019).

b) Sexual abuse

Sexual abuse in childhood was associated with increased risk of:

- Depression (OR 2.04: 95% CI 1.65-2.53) and anxiety (OR 2.52: 95% CI 2.12-2.98) (systematic review and meta-analysis) (Lindert et al, 2014)
- Psychosis (OR 2.38: 95% CI 1.98-2.87) (meta-analysis) (Varese et al, 2012)
- Bipolar disorder (OR 2.58: 95% CI 2.08-3.20) (systematic review and meta-analysis) (Palmier-Claus et al, 2016)
- Eating disorder (OR 1.92: 95% CI 1.13-3.28) (systematic review and meta-analysis) (Caslini et al, 2016)
- HIV among men (OR 1.54: 95% CI 1.22-1.95) (systematic review and meta-analysis) (Lloyd & Operario, 2012)
- Sexual abuse in adulthood (OR 10.6: 95% CI 8.9-12.6) and prostitution (OR 3.3: 95% CI 1.9-5.5) (England national survey) (Bebbington et al, 2011)

Repeated sexual abuse during childhood and adolescence was associated with even higher rates of adult mental disorder including:

- Depressive disorder (OR 6.2) (England national survey) (Jonas et al, 2011)
- PTSD (OR 6.8)
- Probable psychosis (OR 15.3), alcohol dependence (OR 5.2)
- Eating disorder (OR 11.7)
- Attempted suicide (OR 9.4) (England national survey) (Bebbington et al, 2009)

c) Bullying

Bullying increased risk of:

- Adolescent internalising problems (meta-analysis) (Reijntjes et al, 2010)
- Depression (OR 2.21: 95% CI 1.34-3.65) (systematic review and meta-analysis) (Moore et al, 2017a)
- Anxiety (OR 1.77: 95% CI 1.34-2.33) (systematic review and meta-analysis) (Moore et al, 2017a)
- Psychosis OR 1.39: 95% CI 1.83-3.11) (meta-analysis) (Varese et al, 2012)
- Borderline personality disorder (England cohort study) (Wolke et al, 2012)
- Alcohol use (OR 1.26: 95% CI 1.00-1.58) (systematic review and meta-analysis) (Moore et al, 2017a)

- Tobacco use (OR 1.62: 95% CI 1.31-1.99)
- Illicit drug use (OR 1.41: 95% CI 1.10-1.81) (systematic review and meta-analysis) (Moore et al, 2017a)
- Suicidal ideation (OR 1.77: 95% CI 1.56-2.02) (systematic review and meta-analysis) (Moore et al, 2017a)
- Self-injury (OR 1.75: 95% CI 1.40-2.19) (systematic review and meta-analysis) (Moore et al, 2017a)
- Suicide attempt in adolescence (OR 2.13: 95% CI 1.66-2.73) (Moore et al, 2017a) and adulthood (Adj OR 2.35: 95% CI 1.71-3.21) (England national survey) (Meltzer et al, 2011)
- Reduced academic achievement (OR 1.33: 95% CI 1.06-1.66) (systematic review and meta-analysis) (Moore et al, 2017a)
- Loneliness (OR 1.89: 95% CI 1.39-2.57) (systematic review and meta-analysis) (Moore et al, 2017a)
- Lack of social relationships, poor perceived quality of life to age 50 and lower earnings (British birth cohort study) (Takizawa et al, 2014)
- Subsequent increased criminality in both bullied and bullies (review of prospective longitudinal studies) (Klomek et al, 2015)

Impact of bullying on risk of developing mental disorder was long term (Ttöfi et al, 2011/ systematic review and meta-analysis; Copeland et al, 2013/ US prospective population study; Takizawa et al, 2014/ British birth cohort; Lereya et al, 2015/ two cohorts). Children who were frequently bullied were more likely to use mental health services in childhood, adolescence (OR 2.53: 95% CI 1.88-3.40) and midlife (OR 1.30: 95% CI 1.10-1.55) (British cohort study) (Evans-Lacko et al, 2017).

Cyberbullying was associated:

- Depression, anxiety, suicidal ideation (OR 2.33: 95% CI 2.10-2.37) and attempts (OR 2.55: 95% CI 1.95-3.34) (meta-analysis) (Van Geel et al, 2014)
- Loneliness, low self-esteem and poor quality of life as well as impacts on physical health and school work (Foody et al, 2015/ review; Aboujaoude et al, 2015/review)

- Cyberbullies had significantly higher rates of conduct problems, hyperactivity, alcohol use problems and tobacco use (Finnish survey) (Sourander et al, 2010)

d) Other abuse

- Exposure to domestic violence (meta-analysis) (Evans & DiLillo, 2008)
- Female genital mutilation (review) (Mulongo et al, 2014)

Prevalence of different types of abuse**a) Adverse Child Experiences**

- 47% of adults in England experienced at least one of nine ACEs, 9% had experienced four or more ACEs, and prevalence of childhood sexual, physical, and verbal abuse was 6.3%, 14.8% and 18.2% respectively (England national survey) (Bellis et al, 2014)

b) Abuse including sexual abuse

- Globally, a quarter of adults reported being abused as children and a fifth of women report being sexually abused as a child (WHO, 2014). Over half of all children aged 2–17 years experienced emotional, physical or sexual violence in the previous year (systematic review) (Hillis et al, 2016a)
- In the UK, past year experience of physical, sexual or emotional abuse, or neglect by a parent or caregiver was 2.5% for children under 11 years and 6% of 11–17 year olds (Radford et al, 2013). During childhood, experience of physical, sexual or emotional abuse, or neglect by a parent or caregiver was 8.9% for children under 11 years, 6% of 11–17 year olds and 24.5% of 18–24 year olds
- Childhood experience of sexual victimisation by any adult or peer which involved physical contact was 7.2% for 11–17 year old females and 18.6% for 18–24 year old females in the UK (survey) (Radford et al, 2013)
- Prevalence of child sexual abuse (CSA) among those with conduct disorder was 27% (systematic review) (Maniglio, 2014)
- 2.9% of women and 0.8% of men in England reported CSA involving non-consensual intercourse, figures that rose to 11.1 and 5.3% if experiences

involving sexual touching were included (England national survey) (Bebbington et al, 2011)

c) Bullying

- 36% of 11 year old girls and 33% of 11 year old boys reported being bullied at least once in the previous two months (England survey) (Brooks et al, 2015)
- 30% of 15 year olds reported any form of bullying in the previous two months, 3% reported both traditional and cyberbullying and less than 1% reported only cyberbullying (England survey) (Przybylski & Bowes, 2017)
- Proportion of 11-19 year olds bullied in past year was higher for those with mental disorder (59.1%) than without mental disorder (32.7%) (England national survey) (NHSD, 2018a)
- Perpetration: 11-19 year olds with mental disorder were more likely to have bullied others in the past year (28.3%) than those without mental disorder (14.0%) (England national survey) (NHSD, 2018a)

d) Cyberbullying

- 17.9% of 11-15 year olds reported being cyberbullied in the previous two months (England survey) (PHE, 2017b)
- Proportion of 11-19 year olds who were cyberbullied in the past year was higher for those with mental disorder (41.5%) than those without mental disorder (18.1%) (England national survey) (NHSD, 2018a)
- Perpetration: 11-19 year olds with mental disorder were more likely to have cyberbullied others in the past year (14.6%) than those without mental disorder (6.9%) (England national survey) (NHSD, 2018a)

e) Higher risk groups

- Certain groups were at increased risk of victimisation such as children with mental disorder or disabilities (combined violence measures OR 3.68: 95% CI 2.56-5.29) (systematic review and meta-analysis) (Jones et al, 2012)
- Higher prevalence of adverse child

experiences among LGB individuals (OR 1.4-3.1) may account for some excess risk for poor adult health (US surveys) (Austin et al, 2016)

Head injury

Head injury was associated with increased risk of depression (IRR 1.59: 95% CI 1.53-1.65), schizophrenia (IRR 1.65: 95% CI 1.55-1.75) and bipolar disorder (IRR 1.28: 95% CI 1.10-1.48) (IRR 4.39: 95% CI 3.86-4.99) with largest impact for 11-15 year olds (Danish follow up study) (Orlovska et al, 2014).

Stressful life events

Proportion of 5-16 year olds who experienced (England national survey) (NHSD, 2018a):

- Stressful life events were more common in those with mental disorder (70.1%) compared to those without disorder (44.6%)
- Two or more stressful life events was higher in those with mental disorder (36.5%) than those without disorder (16.8%)

Physical illness

- Children with chronic illness had higher levels of anxiety (d 0.18) (meta-analysis) (Pinquart & Shen, 2011)
- Mental illness rates were almost double in children with physical illness (9%) compared to without physical illness (5%) (Adj OR for emotional disorder 1.71: 95% CI 1.27-2.31 and for conduct disorder 2.95: 95% CI 2.01-4.38) (follow up of GB national survey)(Parry-Langdon et al, 2008)
- Limiting long-term physical illness occurred in 25.9% of 11-19 year olds with one mental disorder and 33.8% with two mental disorders compared to 4.2% with no mental disorder (England national survey) (NHSD, 2018a)
- Childhood chronic physical illness was associated with increased risk of adult depression (OR 1.31: 95% CI 1.12-1.54) and anxiety (OR 1.47: 95% CI 1.13-1.92) (systematic review and meta-analysis) (Secinti et al, 2017)

General health

Child general health which was fair/ bad/ very bad compared to very good was associated with increased risk of mental disorder in 2-4 year olds (21.6% vs 3.2%) and 5-19 year olds (35.7% vs 7.3%) (England national survey) (NHSD, 2018a).

Health risk behaviour

a) Smoking, alcohol and drug use

- Rates of smoking, alcohol and drug use were more common in adolescents with mental disorder (England national survey) (NHSD, 2018a) (Table 4)
- Alcohol use was associated with price, availability, marketing and licensing (NICE, 2010a)
- Cannabis use in adolescence was associated with increased risk of depression, suicidal ideation and attempt in young adulthood (systematic review and meta-analysis) (Gobbi et al, 2019) and earlier onset of psychosis (Large et al, 2011/ systematic meta-analysis; Wilkinson et al, 2014) (see page 39 for substance use section in risk factor for adult mental disorder).

b) Physical inactivity

Sedentary behaviour was negatively associated with mental health in young people with depression the main mental health outcome affected by sedentary behaviour (ES 0.55: 95% CI 0.42-0.68) (meta-analysis) (Asare et al, 2015). However, another systematic review found an indeterminate association between sedentary behaviour and depressive/ anxiety symptoms (Suchert et al, 2015).

c) Dietary

- Globally in 2017, there were 3 million deaths due to high salt intake, 3 million deaths from low whole grain intake and 2 million deaths from low fruit intake (systematic review) (GBD, 2019)
- Unhealthy diet was associated with increased risk of mental disorder during childhood (Norwegian cohort study) (Jacka et al, 2013) and adolescence (systematic review) (O'Neil et al, 2014)
- Iron deficiency anaemia in children and

adolescents was associated with increased risk of mood disorder, autism spectrum disorder, ADHD and developmental disorder (Taiwanese national survey) (Chen et al, 2013)

d) Screen time

A dose-response relationship existed where each additional hour of viewing increases risk of socio-emotional problems (DH, 2014a).

Reviews about impact of screen time on child mental disorder include the following:

- Depression
 - Screen time was associated with depressive symptoms and poorer quality of life as well as obesity and less healthy diet (systematic review of reviews) (Stiglic and Viner, 2019)
 - Sedentary behaviour was negatively associated with mental health in young people with television viewing having largest impact (ES -0.47: 95% CI -0.35 to -0.62) and depression the main mental health outcome affected by sedentary behaviour (ES 0.55: 95% CI 0.42-0.68) (meta-analysis) (Asare et al, 2015)
 - Strong consistent evidence existed for the relationship between screen time and both adolescent depressive symptoms and psychological distress (systematic review) (Hoare et al, 2016)
 - Screen time was associated with increased risk of child and adolescent depression (OR 1.12: 95% CI 1.03-1.22) (meta-analysis) (Liu et al, 2015)
 - Screen time was associated with depression in adolescent girls (systematic review) (Costigan et al, 2013)
 - Screen time was associated with internalising problems although there was an indeterminate association between sedentary behaviour and depressive symptoms (systematic review) (Suchert et al, 2015)
 - Hyperactivity: Strong evidence indicated that high levels of screen time were associated with hyperactivity/ inattention problems (systematic review) (Suchert et al, 2015)
 - Behavioural problems
 - Higher duration of screen time was associated with unfavourable behavioural conduct/ prosocial behaviour (systematic review) (Carson et al, 2016)
 - Watching television for more than two hours each day was associated with social behavioural problems as well as lower academic achievement and self-esteem although evidence was poor (systematic review) (Tremblay et al, 2011)
 - Suicidal ideation
 - Internet use was associated with increased risk of self-harm and suicidal ideation (systematic review) (Daine et al, 2013)
 - No clear evidence existed for association between suicidal ideation and screen time (systematic review) (Suchert et al, 2015)
 - Internet use was associated with self-harm/suicidal behaviour in young people particularly in those with internet addiction and high levels of internet use (systematic review) (Marchant et al, 2017)
 - Psychosocial health and cognitive development: Television watching in 0-4 year olds was associated with decreased psychosocial health and cognitive development (systematic review) (LeBlanc et al, 2012)
- Examples of individual studies highlight the following issues:
- Self-regulation problems: A US birth cohort study of 7,450 children found that early childhood self-regulation problems were associated with increased media exposure after controlling for confounders (Radesky et al, 2014)
 - Conduct problems: Watching TV for 3 hours or more at age 5 resulted in increased risk of conduct problems aged 7 (0.13: 95% CI 0.03-0.24) compared with watching for less than one hour (UK Millennium Cohort study) (Parkes et al, 2013)
 - Attention problems: A US study of 1,300 children found that children who watched television before the age of three were at significantly increased risk of developing attention problems by the age of seven (Christakis et al, 2004). Every hour of television a child watched per day was associated with 9% increase in attention problems
 - Attention problems, learning difficulties and long-term academic failure: A US cohort study of 678 families which followed up children from 14 to 22 years, found that watching more than one hour of television a day was associated with increased risk of attention problems, learning difficulties and long-term academic failure (Johnson et al, 2007). The risk was much greater for those watching more than three hours per day, after controlling for family characteristics and prior cognitive difficulties
 - Depression and suicide
 - Analysis of two nationally representative surveys of 506,820 US adolescents found that daily hours of electronic device use was associated with increased depressive symptoms and suicide-related outcomes (Twenge et al, 2018)
 - A US longitudinal study of 4,142 adolescents found that more television use was associated with significantly greater risk of developing depression after 7 years (OR 1.08: 95% CI 1.01-1.16) for each additional hour of daily television use after controlling for all covariates (Primack et al, 2009). Those reporting more total media exposure had significantly greater risk of developing depression (OR 1.05: 95% CI 1.0004-1.10) for each additional hour of daily use
 - A Danish cohort study of 435 adolescents found each additional hour spent watching television or screen was associated with 1.63 (95% CI 1.18-2.27) increased odds of depression in adulthood (Grontved et al, 2015)
 - Psychological difficulties: A US study of 1013 10-11 year old children found that after adjustment for confounders, greater than two hours watching television or using a computer was associated with increased risk of high levels of psychological difficulties (for television OR 1.61, 95% CI 1.20-2.15; for computer OR 1.59; 95% CI 1.32-1.91) (Page et al, 2010). This risk further increased if the child did not meet physical activity

guidelines (for television OR 1.70, 95% CI 1.09-2.61; for computer OR 1.81, 95% CI 1.02-3.20)

- Emotional problems and poorer family functioning: A European prospective cohort study of 3,604 children aged 2-6 years found 1.2-2.0 fold increased risk of emotional problems and poorer family functioning for each additional hour of television viewing or e-game/computer use (Hinkley et al, 2014)
- Proportion of children with symptoms of mental ill-health spending more than 3 hours on a social website on a normal school day was 27% compared to 12% spending up to 3 hours a day (ONS, 2015b)
- Further impacts of screen time include cyberbullying, risk of exploitation and grooming and access to websites reinforcing health risk behaviour such as self-harm.

Social media

- Social media use among adolescents was associated with a small increased risk in depression (random effects pooled estimate 0.13: 95% CI 0.05-0.2) (systematic review) (McCrae et al, 2017)
- More time spent on social media by 14 year olds increased risk of depression more for girls than boys (UK millennium cohort study) (Kelly et al, 2018). Associations were largely explained by online harassment, poorer sleep quantity and quality, lower self-esteem and higher body image dissatisfaction
- 11-19 year olds with mental disorder were more likely to (England national survey) (NHSD, 2018a):
 - Use social media every day (87.3%) than those without (77.8%)
 - Use social media for more than four hours on a typical school day (29.4%) than those without mental disorder (12.0%)
 - Use social media for more than four hours on a typical non-school day (53.3%) than those without mental disorder (28.9%)
 - Spend more time on social media than they mean to (66.6%) than

those without mental disorder (52.6%)

- Compare themselves to others on social media sites (41.9%) than those with mental disorder (25.0%)
- Have number of likes, comments or shares on media impact on their mood (27.2%) than those without mental disorder (13.9%)

Children and adolescents spend a large amount of time on screen which is the main waking activity in children in high income countries (ODPHP, 2014; Sigman, 2014; Sigman, 2017). In the UK in 2018 (Ofcom, 2019):

- 3-4year olds: 19% had their tablet, 96% watched TV for 14 hours a week, 36% played games for 6 hours a week, 52% were online for nearly 9 hours a week
- 5-7 year olds: 42% had their own tablet, 97% watched TV for 13.3 hours a week, 63% played games for 7.3 hours a week, 82% were online for 9.5 hours a week
- 8-11 year olds: 35% had their own smartphone, 47% their own tablet, 94% watched TV for 13 hours a week, 74% played games for around 10 hours a week, 93% were online for nearly 13.5 hours a week, 40% who owned a mobile were allowed to take it to bed with them
- 12-15 year olds: 83% had their own smartphone, 50% had their own tablet, 90% watched TV for around 13.3 hours a week, 76% played games for 13.8 hours a week, 99% were online for nearly 20.5 hours a week, 71% who owned a phone were allowed to take it to bed with them

Screen time was also associated with reduced sleep outcomes (Costigan et al, 2013/ systematic review; Hale & Guan, 2015/ systematic literature review; Carter et al, 2016/ systematic review and meta-analysis; Mei et al, 2018/ systematic review and meta-analysis; Mireku et al, 2019/ London cross sectional analysis) (see below). In London, 71.5% of adolescents used at

least one screen-based media device at night and 32.2% used mobile phones at night-time in darkness (London cross sectional analysis) (Mireku et al, 2019).

Insomnia

- Prospective studies highlighted that insomnia increased risk of adolescent mental disorder (Shochat et al, 2014). For instance, insomnia was associated with subsequent increased risk of major depression (Adj OR 2.18: 95% CI 1.07-4.41) and depressive symptoms (Adj OR 1.54: 95% CI 1.28-1.86) (US prospective cohort study) (Roberts & Duong, 2013)
- Suboptimal adolescent sleep patterns were associated with increased risk of mental disorder, suicidal ideation, smoking and substance use (OR 1.27-2.15) (US nationally representative survey of 13-18 year olds) (Zhang et al, 2017)
- Suicidal ideation: Prospective studies indicated that sleep disturbance in adolescents predicted risk of suicidal ideation (OR 1.79: 95% CI 1.36-2.36) but not suicide attempts (OR 1.98: 95% CI 0.62-6.29) (systematic review and meta-analysis) (Liu et al, 2019)
- Proportion of UK adolescents sleeping less than eight hours increased from 5.7% in 2005 to 11.5% in 2015 (population cohort comparison study) (Patalay & Gage, 2019)

Obesity

Obesity was associated with increased risk of:

- Depression in female children (OR 1.44: 95% CI 1.20-1.72) but not male children (systematic review and meta-analysis) (Sutaria et al, 2019)
- Adolescent depression (RR 1.40: 95% CI 1.16-1.70) (systematic review and meta-analysis of longitudinal studies) (Mamun et al, 2016)
- ADHD in children (OR 1.20: 95% CI 1.05-1.37) (Cortese et al, 2016)

Body image

Symptoms of mental ill-health were reported in one third of children who were relatively unhappy with their appearance

compared to 1 in 12 children who were relatively happy with their appearance (UK national survey) (ONS, 2015b).

Social relationships

- Young people aged 11-19 years with mental disorder were more likely to have low levels of social support compared to those without mental disorder (England national survey) (NHSD, 2018a)
- Social relationship factors predicted 10% of variance in developing mental disorder (UK Millennium Cohort Study) (Patalay & Fitzsimons, 2016)

Educational

- Poor educational achievement was associated with increased risk of
 - Psychiatric disorder at age 36 and 43 (review of cohort studies) (Jones et al, 1999)
 - Depression in teenage years (Welsh linked education and health record study) (Rahman et al, 2018)
 - Adult schizophrenia (HR 3.9: 95% CI 2.8-5.3), schizoaffective psychosis (HR 4.2: 95% CI 1.9-9.1), and other psychoses (HR 3.0: 95% CI 2.3-4.0) (Swedish national cohort study) (MacCabe et al, 2008)
- Association between externalising disorders and educational attainment was even stronger when the disorder occurred early in life (systematic review) (Esch et al, 2014)
- School absence and exclusion was associated with increased risk of adolescent mental disorder (England national survey) (NHSD, 2018a) (Table 4)
- Higher cognitive ability was associated with fewer symptoms of mental disorder but not improved wellbeing (UK Millennium Cohort Study) (Patalay & Fitzsimons, 2016)
- Education was associated with reduced internalising behaviour problems ($r = -0.12$: 95% CI -0.15 to -0.09) but not externalising behaviour problems (meta-analysis) (Korous et al, 2018)
- Students of artistic subjects at university had higher risk of developing schizophrenia (OR 1.90: 95% CI 1.69-2.12),

bipolar disorder (OR 1.62: 95% CI 1.50-1.75) and unipolar depression (OR 1.39: 95% CI 1.34-1.44) compared with the general population (Swedish case control study using population based registries) (MacCabe et al, 2018)

Comparing impact of different factors

Results from the UK Millennium Cohort Study which followed 12,347 children from birth to age 11 found that (Patalay & Fitzsimons, 2016):

- 47% of the variance in mental illness could be explained by different factors with the largest impacts from social relationships and home environment (>10%) and associated with arguing with a parent, difficulties in peer relationships, communications difficulty, chronic illness, special educational needs and parental mental illness. Demographic profile accounted for less than 1% of variance
- 26% of the variance in mental wellbeing could be explained by different factors with the largest impacts from wider environment (12%), social relationships, perceived socioeconomic status and home environment

Risk factors for mental disorder during adulthood

This section covers the following risk factors for mental disorder during adulthood:

- Demographic
- Socioeconomic
- Mental
 - Childhood mental disorder
 - Sub-threshold mental disorder
 - Poor mental wellbeing
 - Low self-esteem
- Employment
- Physical illness and frailty
- Health risk behaviour
 - Smoking, alcohol and cannabis use
 - Physical inactivity
 - Screen time
- Obesity and underweight
- Dietary such as low vitamin D and iron
- Sleep problems
- Social isolation and poor relationships
- Violence
- Housing and urbanicity
- Environmental factors
- Beliefs
- Dementia risk factors

Demographic

a) Gender

- Prevalence of common mental disorder
CMD was higher in women (20.7%) than men (13.2%) (England national survey) (McManus et al, 2016)
- Incidence of psychosis was higher in men than in women before age 45 but more equal thereafter (systematic review) (Kirkbride et al, 2012)
- Prevalence of autism spectrum disorder, drug and alcohol dependence were higher in men (McManus et al, 2016)
- Prevalence of PTSD, ADHD, bipolar disorder and personality disorder was similar for men and women (McManus et al, 2016)

b) Age

Age of onset of different mental disorders is highlighted in Table 3.

- CMD was higher in women than men for all age groups, peaked in women aged 16-24 year (28.2%) compared to 16-24 year old men (10.0%), reduced slightly in women aged 25-34 years (20.7%) but then increased in 35-44 year olds (22.3%) and 45-54 year olds

- (24.2%) (England national survey) (McManus et al, 2016). In men, CMD peaked in men aged 25-34 (17.4%) and thereafter declined
- Psychotic disorder in past year and probable psychotic disorder peaked in 35-44 year olds
- Bipolar disorder, autism spectrum disorder, ADHD and personality disorder were more common in younger adults (McManus et al, 2016)
- Alcohol dependence and drug misuse peaked in 25-34 year olds while drug dependence peaked in 16-24 year olds
- Older people had lower prevalence rates of mental disorder (McManus et al, 2016) except dementia (Prince et al, 2014). For instance, prevalence of CMD was 10.2% for 65-74 year olds and 8.1% for those aged 75 and over (McManus et al, 2016)

c) Region

Age standardized prevalence variation across different regions (England national survey) (McManus et al, 2016)

- CMD from 20.9% in SW England to 13.6% in SE England
- PTSD from 5.6% in East of England to 3.2% in NE England
- Personality disorder from 17.0% in London to 11.1% in SE England
- ADHD from 1.2% in London to 0.3% in NE England
- Bipolar disorder from 2.8% in East Midlands to 1.1% in Yorkshire & the Humber
- Harmful drinking/ alcohol dependence from 4.1% in East Midlands to 2.5% in North East
- Illicit drug use in past year from 10.2% in London to 7.2% in North East
- Drug dependence from 4.7% in London to 1.9% in North East

d) Household type (England national survey) (McManus et al, 2016)

- Common mental disorder prevalence varied three-fold by household with:
 - One adult (age 16-59) no child (29.4%)
 - Two adults 16-59 no child (17.1%)
 - One adult over 60 no child (12.7%)

- Two adults one of both over 60 no child (10.3%)
- PTSD prevalence varied six-fold by household with:
 - One adult (age 16-59) no child (11.4%)
 - Two adults 16-59 no child (4.0%)
 - One adult over 60 no child (1.8%)
 - Two adults one of both over 60 no child (1.6%)
- Psychotic disorder in past year varied three-fold by household
 - People living alone (1.1%)
 - People living only with adults (0.4%)
- ADHD varied from 1.7% for people living alone to 0.1% for two adults one over 60 and no children
- Personality disorder varied from 24.0% for people living alone to 11.7% for adults with children
- Bipolar disorder varied from 5.5% for people living alone to 0.4% for two adults one over 60 and no children
- Harmful drinking/alcohol dependence varied from 7.2% for people living alone to 1.3% for two adults one over 60 and no children
- Drug dependence varied from 6.7% for people living alone to 2.1% for small family to 0.3% for two adults one over 60 and no children

Socioeconomic

a) Lower household income

- Compared to people from lowest 20% household income to those from highest 20% household income, prevalence of (England national survey)(McManus et al, 2009):
 - Common mental disorder was 2.7 times higher for men and 1.4 times higher for women
 - PTSD was 3.3 times higher for men, 2.3 times higher for women
 - Psychotic disorder was 9 times higher
 - Dependence on any drug was 4.6 times higher for men and 33 times higher for women
 - Self-harm was 3.2 times higher for men and 2.5 times higher for women
 - Suicide attempt was 5 times higher for men and 3.2 times higher for women
- Low household income was associated

with several mental disorders and suicide attempt in the USA with reduction in household income associated with increased incidence of mental disorder (prospective, longitudinal, nationally representative survey) (Sareen et al, 2011)

- Low household income and common mental disorder
 - Few economic resources were associated with increased risk of panic and generalized anxiety disorders (systematic review and meta-analysis) (Moreno-Peral et al, 2014)
 - Higher socioeconomic status was associated with reduced risk of common mental disorder (highest v. lowest household income quintile OR 0.88: 95% CI 0.82-0.94) (British Household Panel Surveys) (Jokela et al, 2013)
 - Common mental disorder was associated with a variety of poverty markers in low and middle income countries (systematic review) (Lund et al, 2010)

b) Debt

- Debt was associated with increased risk of (systematic review and meta-analysis) (Richardson et al, 2013)
 - Mental disorder (OR 3.24: 95% CI 2.91-3.60)
 - Depression (OR 2.77: 95% CI 2.5-3.07)
 - Neurotic disorder (OR 3.21: 95% CI 2.64-3.90)
 - Psychotic disorder (OR 4.03: 95% CI 2.64-6.16)
 - Problem drinking (OR 2.68: 95% CI 1.40-5.15)
 - Drug dependence (OR 5.69: 95% CI 3.82-8.47)
 - Suicide completion (OR 7.9: 95% CI 5.21-12.0)
 - Suicide completion or attempt (OR 5.76: 95% CI 2.97-11.18)
- Adults in debt were at almost three-fold increased risk of common mental disorder compared to those not in debt (OR 2.83: 95% CI 2.34-3.43) after adjusting for socioeconomic and demographic factors (England national survey) (Meltzer et al, 2013)

- People with mental disorder were three times more likely to be in debt (23% vs 8%) and a utility disconnected (10% vs 3%) compared to people without mental disorder (UK national survey) (Jenkins et al, 2008)
- Relationship between low income and mental disorder disappeared after adjustment for debt and other socio-economic variables (UK national survey) (Jenkins et al, 2008)
- 46% of people living in households in the lowest total wealth quintile were in financial debt compared with 23% of those living in households in the highest wealth quintile (Great Britain survey) (ONS, 2016a). Individuals in the lowest net income quintile had debts far larger compared with their income than those in any other income band: Half of adults in debt in this income band reported debts of 83% or more of the annual income
- Unsecured debt was associated with poorer mental health outcomes (country surveys) (Clayton et al, 2015)

c) Financial difficulties

- Financial difficulties in undergraduate students predicted depression and stress cross-sectionally and poorer anxiety, mental health and alcohol dependence over time (longitudinal study) (Richardson et al, 2017)
- Financial strain was associated with higher risk of anxiety and depression after adjusting for income (Dutch prospective study) (Dijkstra-Kersten et al, 2015)
- Financial difficulties in older people increased GHQ score by 3.4 (Whitehall II cohort study) (Howden-Chapman et al, 2011)

d) Low financial capability

Psychological impact (1.3 point higher GHQ score) was similar to unemployment (British Household Panel Survey) (Taylor et al, 2011).

e) Income inequality

Earlier reviews suggested this was important (Alesina et al, 2004/ survey; Wilkinson & Pickett, 2006/ review; Pickett & Wilkinson, 2010/ review). Income

Inequality was associated with higher risk of:

- Any mental disorder (d 0.06: 95% CI 0.01-0.11) and depressive disorder (d 0.12: 95% CI 0.05-0.20) (systematic review and meta-analysis) (Ribeiro et al, 2017)
- Depression (RR 1.19: 95% CI 1.07-1.31) (systematic review and meta-analysis) (Patel et al, 2018)
- Schizophrenia: There was a significant relationship between schizophrenia incidence rate and national income inequality (systematic review) (Burns et al, 2014a)

f) Unemployment and economic inactivity

(See section on unemployment on pages 38-39)

g) Neighbourhood socioeconomic conditions

- Depression: There was inconsistent evidence regarding the longitudinal association between neighbourhood socioeconomic conditions and depression (systematic review and meta-analysis) (Richardson et al, 2015)
- Psychotic disorder: Neighbourhood level social deprivation was association with increased risk of psychotic disorder although research has not definitely identified if neighbourhood deprivation is causative (systematic review) (O'Donoghue et al, 2016)

h) Recession

- Recession was associated with increased rates of common mental disorder, substance disorders, suicide and poor mental wellbeing (systematic literature review) (Frasquilho et al, 2016)
- During recession, age-sex standardised prevalence of GHQ caseness increased from 13.7% (95% CI: 12.9-14.5%) in 2008 to 16.4% (95% CI: 14.9-17.9%) in 2009 and 15.5% (95% CI: 14.4-16.7%) in 2010 (cross-sectional analysis of Health Surveys for England) (Katikireddi et al, 2012)
- Job loss during recession was associated with 4.8% (95% CI: 0.8-8.7%) increase in depressive symptoms in the USA compared with 3.4% (95% CI: 0.49-6.2%) increase in Europe (longitudinal studies) (Riumallo-Herl et al, 2014)

- Suicide risk during recession was higher in countries with less generous unemployment protection (time series data analysis from 30 countries) (Norström & Grönqvist, 2015)
- Recession impacted on employment opportunities for people with mental disorder from 27 EU countries between 2006 and 2010 (Evans-Lacko et al, 2013a)

i) Fuel poverty

Being unable to adequately heat the home in winter was associated with increased risk of CMD (OR 1.85) (England national survey) (Harris et al, 2010).

j) Food insecurity (FI)

- Globally, FI was associated with poorer mental health in dose response fashion and independent of socioeconomic status (national surveys) (Jones, 2017)
- In UK, FI was associated with increased risk of common mental disorder in women before and during pregnancy (English cohort study) (Power et al, 2017)

Mental

- a) Childhood mental disorder (page 11)
- b) Sub-threshold mental disorder
- c) Poor mental wellbeing
- d) Low self-esteem

a) Childhood mental disorder

- Childhood mental disorder resulted in at least three-fold increased risk of adult mental disorder (Copeland et al, 2013a/ three prospective, longitudinal studies; Fryers & Brugha, 2013/ review)
- Adolescents with depression had increased risk of depression during adulthood (OR 2.78: 95% CI 1.97-3.93) (systematic review) (Johnson et al, 2018a)
- Longer duration of mental disorder during adolescence was the strongest predictor of mental disorder during young adulthood (Australian 14 year prospective cohort study) (Patton et al, 2014)

b) Sub-threshold mental disorder

Most mental disorders are preceded by sub-threshold mental disorder (editorial) (van Os, 2013). In England, 17% of adults in England experienced sub-threshold common mental disorder (England national survey) (McManus et al, 2009).

Sub-threshold mental disorder increases risk of threshold mental disorder:

- Sub-threshold depression (SUBD) increased risk of major depression (IRR 1.95: 95% CI 1.28-2.97) (systematic review and meta-analysis of longitudinal studies) (Lee et al, 2018), psychiatric comorbidity and health service use (systematic review) (Wesselhoeft et al, 2013)
- Sub-threshold generalised anxiety disorder increased risk of onset and worsened course of comorbid mental disorders (systematic review) (Haller et al, 2014)
- Sub-threshold anxiety increased risk of anxiety disorder (OR 2.65: 95% CI 1.41-4.99) (Dutch prospective cohort) (Karsten et al, 2011)

For sub-threshold psychosis (SUBP), 7.4% of the 7.2% of people with psychotic experiences developed psychotic disorder (systematic review and meta-analysis) (Linscott & van Os, 2013) although less than 1% of people with SUBP developed psychosis each year (systematic review and meta-analysis) (Kaymaz et al, 2013). Sub-threshold psychosis was also associated with sub-threshold mania and sub-threshold depression (editorial) (van Os, 2013). However, transition rate to psychosis was much higher for 'clinical high risk states' (CHRS) also known as 'at risk mental state' or 'ultra-high risk' which comprises of brief psychotic experiences and symptoms, depression, anxiety, loss of personal function and subtle cognitive impairment (review) (Fusar-Poli et al, 2013a): The proportion with clinical high risk state who develop psychosis is up to 20% after 2 years (meta-analysis) (Fusar-Poli et al, 2016).

c) Poor mental wellbeing

- Increased risk of depression: Adults with low mental wellbeing had higher risk of depression 10 years later after controlling for neuroticism, medical conditions, and economic status (OR 2.23: 95% CI 1.58-3.15) (US cohort study) (Wood & Joseph, 2010). Low subjective wellbeing also significantly predicted increased depression over a one year medical internship (US cohort study) (Grant et al, 2013)
- Mental disorder: Adults with mental wellbeing levels in the lowest 15% population distribution were 8-30 times more likely to have mental disorder compared to those with mental wellbeing in the highest 15% population distribution (England national survey)(McManus et al, 2016) (Table 6)
- Change from flourishing or moderate wellbeing to languishing was associated with increased risk of mental illness (OR 8.2: 95% CI 2.9-23.5) (US national surveys) (Keyes et al, 2010)

d) Poor self-esteem

Low self-esteem was a significant predictor for depression (B= -0.16) (meta-analysis of longitudinal studies) (Sowislo & Orth, 2013).

Employment

Although employment reduces risk of depression (OR 0.52: 95% CI 0.33-0.83) and psychological distress (OR 0.79: 95% CI 0.72-0.86) (systematic review of prospective studies) (van der Noordt et al, 2014), several aspects of employment can increase risk of mental disorder:

- High job demands, low job control, high effort-reward imbalance, low relational and procedural justice, role stress, low social support and bullying were associated with increased risk of common mental disorder (systematic meta-review) (Harvey et al, 2017). Work related stress was also an important risk factor for physical illness such as cancer (meta-analysis) (Heikkila et al, 2013)
- Job strain was associated with increased risk of clinical depression which was similar across sociodemographic subgroups (RR 1.77: 95% CI 1.47-2.03)

- (systematic review and meta-analysis) (Madsen et al, 2017)
- Workplace bullying was associated with symptoms of depression (r 0.28: 95% CI 0.23-0.34), anxiety (r 0.34: 95% CI 0.29-0.40) and stress related psychological complaints (r 0.37: 95% CI 0.30-0.44) (meta-analysis) (Verkuil et al, 2015). Mental health problems were also associated with subsequent exposure to workplace bullying (r 0.18: 95% CI 0.10-0.27)
 - Excessive hours (longitudinal surveys) (Kleiner et al, 2015)
 - Risk of major depressive episode was higher for those working more than 11 hours a day compared to employees working 7–8 hours a day (OR 2.43: 95% CI 1.11-5.30) (5-year follow-up of the Whitehall II Study) (Virtanen et al, 2012)
 - Risk of depression and anxiety associated with long working hours occurred for women (HR 2.67: 95% CI 1.07-6.68 and 2.84: 95% CI 1.27-6.34) but not men (HR 1.30: 95% CI 0.77-2.19 and 1.43: 95% CI 0.89-2.30) (5-year follow-up of the Whitehall II Study) (Virtanen et al, 2011)
 - New onset risky alcohol use was higher for those working weekly 49-54 hours (1.13: 95% CI 1.02-1.26) and \geq 55 hours (1.12: 95% CI 1.01-1.25) compared with working standard 35-40 hours (systematic review and meta-analysis) (Virtanen et al, 2015)
 - Job quality: The mental health of those who were in jobs of the poorest psychosocial quality was comparable or worse to those who were unemployed (Australian longitudinal national survey) (Butterworth et al, 2011). Moving from unemployment into a high-quality job led to improved mental health (mean change score of +3.3) although moving from unemployment to a poor-quality job was more detrimental to mental health than remaining unemployed (5.6 vs 1.0). Prevalence of common mental disorder was similar for people who were unemployed and in poorest quality jobs (England national survey) (Butterworth et al, 2013)
 - Occupational group
 - Average rate for work-related stress, depression or anxiety across all industries was 1.80% (HSE, 2018). Professional occupations had the highest rate of work work-related stress, anxiety and depression (2.09%) compared with 1.32% for all occupational groups. Of professional occupations, rates were particularly high for nursing and midwifery (2.76%), teaching (3.02%), legal (3.04%) and welfare professionals (4.08%)
 - Health professionals: Annual incidence rates for work related mental ill-health per 100,000 people in Great Britain during 2005-2010 was 641 for nurses (95% CI 497-785), 610 for ambulance staff (95% CI 0-1313), 431 for doctors (335-528) and 221 for social workers (123-330) compared to 201 for teachers (95% CI 156-247) (Zhou et al, 2017). However, between 2001 and 2014, rates for doctors increased but remained static or decreased among the other occupations
 - Medical profession: Among UK doctors, prevalence of psychiatric morbidity ranged from 17%-52% while burnout scores for emotional exhaustion ranged from 31%-54.3%, depersonalisation 17.4%-44.5% and low personal accomplishment 6%-39.6% (systematic literature review) (Imo, 2017). General practitioners and consultants had highest scores. Factors significantly associated with increased prevalence of burnout and psychiatric morbidity included low job satisfaction, overload, increased hours worked and neuroticism.
 - For suicide, lowest skilled occupations were at greater risk than the highest skill-level group: Compared to the general population, elementary professions (e.g. labourers, cleaners) were at higher risk (RR 1.84: 95% CI 1.46-2.33), followed by machine operators and deck crew (RR 1.78: 95% CI 1.22-2.60) and agricultural workers (RR 1.64: 95% CI 1.19-2.28) (systematic review and meta-analysis) (Milner et al, 2013a). Between 2011 and 2015, suicide rates in England compared to national average were for (ONS, 2017b):
 - Males, 44% higher in lowest-skilled occupations, 35% higher in skilled trades and 20% higher in culture, media and sport occupations
 - Females, 24% higher in health professionals mainly nurses, 69% higher in culture, media and sport occupations but lower for those in teaching and education professions
 - Carers almost twice national average
 - Managers, directors and senior officials 70% lower
 - Workplace size: Rate of work-related stress, depression or anxiety was lower for small workplaces (1.03% for less than 50 employees) than large workplaces (1.5% for more than 350 employees) (HSE, 2018)
 - Job insecurity
 - Increased risk of common mental disorder by 33% (meta-analytic review) (Stansfield & Candy, 2006)
 - Posed comparable threat to mental health as unemployment (systematic review) (Kim & von dem Knesebeck, 2015)
 - Independently associated with increased risk of depression (OR 1.86: 95% CI 1.47-2.35) (national England survey) (Meltzer et al, 2010)
- ### Unemployment
- Mental disorder was associated with higher rates of unemployment (Meltzer et al, 2010/ (national England survey; OECD, 2012; McManus et al, 2016/ England national survey) (Table 7)
 - Unemployment was associated with increased risk of:
 - Depression (OR 1.19: 95% CI 1.11-1.28) (meta-analysis) (Kim & von dem Knesebeck, 2016)
 - Anxiety (Adj 2.2: 95% CI 2.0-2.5) (British Household Panel Survey) (Steele et al, 2013)
 - Suicide RR 1.70: 95% CI 1.22-2.18) which

was higher in first five years of unemployment (RR 2.50: 95% CI 1.83-3.17) (systematic review and meta-analysis) (Milner et al, 2013b). However, although unemployment was associated with increased risk of suicide (RR 1.58: 95% CI 1.33-1.82), association reduced after controlling for prior mental health (RR 1.15: 95% CI 1.00-1.30) (meta-analytic review) (Milner et al, 2014)

- 47% of UK claims benefits were due to mental disorder in 2014 (survey) (Viola & Moncrieff, 2016)

Physical illness

- Physical health conditions: Risk of depression doubled in people with diabetes, hypertension, coronary artery disease, heart failure, and cancer, tripled in those with stroke, end-stage renal failure and COPD, and more than seven times more common among people with two or more chronic physical conditions (Moussavi et al, 2007/ national surveys; NICE, 2009d). Similar increased risk occurred for anxiety disorders (US longitudinal survey) (El-Gabalawy et al, 2014)
- Cancer: 32% of cancer patients in acute care hospitals had mental disorder requiring treatment (meta-analysis) (Singer et al, 2010)
- Around 30% of people with a long-term physical health condition also had a mental disorder (report) (Naylor et al, 2012). Comorbidity complicates help seeking and treatment (review) (Prince et al, 2007)

Frailty

Risk of depression was higher in frail older adults after adjusting for confounders (OR 2.63: 95% CI 1.59-4.37) (systematic review and meta-analysis) (Soysal et al, 2017). Older people with depression were also at increased risk of frailty (OR 4.07: 95% CI 1.93-8.55).

Health risk behaviour

- a) Tobacco use
- b) Alcohol use
- c) Cannabis use
- d) Physical inactivity
- e) Screen time

a) Tobacco smoking

- Common mental disorder: A systematic review found that half of studies reported that anxiety and depression were associated with subsequent smoking while a third found that smoking was associated with later anxiety and depression (systematic review) (Fluharty et al, 2017). Another study of 34,653 smokers found that smoking was associated with increased risk of developing common mental disorder (US national prospective cohort study) (Mojtabai et al, 2013)
- Psychosis
 - Smoking was associated with increased risk of psychosis (systematic review and meta-analysis) (RR 2.18: 95% CI 1.23-3.85) (Gurillo et al, 2015)
 - Smoking in people with psychosis was associated with more frequent positive symptoms, negative symptoms and lower quality of life (Dutch/ Belgian prospective cohort study) (Vermeulen et al, 2019)

b) Alcohol use

- Alcohol use disorder doubled risk of major depression (review of longitudinal studies) (Boden & Fergusson, 2011)
- Persistence of depression and/or anxiety disorders was significantly higher in those with remitted or current alcohol dependence compared to those with no lifetime alcohol use disorder (Dutch prospective cohort study) (Boschloo et al, 2012)
- Alcohol use disorder was associated with suicidal ideation (OR 1.9: 95% CI 1.4-2.4), attempted suicide (OR 3.1: 95% CI 2.5-3.8) and completed suicide (OR 2.6: 95% CI 2.0-3.2) (meta-analysis) (Darvishi et al, 2015)

c) Cannabis use

Cannabis use in adulthood was associated with increased risk of:

- Depression (OR 1.17: 95% CI 1.05-1.30) which was more in heavy cannabis users (OR 1.62: 95% CI 1.21-2.16) compared with non-users or light users (systematic review and meta-analysis) (Lev-Ran et al, 2016). Cannabis use in adolescence was associated with increased risk during young adulthood of depression (OR 1.37 95% CI 1.16-1.62) (systematic review and meta-analysis) (Gobbi et al, 2019)
- Anxiety (OR 1.24: 95% CI 1.06-1.45) which was more for people with cannabis use disorders (OR 1.68: 95% CI 1.23-2.31) (meta-analysis) (Kedzior & Laeber, 2014)
- Anxiety and depression (OR 1.68: 95% CI 1.17-2.40) (meta-analysis) (Kedzior & Laeber, 2014)
- Suicidal ideation and intent: Cannabis use in adolescence was associated with increased risk during young adulthood of suicidal ideation (OR 1.50: 95% CI 1.11-2.03) and suicidal attempt (OR 3.46: 95% CI 1.53-7.84) (systematic review and meta-analysis) (Gobbi et al, 2019)
- Psychosis with increased cannabis use associated with increased risk of psychosis and heaviest users at most risk (OR 3.90: 95% CI 2.84-5.34) (meta-analysis) (Marconi et al, 2016)

d) Physical inactivity

- Sedentary behaviour was associated with increased risk of
 - Anxiety (systematic review) (Teychenne et al, 2015)
 - Depression: RR 1.14 (95% CI 1.06-1.21) in longitudinal studies (meta-analysis) (Zhai et al, 2015)
- Physical inactivity was a risk factor for dementia (RR 1.4: 95% CI 1.16-1.67) (systematic review and meta-analysis) (Livingston et al, 2017)
- Leisure-time physical activity ($r=-0.11$) and school sport ($r=-0.09$) both had inverse associations with mental ill-health (multi-level meta-analyses) (White et al, 2017a)

e) Screen time

Average weekly time spent online by UK adults in 2018 was 22.9 hours although this was higher for 16-24 year olds (34.3 hours) and 25-34 year olds (29 hours) (survey) (Ofcom, 2018).

- Computer use at night was associated with sleep disturbance and worse mental health outcomes (Swedish prospective cohort study) (Thomée et al, 2012)
- Prolonged TV viewing was associated with increased risk of depression (RR 1.13: 95% CI 1.06-1.21) (meta-analysis) (Zhai et al, 2015)
- ADHD, OCD, anxiety and depression contributed significantly to variance in addictive use of social media (15%) and video games (7%) after controlling for age, sex, relationship status and educational level (Norwegian cross sectional study) (Andreassen et al, 2016)
- Prolonged computer or internet use was associated with increased risk of depression (RR 1.22: 95% CI 1.10-1.34) (meta-analysis) (Zhai et al, 2015)
- Cyberbullying was associated with increased risk of mental disorder as for children and adolescents (Foody et al, 2015/ review; Aboujaoude et al, 2015/review)
- However, for older people, there was an overall positive association between internet use and mental health (systematic review) (Forsman & Nordmyr, 2017)

Obesity and underweight

Obesity was associated with increased risk of:

- Depression (OR 1.21-5.8) (review) (Rajan & Menon, 2017) and onset of depression at follow-up in adults (unadjusted OR 1.55: 95% CI 1.22-1.98) (systematic review and meta-analysis of longitudinal studies) (Luppino et al, 2010). However, being overweight at baseline reduced subsequent risk of depression in men (OR 0.84: 95% CI 0.72-0.97) but increased risk in women (OR 1.16: 95% CI 1.07-1.25) systematic review and meta-analysis (Jung et al,

2017)

- ADHD in adulthood (OR 1.55: 95% CI 1.32-1.81) (Cortese et al, 2016)
- Dementia (RR 1.6: 95% CI 1.34-1.82) (systematic review and meta-analysis) (Livingston et al, 2017)

Being underweight at baseline was associated with increased risk of subsequent depression (OR 1.16: 95% CI 1.08-1.24) (systematic review and meta-analysis) (Jung et al, 2017).

Dietary

- Low vitamin D levels were associated with increased risk of depression (SMD 0.60: 95% CI 0.23-0.97) (systematic review and meta-analysis) (Anglin et al, 2013)
- Low zinc: Pooled relative risk of depression between highest and lowest dietary zinc was 0.67 (95% CI 0.58-0.76) (meta-analysis) (Li et al, 2017a)
- Low iron: Pooled relative risk of depression between highest and lowest dietary iron was 0.57 (95% CI 0.34-0.95) (meta-analysis) (Li et al, 2017a)
- Low folate: People with depression had lower folate levels than those without ($g = -0.24$ (95% CI -0.31 to 0.16) (meta-analysis) (Bender et al, 2017)
- Healthy diet was associated with reduced risk of depression (OR 0.84: 95% CI 0.76-0.92) (systematic review and meta-analysis) (Lai et al, 2014)
- Coffee consumption was associated with reduced risk of depression in a linear way with depression decreasing by 8% (RR 0.92: 95% CI 0.870-0.97) for each daily additional cup in coffee intake (meta-analysis of observational studies) (Wang et al, 2016). In women, risk of depression decreased with increasing caffeinated coffee consumption (US ten year longitudinal study) (Lucas et al, 2011)

Sleep problems

- Insomnia was a prospective risk factor for depression, anxiety disorders, bipolar disorder and suicide

(systematic review) (Pigeon et al, 2017)

- Short sleep duration was associated with increased risk of depression (pooled RR 1.31: 95% CI 1.04-1.63) (meta-analysis of prospective studies) (Zhai et al, 2015)
- Long sleep duration was associated with increased risk of depression (pooled RR 1.42: 95% CI 1.04-1.92) (meta-analysis of prospective studies) (Zhai et al, 2015)

Social

Social isolation

- Primary group size of three or less predicted CMD (prospective follow up of Great Britain national survey) (Brugha et al, 2005)
- Rates of mental disorder were several times more common in single adult households compared to households with more than one adult/child (England national survey) (McManus et al, 2016) (see section on household type factors on page 35)
- Lone parenthood was associated with increased risk of common mental disorder (CMD) (British national survey) (Cooper et al, 2008)
- Dementia: Social isolation increased risk of dementia (RR 1.6: 95% CI 1.32-1.85) (systematic review and meta-analysis) (Livingston et al, 2017). Low social participation (RR 1.41: 95% CI 1.13-1.75), less frequent social contact (RR 1.57: 95% CI 1.32-1.85) and more loneliness (RR 1.58: 95% CI: 1.19-2.09) were associated with developing dementia (systematic review and meta-analysis) (Kuiper et al, 2015)
- Social isolation resulted in premature mortality (meta-analytic review) (Holt-Lunstad et al, 2015). People with low levels of perceived social support also experienced higher mortality (meta-analysis) (Shor et al, 2013)
- Proportion reporting high levels of loneliness increased with in older age from 14.8% in 16-64 year olds, 14.5% in 65-79 year olds to 29.2% in those 80 and above (UK survey) (ONS, 2013a)

Poor quality relationships

- Those with lowest overall quality of social relationships had more than double the

risk of depression (14.0%: 95% CI 12.0-16.0) than those with high quality relationships (6.7%: 95% CI 5.3-8.0) (ten-year follow-up from a US national study) (Teo et al, 2013)

- Among older people, negative partner interactions were significantly associated with increased risk of depression (OR 1.14: 95% CI 1.09-1.19), anxiety (OR 1.23: 95% CI 1.18-1.29) and suicidal ideation (OR 1.14: 95% CI 1.02-1.28) (Irish longitudinal survey) (Santini et al, 2015b)

Violence

Intimate Partner Violence (IPV)

- Being a victim of IPV in past year was associated with increased risk of:
 - Common mental disorder (Adj OR 3.3: 95% CI 2.5-4.3) (national England survey) (Jonas et al, 2014)
 - PTSD (Adj OR 3.6: 95% CI 2.4-5.5)
 - Psychosis (Adj OR 2.1: 95% CI 0.6-7.4)
 - Eating disorder (Adj OR 3.5: 95% CI 2.1-6.0)
 - Alcohol dependence (Adj OR 3.2: 95% CI 2.3-4.5)
 - Drug dependence (Adj OR 2.5: 95% CI 1.6-3.9)
 - Subsequent depression for women (OR 1.97: 95% CI 1.56-2.48) (systematic review of longitudinal studies) (Devries et al, 2013)
 - Suicide attempt in people with chronic mental illness) (Adj OR 5.4: 95% CI 2.3-12.9) (British crime survey) (Khalifeh et al, 2015b)
- Physical IPV victimisation was significantly associated with psychosis, substance and alcohol disorders in men and women although significant associations with common mental disorder, post-traumatic stress disorder and eating disorders were restricted to women (national England survey) (Jonas et al, 2014). Emotional IPV was associated with common mental disorder in men and women
- Risk of experiencing adult lifetime partner violence was higher among women with depressive disorders (OR 2.77: 95% CI 1.96-3.92), anxiety disorders (OR 4.08: 95% CI 2.39-6.97)

and PTSD (OR 7.34: 95% CI 4.50-11.98) compared to women without mental disorders (systematic review and meta-analysis) (Trevillion et al, 2012)

- IPV accounted for over 10% of postnatal depression (systematic review and meta-analysis) (Howard et al, 2013)
- Among men who have sex with men, IPV victimization was associated with increased risk of reporting depressive symptoms (OR 1.52: 95% CI 1.24-1.86) and substance use (OR 1.52: 95% CI 1.24-1.86) while IPV perpetration was associated with substance use (OR 1.99: 95% CI 1.33-2.99) (systematic review and meta-analysis) (Buller et al, 2014)

Significant risk factor for domestic violence and victimization included child and adolescent abuse, adversity in the family of origin, internalising and externalising behaviours in childhood and adolescence, alcohol and drug use in adolescence, poor quality adolescent peer networks and low socioeconomic status (systematic review) (Costa et al, 2015).

Prevalence of intimate partner violence

- 23.4% (18.7% of men and 27.8% of women) had experienced some form of IPV and 6% in the past year (national England survey) (Jonas et al, 2014)
- In 2017/18 in England and Wales, 7.9% of women (1.3 million) and 4.3% of men (695,000) had experienced domestic abuse with rates highest for 16-19 year men (6%) and 20-24 year old women olds (14.6%) (survey) (ONS, 2018e)
- Prevalence of lifetime partner violence was 30% among female inpatients and 33% among female outpatients while 32% among male patients (systematic review and meta-analysis) (Oram et al, 2013)
- Past year IPV was reported by 21% of women and 10% of men with chronic mental illness (British crime survey) (Khalifeh et al, 2015b)

Victimisation among older people

- Domestic violence among older people was strongly associated with mental disorder (review) (Knight & Hester, 2016)
- Elder abuse was associated with increased risk of mental disorder (mini-review) (Dong et al, 2013)
- Pooled prevalence estimates for elder abuse in community settings were 11.6% (95% CI: 8.1-16.3) for psychological abuse, 6.8% (95% CI: 5.0-9.2) for financial abuse, 4.2% (95% CI: 2.1-8.1) for neglect, 2.6% (95% CI: 1.6-4.4) for physical abuse and 0.9% (95% CI 0.6-1.4) for sexual abuse (systematic review and meta-analysis) (Yoon et al, 2017)

Traumatic stress disorders increased risk of schizophrenia (IRR 3.80: 95% CI 2.33-5.80), schizophrenia spectrum disorder (IRR 2.34: 95% CI 1.46-3.53) and bipolar disorder (IRR 4.22: 95% CI 2.25-7.13) (Danish nationwide prospective cohort study) (Okkels et al, 2017).

Housing and urbanicity

- Housing type: Prevalence of depression was higher for those living in neighbourhoods where the housing was of recent construction (post-1969) and predominant deck access (a means of access to flats above ground level of which front door opens onto a long corridor) (systematic review) (Gong et al, 2016)
- Poor housing: In older people, housing problems were associated with increased GHQ score (Whitehall II cohort study) (Howden-Chapman et al, 2011)
- Urbanicity was associated with significantly higher rates of:
 - Mental disorder although not for substance use disorders (meta-analysis) (Peen et al, 2010)
 - Schizophrenia (OR 2.37: 95% CI 2.01-2.81) (meta-analysis) (Vassos et al, 2012)

Environmental

- Air pollution was associated with increased risk of:
 - Mental disorder although evidence is weak (review) (King, 2018)

- Psychosis (Attademo et al, 2017/review; Newbury et al, 2019/ England and Wales population cohort study)
- Reduced cognitive functioning with neurodevelopment delay after in utero exposure, reduced neurodevelopment outcomes in younger children, reduced academic achievement and neurocognitive performance in older children, and accelerated cognitive decline in older adults (systematic literature review) (Clifford et al, 2016)
- Flooding was associated with increased stress, child behavioural problems, common mental disorder and PTSD as well as risk factors including economic loss, bereavement and domestic violence (review) (Stanke et al, 2012)
- Climate change impacts on mental health both directly and indirectly disproportionately affecting the most marginalized (Hayes et al, 2018)
- Presence of hazardous waste sites and traffic volume at the neighbourhood level were determinants of self-rated stress after controlling for other individual characteristics (multilevel analysis) (Yang et al, 2010)

Beliefs

In England, people who described themselves as 'spiritual' people were more likely than those who described themselves as neither religious or spiritual to have a neurotic disorder (OR 1.37: 95% CI 1.12-2.06), be dependent on drugs (OR 1.77: 95% CI 1.20-2.61), have abnormal eating attitudes (OR 1.46: 95% CI 1.10-1.94), and taking psychotropic medication (OR 1.40: 95% CI 1.05-1.86) (English national survey) (King et al, 2013). However, people who described themselves as 'religious' had similar rates of mental disorder compared to those who were neither religious or spiritual but were less likely to have ever used drugs (OR 0.73: 95% CI 0.60-0.88) or be a hazardous drinker (OR 0.81: 95% CI 0.69-0.96). However, religiosity protected against suicide (OR 0.38: 95% CI 0.21-0.71) (meta-analysis) (Wu et al, 2015).

Dementia

Factors associated with dementia include (systematic review and meta-analysis) (Livingston et al, 2017):

- Lack of childhood education (RR 1.6: 95% CI 1.26-2.01)
- Hearing loss (RR 1.9: 95% CI 1.38-2.73)
- Depression (RR 1.9: 95% CI 1.55-2.33)
- Social isolation (RR 1.6: 95% CI 1.32-1.85)
- Smoking (RR 1.6: 95% CI 1.15-2.20)
- Hypertension (RR 1.6: 95% CI 1.16-2.24)
- Obesity (RR 1.6: 95% CI 1.34-1.92)
- Diabetes (RR 1.5: 95% CI 1.33-1.79)
- Physical inactivity (RR 1.4: 95% CI 1.16-1.67)
- Dietary materials including aluminium (RR 2.24: 95% CI 1.49-3.37) and low vitamin D (RR 1.52: 95% CI 1.17-1.98) (systematic review and meta-analysis of cohort studies) (Cao et al, 2016).
Dietary materials associated with reduced risk of dementia included Mediterranean diet (RR 0.69: 95% CI 0.57-0.84), vitamin B (RR 0.72: 95% CI 0.54-0.96), unsaturated fatty acids (RR 0.84: 95% CI 0.74-0.95) and antioxidants (RR 0.87: 95% CI 0.77-0.98)
- Mid-life mental distress (Adj OR 1.35: 95% CI 1.01-1.80) (Norwegian population based study linked to dementia registry) (Skogen et al, 2015)

Protective factors for mental wellbeing

A small increase in level of protective factors experienced by a population can have a major impact on overall population wellbeing levels which can also prevent mental disorder and suicide. The following factors are associated with wellbeing:

- Genetic
- Demographic
- Socioeconomic
- Secure attachment
- Parental
- Personality
- Child wellbeing
- Child social and emotional skills
- Educational
- Absence of bullying
- General health
- Health risk behaviours
- Employment
- Social capital and relationships
- Living environment
- Leisure
- Sleep
- Culture and the arts
- Intentional activities
- Action for others
- Self-compassion
- Meaning
- Gratitude
- Autonomy
- Religion and spirituality

Genetic

Weighted average heritability was 36% for wellbeing and 32% for life satisfaction (review and meta-analysis) (Bartels, 2015). This highlights the importance of the following factors.

Demographic

a) Age

- In the UK, happiness was high in 16-19 year olds, remained at a lower level until the 60's and then remained relatively high even in the 90's (survey) (ONS, 2017c) although an earlier study had found that hedonic wellbeing declines with age (national survey England) (Weich et al, 2011)
- Life satisfaction reduced after the late teens until the late 40's and then increased until the 70's where it

remained until the 90's when it dipped slightly (UK national survey) (ONS, 2017c) with an earlier study also finding that those aged over 55 years in north-west England experienced higher life satisfaction (cross-sectional study) (Bellis et al, 2012)

- Life feeling worthwhile remained more constant until the 60's when it increased until the 70's after which it reduced (UK national survey) (ONS, 2017c) with another study also finding that eudaimonic wellbeing increased with age (England national survey) (Weich et al, 2011). These findings are supported by other studies which found that in England, younger adults and older adults had higher levels of mental wellbeing than those aged 35-54 after controlling for other factors (national survey) (Chanfreau et al, 2013) and those aged over 55 years experienced higher and wellbeing (OR 1.48: 95% CI 1.23-1.79) (two England national surveys) (Stewart-Brown et al, 2015)
- #### b) Gender
- Among 7 year olds, girls had higher self-reported happiness than boys while among 11-15 year olds, boys had higher levels of wellbeing than girls (UK national survey) (Chanfreau et al, 2013)
 - Mental wellbeing was higher among boys (52.9) than girls (50.6) (England national survey) (NHSD, 2018a). Boys were also more likely to have high self-esteem (26.3%) than girls (18.6%)
 - Several studies offer different findings for wellbeing among men and women. More recently, the Office for National found that compared with men in the UK, women had higher levels of life satisfaction (30.8 vs 27.8), feeling that life was worthwhile (38.33 vs 30.76) and feeling happy yesterday (36.1 vs 32.6) (ONS, 2017c). However, an earlier survey for England found that compared with men, women had lower levels of hedonic wellbeing but higher levels of eudaimonic wellbeing and that association of wellbeing with gender

was little altered by adjustment for symptoms of mental illness (England national survey) (Weich et al, 2011). Another survey from North West England found no relationship between gender and either mental wellbeing or life satisfaction (cross-sectional study) (Bellis et al, 2012) while analysis of the HSE found mental wellbeing similar for men and women (Chanfreau et al, 2013). However, analysis of the UK Understanding Survey which measured wellbeing with WEMWBS found that after controlling for other factors, men had higher wellbeing than women (Chanfreau et al, 2013)

c) Region

Considerable variation occurs across the UK:

- 7 year olds living in Scotland, Wales and Northern Ireland were more likely to feel happy than those in England (Chanfreau et al, 2013)
- 11-15 year olds in Northern Ireland and North West England had highest levels of wellbeing while those in London, East Midlands and Scotland had lowest wellbeing (Chanfreau et al, 2013)
- Adults living in the in the South East of England and Northern Ireland reported the highest wellbeing while those from West Midlands and Wales had lowest wellbeing (Chanfreau et al, 2013)
- Life satisfaction varied from 25.6 in London to 38.3 in Northern Ireland (ONS, 2017c)
- Life being worthwhile varied from 31.3 in London to 42.2 in Northern Ireland (ONS, 2017c)
- Happiness varied from 31.6 in London to 40.3 in Northern Ireland (ONS, 2017c)

d) Ethnicity

In the UK:

- There was no difference in wellbeing between 7 year olds and 11-15 year olds from different ethnic groups (Chanfreau et al, 2013/ UK survey; Patalay & Fitzsimons, 2016/ (UK Millennium Cohort Study)
- Life satisfaction for adults varied from 7.5 for Indian to 6.7 for Black/African/ Caribbean/Black British (White 7.4) (UK survey) (ONS, 2013b)
- Life being worthwhile for adults varied from 7.7 for White to 7.3 for Bangladeshi

(UK survey) (ONS, 2013b)

- Happiness yesterday for adults varied from 7.4 for Indian to 6.9 for Black/African/ Caribbean/Black British (White (7.3) (UK survey) (ONS, 2013b)
- Black adults had higher wellbeing than white adults after controlling for other factors (UK longitudinal survey) (Chanfreau et al, 2013)
- Ethnic groups more likely to experience high mental wellbeing included African-Caribbean (OR 2.24: 95% CI 1.61-3.12) and Indian and Pakistani (OR 2.08: 95% CI 1.23-3.54) (two England national surveys) (Stewart-Brown et al, 2015)
- Another study found lower life satisfaction among ethnic minorities especially the second generation after controlling for individual and area characteristics (UK longitudinal survey) (Knies et al, 2016). However, neighbourhood concentration of own ethnic group was associated with higher life satisfaction for Black Africans and UK born Indians and Pakistanis
- Another study found that ethnicity had no significant relationship with life satisfaction after controlling for confounders although South Asian and Other ethnicity were protective against low mental wellbeing in deprived tertile (North West England cross-sectional study) (Bellis et al, 2012)

e) Sexual orientation

Heterosexual people had higher rates of life satisfaction, life feeling worthwhile and happiness than gay or lesbian people who had higher levels than bisexual people (UK survey) (ONS, 2017e).

Socioeconomic

- Deprivation: Life satisfaction (LS) and mental wellbeing (MWB) were strongly related to deprivation with high LS/MWB increasing with affluence and low LS/MWB with deprivation (North West England cross-sectional study) (Bellis et al, 2012)
- Income: Cross sectional studies highlight that income was associated with wellbeing:
 - Households with higher income reported higher life satisfaction and

happiness although not to life being more worthwhile (GB survey of 8,000 people) (Lewis, 2014)

- Lower income was associated with lower hedonic wellbeing (RC -0.76: 95% CI -0.91 to -0.13) (England national survey) (Weich et al, 2011)
- Other studies show that income level was not associated with high wellbeing (two England national surveys) (Stewart-Brown et al, 2015) or only have a minor effect on hedonic and eudaimonic wellbeing (European survey) (Clark et al, 2011). Furthermore, pay level was only marginally related to job satisfaction (meta-analysis) (Judge et al, 2010)
- Income: Longitudinal studies highlight that income was associated with increased wellbeing:
 - Income was associated with happiness and life satisfaction (England longitudinal survey) (Banks et al, 2010)
 - Adults who were less satisfied with their income reported significantly lower wellbeing than those who were satisfied with their income (UK longitudinal survey) (Chanfreau et al, 2013)
 - Income change was positively but weakly associated with affective and cognitive wellbeing (UK and German nationally representative panel surveys) (Luhmann et al, 2011)
 - Life satisfaction was higher in people who earned more on average and over time although these effects were stronger for midlife adults compared to younger or older adults (three nationally representative panel surveys) (Cheung & Lucas, 2015)
 - No wellbeing dataset supported some critical level of income beyond which income no longer impacts wellbeing (review) (Stevenson & Wolfers, 2013)
 - Adolescent subjective wellbeing was 1.65 (95% CI 0.40-2.91) points lower in those who grew up in the poorest income quintiles during early childhood compared with the top quintile (US longitudinal survey) (Garipey et al, 2017)

- However, the UK Millennium Cohort Study found that children from highest 20% household income had lower wellbeing than those from lowest 20% household income (Patalay & Fitzsimons, 2016). Furthermore, perception of being richer than peers was associated with decreasing wellbeing
- Income inequality was not associated with subjective wellbeing in developed countries (systematic review and meta-analysis) (Ngamaba et al, 2018). However, analysis of historical data found that during years with higher progressive taxation rates, Americans in the lowest 40% of the income distribution tended to be happier, whereas the richest 20% were not significantly less happy (Oishi et al, 2018)
- Area affluence and wellbeing
 - Higher levels of wellbeing occurred for people living in more affluent areas (England longitudinal survey) (Steptoe et al, 2012)
 - For children and adolescents, parental class and living in the most affluent areas were significant predictors of happiness in 7 year olds although not housing tenure or eligibility for free school meals (UK Millennium cohort study) (Chanfreau et al, 2013).
- Materialism was associated with significantly lower wellbeing (meta-analysis) (Dittmar et al, 2014)

Secure attachment

Secure attachment in infancy, childhood or adolescence was associated with better peer relationships (meta-analysis) (Groh et al, 2014) as well as reduced risk of externalising (meta-analysis) (Fearon et al, 2010) and internalising behaviours (meta-analysis) (Groh et al, 2012) (see page 27 of risk factor section). High levels of parental warmth significantly decreased the risk of insecure attachment styles in the presence of adversities (Whitehall II cohort study) (Stansfeld et al, 2008).

Parental

- Wellbeing in offspring was associated with higher combined parental care, lower combined parental psychological control and paternal care (UK longitudinal birth cohort) (Stafford et al, 2016)

- Maternal mental wellbeing in the previous year significantly predicted wellbeing in 11-15 year olds after controlling for other factors (UK longitudinal survey) (Chanfreau et al, 2013)
- Positive and negative effects of parenting on child psychological wellbeing persisted into mid-adulthood (UK longitudinal birth cohort) (Huppert & Abbott, 2010)

Personality

- Personality predicted overall health and wellbeing with personality-health relations larger for mental health outcomes than for physical health or health-related behaviour outcomes (metasynthesis) (Strickhouser et al, 2017)
- Personality was estimated to account for 39% of variance in subjective wellbeing (review) (Steel et al, 2008)
- Neuroticism, mastery, optimism, and sense of coherence were associated with psychosocial health-related quality of life (systematic review) (Huang et al, 2017)
- Neuroticism and extraversion predicted wellbeing and life satisfaction 40 years later (UK cohort study) (Gale et al, 2013)
- More optimistic people had higher quality of life than those with low levels of optimism (Conversano et al, 2010/ review; Carver et al, 2010/ review)
- Personality had life-long impacts on wellbeing: Personality in adolescence strongly predicted psychological wellbeing in mid-life (UK cohort study) (Abbott et al, 2008)

Child wellbeing

Childhood wellbeing predicted adult wellbeing (British longitudinal birth cohort) (Richards & Huppert, 2011): Being a happy child was associated with midlife functioning and wellbeing, low probability of lifetime emotional problems, high frequency of contact with friends or relatives, engagement in social activities, and feeling satisfied with accomplishments in working life. Associations were independent of father's social class, childhood cognition, educational attainment, and midlife occupational social class.

Childhood social and emotional skills

A literature review and analysis of the British Cohort Survey found (Goodman et al, 2015):

- Self-control and self-regulation in childhood were associated with adult mental health, life satisfaction and wellbeing, qualifications, income, physical health, smoking, crime and mortality
- Beliefs that one's own actions can make a difference were related to adult mental distress, self-related health, obesity and unemployment
- Self-esteem in childhood was associated with adult mental and physical health
- Emotional wellbeing in childhood was a powerful predictor of adult life satisfaction, mental health and family formation
- Childhood conscientiousness was associated with adult wellbeing, education attainment, partnerships, income, labour market outcomes, health and health behaviours
- Self-efficacy was important in shaping education attainment, labour market success, socioeconomic status, mental health and wellbeing, health measures and health behaviours
- Good social skills at age 10 predicted adult mental health and wellbeing
- By age 3, poorer children displayed worse conduct on average than their wealthier peers, and these differences persist throughout pre-adolescence

Social-emotional skills in kindergarten were associated with key young adult outcomes across mental health, substance use, education, employment and criminality (US cohort study) (Jones et al, 2015).

Educational

- Academic achievement had small to medium correlation with subjective wellbeing ($r = 0.164$; 95% CI 0.113-0.216) (meta-analysis) (Bücker et al, 2018)
- Those with higher qualifications had higher wellbeing than those with A levels and below (UK longitudinal survey) (Chanfreau et al, 2013)
- However, a review found mixed evidence regarding association

between education and wellbeing (review) (Dolan et al, 2008) with an analysis of Health Survey England data finding that education level was not associated with wellbeing (Stewart-Brown et al, 2015)

- Evidence was limited that school environment had major influence on adolescent mental health although student perceptions of teacher support and school connectedness were associated with better emotional health (systematic review) (Kidger et al, 2012)

Absence of bullying

Children who were never bullied at school were more likely to be happy (UK longitudinal survey) (Chanfreau et al, 2013).

Health

- Better self-assessed health was strongly protective against low life satisfaction and mental wellbeing (North West England cross-sectional study) (Bellis et al, 2012)
- Self-reported general health was a very strong predictor of subjective wellbeing (UK longitudinal survey) (Chanfreau et al, 2013) (see also page 20 for health impacts of mental wellbeing)

Health risk behaviours

Impact of health risk behaviour on wellbeing was largely mediated by better general health (longitudinal surveys) (Chanfreau et al, 2013)

- Smoking
 - Non-smokers had significantly higher wellbeing than smokers after controlling for other factors (England national survey) (Chanfreau et al, 2013) Ex-
 - smokers were significantly happier in their personal lives than never or current smokers (Dutch longitudinal internet survey) (Weinhold & Chaloupka, 2017)
 - Current smokers were less satisfied than either ex or never smokers and quitting does not result in reduced subjective wellbeing
- Alcohol: Changing drinking levels across several years was not associated with changing life satisfaction although developing drinking problems was associated with reduced life satisfaction

(longitudinal surveys) (Geiger & MacKerron, 2016). A strong and consistent moment-to-moment relationship existed between happiness and drinking events although associations beyond the moment are small and inconsistent

- Diet
 - Number of portions of fruit and vegetable adults ate each day was significantly associated with wellbeing in a dose response relationship after controlling for other factors (longitudinal analysis of England surveys) (Chanfreau et al, 2013)
 - Increased fruit and vegetable consumption was predictive of increased happiness, life satisfaction and wellbeing (Australian longitudinal population study) (Mujcic & Oswald, 2016)
- Physical activity
 - More frequent exercise was significantly associated with higher life satisfaction and mental wellbeing (North West England cross-sectional study) (Bellis et al, 2012)
 - Leisure time physical activity was associated with both positive affect and life satisfaction (meta-analysis) (Wiese et al, 2018)
 - Childhood aerobic fitness was associated with higher levels of cognition and brain function (review) (Chaddock et al, 2011)
 - Physical activity was associated with improved peer relations in 11 year olds (UK Millennium Cohort Study) (Ahn et al, 2018)

Obesity and being overweight

- Overweight during childhood was associated with lower wellbeing (UK Millennium Cohort Study) (Patalay & Fitzsimons, 2016)
- Obesity and being overweight during adulthood was associated with higher wellbeing after controlling for other factors (UK longitudinal survey) (Chanfreau et al, 2013)

Employment

- Job satisfaction
 - Job satisfaction was associated with life

satisfaction, happiness, positive affect and absence of negative affect (meta-analysis) (Bowling et al, 2010)

- People who were mostly or completely satisfied with their job had higher wellbeing than those less satisfied with their job (UK longitudinal survey) (Chanfreau et al, 2013)
- Full time employment: Wellbeing of full time employees was higher than part time employees (UK longitudinal survey) (Chanfreau et al, 2013). However, both full time and part time male employees over the age of 65 had particularly high wellbeing
- Job demands: Wellbeing was associated with how well people felt able to cope with the demands of their job (longitudinal analysis of England surveys) (Chanfreau et al, 2013)
- Retirement: However, analysis of population survey data for England found only an association with retirement (OR 1.35: 95% CI 1.09-1.69) (Stewart-Brown et al, 2015)

Social capital and relationships

a) Social capital

Social capital includes quality and quantity of social relationships:

- Social network size and contact in older people was independently associated with future life satisfaction and quality of life (England longitudinal survey) (Rafnsson et al, 2015)
- Social capital conferred resilience against long term stressors (Whitehall II cohort study) (Stansfeld et al, 1998) and could buffer negative health effects of low socioeconomic status (systematic review) (Uphoff et al, 2013)
- Social support was associated with improved wellbeing (r 0.18) although size of effect was small (meta-analysis) (Chu et al, 2010)
- Social capital was associated with wellbeing in older people (systematic review) (Nyqvist et al, 2013)
- Social capital and participation was associated with happiness across the life course (England national survey) (Cooper et al, 2011)
- Social participation was associated with

positive psychosocial wellbeing and decreased psychological distress (review) (Manhica et al, 2018)

- Country social capital was associated with health and life satisfaction (national surveys) (Elgar et al, 2011). Benefits of social capital were greater in women than men, in older adults and in more trusting, affiliated individuals

b) Social relationships

- Social relationship factors predicted 4.5% of variance in mental wellbeing in 11 year olds (UK Millennium Cohort Study) (Patalay & Fitzsimons, 2016)
- Parents who shared leisure time with their children at least weekly reported higher wellbeing than parents who shared leisure time less often (UK longitudinal survey) (Chanfreau et al, 2013)
- Parents with adult children who saw their children at least weekly reported significantly higher wellbeing than who parents who did not see their children so regularly (UK longitudinal survey) (Chanfreau et al, 2013)
- Number of friends, getting on well with siblings and having fun with the family at weekends were significant predictors of happiness in 7 year olds (UK Millennium Cohort Study) (Chanfreau et al, 2013)
- Wellbeing was highest in those who agreed that local friends meant a lot to them and lowest among those who neither agreed or disagreed with this (UK longitudinal survey) (Chanfreau et al, 2013)
- High levels of social support and larger social network were associated with reduced cancer mortality (meta-analysis) (Pinquart & Duberstein, 2010)

c) Relationship status

- People with a partner had higher life satisfaction than people without a partner across all deprivation levels and controlling for confounders (North West England cross-sectional study) (Bellis et al, 2012)
- However, a longitudinal study found that those who were happy in their relationship reported only marginally

higher wellbeing than single people (UK longitudinal survey) (Chanfreau et al, 2013)

- Marital status: Unmarried adults living with a partner reported higher wellbeing than married adults (longitudinal analysis of England surveys) (Chanfreau et al, 2013). Marital status was a significant predictor of wellbeing for women but not men
- People who had a partner with high wellbeing were more likely to have higher wellbeing (UK longitudinal survey) (Chanfreau et al, 2013)

Social capital was also protective against mental disorder

- Quality of social interaction at individual and ecological level was associated with reduced risk of common mental disorder (systematic review) (Ehsan et al, 2015)
- Social capital was associated with reduced mental health and behavioural problems in children and adolescents (systematic review) (McPherson et al, 2014)
- Large, diverse social networks as well as perceived emotional and instrumental support were protective against depression (systematic review) (Santini et al, 2015a)

Living environment

- Neighbourhood
- Housing
- Access to natural environment

a) Neighbourhood

Neighbourhood facilitates social interaction (see section above)

- Mental wellbeing was associated with neighbourhood having very good aesthetic qualities (RRR 3.3: 95% CI 1.9-5.8) while perception of poor neighbourhood aesthetic quality was associated with lower wellbeing (RRR 0.4: 95% CI 0.3-0.5) (Scottish cross sectional study) (Bond et al, 2012)
- A sense of belonging to one's neighbourhood, feeling willing to improve neighbourhood and talking regularly with

neighbours were associated with higher wellbeing (UK longitudinal cohort) (Chanfreau et al, 2013)

- Better neighbourhood buffered against the negative effects of poor housing quality on psychological wellbeing (European cross-sectional survey) (Jones-Rounds et al, 2013)
- Neighbourhood cohesion was associated with mental wellbeing among older adults (ES 0.80-1.77) (three British birth cohort studies) (Elliott et al, 2014) and could offset effects of deprivation on mental health (Welsh population longitudinal study) (Fone et al, 2014)

b) Housing

- Mental wellbeing was associated with people's home having a very good external appearance (RRR 2.6: 95% CI 1.3-5.1), a very good front door (both for attractiveness and security) (RRR 2.1: 95% CI 1.2-3.8) and when satisfaction with their landlord was very high (RRR 2.3: 95% CI 2.2-4.8) (Scottish cross sectional study) (Bond et al, 2012)
- Wellbeing for 11-15 year olds was higher living in owned accommodation than privately renting while wellbeing for adults was higher for private tenants than home owners or those with a mortgage after controlling for other factors (UK longitudinal survey) (Chanfreau et al, 2013)

c) Access to the natural environment

- Living in urban areas with more green space was associated with both lower mental distress and higher wellbeing after controlling for individual and regional covariates (fixed-effects analysis of British Household Panel Survey) (White et al, 2013)
- Quantity of green space in the living environment was associated with improved mental health (systematic review) (van den Berg et al, 2015)
- Amount of access to green space in an urban neighbourhood was associated with better mental health among men but not women although effect varied across the life course (BHPS longitudinal study) (Astell-Burt et al, 2014)

- Socioeconomic inequality in mental wellbeing was 40% narrower among respondents reporting good access to green/recreational areas compared with those with poorer access (European survey) (Mitchell et al, 2015)
- Time spent in green space was weakly associated with mental health and vitality (European survey) (van der Berg et al, 2016). Impact was significantly modified by level of education and childhood nature experience

Wider environmental factors predicted 12% of variance in mental wellbeing in 11 year olds particularly school connectedness and neighbourhood safety (UK Millennium Cohort Study) (Patalay & Fitzsimons, 2016).

Sleep

- Positive affect and eudaimonic wellbeing were both associated with good sleep (England cross-sectional study) (Steptoe et al, 2008)
- Sleep duration during adolescence was predictive of subjective wellbeing (Swiss and Norwegian longitudinal study) (Kalak et al, 2014)

Leisure

- Adults who were satisfied with the amount of leisure time they had reported significantly higher wellbeing than those less satisfied with their leisure time (UK longitudinal survey) (Chanfreau et al, 2013)
- Leisure engagement and subjective wellbeing were moderately associated and mediated by leisure satisfaction (meta-analysis) (Kuykendall et al, 2017)
- Leisure had a mediating effect between social relationships and health in older adults (US cohort study) (Chang et al, 2014)

Culture and the arts

- Engagement in a wide range of cultural activities promoted overall and leisure satisfaction (UK longitudinal survey) (Wheatley & Bickerton, 2017). Although only regular participation in arts activities and sport generated positive effects, arts

events were positive irrespective of frequency

- Arts and cultural engagement in 10-15 year olds was associated with higher levels of happiness and self-esteem while lapses in arts engagement particularly reading and dance were linked to lower happiness levels (England longitudinal panel survey) (Lakey et al, 2016)
- Risk of developing depression in older people was 32% lower for those engaging in a cultural event every few months (OR 0.68: 95% CI 0.47-0.99) and 48% lower for those engaging in a cultural event once every months (OR 0.52: 95% CI 0.34-0.80) (English Longitudinal Study of Ageing) (Fancourt & Tymoszek, 2019)

Intentional activities

Intentional activities are broad and include those which are cognitive such as having a more optimistic attitude, behaviour including kindness and generosity to others, socializing or exercise, or motivational such as working towards goals. Such activities may account for up to 40% of the population variation in wellbeing (review) (Lyubomirsky et al, 2005b) and therefore represent an opportunity to promote wellbeing.

Action for others

- Volunteering
 - Volunteering had positive impacts on life satisfaction, wellbeing, depression and mortality (systematic review and meta-analysis) (Jenkinson et al, 2013)
 - Subjective wellbeing increased with regular volunteering (British longitudinal survey) (Binder & Freytag, 2013)
 - Association between volunteering and wellbeing only became apparent above age 49 and continued into older age (UK population-based longitudinal study) (Tabassum et al, 2016)
- Generosity: People using their financial resources to help others was associated with improved wellbeing (Aknin et al, 2013/ national surveys and randomized intervention; Dunn et al, 2014/ review)

Self-compassion

Self-compassion was associated with wellbeing (r 0.47) with the relationship stronger for cognitive and psychological wellbeing compared to affective wellbeing (meta-analysis) (Zessin et al, 2015). Subsample analysis indicated causal effect of self-compassion on wellbeing. Self-compassion was also inversely related with anxiety, depression and stress in adolescence ($r=-0.55$) (meta-analysis) (Marsh et al, 2018).

Meaning

Meaning in life was associated with wellbeing (review) (Lyubomirsky et al, 2005b) and life satisfaction (survey) (Ho et al, 2010). Meaning in life had weak to moderate association with physical health (average effect 0.258) with stronger effects when including measures of wellbeing (systematic review and meta-analysis) (Czekierda et al, 2017).

Gratitude

Gratitude was strongly related to wellbeing which may be causal (review) (Wood et al, 2010). Gratitude also enhanced pro-sociality (r 0.374) (meta-analytic review) (Ma et al, 2017b).

Autonomy

Autonomy was moderately correlated with subjective wellbeing (meta-analysis) (Yu et al, 2017b).

Religion and spirituality

Religiosity was associated with slightly higher subjective wellbeing which was mediated by social support, feeling respected, and purpose or meaning in life (global survey) (Diener et al, 2011). However, association between religiosity and wellbeing was dependent on more difficult life conditions. Religious affiliation predicted wellbeing among men but not women which was accounted for by particularly high wellbeing levels in Muslim men and men from other religious groups (UK longitudinal survey) (Chanfreau et al, 2013). Certain aspects of religion were better correlated with wellbeing with

social religious participation most strongly associated with wellbeing measures (review) (Spencer et al, 2016). In older people, although religiosity was associated with mental and physical health, further research is required to assess causality (review) (Zimmer et al, 2016).

Religion and spirituality supported people cope with chronic illness (review) (Roger & Hatala, 2018) and cancer (meta-analysis) (Salsman et al, 2015).

Comparing impact of different factors Certain protective factors appear to be more important at particular stages of the life course (UK longitudinal surveys) (Chanfreau et al, 2013):

- Young children: Primary school context and friendships, home life and family relationships, and living in less deprived neighbourhood
- School aged children: School environment free from bullying and classroom disruption, feeling supported and sharing meals
- Adults: Good employment and conditions at home

Results from the British Household Panel Survey found that the proportion of variance in life satisfaction was (Lucas & Donnellan, 2007):

- 38% for stable influences (those not changing over long periods such as genetic make-up)
- 29% for slowly changing influences
- 33% for changes over short period of time

Similar results were found for three other large datasets from three other countries (Lucas & Donnellan, 2007; Lucas & Donnellan, 2012). However, proportion of life satisfaction variance from stable trait was incrementally higher in older age groups (Lucas & Donnellan, 2012).

Results from the UK Millennium Cohort Study which followed 12,347 children from birth to age 11 found that 26% of the variance in wellbeing could be explained by different factors with the largest impacts

from wider environment, social relationships, perceived socioeconomic status and home environment (Patalay & Fitzsimons, 2016).

Lower inequality in life satisfaction was associated with higher median income, female life expectancy, engagement in heritage activities and use of green space (analysis of four years Annual Population Survey data for more than 200 English local authorities) (Abdallah et al, 2017).

Risk factors for poor mental wellbeing

The following factors are associated with poor mental wellbeing:

- Demographic
- Socioeconomic
- Parental
- Education level
- Social
- Health risk behaviours
- Screen time
- Poor sleep
- Poor health and illness
- Mental disorder
- Employment
- Unemployment
- Violence and abuse
- Life events
- Environmental
- Values

Demographic

- Age: In England lower mental wellbeing was more likely in those aged 35-54 years (OR 1.58: 95% CI 1.35-1.84) (two England national surveys) Stewart-Brown et al, 2015). Reducing wellbeing in the oldest old was much more pronounced for women (longitudinal analysis of England surveys) (Chanfreau et al, 2013)
- Gender: Among 11-19 year olds, proportion with low self-esteem was more in girls than boys (14.6% vs 7.7%) (England national survey) (NHS, 2018a)
- Ethnicity: African-Caribbean groups in England were less likely to experience low mental wellbeing (OR 0.36: 95% CI 0.19-0.66) (two England national surveys) (Stewart-Brown et al, 2015)
- Living in a single-parent household was associated with reduced wellbeing in childhood (UK Millennium Cohort Study) (Patalay & Fitzsimons, 2016)

Socioeconomic

- Deprivation
 - Deprivation was strongly associated with lower life satisfaction and mental wellbeing with 17.1% of the most deprived tertile having low life satisfaction compared to 8.9 % in the most affluent (North West England cross-sectional study) (Bellis et al, 2012)

- In adults, lower wellbeing was associated with being unable to keep the house warm enough, keep the house in a decent state of repair, replacing worn out furniture or make regular savings after controlling for other factors (UK longitudinal survey) (Chanfreau et al, 2013)
- Children living in the most deprived areas and the most deprived half of neighbourhoods had lower levels of happiness after adjustment for other socioeconomic factors (analysis of Millennium Cohort Study) (Chanfreau et al, 2013)
- Cold homes and fuel poverty (UK longitudinal survey) (Chanfreau et al, 2013)
- Low income
 - Lowest household income with the largest difference in wellbeing between those in the lowest and second lowest fifths of income and expenditure distributions (Great Britain survey) (Lewis, 2014)
 - Low income: Adolescent subjective wellbeing was lower in those growing up in poorest income quintiles compared with top quintile (longitudinal data from US Panel Study) (Garipey et al, 2017)
- Income inequality (causal review) (Pickett & Wilkinson, 2015)
- Household debt: 23% of children in families with problem debt had low wellbeing levels compared to 5% in households without problem debt (analysis of UK Millennium Cohort study) (Pinter et al, 2016)

Parental

Parental mental distress predicted unhappiness of girls but not of boys (UK longitudinal study) (Wenn et al, 2017). However, unhappiness of adolescents did not predict parental distress.

Education level

Increasing education level was associated with reduced risk of low mental wellbeing although had no association with high mental wellbeing (two England national

surveys) (Stewart-Brown et al, 2015).

Social

- Social isolation
 - People who reported feeling lonely were almost 10 times more likely to report low feelings of worth (10.5% compared with 1.1%), over 7 times more likely to report low life satisfaction (15.2% compared to 1.9%) and over 3 times more likely to report feeling unhappy (18.8% compared to 5.6%) and twice as likely to report feeling anxious (34.8% compared to 15.1%) than those who have low ratings of loneliness (UK national survey) (ONS, 2015c)
 - Living alone: Men who lived alone had lowest wellbeing although living alone was not a risk factor for women (longitudinal analysis of England national surveys) (Chanfreau et al, 2013)
- Poor quality relationships
 - Children who reported being 'horrible' to other children or being shouted at by a parent when naughty were less likely to be happy (UK Millennium Cohort Study) (Chanfreau et al, 2013)
 - Adult who quarreled with their partner often had lower wellbeing than those who quarreled less often (UK cohort study) (Chanfreau et al, 2013)
 - Married people who regretted marrying their partner had lower wellbeing than those who rarely or never felt regret (UK cohort study) (Chanfreau et al, 2013)
- Adults living with children: Women living with children had lower wellbeing than those living without (longitudinal analysis of England surveys) (Chanfreau et al, 2013). Men's wellbeing decreased with increasing number of children in the household while women's wellbeing remained unaffected

Health risk behaviours

- Smoking: Smoking was strongly associated with lower life satisfaction (Bellis et al, 2012/ North West England

cross-sectional study; Stranges et al, 2014/ Health Survey for England) as well as lower optimism, positive affect and purpose in life (US longitudinal study) (Lappan et al, 2018)

- Drug use among 11-15 year olds was associated with lower wellbeing (UK longitudinal study) (Chanfreau et, 2013)
- Physical inactivity: Increased sedentary behaviour was associated with lower health-related quality of life among children and adolescents (systematic review) (Wu et al, 2017) Less exercise was associated with increased risk of low mental wellbeing (North West England cross-sectional study) (Bellis et al, 2012)
- Decreased fruit and vegetable intake was associated with lower wellbeing in adults (Health Survey for England) (Stranges et al, 2014)

Obesity

Obesity was associated with lower self-esteem and quality of life in children and adolescents (systematic review) (Griffiths et al, 2010), lower quality of life in adults (meta-analysis) (Ul-Haq et al, 2013) and lower mental wellbeing in adults (Health Survey for England) (Stranges et al, 2014).

Screen time

- Quality of life: Screen time was associated with poorer quality of life (Suchert et al, 2015/ systematic review; Wu et al, 2017/ systematic review; Stiglic and Viner, 2019/ systematic review of reviews)
- Psychological wellbeing: Screen time was associated with reduced psychological wellbeing in adolescent girls (systematic review) (Costigan et al, 2013) and school aged children and adolescents (systematic review) (Suchert et al, 2015)
- Time playing computer games by 11-15 year olds was significantly negatively associated with wellbeing with 42% playing
- 3 hours and 7% playing 4 or more hours (UK cohort study) (Chanfreau et al, 2013)
- Self-esteem
 - Screen time was associated with low self-esteem (systematic review)

(Hoare et al, 2016)

- Higher level of screen time was associated with lower self-esteem (systematic review) (Carson et al, 2016)
- Watching television for more than two hours per day was associated with lower self-esteem (systematic review) (Tremblay et al, 2011)
- Online social networking sites: Impact on wellbeing may be both positive and negative (systematic review) (Baker & Algorta, 2016). More specifically, research suggested that subjective wellbeing was negatively associated with passive use of social network sites although positively associated with active use of social network sites (critical review) (Verduyn et al, 2017)

Poor sleep

In the UK, prevalence of acute insomnia was 7.9% while annual incidence of acute insomnia was 31.2-36.6% (surveys) (Ellis et al, 2012).

- Insomnia had a significant detrimental impact on wellbeing (10 year US longitudinal study) (Karlson et al, 2013)
- Chronic insomnia in older adults was associated with poorer overall wellbeing, mental wellbeing and physical wellbeing (Whitehall II 10 year cohort study) (Abell et al, 2016)

Poor health and illness

- Poorer self-reported general health among 11-15 year olds was associated with lower wellbeing after controlling for other factors (UK longitudinal survey) (Chanfreau et al, 2013)
- Poor health was strongly associated with low life satisfaction and mental wellbeing (North West England cross-sectional study) (Bellis et al, 2012): The odds of low life satisfaction was 7-10 times greater in those with very bad health compared to those with very good health
- Physical illness had negative impacts on hedonic and eudaimonic wellbeing (global survey) (Steptoe et al, 2015)

- Chronic medical illness was associated with impaired quality of life and wellbeing (England cross sectional study) (Wikman et al, 2011)

Mental disorder

Childhood internalising disorders predicted adult unhappiness (OR 1.48: 95% CI 1.24-1.77) and poor sleep (OR 1.52: 95% CI 1.10-2.09) after adjustment for current disorder (Dutch cohort study) (Ormel et al, 2017).

Mental wellbeing and self-esteem were reduced in 11-19 year olds with mental disorder (England national survey) (NHSD, 2018a):

- Mental wellbeing: Score for mental wellbeing in 11-19 year olds varied by:
 - Absence of mental disorder: Score 53.0
 - Type of mental disorder: 43.0 for behavioural disorder and 41.8 for emotional disorder
 - Number of mental disorder: 45.3 for one mental disorder, 41.0 for two mental disorder and 36.4 for three or more mental disorders
- Low self-esteem: Proportion of 11-19 year olds with low self-esteem was:
 - 6.3% with no mental disorder
 - 43.0% with mental disorder
 - 51.4% for emotional disorder
 - 42.3% for behavioural disorder
 - 71.5% with three or more mental disorders
- High self-esteem was five times less common in with mental disorder (5.2%) compared to those without mental disorder (25.1%). High self-esteem levels varied by disorder from 14.1% for neuro-developmental disorder to 3.7% for emotional disorder

For adults:

- People with mental disorders were 8-30 times more likely to have mental wellbeing in lowest 15% population distribution compared to those without mental disorder (England national survey) (McManus et al, 2016) (Table 6)
- Poor subjective wellbeing was strongly associated with mental ill-health

(longitudinal analysis of England surveys) (Chanfreau et al, 2013)

Employment

Reviews of longitudinal studies found that job insecurity (De Witte et al, 2016) and restructuring (de Jong et al, 2016) had negative impacts on employee wellbeing over time.

Unemployment

- Unemployment was associated with:
 - Increased risk of low mental wellbeing (OR 1.46: 95% CI 1.01-2.10) (two England national surveys) (Stewart-Brown et al, 2015)
 - Low life satisfaction across all level of deprivation (North West England cross-sectional study) (Bellis et al, 2012)
 - Negative effect on affective wellbeing and cognitive wellbeing (CWB) with pre-event CWB only reached after three years (meta-analysis) (Luhmann et al, 2012)
- However, unemployment did not affect women's wellbeing after controlling for other factors (longitudinal analysis of England surveys) (Chanfreau et al, 2013)
- Parental long-term unemployment was associated with low long-term adolescent wellbeing (Slovakian survey) (Sleskova et al, 2006)

Violence and abuse

- Adverse childhood experiences (ACE) increased risk of poor mental wellbeing in adulthood (England national survey) (Hughes et al, 2016a). Adjusted OR for poor mental wellbeing were:
 - 1.35 (95% CI: 1.05-1.74) for one ACE
 - 1.95 (95% CI: 1.50-2.53) for 2-3 ACEs
 - 3.86 (95% CI: 2.90-5.13) for more than 3 ACEs
- Bullying
 - Lower mental wellbeing was associated with bullying others and being bullied at age 7 as well as being bullied, misbehaving and being exposed to other misbehaviour at school at age 11-

15 (UK Millennium Cohort Study) (Chanfreau et al, 2013)

- Lower wellbeing was associated with physical, emotional and relational bullying victimisation ($b = -1.99$) and cyberbullying victimisation ($b = -0.86$) (England cross sectional study) (Przybylski & Bowes, 2017)

Life events

- Child birth resulted in decreased life satisfaction and relationship satisfaction decreased after birth with relationship satisfaction permanently below pre-birth level (meta-analysis) (Luhmann et al, 2012). However, parents felt more positive affect in daily life
- Marriage was initially positive for life satisfaction but not for relationship satisfaction or affective wellbeing. Over time, both life and relationship satisfaction declined to premarital levels (meta-analysis) (Luhmann et al, 2012). However, analysis of two England national surveys found that marriage was associated with reduced risk of low mental wellbeing (OR 0.78: 95% CI 0.62-0.97) (Stewart-Brown et al, 2015)
- Bereavement had a very negative initial impact on subjective wellbeing and took much longer than divorce to reach pre-event levels (meta-analysis) (Luhmann et al, 2012)

Environmental

Environmental factors are associated with deprivation and include (see page 50):

- Poor housing (Barnes et al, 2013/ Health Survey for England; Jones-Rounds et al, 2013/ European cross sectional survey)
- Poor neighbourhood quality (European cross sectional survey) (Jones-Rounds et al, 2013)

Values

- Materialism was associated with significantly lower wellbeing (meta-analysis) (Dittmar et al, 2014)

- Corruption was detrimental to subjective wellbeing (global survey) (Tay et al, 2014)

Higher population levels of inequality of life satisfaction was associated with deprivation, unemployment, and rurality (four years of Annual Population Survey data for over 200 English local authorities) (Abdallah et al, 2017).

Comparing impact of different factors

Certain risk factors for poor wellbeing appear to be more important at particular stages of the life course (UK longitudinal surveys) (Chanfreau et al, 2013):

- School and teenage years: Substance misuse, excessive computer gaming, disruptive behaviour at school
- Adulthood: Deprivation, fuel poverty, poor housing, stressful work, mental disorder

Higher risk groups

Risk factors cluster in particular groups which are at higher risk of mental disorder and poor wellbeing (Campion et al, 2012). Such groups require targeted approaches to prevent widening of inequalities (Campion et al, 2012; Campion et al, 2013).

Child and adolescent higher risk groups

These include homeless children, LGBT youth, looked after children, young offenders, children with special education needs, children with physical illness, who are deaf, children whose parents have a mental disorder, young carers, children with parents in prison, not in education, employment or training (NEET), young offenders and asylum children (see Table 8). Young people affiliated with gangs also have higher levels of mental disorder (PHE, 2015a).

Gang associates

Compared to other children known to social services in England or other child offenders, those with gang associations were (report) (Clarke, 2019):

- 95% more likely to have social, emotional and mental health issues
- Eight times more likely to be abusing substances
- 48% more likely to have a parent with mental health issues
- 41% more likely to have a parent or carer misusing substances
- 37% more likely to have witnessed domestic violence
- 37% more likely to be missing or absent from school

In England, 27,000 children identified themselves as a gang member (Clarke, 2019).

Homelessness

Prevalence rates of any mental disorder in young homeless people ranged from 48% to 98% (systematic review) (Hodgson et al, 2013). Prevalence of mental disorder in young people with experience of homelessness (88% current) contrasted with low service use (31%) (small UK survey) (Hodgson et al, 2014).

Lesbian, gay, bisexual and transgender (LGBT) youth

- Rate of mental disorder was higher in 14-19 year olds who identified as LGB (34.9%) compared to those who identified as heterosexual (13.2%) (England national survey) (NHSD, 2018a)

- Significantly higher rates of depression (d 0.33; 95% CI 0.22-0.43) and suicidality (OR 2.92; 95% CI 2.11-4.03) occurred for sexual minority youth compared to heterosexual youth (meta-analytic review)(Marshall et al, 2011)

Looked-after and adopted children

- Looked-after children had
 - 5.5-fold increased risk of any childhood mental disorder, 9 -fold increased risk of any behavioural disorder (three England surveys of looked after British children) (Ford et al, 2007)
 - 4-5 times increased rate of hospitalisation for attempted suicide compared to the general population (analysis of ten national birth cohorts) (Vinnerljung et al, 2006)
- Adoptees had approximately twice the risk of mental disorder, contact with mental health services or treatment in a psychiatric hospital compared to non-adoptees (meta-analysis) (Behle & Pinquart, 2016)

Not in Education, Employment or Training (NEET)

This group experiences higher rates of conduct disorder (29%), major depressive disorder (35%), cannabis dependence (16%) and daily smoking (57%) (British cohort study) (Goldman-Mellor et al, 2016). Risk of being NEET was associated with frequent cannabis use (Adj OR 1.74: 95% CI 1.10-2.75), repeated disruptive behaviours (Adj OR 1.71: 95% CI 1.15-2.55) or persistent common mental disorder (Australian prospective study) (Rodwell et al, 2018).

Offenders

(See also adult offenders in next section)

- Proportion of detained male adolescents with mental disorder was 69.9% (95% CI 69.5-70.3%) including conduct disorder (46.4%), substance use disorder (45.1%), oppositional defiant disorder (19.8%), ADHD (13.5%), anxiety disorder (15.9%), major depression (12.0%), PTSD (9.6%) and psychosis (1.4%) (systematic review) (Colins et al, 2010)
- Rates of mental disorder in young offenders in England and Wales were (Lader et al, 2000):

- Depression symptoms: For men, 51% for remand and 36% for sentenced young offenders while for women, 51% for sentenced young offenders
- Any neurotic disorder: 42% among male sentenced young offenders and 68% among female sentenced young offenders
- Psychosis in past year: 8% for male remand and 10% for male sentenced young offenders
- Any personality disorder: 84% for male remand and 88% for male sentenced young offenders
- Hazardous drinking: In the year before coming to prison, 62% of male remand, 70% of male sentenced and 51% of female sentenced young offenders
- Drug use (lifetime): 93% of male remand and 96% of male sentenced young offenders
- Suicidal attempts: Proportion of young offenders attempting suicide in the past year was 17% of male remand, 12% of male sentenced and 33% of female sentenced
- 50% of those in youth detention facilities had conduct disorder (10-fold increased risk) with similar increased rates of psychosis, depression, ADHD and substance misuse (systematic review)(Fazel et al, 2008)

Children of offenders

Parental incarceration was associated with higher risk of child antisocial behaviour (OR 1.4) but not mental health problems, drug use, or poor educational performance (meta-analysis and systematic review) (Murray et al, 2012). However, analysis of a US longitudinal dataset found paternal incarceration increased risk of young adult depression (Adj OR 1.43: 95% CI 1.15-1.77), anxiety (Adj OR 1.44: 95% CI 1.19-1.76) and PTSD (Adj OR 1.68: 95% CI 1.16-2.42) while maternal incarceration increased risk of young adult depression (Adj OR 1.39: 95% CI 1.02-1.90) (Lee et al, 2013). Approximately 200,000 children had a parent in prison at some point during 2009 in England and Wales (Williams et al, 2012).

Special educational needs (SEN)

- Proportion of 5-19 year olds with SEN compared to those without SEN with (England national survey) (NHSD, 2018a)
 - Mental disorder: 47.1% vs 9.0%
 - Behavioural disorder: 23.1% vs 3.3%
 - Emotional disorder: 20.3% vs 6.0%
 - Hyperkinetic disorder: 11.9% vs 0.8%
 - Autism spectrum disorder: 13.9% vs 0.1%
- Children with intellectual disability and intellectual developmental disorders had 3-4 increased risk of co-occurring mental disorder (review) (Munir, 2016)
- Children with intellectual disability had 6.5-fold increased risk of mental disorder with increased prevalence particularly for autism spectrum disorder (OR 33.4), hyperkinetic disorder (OR 8.4) and conduct disorder (OR 5.7) (analysis of last two British national mental health surveys) (Emerson & Hatton, 2007). They comprise 14% of all British children with a diagnosable mental disorder
- Children with autism spectrum disorder were at increased risk of mental disorder (Belardinelli et al, 2016/ review; Gonzalez & Lopez, 2016/ review)

Children with specific learning difficulties include those with:

- Specific language impairment which was associated with increased rates of mental disorder as well as bullying (review) (Durkin & Conti-Ramsen, 2010)
- Dyslexia which affects 5-10% of school aged children and associated with increased rates of mental disorder (review) (Huc-Chabrolle et al, 2010)
- Poor early language skills associated with poorer mental health in adulthood (nationally representative British birth cohort study) (Schoon et al, 2010)

Adult higher risk groups

Black and Minority Ethnic groups

- Common mental disorder (CMD): Age standardized prevalence of CMD was highest in Black/Black British (22.5%), lower in mixed multiple and other (19.5%), Asian/ Asian British (17.9%), White British (17.3%) and lowest in White Other (14.4%) (England national survey) (McManus et al, 2016). In women, rates varied significantly from Black/ Black British (29.3%), mixed multiple and other (28.7%), Asian/ Asian British (23.6%), White British (20.9%) and White Other (15.6%) although did not vary significantly by ethnic group for men
- PTSD: Age standardized rates varied from 8.3% for Black/ Black British to 2.2% for White other (McManus et al, 2016). For men, PTSD screen positive varied from 6.1% for Asian/Asian British to 1.8 % for White other while for women, PTSD screen positive varied from 10.9% for Black/ Black British to 2.5 % for White other
- Psychosis: Rates of psychosis were higher in Black adults (1.4%) compared to Asian (0.9%) and White (0.5%) adults (England national survey) (McManus et al, 2016). For men, rates were even higher for Blacks (3.2%), lower for Asians (1.3%) and lowest for Whites (0.3%). Rates of schizophrenia were 5.6 times higher in black Caribbeans, 4.7 times higher in black Africans and 2.4 times higher in Asian groups (systematic review) (Kirkbride et al, 2012). Higher incidence rates for schizophrenia occurred for black Caribbeans in England compared to baseline (pooled incidence rate ratio 4.7: 95% CI 3.9-5.7) (systematic review and meta-analysis) (Tortelli et al, 2015) Bipolar disorder: Rates ranged from 3.5% in Black/ Black British to 1.4% in Asian/Asian British (McManus et al, 2016) ADHD: Rates ranged from 2.3% in Asian/Asian British to 0.3% in White British (McManus et al, 2016) Personality disorder: Rates ranged from 17.3% in Asian/Asian British to 13.9% in White British (McManus et al, 2016)
- Harmful drinking/ alcohol dependence: Rates ranged from 3.6% in White British to 0.1% in Asian/Asian British (McManus

et al, 2016)

- Drug use (age standardized) in the past year ranged from 11.7% in Black/ Black British to 3.4% in Asian/Asian British (McManus et al, 2016)
- Drug dependence (age standardized) in the past year ranged from 7.5% in Black/ Black British to 1.9% in Mixed, multiple and other

Carers

- Providing more than 20 hours weekly care resulted in two-fold increase in psychiatric symptoms (England national survey) (Smith et al, 2014)
- Caring was associated with lower subjective wellbeing particularly for carers of children with mental illness (Australian survey) (Hammond et al, 2014)
- Higher levels of sense of coherence was associated with lower levels of subjective caregiver burden and better mental health outcomes (systematic review and meta-analysis) (del-Pino-Casado et al, 2019)

Homeless

- Data from the second British national survey of psychiatric morbidity revealed prevalence rates for homeless people of 28% for probable psychosis, 9% for neurotic disorder, 10% for alcohol dependence and 15% for drug dependence (Bebbington et al, 2004)
- In 2017, number of homeless people in Britain was estimated to be 307,000 which was 4% higher than 2016 and included rough sleepers, single people in hostels, households owed a statutory duty by a local authority and homeless households being accommodated by social services (Shelter, 2017)

Learning disability

- Lower IQ was associated with increased risk of mental disorder (England national survey) (McManus et al, 2016): People with learning impairment were twice as likely as those with high verbal IQ to have an anxiety disorder or depression (25% compared with 13%) while the disparity was even more pronounced for rates of probable psychotic disorder
- Prevalence rates of mental disorder for

people with intellectual disability were 4.8% for affective disorder, 2.8% for anxiety disorder, 0.2% for OCD, 0.5% for ADHD, 2.6% for psychotic disorder, 0.7% for personality disorder, 2.2% for autism spectrum disorder, and 0.8% or alcohol or substance use disorder (Scottish survey) (Cooper et al, 2007)

- Severe mental illness (SMI): People with learning disabilities were 8.4 times more likely than the general population to be recorded as having SMI after adjusting for age and sex profile (England national GP practice data) (NHSD, 2019b)
- Intellectual disabilities were associated with increased risk of mental health conditions (OR 7.1:95% CI 6.8-7.3) (Scotland Census 2011) (Hughes-McCormack et al, 2017). Proportion who had a mental health condition was 23.4% for adults with intellectual disability compared to 5.3% without and 27.2% for older adults with intellectual disability compared to 4.5% without
- Dementia: Risk for people with learning disability in England was 5.1 higher than the general population (England national GP practice data) (NHSD, 2016)
- Premature mortality: 18 year lower life expectancy for women with learning disability and 14 year lower life expectancy for men with learning disability compared to the general population (England national GP practice data) (NHSD, 2019b)
- Standardised Mortality Ratio (SMR) for people with learning disabilities in England was 2.98 times higher than for the general population Health and care of people with learning disabilities 2014-15. NHS Digital Other impacts
 - Higher rates of physical health conditions (England national GP practice data) (NHSD, 2016)
 - Higher rates bullying and being victims of crime (Emerson et al, 2009/report; Emerson et al, 2012/ report)
 - Higher risk of experiencing poverty, poor housing and discrimination (Emerson & Baines, 2010/ report)

Lesbian, gay, bisexual and transgender (LGBT) people

- Prevalence of mental disorder in LGB people include 22% for common mental disorder, 9% for attempted suicide, 1% for probable psychosis and 10% for alcohol dependence (England national survey) (Chakraborty et al, 2011)
- Proportion with longstanding psychological or emotional problems (national England GP survey) (Elliott et al, 2015):
 - Men: 5.2% heterosexual, 10.9% gay, 15.0% bisexual
 - Women: 6.0% heterosexual, 12.3% lesbian, 18.8% bisexual
- Rates of mental disorder among gay men in England, Scotland and Wales were 21.3% for depression, 17.1% for anxiety, 6.5% for self-harm and 3.0% for attempted suicide (English, Scottish and Welsh community based cross-sectional survey) (Hickson et al, 2016). Rates of mental disorder and attempted suicide were higher for transgender people
- People with non-heterosexual orientation were less likely to describe themselves as happy (OR 0.67) and more likely to consult their GP due to mental health issues and have psychiatric community care contacts compared to those with heterosexual orientation (England national survey) (Chakraborty et al, 2011)
- Heterosexual people had higher rates of life satisfaction, life feeling worthwhile and happiness than gay or lesbian people who had higher levels than bisexual people (UK national survey) (ONS, 2017e)
- Sexual minority adolescents and adults had higher risk of depression, anxiety, suicide attempts, suicide and substance-related problems (systematic review) (Ploderl & Tremblay, 2015)

Offenders

- Imprisonment: Entry into prison resulted in higher levels of psychiatric symptoms which improved over time (systematic review) (Walker et al, 2014). However, duration of imprisonment appeared to have no impact on mental health
- Major depression affected 10.2% of male prisoners and 14.1% of female prisoners

(systematic review and meta-regression across 24 countries) (Fazel & Seewald, 2012)

- Psychosis affected 3.6% of male prisoners and 3.9% of female prisoners although 5.5% in low-middle income countries (systematic review and meta-regression across 24 countries) (Fazel & Seewald, 2012)
- Substance misuse (review) (Fazel et al, 2016). Comorbid substance misuse worsened the prognosis of other mental disorder and increased repeat offending and premature mortality following release (Swedish national longitudinal cohort study) (Chang et al, 2015)
- Smoking: 80% of prisoners in England and Wales were smokers (England and Wales survey) (Singleton et al, 1998)
- Personality disorder: Large high quality studies using clinically-based diagnoses reported 7-10% prevalence rates (review) (Fazel et al, 2016)
- Suicide: Compared to the general population, relative risk of suicide was 3-6 times higher for male prisoners and more than six times higher for female prisoners (review) (Fazel et al, 2016)
- Self-harm: 5-6% of men and 20-24% of women self-harmed in the previous year in custody in English and Welsh prisons (case-control study of all prisoners in England and Wales) (Hawton et al, 2014)
- Female prisoners had higher rate of psychiatric disorders particularly depression (systematic review and meta-regression across 24 countries) (Fazel & Seewald, 2012) and drug dependence (national US survey) (Binswanger et al, 2010)
- Recent prevalence rates for different mental disorder among prisoners from one London prison were 53.8% for depressive disorders, 26.8% for anxiety disorders, 12% for psychosis, 34.2% with some form of personality disorder, 33.1% for alcohol dependence, 57.1% for dependence on illegal drugs and 69.1% with two or more disorders (Bebbington et al, 2017). Moreover, in the year before imprisonment, 25.3% had used mental health services
- Probation: 39% of people on probation had a mental illness, 60% substance misuse problems and 48% personality

disorders (survey of one region in England) (Brooker et al, 2012)

- Violent men and gang members had higher rates of mental disorder and use of psychiatric services than non-violent men although lower rates of depression (UK cross sectional survey) (Coid et al, 2013)

Older people in care homes

- Mental disorders were highly prevalent among older people in care homes (NICE, 2013b) including 58% for dementia, 10% for major depressive disorder and 29% for depressive symptoms (systematic review) (Seitz et al, 2010)
- In 2011, 291,000 people aged 65 and over were living in care homes in England and Wales representing 3.2% of the total population of this age group (ONS, 2014)

Perinatal period

- New mothers represent a large group of the population with 777,165 live births in the UK in 2015 (ONS, 2016b)
- Childbirth is associated with increased risk of mental disorder in mothers with and without previous problems and suicide is the leading cause of overall maternal mortality
- During pregnancy, 12% women experience depression, 13% anxiety and 5-7.5% an eating disorder while during the postnatal period, 15-20% of women experience depression and anxiety and 0.1-0.2% experience post-partum psychosis (NICE, 2014a). Although alcohol misuse is less common during pregnancy, 10% of women of child bearing age are binge drinkers and are likely to have consumed alcohol before they were pregnant while 10-15% of pregnant women have positive drug screens at inner city maternity services (NICE, 2014a). Furthermore, 10.8% of women smoked during pregnancy (NHSD, 2018c)
- In early pregnancy, 27% of women had a mental disorder including 11% with depression, 15% with anxiety disorders, 2% obsessive compulsive disorder, 0.8% PTSD, 2% eating disorders, 0.3% bipolar

disorder I, 0.3% bipolar II and 0.7% borderline personality disorder (London cross sectional survey) (Howard et al, 2018)

- 39% of women who experienced antenatal depression subsequently developed postnatal depression while 47% of those with postnatal depression had experienced antenatal depression (review of longitudinal studies on antenatal and postnatal depression) (Underwood et al, 2016)
- Risk factors for mental disorder in pregnancy and the postnatal period include hormonal changes (including thyroid and pituitary hormones, cortisol and gonadal hormones) and a personal or family history of postnatal depression (NICE, 2014a). Specific traumas including stillbirth, infant complications and other forms of traumatic childbirth experiences are associated with mental health problems, particularly PTSD (systematic review) (Andersen et al, 2012)
- Risk factors for antenatal depression and anxiety included lack of partner or social support, history of abuse or domestic violence, personal history of mental illness, unplanned or unwanted pregnancy, adverse life events and high perceived stress, pregnancy complications and pregnancy loss (systematic review) (Biaggi et al, 2016)
- Risk factors for postnatal depression include antenatal depression and anxiety, previous psychiatric illness, poor marital relationship, stressful life events, negative attitude towards pregnancy, lack of social support (review) (Norhayati et al, 2015), insecure adult attachment style (systematic review) (Warfa et al, 2014), household income, occupational position, marital status and number of children (US survey) (Segre et al, 2007). Women who experienced abuse in childhood and adulthood were at particular risk (review) (Kendall-Tackett et al, 2007). Postnatal depression is also associated with increased risk of depression in fathers (meta-analysis) (Paulson & Bazemore, 2010)
- Particular groups are at higher risk with 42% of immigrant, asylum and refugee women experiencing post-natal depression in developed countries (review) (Collins et al, 2011)

Physical health conditions

(See section child and adult risk factor sections)

Refugees and asylum seekers

- Rates of mental disorder were several times higher for this group (Fazel et al, 2005/ systematic review; Fazel et al, 2012/ systematic review and meta-regression analysis)
- For young asylum seekers in European countries, prevalence of different mental disorders included 19.0-52.7% for PTSD, 10.3-32.8% for depression, 8.7-31.6% for anxiety disorders and 19.8-35.0% for emotional and behavioural problems (systematic review) (Kien et al, 2018)
- For refugees resettled in western countries, 9% of adult refugees had post-traumatic stress disorder (PTSD), 44% of those diagnosed with PTSD also had major depression (systematic review and meta-analysis) (Lindert et al, 2009). Among refugee children, PTSD rates varied from 54% and depression from 3-30% (systematic review) (Bronstein & Montgomery, 2011)
- Common mental disorder occurred in up to 40% of asylum seekers and refugees (review) (Turrini et al, 2017)
- War refugees had long term increased risk of depression (range 2.3-80%), PTSD (4.4-86%), unspecified anxiety disorder (20.3-88%) (systematic literature review) (Bogic et al, 2015) and psychosis (Dapunt et al, 2017/ review; Hollander et al, 2016/Swedish cohort study)

Sensory impairment

Deaf people experienced higher rates of mental disorder (Fellinger et al, 2012/ review; Emond et al, 2015/ UK cross-sectional study).

Visually impaired older adults have

- Higher risk of one mental disorder (OR 1.32: 95% CI 1.23-1.41), two mental disorders (OR 1.53: 95% CI 1.40-1.67) and three mental disorders (OR 1.76: 95% CI 1.51-2.04) (Scottish cross sectional study of older adults) (Court et al, 2014)
- Higher rates of depression and anxiety disorders (Dutch cross-sectional survey) (van der Aa et al, 2015)

Students in higher education

Half of university aged students had a psychiatric disorder which functionally impaired them during the previous academic year (US national survey) (Blanco et al, 2008). Prevalence of mental disorder and poor mental wellbeing appeared to be worsening among higher education students with a five-fold increase in the number of students disclosing a mental disorder to their institution in the last ten years (review and UK survey) (Thorley, 2017). Mental disorders also account for an increasing proportion of disability disclosed by first year students rising from 5% in 2006/7 to 17% in 2015/16. Student suicide increased by 79% between 2007 and 2015.

Unemployed and benefit claimants

See section on adult risk factors (McManus et al, 2016)

Young women

- Young women had high rates of CMD, self-harm, PTSD and bipolar disorder (England national survey) (McManus et al, 2016)
- Almost a quarter of 17-19 year old women (23.9%) had a mental disorder including 22.4% with emotional disorder (England national survey) (NHSD, 2018a). Half (52.7%) of 17-19 year old women with mental disorder had self-harmed or attempted suicide

TABLE 8: PREVALENCE OF MENTAL DISORDER IN PARTICULAR CHILD AND ADOLESCENT HIGHER RISK GROUPS

Group	Prevalence of mental disorder
Looked after children	46.4% (Ford et al, 2007)
Children with special educational need requiring statutory assessment	47.1% (NHSD, 2018a)
Children with learning disability	36% (Emerson & Hatton, 2007)
11-16 year olds truant from school	9.7% with emotional disorder, 11.2% with behavioural disorder (NHSD, 2018a)
5-19 year olds from households in lowest 20% household income	14.7% (NHSD, 2018a)
5-19 year olds from households with parent on low-income benefits	18.2% (NHSD, 2018a)
5-19 year olds from families receiving disability benefits	31.8% (NHSD, 2018a)
Children in stepfamilies	14% (Green et al, 2005)
Children from lone parent families	16% (Green et al, 2005)
Not in Employment, Education or Training	35% (major depressive disorder) 57% (daily smoker) 16% (cannabis dependence) (Goldman-Mellor et al, 2016) 29% (conduct disorder)

Public mental health interventions

Good evidence exists for a range of public mental health interventions which reduce the impact of mental disorder and poor wellbeing (see earlier sections on impacts of mental disorder and wellbeing). These can (HMG, 2010a; RCPsych, 2010; Campion et al, 2012):

- Prevent mental disorder from arising by addressing key risk factors (primary prevention)
- Detect and treat mental disorder and associated impacts at an early stage (secondary prevention)
- Prevent relapse and associated impacts of mental disorder including health risk behaviours, physical illness, inequalities, discrimination and stigma, violence and abuse, and suicide (tertiary prevention)
- Promote wellbeing (primary promotion) including at an early stage in those experiencing a reduction in wellbeing (secondary promotion) and those with longer standing poor wellbeing (tertiary promotion) with resulting improvements in physical health, life expectancy, educational outcomes, economic productivity, social functioning, and healthier lifestyles

Good public mental health commissioning involves providing a balance of different levels of mental disorder prevention and wellbeing promotion according to need.

MENTAL DISORDER PREVENTION

As outlined in Box 1, mental disorder prevention can be considered at primary, secondary and tertiary levels. As for other diseases such as cardiovascular disease, treatment alone is not enough to sustainably reduce burden of mental disorder with an Australian study showing that disease burden would only be reduced by 28% even if everyone with a mental disorder received best available treatment (analysis of survey data) (Andrews et al, 2004). Cost effective interventions to prevent mental disorder are outlined in Table 9.

Primary mental disorder prevention

Primary mental disorder prevention includes interventions to address risk factors in order to prevent mental disorder from arising.

A public health approach recognises wider determinants and lifelong impact of mental health. As for action on cardiovascular disease, addressing such determinants is important to prevent mental disorder and promote mental wellbeing (Campion et al, 2012).

A population approach takes account of the size of impact of different factors, the proportion affected by such factors, and levels and outcomes of effective interventions to address such factors which can be assessed in a structured way (Campion, 2013; Campion et al, 2017a).

Childhood is a key opportunity since most mental disorder arises before adulthood and childhood mental disorder is also a risk factor for adult mental disorder. A range of impacts across the life course can be averted through both prevention and early treatment of mental disorder. Primary prevention can have significant impacts. For instance, stepped-care prevention interventions can reduce the incidence of depression by 25-50% (systematic review) (Muñoz et al, 2010). Such interventions also need to be targeted at groups at higher risk of developing mental disorder.

Interventions which address important risk factors to prevent mental disorder are outlined in this section. Primary prevention can be directed to:

- General population (universal prevention)
- Groups at higher risk of mental disorder outlined in the previous section (selective prevention)

PRIMARY MENTAL DISORDER PREVENTION

- Addressing socio-economic inequalities
- Perinatal parental interventions
- Addressing parental mental disorder
- Parenting programmes
- Addressing child adversity
- Prevention of violence and abuse
- Prevention of mental disorder by addressing particular risk factors including social isolation, physical inactivity, screen time, insomnia, diet and climate change
- Early intervention for childhood mental disorder
- Prevention of particular mental disorders and suicide
- Prevention of alcohol use disorder, drug use and tobacco dependence
- Prevention of mental disorder in higher risk groups
- Facilitating improved coverage of primary prevention of mental disorder
 - Settings based approaches
 - Economic policy including taxation
 - Particular interventions including parenting interventions and addressing child adversity
 - Digital technology
 - Legislation and regulation

Prevention of mental disorder can also occur through promotion of protective factors for mental wellbeing. The section on promotion of mental wellbeing promotion includes various interventions to promote mental wellbeing which also result in mental disorder prevention including parental support, home visiting programmes, parenting programmes, preschool programmes, school based and work based mental health promotion.

Addressing socio-economic inequalities

Socio-economic inequality underpins many other risk factors for mental disorder (Campion et al, 2013; Reiss, 2013/ systematic review). For instance, if all children had the same risk as the most socially advantaged, this would result in potential reduction of 59% for conduct disorder, 34% for emotional disorder and 54% for hyperkinetic disorder (based on Great Britain national survey) (Spencer, 2008). Therefore, addressing and preventing inequality can prevent mental disorder.

Effective evidence-based strategies to reduce health inequalities in England exist in the following areas (Marmot et al, 2010):

- Giving every child the best start in life
- Enabling all children, young people and adults to maximise their capabilities and have control over their lives
- Creating fair employment and good work for all
- Ensuring a healthy standard of living for all
- Creating and developing healthy and sustainable places and communities
- Strengthening the role and impact of ill health prevention

National government economic policy including taxation is an important overarching intervention which could impact across a large proportion of the population at higher risk of mental disorder. Increased taxation also reduces consumption of alcohol (Wagenaar et al, 2009/meta-analysis; NICE, 2010a; PHE, 2016a/review; Burton et al, 2017/ review) and tobacco (report) (Chaloupka et al, 2011).

More specific interventions to address socioeconomic inequalities include prevention and action to address:

- Debt (Fitch et al, 2014) although a randomized trial failed to show impact (Pleasence & Balmer, 2007)
- Financial capability: Moving from low (average) financial capability to average (high) financial capability was associated

with improvement in GHQ score of 14.5% (5.6% for men and 11% (5%) for women (British Household Panel Survey) (Taylor et al, 2011)

- Fuel poverty (PHE, 2014b; Butcher, 2014; Maryon-Davis & Ballard, 2015)
- Food insecurity (Shankar et al, 2017/ systematic review; Bhutta et al, 2013/ review)

Large differences exist between countries in the impact of unemployment on suicide which can be partly explained by differences in spend on active labour market and welfare programmes (Stuckler et al, 2011; Stuckler & Basu, 2013). During recession, predicted increases in suicide can be prevented by more generous unemployment protection (cross-sectional time-series data analysis from 30 countries) (Norström & Grönqvist, 2015).

However, although interventions which moved children out of poor neighbourhoods reduced mental disorder in girls, it increased rates in boys (US long term evaluation of randomised study) (Kessler et al, 2014).

Perinatal parental interventions

For this section, please also see 'Starting well' section in Mental Wellbeing Promotion section.

Before and during pregnancy

Interventions to:

- Support smoking cessation (review) (Nkoane-Kelaeng et al, 2016) through pharmacotherapy (Cochrane systematic review) (Coleman et al 2015), psychosocial interventions (Cochrane systematic review) (Chamberlain et al, 2017), financial incentives (Higgins et al, 2012/review; Tappin et al, 2015/RCT) and digital interventions (systematic review and meta-analysis) (Griffiths et al, 2018). Factors associated with cessation include no depression (OR 2.65: 95% 1.62-4.30), low stress during pregnancy (OR 0.58: 95% 0.44-0.77), higher level of education (OR 2.16: 95% CI 1.80-2.84), higher socio-economic status (OR 1.97: 95% CI 1.20-3.24), overseas maternal birth (OR 2.00: 95% 1.40-2.84), Medicaid coverage or private insurance (OR 1.54: 95% 1.29-1.85), living with partner or married (OR 1.49: 95% CI 1.38-1.61), partner/other members of the household do not smoke (OR 0.42: 95% 0.35-0.50), lower heaviness of smoking index score (OR 0.45: 95% 0.27-0.77), lower baseline cotinine level (OR 0.78: 95% 0.64-0.94), low exposure to second hand smoking (OR 0.45: 95% 0.20-1.02), not consuming alcohol before and/or during pregnancy (OR 2.03: 95% 1.47-2.80), primiparity (OR 1.85: 95% 1.68-2.05), planned breastfeeding (OR 1.99: 95% 1.94-2.05) and perceived adequate pre-natal care (OR 1.74: 95% 1.38-2.19) (systematic review and meta-analysis) (Riaz et al, 2018). Smoke-free legislation is associated with substantial benefits to child health (systematic review and meta-analysis) (Faber et al, 2017)
- Reduce and avoid alcohol consumption during pregnancy (Gillinsky et al, 2011/systematic review; NICE, 2014a; PHE, 2016a) although there was lack of studies for this group (review) (Crawford-Williams et al, 2015)
- Reduce drug misuse (NICE, 2007a)

- Prevent prematurity (Swedish cohort study) (Nosarti et al, 2012) through improved antenatal and perinatal care
- Address prenatal infection (review) (Flinkkilä et al, 2016)
- Prevent low birth weight (Swedish population-based sibling comparison) (Class et al, 2014)
- Improve nutrition (review) (O'Neil et al, 2014a)
- Reduce low vitamin D levels which may reduce risk of preterm birth, low birth weight, preterm weight (Cochrane systematic review) (De-Regil et al, 2016), autism spectrum disorder (Dutch birth cohort study) (Vinkhuyzen et al, 2017) and preschool ADHD symptoms (Greek cohort study) (Daraki et al, 2018)

Breastfeeding

Breastfeeding is associated with reduced child behavioural problems (Heikkilä et al, 2011/ UK Millennium Birth Cohort study; Borra et al 2015/ analysis of longitudinal studies) as well as reductions in hypertension, obesity and diabetes in later life (systematic review) (Horta & Victoria, 2013). Breastfeeding is facilitated by breastfeeding support (Cochrane systematic review) (McFadden et al, 2017) and early skin-to-skin contact after birth (Cochrane systematic review) (Moore et al, 2016) including for low birth weight infants (Cochrane systematic review) (Conde-Agudelo et al, 2016).

Addressing parental mental disorder

Parental mental disorder (NICE, 2014a) is associated with a range of adverse outcomes for offspring including increase mental disorder in childhood, adolescence and adulthood. Relevant interventions include:

- Treatment of parental mental disorder which can prevent 40% of mental disorder in off-spring (systematic review and meta-analysis) (Siegenthaler et al, 2012)
- Prevention of parental mental disorder: For instance, maternal postpartum depression can be prevented through psychosocial and psychological interventions (Cochrane systematic review) (Dennis & Dowswell, 2013) with some evidence for interpersonal therapy, CBT (review) (Werner et al, 2016a) and peer support (review) (Leger & Letourneau, 2014/review). Most effective interventions to prevent post-natal depression included (systematic review) (Morrell et al, 2016):
 - Midwifery redesigned postnatal care
 - Person-centred approach (PCA) based and CBT based intervention (universal)
 - Interpersonal psychotherapy (IPT) based intervention and education for parenting (selective)
 - Promoting parent-infant interaction
 - Peer support
 - IPT-based, PCA based and CBT based intervention (selective)
- Health visitors have an important role (NICE, 2014b)
- Parenting support and programmes as outlined below to prevent higher rates of mental disorder in offspring

Parenting programmes

For this section, please also see 'Starting well' section in Mental Wellbeing Promotion section. Parenting programmes impact in the following areas.

a) Prevention of child mental disorder

- Child internalising problems: Parenting interventions prevented child internalising problems and lasted up to 11 years (meta-analysis of RCTs) (Yap et al, 2016)
- Child externalising behaviour:
 - Child conduct problems in 3-12 year olds reduced with behavioural and cognitive-behavioural group-based parenting interventions which were effective, cost-effective and improved parental mental health and parenting skills in the short term (Cochrane systematic review) (Furlong et al, 2012)
 - Externalising behaviour moderately reduced by parent-based interventions (SMD 0.45: 95% CI 0.35-0.55) with effects stable at follow up (meta-meta-analysis) (Mingebach et al, 2018)
- Child substance use: Relatively low-intensity group parenting interventions were effective at reducing or preventing adolescent substance use (systematic review) (Allen et al, 2016)
- Childhood antisocial behaviour and delinquency can be prevented by early family/parent training programmes (ES 0.37) with largest effect for parent child interaction therapy (ES 0.98), Triple P parenting programme (ES 0.56) and Incredible Years parenting programme (ES 0.31) (meta-analysis) (Piquero et al, 2016). Incredible Years had greater benefit in most distressed families (meta-analysis) (Gardner et al, 2017)

b) Prevention of unintentional injury

Reduced unintentional injury (Kendrick et al, 2013/ Cochrane systematic review; Desai et al, 2017/review).

c) Improved child behaviour

- Parent-based interventions had significant moderate effect on child behaviour (SMD 0.46: 95% CI 0.38-0.54) with effects stable at follow up (meta-meta-analysis) (Mingebach et al, 2018)

- Improved short term child emotional and behavioural adjustment in under 4 year olds with group parenting programmes (systematic review) (Barlow et al, 2016a)
- Improved child social, emotional and behavioural outcomes (Triple P) (systematic review and meta-analysis) (Sanders et al, 2014)
- Effect of interventions for child disruptive behaviours was the same for those with only a parent component as multi-component interventions (meta-analysis) (Epstein et al, 2015)
- ADHD (NICE, 2013c)
 - Improved behaviour in children with ADHD (meta-analysis) (Lee et al, 2012), parenting quality and self-concept, child ADHD, conduct problems, social skills and academic performance in under 18's with ADHD (meta-analysis) (Daley et al, 2014)
 - Improved child behaviour in preschool children at high risk of developing ADHD (review) (Charach et al, 2013) although not when independently rated (systematic review and meta-analysis) (Rimestad et al, 2016)
- Autism spectrum disorder:
 - Improved behaviour (Oono et al, 2013/ Cochrane systematic review; Beaudoin et al, 2014/review)
 - Reduced disruptive behaviour (SMD -0.59: 95% CI -0.88 to -0.30) (systematic review and meta-analysis) (Postorino et al, 2016)
 - Small effects across most outcome areas (meta-analysis) (Nevill et al, 2018)
- Developmental disability: Parent management training programmes had significant impact on disruptive behaviour of children with developmental disability (g 0.39) (meta-analysis) (Skotarczak & Lee, 2015)
- Foster children: Reduced disruptive behaviour in foster children (ES -0.20: 95% CI -0.39 to -0.01) (meta-analysis) (Soloman et al, 2016)

d) Improved parenting

- Improved parenting practice, satisfaction, adjustment, efficacy, parental adjustment and relationship (Triple P) (systematic

review and meta-analysis) (Sanders et al, 2014)

- Reduced negative or harsh parenting practices (Cochrane systematic review) (Furlong et al, 2012)
- Ethnic minority parents: Parent training programmes for ethnic minority parents are effective although programmes with cultural adaptations are more effective in improving parenting behaviour (meta-analysis) (van Mourik et al, 2017)
- Foster parent training had moderate and significant impact on parenting (ES 0.52: 95% CI 0.22-0.82) (meta-analysis) (Soloman et al, 2016)
- Young offender parents: Male participants liked the courses, found them useful and interventions may improve knowledge about, and attitudes to, parenting (systematic review) (Buston et al, 2012)
- Parents of children with disability
 - Improved parenting satisfaction and efficacy, parental adjustment, parental relationship, and child behaviours in children with disability (Stepping Stones Triple P) (systematic review and meta-analysis) (Tellegen & Sanders, 2013)
 - Improved parental child care, safety skills and maternal-child interaction for parents with intellectual disabilities (Cochrane systematic review) (Coren et al, 2010)

e) Improved parental mental health

Group parenting interventions led to short-term improvements in depression, anxiety, stress, anger, guilt, confidence and satisfaction with partner relationship (Cochrane systematic review) (Barlow et al, 2014). However, only stress and confidence continued to be significant after six months and none were significant at one year.

Parent training programmes were equally effective for disadvantaged and non-disadvantaged families immediately after although maintenance of treatment gain was harder for disadvantaged families (meta-analysis) (Leijten et al, 2013). Furthermore, extensive adaptation of parenting programmes was not required for successful transportation between countries (systematic review and meta-analysis) (Gardner et al, 2016).

Prevention and addressing child adversity

Child adversity accounts for almost a third of adult mental disorder (analysis of international surveys) (Kessler et al, 2010). Child adversity also accounted for a large proportion of health harming behaviour in England including 11.9% of binge drinking, 13.6% of poor diet, 22.7% of smoking, 52.0% of violence perpetration, 58.7% of heroin/crack cocaine use, and 37.6% of unintended teenage pregnancy (England national survey) (Bellis et al, 2014).

Addressing adversity is therefore key to prevent mental disorder although is an important child protection issue and is supported by legislation including the 1989 Children's Act, the 2004 Children's Act, the 2006 Health Act, the 2010 Equality Act, the Children and Families Act (2014), the Children and Social Work Act (2017) and UN Rights legislation including on the Rights of the Child. NICE guidance (2017a) highlights recognition of child abuse and neglect, assessment of risk, early help for affected families, the need for multi-agency response and therapeutic interventions after child abuse and neglect.

Prevention of child maltreatment and abuse can occur through:

- Parent training programmes which result in reduced:
 - Child maltreatment (meta-analysis) (Chen & Chan et al, 2016)
 - Unintentional injury by parents (Kendrick et al, 2013/ Cochrane systematic review; Desai et al, 2017/review)
 - Negative or harsh parenting practices (Furlong et al, 2012/ Cochrane systematic review; Chen & Chan, 2016/ meta-analysis)
 - Childhood antisocial behaviour (meta-analysis) (Piquero et al, 2016)
- Parental education for expectant and new parents (meta-analysis) (Pinquart & Teubert, 2010)
- Home visiting programmes (Avellar et al, 2013/ systematic review; Peacock et al, 2013/ systematic review; Chartier et al, 2017/cohort)
- School based programmes which can reduce:

- Violence (systematic review of systematic reviews) (Lester et al, 2017)
- Aggression through school based cognitive behavioural therapy (CBT) (weighted ES score -0.23) (meta-analysis) (Barnes et al. 2014)
- Bullying (systematic review) (Evans et al, 2014): In England, all state schools are legally obliged to have a policy to prevent all types of bullying. Programmes to reduce bullying reduced internalising problems and improve peer group perceptions (Finnish randomised trial) (Williford et al, 2012). Cessation of physical abuse and bullying is also predictive of cessation of psychotic experiences (Irish cohort study) (Kelleher et al, 2013). Prevention of cyberbullying can occur through school based programmes although also at individual, organisation, community and legal levels with parents a central component of any effective strategy (review) (Aboujaoude et al, 2015)
- Dating violence (meta-analysis) (De La Rue et al, 2017)
- Sexual abuse through improving protective factors and knowledge (Cochrane Systematic Review) (Walsh et al 2015) (see also DfE, 2016)
- Sexual violence perpetration (Foshee et al, 2004/RCT; DeGue et al, 2014/ systematic review)
- Adult and parental support
 - Adult trusted support substantially mitigated the impact of child adversity. For children with four or more ACEs, presence of always available adult support was associated with reduction of two health risk behaviours from 21.5% to 7.1% and of lower wellbeing from 8.3 higher to 3.3 higher (UK cross sectional survey) (Bellis et al, 2017)
 - Parental support was associated with increased odds of good mental health among adolescents with a history of child maltreatment (adj OR 2.2-5.7) and without a history of child maltreatment (adj OR 2.1-7.1) (national US survey) (Cheung et al, 2017)
- Prevention of PTSD and reduction of symptoms through psychological

therapies for children and adolescents exposed to trauma (Cochrane systematic review) (Gillies et al, 2016)

- Safeguarding vulnerable children and adults including address abuse early (such as through Child Protection Plans)
- Community violence prevention (review) (Abt, 2017)
- Preventing alcohol misuse (NICE, 2010a; PHE, 2016a)
- Address domestic violence (NICE, 2014c; Stanley et al, 2015/ review)

Early intervention to address child maltreatment and abuse is also important (NICE, 2009h).

Seven strategies for reducing violence against children include implementation and enforcement laws, norms and values, safe environments, parental and caregiver support, income and economic strengthening, response and support services, and education and skills (INSPIRE) (WHO, 2016b; Hillis et al, 2016b/ evidence review).

Prevention of violence and abuse

Since neuropsychiatric disorders are among the strongest risk factors for interpersonal violence (review of meta-analyses) (Fazel et al, 2018) (see pages 15-16), violence prevention strategies should incorporate guidelines and targets for prevention and treatment of mental disorders which would prevent a large proportion of interpersonal violence.

Prevention of violence and abuse can occur through the following interventions (see also see previous section addressing child adversity)

- Addressing insecure attachment which is strongly associated with all types of criminality including sexual offending, violent and non-violent offending, and domestic violence) even in the absence of psychopathology (meta-analysis) (Ogilvie et al, 2014). Poor attachment to parents was significantly linked to delinquency in boys and girls (r 0.18) (meta-analysis) (Hoeve et al, 2012). Therefore, programmes to promote attachment could prevent delinquency and criminality (see mental health promotion section)
- Individually focused interventions, family based programmes and school based programmes were effective in reducing child and adolescent violence, aggression, bullying, offending and delinquency (systematic review) (Farrington et al, 2017) (see also previous column for school based programmes)
- Psychosocial interventions: A broad range of youth psychosocial interventions had modest effects to both prevent and treat antisocial behaviour (d 0.31: 95% CI 0.23-0.39) for at least one year after the end of intervention (meta-analysis) (Sawyer et al, 2014)
- Family intervention projects in the UK resulted in 61% reduction in domestic violence and 89% reduction in families with four or more antisocial behaviour problems (NCSR, 2010)
- Cognitive behavioural therapy (CBT) was effective in reducing aggression in adolescents (d 0.50) (meta-analysis) (Smeets et al, 2015) including in schools (weighted ES score -0.23) (meta-analysis) (Barnes et al. 2014)
- Prevention of domestic violence (NICE, 2014c) including through school based interventions (review) (Stanley et al, 2015)
- Prevention of alcohol associated harm and associated violence through action on price, availability, marketing, licensing, screening and brief interventions (NICE, 2010a; PHE, 2016a): Analysis of the British Crime Survey showed that more than a third (36%) of domestic violence incidents and more than half (53%) of all assaults with minor injury were alcohol related (Flatley, 2015). Interventions include
 - Combined alcohol and violence treatment programmes found some positive effects of brief alcohol intervention as an adjunct to batterer treatment for hazardous drinking Intimate Partner Violence perpetrators, and of brief interventions with non-dependent younger populations, but effects were often not sustained (systematic review) (Wilson et al, 2014)
 - Treatment for problem drinkers (WHO, 2009; NICE, 2011a)
 - Control of availability and density of sales outlets (WHO, 2009)
 - Alcohol pricing (NICE, 2010a; WHO, 2009): A minimum unit price of £0.45 would lead to those in routine or manual work accruing 81.8% reduction in premature deaths (modeling study) (Holmes et al, 2014)
 - Community and school policies on alcohol (NICE, 2007b; Evans-Whipp et al, 2013/ US and Australian prospective study)
 - Brief interventions with youth involved in violence to reduce hazardous drinking (Smith et al, 2003/RCT; Walton, 2010/RCT)
- Targeted multi-component and multi-agency programmes (WHO Europe, 2010)
- Prevention of elder abuse (review) (Pillemer et al, 2016)
- Violence prevention interventions for offenders (see violence prevention section in tertiary prevention)
 - Lack of effective gang specific programmes (review) (O'Connor & Waddell, 2015)
 - More research is required regarding effectiveness of interventions to prevent individuals sexually reoffending against children (Dennis et al, 2012/ Cochrane systematic review; Långström et al. 2013/systematic review)
- Prevention of access to lethal means (WHO Europe, 2010)

Prevention of mental disorder by addressing particular risk factors

a) Social isolation

Social isolation through volunteering, befriending services, timebanks, learning, arts and other community activities (see section on social wellbeing promotion in mental wellbeing promotion). For older people

- Although interventions to reduce loneliness and isolation reported success, the quality of evidence was weak (review) (Gardiner et al, 2018)
- New technologies and community engaged arts are promising interventions (systematic review) (Poscia et al, 2018)
- Psychosocial interventions had a small but statistically significant effect on depressive symptoms (SMD -0.17: 95% CI -0.31 to -0.03) (systematic review and meta-analysis) (Forsman et al, 2011)
- Group-based reminiscence therapy was successful in reducing both social isolation and depression within an urban aged care setting (systematic review) (Franck et al, 2016)
- Evidence on e-Interventions for loneliness was inconsistent and weak (systematic review of systematic reviews) (Chipps et al, 2017)

b) Physical inactivity

- Physical activity could prevent depression regardless of age and geographical region (meta-analysis of prospective cohort studies) (Schuch et al, 2018a). A Norwegian cohort study of 33,908 adults estimated that 12% of cases of depression could be prevented with at least one hour of physical activity each week after adjustment for confounders (Harvey et al, 2018)
- Physical activity during childhood led to improved mental health outcomes for all children including reduced depression, anxiety, psychological distress/PTSD, emotional disturbance and increased self-esteem and self-concept (ES -0.30 for RCT studies and -0.57 for non-RCT studies) (meta-analysis) (Ahn & Fedeqa, 2017)
- Reducing sedentary behaviours: In children and adolescents, interventions were effective in decreasing sedentary behaviours particularly in children under 6

years and include involvement of family, behavioural interventions and electronic TV monitoring devices (review of reviews) (Biddle et al, 2014)

- Leisure time physical activity: Leisure-time physical activity ($r=-0.11$) and school sport ($r=-0.09$) both had an inverse association with mental ill-health although physical activity was not consistently associated with lower mental ill-health across domains as work-related physical activity was positively associated with mental ill-health ($r=0.09$) (meta-analysis) (White et al, 2017a). Household physical activity and participation in physical education had no relationship with mental ill-health
- Physical exercise programmes were effective in reducing or postponing frailty in older people but only when conducted in groups (systematic review) (Apóstolo et al, 2018)
- Exercise could prevent dementia (systematic review and meta-analysis) (Livingston et al, 2017)
- Adults who exercised had 1.49 (43.2%) fewer days of poor mental health in the previous month than those who did not exercise but who were other matched for several physical and socio-demographic variables (large cross-sectional US study) (Chekroud et al, 2018). All exercise was associated with reduced poor mental health with largest impact from popular team sports (22.3% lower), cycling (21.6% lower), and aerobic and gym activities (20.1% lower)
- Exercise training for patients with a chronic illness significantly reduced anxiety symptoms (d 0.29: 95% CI 0.23-0.36) (systematic review) (Herring et al, 2010). However, impacts on psychological outcomes of people with type 2 diabetes were mixed (systematic review) (van der Heijden et al, 2013)

c) Screen time

Screen time can be reduced through screen time limits (Sigman, 2014) which have been recommended by the US Department of Health as one of its national 'health

improvement priorities' and a key 'disease prevention objective' (ODPHP, 2014). In 2013, the US Department of Health recommended that children under two years of age should not be exposed to screens and that children over two years should be no more than two hours a day screen time. The American Academy of Pediatrics (2016) made the following media use recommendations for media for children:

- Children younger than 18 months to avoid use of screen media other than video chatting
- Parents of children aged 18-24 months who want to introduce digital media to should choose high-quality programmes and co-view with their children
- Children aged 2 to 5 years to limit screen use to 1 hour each day of high quality programmes
- Children aged 6 and older to place consistent limits on screen time and types of media. Ensure that media does take place of adequate sleep, physical activity and other behaviours essential to health
- Designated media-free times together such as dinner and driving as well as media-free locations such as bedrooms

Regarding interventions to reduce screen time:

- TV limiting devices reduced TV watching in children (review of reviews) (Preston et al, 2017)
- Interventions which focus on reducing sedentary activity in children and adolescents were associated with reduced sedentary time and weight and include involvement of family, behavioural interventions and electronic TV monitoring devices (review of reviews) (Biddle et al, 2014). Interventions were more effective in children younger than six years (systematic review and meta-analysis) (Downing et al, 2016)
- For children under 12 years, electronic TV monitoring, contingent feedback systems and clinic based counselling are effective (systematic review) (Schmidt et al, 2012)

- Interventions could reduce screen time and prevent excess weight (systematic review and meta-analysis) (Wu et al, 2016)
- School based interventions were effective in reducing screen time (SMD -0.37: 95% CI -0.37 to -0.13) (meta-analysis) (Friedrich et al, 2014)

d) Insomnia

Insomnia is a risk factor for mental disorder (systematic review) (Pigeon et al, 2017) and associated with screen time in children and adolescents (page 33). Insomnia can be addressed through:

- CBT (systematic review and meta-analysis) (Seyffert et al, 2016), computerised CBT (meta-analysis) (Ye et al, 2015) and self-help CBT (meta-analysis) (Ho et al, 2015) were effective in improving sleep and had following effects on mental health.
 - CBT for insomnia (CBT-i) had moderate effect on concomitant anxiety (d 0.41: 95% CI 0.32-0.49) (meta-analysis) (Belleville et al, 2011)
 - Self-help CBT significantly reduced depressive symptoms (g -0.50: 95% CI -0.7 to -0.3) and anxiety symptoms (g -0.42: 95% CI -0.6 to -0.2) (meta-analysis) (Ho et al, 2015)
 - Internet based CBT for insomnia was associated with reduced anxiety (ES -0.35: 95% CI -0.46 to -0.25) and depression (ES 0.36: 95% CI -0.47 to -0.26) (meta-analysis of RCTs) (Ye et al, 2015)
- Sleep hygiene education was significantly less effective than CBT for insomnia (systematic review and meta-analysis) (Chung et al, 2017b)
- Mindfulness meditation had a mild impact on insomnia (meta-analysis) Gong et al, 2016)
- Regular exercise had small beneficial effects on total sleep time and sleep efficiency, small-to-medium beneficial effects on sleep onset latency, and moderate beneficial effects on sleep quality (meta-analytic review) (Kredlow et al, 2015)
- Listening to music improved sleep quality (MD -2.80: 95% CI -3.42 to -2.17) (Cochrane systematic review) (Jespersen et al, 2015)

e) Dietary

- Healthy diet was associated with reduced risk of depression: RR 0.65: 95% CI 0.50-0.84 (systematic review and meta-analysis) (Lasale et al, 2018)
- Dietary interventions significantly reduced depressive symptoms (g 0.28: 95% CI 0.10-0.45) with impact greater in women (meta-analysis) (Firth et al, 2019)
- Mediterranean diet was associated with reduced risk of depression
 - RR 0.68: 95% CI 0.54-0.86 (meta-analysis) (Psaltopoulou et al, 2013)
 - RR 0.67: 95% CI 0.55-0.82 (systematic review and meta-analysis) (Lasale et al, 2018)
- Fish consumption: Risk of depression was reduced in highest consumers of fish compared to lowest (RR 0.83: 95% CI 0.74-0.93) (meta-analysis) (Li et al, 2016)
- Vitamin D supplementation had no overall effect on depressive symptoms (Schaffer et al, 2014/ review and meta-analysis of RCTs; Gowda et al, 2015/ meta-analysis of RCTs). However, in those with clinically significant depressive disorder, there was moderate impact on depression (Schaffer et al, 2014; Vellekkatt & Menon, 2018/ meta-analysis of RCTs)
- Omega-3 fatty acids: Cognitive decline rate was reduced in older people (WMD 0.15: 95% CI 0.05-0.25) (meta-analysis of RCTs) (Zhang et al, 2016). However, a Cochrane systematic review found no evidence for vitamin or mineral supplementation maintaining cognitive function in cognitively healthy people in mid and late life (Rutjes et al, 2018)

f) Climate change

This includes (overview) (Hayes et al, 2018):

- Mitigation to reduce climate change through addressing factors such as air pollution (pages 41-42)
- Adaptation to respond to psychosocial impacts of climate change including through policy, behavioural interventions, community based interventions, specific training and medication

Early intervention of childhood mental disorder

Early detection and treatment of mental disorder during childhood can prevent a proportion of adult mental disorder (Kim-Cohen et al, 2003/ cohort study; Stringaris et al, 2014/cohort study; Dodge et al, 2015/RCT). Since 40-70% of those with conduct disorder develop antisocial personality disorder, prevention of conduct disorder in childhood prevents antisocial personality disorder (NICE, 2009a) in adult life.

Prevention of particular mental disorders and suicide

Childhood behavioural disorder prevention

- Parenting programmes (see page 62)
 - Early child education (ECE) programmes prevented externalising behaviour problems (meta-analysis) (Schindler et al, 2015). Programmes with clear but broad focus on social and emotional development were associated with significant reductions in externalising problems while programmes which targeted child social and emotional development resulted in even larger reduction
 - School based programmes
 - Social emotional learning programmes resulted in long term reductions in conduct problems (ES 0.14: 95% CI 0.07-0.21) (meta-analysis) (Taylor et al, 2017a)
 - The Good Behavior Game resulted in significant reduction in problem behaviour and increase in prosocial behaviour (ES 0.82: 95% CI 0.78-0.87) (meta-analysis) (Bowman-Perrott et al, 2016)
 - Academic interventions (including modifying task difficulty, providing instruction in reading, mathematics, or writing, and contingent reinforcement for academic performance) had small to moderate effect on behavioural outcomes (weighted phi coefficient WPC 0.56: 95% CI 0.52-0.60) and disruptive behaviour (0.42: 95% CI 0.33-0.51) (meta-analysis) (Warmbold-Brann et al, 2017)
- 0.09-0.24) (meta-analysis) (Taylor et al, 2017a). However, implementation in UK was variable both within and between schools (Lendrum et al, 2013)
- School based psychological programmes: One systematic review and meta-analysis found such programmes to prevent depression and anxiety had small effect sizes persistent after one year with larger effect size for targeted programmes (Werner-Seidler et al, 2017). However, another review concluded that school based psychological and education depression prevention programmes did not have enough evidence to support implementation (Cochrane systematic review) (Hetrick et al, 2016) including for adolescents at higher risk (meta-analysis) (Rasing et al, 2017)
 - School based psychosocial interventions delivered by teachers resulted in reduced student internalising outcomes (d 0.133: 95% CI 0.02-0.263) but not externalising outcomes (systematic review and meta-analysis) (Franklin et al, 2017)
 - Psychology interventions
 - Psychology interventions reduced internalising disorders in 5-18 year olds up to 9 months post intervention whether universal (RR 0.47: 95% CI 0.37-0.60), selective (RR 0.61: 95% CI 0.43-0.85) or indicated (RR 0.48: 95% CI 0.29-0.78) (systematic review and meta-analysis) (Stockings et al, 2016)
 - Group CBT for adolescent offspring of depressed parents prevented onset of depression (RCT) (Beardslee et al, 2013)
 - Psychological and/or educational interventions had a small but significant impact on prevention of anxiety (systematic review of cohort studies) (Moreno-Peral et al, 2017) (see also page 61 for prevention of postnatal depression)
 - Online CBT to prevent anxiety and depression had a small but positive effect although there was inadequate evidence for medium to long term

effect (systematic review and meta-analysis) (Deady et al, 2017)

- Exercise can prevent depression in childhood (meta-analysis) (Ahn & Fedeqa, 2017) and adulthood (Mammen & Faulkner, 2013/ systematic review; Harvey et al, 2018/ Norwegian cohort study)
- Mediterranean diet was associated with reduced risk of depression (Psaltopoulou et al, 2013/ meta-analysis; Lasale et al, 2018/ systematic review and meta-analysis) (see also page 66)
- Cultural engagement: Risk of developing depression in older people was 32% lower for those engaging in a cultural event every few months (OR 0.68: 95% CI 0.47-0.99) and 48% lower for those engaging in a cultural event once every month (OR 0.52: 95% CI 0.34-0.80) (English Longitudinal Study of Ageing) (Fancourt & Tymoszek, 2019)

Psychosis prevention

CBT informed treatment was associated with reduced risk of transition to psychosis at 6, 12 and 18-24 months (systematic review and meta-analysis) (Hutton & Taylor, 2014).

Dementia prevention

- A third of cases of dementia could be prevented by childhood education, physical activity, social engagement, smoking cessation and management of hypertension, hearing loss, depression, diabetes and obesity (systematic review and meta-analysis) (Livingston et al, 2017)
- Physical exercise was effective in improving cognitive function in over 50's regardless of cognitive function (systematic review with meta-analysis) (Northey et al, 2018)

Eating disorder prevention

Interventions to prevent eating disorders included (systematic review of RCTs) (Watson et al, 2016):

- Media literacy for universal prevention
- Dissonance based programmes, CBT, healthy weight programmes, media literacy and psycho-education for higher risk groups (selective prevention)
- CBT for those with sub-threshold symptoms (indicated prevention)

Suicide prevention

Suicide prevention can occur at primary, secondary and tertiary levels and can be targeted at higher risk groups (PHE, 2015b).

Since the majority of suicides are by people with mental disorder (Cavanagh et al, 2003/ systematic review; Hawton & van Heeringen, 2009; Phillips, 2010) and mental and substance use disorders are responsible for 62% of DALYs allocated to suicide (Ferrari et al, 2014), prevention and treatment of mental disorder is an important way to prevent suicide. Other effective ways to prevent suicide include (systematic review) (Zalsman et al, 2016):

- Restricting access to lethal means (systematic review) (Zalsman et al, 2016) particularly for control of analgesics and hot spots for suicide by jumping, as well as pesticide (systematic review) (Gunnell et al, 2017)
- School based awareness programmes (Katz et al, 2013/ systematic review; Wasserman et al, 2015/RCT)
- Brief intervention and contact (meta-analysis) (Riblet et al, 2017)
- Pharmacological and psychological treatment of depression as well as web based interventions (see next section)

Self-harm is a particularly important factor associated with suicide and can be reduced including with cognitive behavioural therapy (Hawton et al, 2016/ systematic review and meta-analysis; Leavey & Hawkins, 2017/ systematic review and meta-analysis). Particular groups at increased risk of suicide benefit from targeted interventions e.g. prisoners (systematic review) (Marzano et al, 2016).

The cross-government prevention strategy identified seven key areas for action (HMG, 2012a; HMG, 2017):

- Reduce suicide risk in key high risk groups
- Tailor approaches to improve mental health in specific groups
- Reduce access to the means of suicide
- Provide better information and support to those bereaved or affected by suicide

- Support the media to delivering sensitive approaches to suicide
- Support research, data and monitoring
- Making it happen locally and nationally

During recession, predicted increases in suicide can be prevented by more generous unemployment protection (cross-sectional time-series data analysis from 30 countries) (Norström & Grönqvist, 2015). PHE have outlined how to develop a local suicide prevention action plan (PHE, 2016b).

Prevention of alcohol use disorder, drug use disorder and tobacco dependence

Smoking

Smoking is associated with increased risk of developing common mental disorder (Mojtabai et al, 2013/ US prospective cohort study; Fluharty et al, 2017/ systematic review) and psychosis (systematic review and meta-analysis) (Gurillo et al, 2015). Therefore, interventions to prevent smoking uptake and facilitate smoking cessation also have a potential role in mental illness prevention (see smoking sections in secondary and tertiary prevention):

- Uptake can be prevented and since most smoking starts before adulthood, the greatest opportunity for prevention occurs during childhood and adolescence
- Programmes to prevent uptake of smoking in children/young people include school-based programmes (NICE, 2010b) particularly those combining social competence and social influences curricula (Cochrane systematic review) (Thomas et al, 2013) as well as family based programmes (Cochrane systematic review) (Thomas et al, 2015). Effectiveness of universal school programmes to prevent smoking behaviour was predicted for (systematic review and meta-regression analysis) (Onrust et al, 2016):
 - Elementary school students by generic programmes, social skills training, self-control training and focusing on healthy alternatives
 - Grade 6 and 7 students (early adolescence) by self-control training, problem solving or decision making skills training, adjustment of the social norm, focusing on healthy alternatives, peer education and involvement of parents in the programme
 - Grade 10-12 students (late adolescence) by self-control training, adjustment of the social norm and peer education
- Primary care relevant interventions to prevent and treat tobacco smoking in school aged children and adolescents included targeted behavioural interventions with participants 18% less likely to have started smoking (RR 0.82: 95% CI 0.72-0.94) (systematic review and meta-analysis) (Peirson et al, 2016)

- Adolescents with parents who smoke were more likely to adopt intensive smoking patterns (US cohort study) (Mays et al, 2014). Parental smoking cessation was associated with reduced smoking in their children (systematic review and meta-analysis) (Rosen et al, 2012) with parenting programmes to prevent tobacco smoking associated with reductions in smoking (systematic reviews) (Petrie et al, 2007; Brown et al, 2015; Allen et al, 2016)
- Smoke-free environments including secondary care settings (NICE, 2013d) and supporting staff smokers to stop can prevent uptake of smoking
- Mass-media campaigns (Bala et al, 2013/ Cochrane systematic review; Sims et al, 2014/ England cross sectional study)
- Plain packaging (systematic review) (Hughes et al, 2016b)
- Legislative smoking bans (Cochrane systematic review) (Frazer et al, 2016)
- Targeted approaches are required for prevention of smoking uptake since this group is responsible for 42% of adult tobacco consumption in England (England national survey) (McManus et al, 2010). No smoking policies in mental health settings are important (NICE, 2013d). However, since onset of smoking occurs at a similar age to onset of mental disorder (Campion, 2013), early intervention and prevention of mental disorder can prevent smoking and a range of other risk behaviours in a considerable proportion of the population

Alcohol use

Alcohol associated harm can be prevented through action on price, availability, marketing, licensing, screening and brief interventions (NICE, 2007b; NICE, 2007c; Wagenaar et al, 2009/meta-analysis; NICE, 2010a; PHE, 2016a/review; Burton et al, 2017/ review). However, mass media campaigns did not reduce risk of alcohol-related vehicle crashes (systematic review) (Yadav & Kobayashi, 2015).

School based interventions to prevent adolescent alcohol use had small overall effect g 0.22) (meta-analysis of randomised trials) (Strøm et al, 2014). Effectiveness of universal school programmes to prevent alcohol use was predicted for (systematic review and meta-regression analysis) (Onrust et al, 2016):

- Elementary school students by self-control training, problem solving or decision making skills training, applying CBT techniques and behavioural management by a parent or teacher
- Grade 6 and 7 students (early adolescence) by self-control training, problem solving or decision making skills training, refusal skills training, focusing on healthy alternatives, applying CBT techniques, peer education, behavioural management by a parent or teacher and involvement of parents in the programme
- Grade 8 and 9 students (middle adolescence) by refusal skills training
- Grade 10-12 students (late adolescence) by self-control training, health education on interference of substance use with personal goals, refusal skills training, programmes based on a social influence approach, applying CBT techniques and involvement of parents in the programme

Binge drinking in college populations can be prevented through internet based interventions (systematic review) (Bhochhibhoya et al, 2015).

Drug misuse

Drug misuse among young people can be reduced and prevented (McGrath et al, 2006/ review of reviews; Strang et al, 2012/review; Agabio et al, 2015/ systematic review; Warren, 2016/ review; NICE, 2018a). School programmes based on social competence and social influences were effective (Cochrane systematic review (Faggiano et al, 2014). Effectiveness of universal school programmes to prevent drug use was predicted for (systematic

review and meta-regression analysis) (Onrust et al, 2016):

- Elementary school students by self-control training
- Grade 6 and 7 students (early adolescence) by social skills training, self-control training, problem solving or decision making skills training, making a public commitment not to use substances, applying CBT techniques and mentoring
- Grade 10-12 students (late adolescence) by self-control training and adjustment of the social norm

Targeted interventions can also prevent drug misuse (Onrust et al, 2016; NICE, 2017b).

Effectiveness of school programmes for high risk students to prevent drug use was predicted for (systematic review and meta-regression analysis) (Onrust et al, 2016):

- Elementary school students by self-control training, health education, refusal skills training, altering the social norm regarding substance use and applying a social influence approach
- Grade 6 and 7 students (early adolescence) by health education, refusal skills training and applying a social influence approach
- Grade 8 and 9 students (middle adolescence) by applying CBT principles
- Grade 10-12 students (late adolescence) by self-control training, applying a social influence approach and behaviour management by a parents or teacher

School-based violence prevention programmes can also be effective in reducing drug and alcohol misuse (RCT) (Kellam et al, 2007).

The effectiveness of most drug supply control policies is unknown (review) (Strang et al, 2012). Health and social services for drug users covering a range of treatments, including needle and syringe exchange programmes improve drug users' health and prevent transmission of and associated mortality.

Prevention of mental disorder in higher risk groups

As for all interventions, higher risk groups require more targeted approaches to prevent widening of inequalities.

- Children with developmental disabilities: Behavioural problems can be prevented in children with developmental disabilities with parent training the most common type of intervention (review) (Petrenko, 2014)
- Looked after children
 - Foster parent training had moderate and significant impact on parenting (ES 0.52: 95% CI 0.22-0.82) and reduced child disruptive behaviour (ES -0.20: 95% CI -0.39 to -0.01) (meta-analysis) (Soloman et al, 2016)
 - High quality care-giving with added interventions targeted at the child or indirectly to carers can promote child wellbeing (review) (Luke et al, 2014). However, public mental health interventions for the general population are likely to be effective for this group
 - Compared to family foster care, children in residential care had higher levels of internalising behaviours (g -0.30: 95% CI -0.41 to -0.20) and externalising behaviours (g -0.33: 95% CI -0.42 to -0.22) (meta-analysis) (Li et al, 2017b)
- Offspring of parents with depression: Intervention resulted in reduced depressive and internalising symptoms (g -0.20: 95% CI -0.34 to -0.06) and reduced incidence of depression (RR 0.56: 95% CI 0.41-0.77) although effects were not sustained (systematic review and meta-analysis) (Loechner et al, 2018)
- At risk young people: Anxiety disorder can be prevented in at risk young people (systematic review and meta-analysis) (Lawrence et al, 2017)
- Women after birth: Postpartum depression can be prevented (g 0.18) (meta-analytic review) (Sockol et al, 2013). Postnatal depression can be prevented through biological interventions (antidepressants and nutrients), psychological and psychosocial interventions particularly targeting higher risk women (review) (Werner et al, 2016a)
- Unemployed people: 'Job club' interventions led to improvements in levels of depression up to 2 years post-intervention with strongest effects for those at increased risk of depression (improvements of up to 0.2-0.3 SD in depression scores) (systematic review and meta-analysis) (Moore et al, 2017b). Some evidence exists for reducing unemployment rates among NEETs (systematic review and meta-analysis) (Mawn et al, 2017)
- Carers
 - Mental disorder can be prevented through support and psycho-education (systematic review and meta-analysis) (Yesufu-Udechuku et al, 2015)
 - Internet based interventions resulted in reduced stress and distress (-0.48: 95% CI -0.75 to -0.22) and anxiety (-0.40: 95% CI -0.58 to -0.22) while internet-based information and education plus professional support reduced depression (-0.34: 95% CI -0.63 to -0.05) and anxiety (-0.36: 95% CI -0.66 to -0.05) (systematic review and meta-analysis) (Sherifali et al, 2017)
- Doctors and medical students: Among physicians, interventions reduced burnout by 10% (95% CI: 5-14) and high emotional exhaustion by 14% (95% CI 11-18) (systematic review and meta-analysis) (West et al, 2016). Cognitive, behavioural, and mindfulness interventions were associated with reduced symptoms of anxiety in physicians (SDM -1.07: 95% CI -1.39 to -0.74) and medical students (SDM -0.55: 95% CI, -0.74 to -0.36) (review and meta-analysis) (Regehr et al, 2014). Interventions incorporating psychoeducation, interpersonal communication, and mindfulness meditation were associated with decreased burnout in physicians (SDM, -0.38: 95% CI -0.49 to -0.26)
- People with long term physical health conditions
 - Coronary heart disease: Psychological interventions could improve health related quality of life as well as reducing anxiety for partners (systematic review) (Reid et al, 2013). Compared to cardiac rehabilitation alone, those who also received stress management training had lower rates of stress and clinical events (RCT) (Blumenthal et al, 2016)
 - Diabetes: Psychosocial interventions for people with diabetes could improve glycaemic control and mental health outcomes (systematic review and meta-analysis) (Harkness et al, 2010). Mindfulness-based interventions for adults with diabetes reduced depression, anxiety and distress symptoms across several studies (systematic review) (Noordali et al, 2017)
 - Mindfulness-based stress reduction had small effects on depression, anxiety and psychological distress in people with chronic physical illness (meta-analysis) (Bohlmeijer et al, 2010)
- In older people, depression could be prevented (overview) (Cuijpers et al, 2015) including with psychological interventions (meta-analytic review) (van Zoonen et al, 2014) and psychosocial interventions (systematic review of prospective controlled trials) (Forsman et al, 2011a) particularly in higher-risk groups (Chapman & Perry, 2008). Some evidence existed for prevention of depression in nursing home residents (systematic review) (Simning & Simons, 2017)

Facilitating improved coverage of primary prevention

Improved coverage of primary prevention of mental disorder can be facilitated in several ways:

- 1) Settings based approaches
- 2) Addressing socioeconomic inequalities
- 3) Particular interventions including parenting interventions, addressing parental mental disorder and child adversity
- 4) Digital technology
- 5) Legislation and regulation

1) Settings based approaches

Improved coverage of interventions can occur by targeting particular settings such as schools and workplaces or using the internet.

a) Antenatal and postnatal care settings

Antenatal and postnatal care settings can improve coverage of the following interventions to prevent mental disorder:

- Substance misuse reduction during pregnancy
 - Smoking cessation (review) (Nkoane-Kelaeng et al, 2016) through pharmacotherapy (Cochrane systematic review) (Coleman et al 2015), psychosocial interventions (Cochrane systematic review) (Chamberlain et al, 2017), financial incentives (Higgins et al, 2012/review; Tappin et al, 2015/RCT) and digital interventions (systematic review and meta-analysis) (Griffiths et al, 2018)
 - Alcohol avoidance/reduction (Gillinsky et al, 2011/systematic review; NICE, 2014a; PHE, 2016a)
 - Drug misuse avoidance (NICE, 2007a)
- Antenatal interventions
 - Prematurity prevention (Swedish cohort study) (Nosarti et al, 2012)
 - Prenatal infection treatment (review) (Flinkkilä et al, 2016)
 - Low birth weight prevention (Swedish population-based sibling comparison) (Class et al, 2014)
 - Nutrition improvement (review) (O'Neil et al, 2014a)
 - Vitamin D supplementation which may reduce risk of preterm birth, low birth weight, preterm weight (Cochrane systematic review) (De-Regil et al,

2016), autism spectrum disorder (Dutch birth cohort study) (Vinkhuyzen et al, 2017) and preschool ADHD symptoms (Greek cohort study) (Daraki et al, 2018)

- Breastfeeding support (Cochrane systematic review) (McFadden et al, 2017) and early skin-to-skin contact after birth (Cochrane systematic review) (Moore et al, 2016)
- Parental mental disorder
 - Treatment of parental mental disorder can prevent 40% of mental disorder in off-spring (systematic review and meta-analysis) (Siegenthaler et al, 2012)
 - Prevention of parental mental disorder: For instance, maternal postpartum depression can be prevented through psychosocial and psychological interventions (Cochrane systematic review) (Dennis & Dowswell, 2013) with some evidence for interpersonal therapy, CBT (review) (Werner et al, 2016a) and peer support (review) (Leger & Letourneau, 2014/review)

b) Preschool based interventions

Early child education (ECE) programmes prevented externalising behaviour problems (meta-analysis) (Schindler et al, 2015). Programmes with clear but broad focus on social and emotional development were associated with significant reductions in externalising problems while programmes which targeted child social and emotional development resulted in even larger reductions (also see page 95).

c) School based interventions

- Violence prevention by school based programmes to prevent:
 - Violence (systematic review of systematic reviews) (Lester et al, 2017)
 - Bullying (systematic review) (Evans et al, 2014). Programmes to reduce bullying reduce internalising problems and improve peer group perceptions (Finnish randomised trial) (Williford et al, 2012). Cessation of physical abuse and bullying is also predictive of cessation of psychotic experiences (Irish cohort study) (Kelleher et al,
- 2013). Prevention of cyberbullying can occur through school based programmes although also at individual, organisation, community and legal levels with parents a central component of any effective strategy (review) (Aboujaoude et al, 2015)
- Aggression through school based cognitive behavioural therapy (CBT) (weighted ES score -0.23) (meta-analysis) (Barnes et al, 2014)
- Dating violence (meta-analysis) (De La Rue et al, 2017)
- Sexual abuse through improving protective factors and knowledge (Cochrane Systematic Review) (Walsh et al 2015) (see also DfE, 2016)
- Sexual violence perpetration (Foshee et al, 2004/RCT; DeGue et al, 2014/systematic review)
- Prevention of domestic violence (NICE, 2014c) including with school based interventions (review) (Stanley et al, 2015)
- Physical activity: This can be increased by school-based active travel promotion schemes (NICE, 2007e; NICE, 2008a; NICE, 2009i; NICE, 2012d). Physical activity interventions during adolescence have significant small to moderate effects on self-concept and academic achievement as well as externalising problems and internalising problems (meta-analytic review) (Spruit et al, 2016)
- School based mental health services for elementary aged children had small to medium effect (g 0.39) in reducing mental health problems with largest effect for targeted intervention (g 0.76), followed by selective prevention (g 0.67) and then universal prevention (g 0.29) (meta-analysis) (Sanchez et al, 2018). Particularly large impacts occurred for services integrated into student academic instruction (g 0.59), targeting externalising problems (g 0.50), incorporating contingency management (g 0.57) and implemented multiple times each week (g 0.50)
- Social emotional learning programmes resulted in 10% reduction in classroom misbehaviour, anxiety and depression (meta-analysis) (Durlak et al, 2011) with Long-term reductions in conduct problems

- emotional distress and drug use (meta-analysis) (Taylor et al, 2017a). However, implementation in UK schools was variable (Lendrum et al, 2013)
- Psychological programmes in schools prevented depression and anxiety (systematic review and meta-analysis) (Werner-Seidler et al, 2017). However, a Cochrane review concluded that school based psychological and education depression prevention programmes did not have enough evidence to support implementation (Cochrane systematic review) (Hetrick et al, 2016) including for adolescents at higher risk (meta-analysis) (Rasing et al, 2017)
 - Psychosocial interventions delivered by teachers resulted in reduced student internalising but not externalising outcomes (systematic review and meta-analysis) (Franklin et al, 2017)
 - Resilience promotion: Universal resilience-focused interventions in schools:
 - Reduced depressive symptoms, internalising problems, externalising problems and general psychological distress (systematic review) (Dray et al, 2017). For children, interventions were effective for anxiety symptoms and general psychological distress while for adolescents, interventions were effective for internalising problems. For long term follow up, interventions were only effective for internalising problems
 - Reduced use of illicit substances (OR 0.78: 95% CI 0.6-0.93) but not tobacco or alcohol (systematic review and meta-analysis) (Hodder et al, 2017)
 - The Good Behavior Game resulted in significant reduction in problem behaviour and increase in prosocial behaviour (ES 0.82: 95% CI 0.78-0.87) (meta-analysis) (Bowman-Perrott et al, 2016)
 - Academic interventions (including modifying task difficulty, providing instruction in reading, mathematics, or writing, and contingent reinforcement for academic performance) had small to moderate effect on behavioural outcomes (weighted phi coefficient WPC 0.56: 95% CI 0.52-0.60) improving both on-task behaviour (WPC 0.64: 95% CI 0.60-0.68) and disruptive behaviour (0.42: 95% CI 0.33-0.51) (meta-analysis) (Warmbold-Brann et al, 2017). Interventions completed in individual settings had greater impact on behavioural outcomes (weighted phi coefficient 0.79: 95% CI 0.74-0.84) than whole group settings (weighted phi coefficient 0.44: 95% CI 0.38-0.50)
 - Screen time could be reduced by school based interventions (SMD -0.37: 95% CI -0.37 to -0.13) (meta-analysis) (Friedrich et al, 2014)
 - Prevention of smoking, alcohol and drug use: School based interventions were effective having small effect sizes in line with other universal prevention programmes (systematic review) (Hale et al, 2014). Most beneficial programmes for (systematic review and meta-regression analysis) (Onrust et al, 2016):
 - Elementary students at universal level include generic programmes, teaching basic skills such as social skills, self-control and problem solving skills, and healthy behaviours. Typical substance use prevention strategies, such as health education, preparing student for social pressures to use substances and refusal skills training were not effective. For high risk students, drawing attention to substance use can be harmful. Universal programmes are more effective than programmes targeting higher risk students
 - Early adolescents at universal level include social norm strategies such as normative feedback, stimulating students to make a public commitment not to use substances, mentoring, peer education and involving parents. Enhancement of basic skills such as self-control and decision making skills are also effective. Universal programmes and programmes targeting higher risk students have similar effects
 - Middle adolescence is an extremely difficult period for universal substance misuse prevention. High risk students benefit from CBT based programmes, and teaching students to cope with stress and anxiety
 - Late adolescence at universal level include programmes based on social influences approach teaching refusal skills, health education on the interference of substance misuse with personal goals, basic skills training such as self-control, problem solving or decision making skills training, and involvement of parents. High risk late adolescents do not benefit from such interventions
 - School based drug and alcohol prevention programmes can be delivered online (systematic review) (Champion et al, 2013)
 - Suicide prevention by school based awareness programmes (Katz et al, 2013/ systematic review; Wasserman et al, 2015/RCT)
 - University based cognitive, behavioural and mindfulness interventions were associated with reduced anxiety and depression (review and meta-analysis) (Regehr et al, 2013)
- d) Workplace based interventions**
- Workplace interventions can prevent employment related stress and mental disorder (systematic review and meta-analysis) (Tan et al, 2014). Work-based stress management interventions resulted in reduced work-related stress/sickness absence (meta-analysis) (Richardson & Rothstein, 2008)
 - However, among health care workers, low quality evidence suggests that CBT and mental and physical relaxation reduce stress more than no intervention but not more than alternative interventions (Cochrane systematic review) (Ruotsalainen et al, 2015). Low quality evidence also suggests that changing work schedules can reduce stress
 - Targeted online stress management interventions for particular groups of employees had moderately large effects at both post intervention (g 0.64: 95% CI 0.54-0.85) and follow up (g 0.69: 95% CI 0.06-1.33) although no effect in unselected groups (systematic review and meta-analysis) (Stratton et al, 2017)
 - Workplace based mindfulness programmes were associated with positive outcomes to most measures (systematic reviews) (Lomas et al, 2017; Janssen et al, 2018)

Online mindfulness interventions reduced employee mental health and stress symptoms (g 0.60: 95% CI 0.34-0.85) (systematic review and meta-analysis) (Stratton et al, 2017)

- Promoting physical activity at work (NICE, 2008e; Jirathananuwat et al, 2017/ systematic meta-review)
- Protective labour and social policies modified association between work stress and mental disorder (three longitudinal studies) (Lunau et al, 2013)
- Procedural justice and relational justice in the workplace were associated with reduced depression (systematic review of prospective studies) (Ndjaboue et al, 2012)
- Support for unemployed people resulted in increased employment and reduced distress (systematic review) (Audhoe et al, 2010)

e) Primary care based interventions

Primary care is an important setting for prevention (Campion, 2018b).

- Primary care based psychological and educational interventions were effective to prevent depression (systematic review and meta-analysis) (Conejo-Cerón et al, 2017)
- Primary care relevant interventions to prevent and treat tobacco smoking in school aged children and adolescents included targeted behavioural interventions with participants 18% less likely to have started smoking (systematic review and meta-analysis) (Peirson et al, 2016)

2) Addressing socioeconomic inequalities

Socio-economic inequality underpins many other risk factors for mental disorder (Campion et al, 2013; Reiss, 2013/ systematic review). For instance, if all children had the same risk as most socially advantaged, this would result in potential reduction of 59% for conduct disorder, 34% for emotional disorder and 54% for hyperkinetic disorder (based on Great Britain national survey) (Spencer, 2008).

Effective evidence-based strategies to reduce health inequalities in England include (Marmot et al, 2010):

- Giving every child the best start in life
- Enabling all children, young people and adults to maximise their capabilities and have control over their lives
- Creating fair and good work for all
- Ensuring healthy standard of living for all
- Creating and developing healthy and sustainable places and communities
- Strengthening the role and impact of ill health prevention

National government economic policy including taxation is an important overarching intervention which could impact across a large proportion of the population at higher risk of mental disorder and poor mental wellbeing. Increased taxation also reduces consumption of alcohol (Wagenaar et al, 2009/meta-analysis; NICE, 2010a; PHE, 2016a/review; Burton et al, 2017/ review) and tobacco (report) (Chaloupka et al, 2011). During recession, predicted increases in suicide can be prevented by more generous unemployment protection (cross-sectional time-series data analysis from 30 countries) (Norström & Grönqvist, 2015).

Improved coverage of specific interventions to address socioeconomic inequalities include prevention and action to address:

- Debt (Fitch et al, 2014)
- Financial capability (British Household Panel Survey) (Taylor et al, 2011)
- Fuel poverty (PHE, 2014b; Butcher, 2014; Maryon-Davis & Ballard, 2015)
- Food insecurity (Shankar et al, 2017/ systematic review; Bhutta et al, 2013/ review)

3) Particular interventions

a) Parenting interventions

Parenting programmes including for higher-risk parents can prevent mental disorder in the following areas.

- Prevent child internalising problems (meta-analysis of RCTs) (Yap et al, 2016), conduct problems (Cochrane systematic review) (Furlong et al, 2012), externalising behaviour (meta-meta-analysis) (Mingebach et al, 2018), substance use (systematic review) (Allen et al, 2016), antisocial behaviour and delinquency (meta-analysis) (Piquero et al, 2016)
- Reduce negative or harsh parenting practices (Cochrane systematic review) (Furlong et al, 2012)
- Reduce unintentional injury (Kendrick et al, 2013/ Cochrane systematic review; Desai et al, 2017/review)

Parenting programmes also

- Improve child behaviour (meta-meta-analysis) (Mingebach et al, 2018) including in under 4 year olds (systematic review) (Barlow et al, 2016a), and children with ADHD (meta-analysis) (Lee et al, 2012), autism spectrum disorder (Oono et al, 2013/ Cochrane systematic review; Beaudoin et al, 2014/review), developmental disability (meta-analysis) (Skotarczak & Lee, 2015) and foster children (meta-analysis) (Soloman et al, 2016)
- Improve parenting practice (d 0.56), parenting satisfaction and efficacy (d 0.52), parental adjustment (d 0.34) and parental relationship (d 0.23) (Triple P) (systematic review and meta-analysis) (Sanders et al, 2014) with impacts for ethnic minority parents, foster parents, young offender parents, parents of children with disability and parents with intellectual disabilities
- Improve parental mental health (Cochrane systematic review) (Barlow et al, 2014)

Parent training programmes were equally effective for disadvantaged and non-disadvantaged families immediately post treatment although maintenance of treatment gain is harder for disadvantaged families (meta-analysis) (Leijten et al, 2013).

Parenting interventions can be delivered in several ways to improve coverage:

- Brief parenting interventions result in improved child externalising behaviours, parenting skills and parenting self-efficacy (systematic review) (Tully & Hunt, 2016)
- Self-directed parenting interventions are as effective as therapist-led interventions (O'Brien & Daley, 2011/review; Tarver et al, 2014/ systematic review and meta-analysis)
- Online: Digital based parenting training (DPT) programmes: DPT programmes for parents of children with disruptive behaviour result in improved child behaviour (ES 0.44: 95% CI 0.21-0.66), parent behaviour (ES 0.41: 95% CI 0.25-0.57) and parental confidence (ES 0.36: 95% CI 0.12-0.59) (systematic review and meta-analysis) (Baumel et al, 2016). DPT is effective for children under the age of 7 years with a clinical range of disruptive behaviours but not effective for children older than 11 years with non-clinical range of symptoms

Furthermore, extensive adaptation of parenting programmes was not required for successful transportation between countries (systematic review and meta-analysis) (Gardner et al, 2016).

b) Addressing parental mental disorder

Parental mental disorder (NICE, 2014a) is associated with a range of adverse outcomes for offspring including increase mental disorder in childhood, adolescence and adulthood. Relevant interventions include:

- Treatment of parental mental disorder
 - which can prevent 40% of mental disorder in off-spring (systematic review and meta-analysis) (Siegenthaler et al, 2012)
- Prevention of parental mental disorder:
 - For instance, maternal postpartum depression can be prevented through psychosocial and psychological interventions (Cochrane systematic review) (Dennis & Dowswell, 2013) with some evidence for interpersonal therapy, CBT (review) (Werner et al, 2016a) and peer support (Dennis et al, 2009/RCT; Leger & Letourneau, 2014/review)

c) Addressing child adversity

Child adversity accounts for almost a third of adult mental disorder (Kessler et al, 2010) and therefore a key issue to both prevent and address. Addressing adversity is an important child protection issue and is supported by a range of legislation which can support improved interventions to both prevent and address it

Prevention of child maltreatment and abuse can occur through a range of evidence interventions which require improved implementation including:

- Parent training programmes which result in reduce child maltreatment, unintentional injury by parents, negative or harsh parenting practices, and childhood antisocial behaviour (see previous section)
- Parental education for expectant and new parents
- Home visiting programmes
- School based programmes which can reduce violence, bullying, sexual abuse, sexual violence perpetration and domestic violence (see page 63)
- Prevention of PTSD and reduction of symptoms through psychological therapies for children and adolescents exposed to trauma
- Safeguarding vulnerable children and adults including address abuse early (such as through Child Protection Plans)
- Community violence prevention
- Preventing alcohol misuse
- Address domestic violence

Early intervention to address child maltreatment and abuse is also important (NICE, 2009h).

Seven strategies for reducing violence against children include implementation and enforcement laws, norms and values, safe environments, parental and caregiver support, income and economic strengthening, response and support services, and education and skills (INSPIRE) (WHO, 2016b; Hillis et al, 2016b/ evidence review).

4) Digital technology

Reviews highlight the following internet-based interventions to prevent mental disorder:

- Anxiety and depression prevention: Online CBT had small but positive effect although inadequate evidence in medium to longer term (systematic review and meta-analysis) (Deady et al, 2017)
- Insomnia with computerised CBT (meta-analysis of RCTs) (Ye et al, 2016)
- Smoking cessation during pregnancy with computer-based interventions (systematic review and meta-analysis) (Griffiths et al, 2018)
- School based drug and alcohol prevention programmes (systematic review) (Champion et al, 2013)
- Employee mental health (systematic review and meta-analysis) (Stratton et al, 2017)
 - Online mindfulness interventions reduced employee mental health and stress symptoms
 - Targeted online stress management interventions had moderately large effects at both post intervention and follow up in targeted groups although no effect in unselected groups
 - Online CBT for employees had smaller impacts
- Eating disorder prevention (systematic review) (Schlegl et al, 2015)
- Binge drinking prevention in college populations (systematic review) (Bhochhibhoya et al, 2015)
- Carer stress, distress, anxiety and depression (systematic review and meta-analysis) (Sherifali et al, 2017)
- Mental health literacy promotion (systematic review) (Brijnath et al, 2016)

5) Legislation and regulation

Legislation to support prevention of mental disorder include:

- Children's Act (1989)
- Children's Act (2004)
- Children and Families Act (2014), the Children and Social Work Act (2017)
- UN Rights legislation including on the Rights of the Child
- Health Act (2006) (tobacco control): Smoke-free legislation is also associated with substantial benefits to child health (systematic review and meta-analysis) (Faber et al, 2017)
- Equality Act (2010) places a legal duty to not discriminate against people with mental disorder by not providing appropriate coverage of evidence based public mental health interventions
- Health and Social Care Act (DHSC, 2012) under which CCGs and Local Authorities have equal and joint statutory duties under the to assess health and social need through JSNA's and then prepare Joint Health and Wellbeing Strategies to meet identified need
- Health and Safety at Work Act (1974) under which employers have a duty to protect the health, safety and welfare of their employees and must do whatever is reasonably practical to achieve this
- Homelessness Reduction Act (2018)

In England, all state schools are legally obliged to have a policy to prevent all types of bullying. Similarly, regulation can reduce availability of alcohol and access to means of suicide.

Secondary mental disorder prevention

This involves the early identification and treatment of mental disorder and associated impacts such as health risk behaviour and physical illness. Early intervention is associated with improved outcomes as well as economic savings. Evidence based treatment for every mental disorder exists and is summarised in relevant UK NICE guidance. Since most lifetime mental disorder arises before adulthood, early identification and treatment for different mental disorder should be reflected in appropriate level of provision of treatment services at age of onset (Table 3).

This part on secondary prevention of mental disorder includes the following sections:

- Child and adolescent mental disorder
- Adult mental disorder
- Health risk behaviour and physical illness
- Higher risk groups
- Sub-threshold mental disorder

Child and adolescent mental disorder

Early detection and implementation of evidenced based treatment for different child and adolescent mental disorder.

- Conduct disorder including with parenting programmes resulted in improved child behaviour (Dretzke et al, 2009/ systematic review of RCTs; Furlong et al, 2012/ Cochrane systematic review; NICE, 2013a; Mingebach et al, 2018/ meta-meta-analysis) as well as improved educational outcomes, family relationships, child behaviour, reduced crime and reduced mental disorder in adulthood including antisocial personality disorder (NICE, 2009a). Early intervention for conduct problems reduced prevalence of adult mental disorder (OR 0.59: 95% CI 0.43-0.81), lower rates for violent (-0.37) and drug crime (-0.43) conviction, lower sexual risk behaviour (-0.24) and higher wellbeing (0.19) (RCT) (Dodge et al, 2015)
- Attention deficit hyperactivity disorder (ADHD) through parenting programmes in the first instance (NICE, 2018b) results in better outcomes. Parenting interventions resulted in improved behaviour in children with ADHD (meta-analysis) (Lee et al, 2012), parenting quality and self-concept, and child ADHD, conduct problems, social skills and academic performance in under 18 year olds with ADHD (meta-analysis) (Daley et al, 2014). Treatment of ADHD resulted in improved long term outcomes across a broad range of areas (systematic review) (Shaw et al, 2012)
- Depression (NICE, 2005 updated 2015; NCSS, 2011). A range of effective online interventions also exist for children and young people (systematic review of RCTs) (Stasiak et al, 2015)
- Psychosis (NICE, 2013e)
- Autism spectrum disorder can result in improved language, behaviours and cognitive development (NICE, 2011b; NICE, 2013; Koegel et al, 2014/ review). Parenting interventions result in reduced disruptive behaviour (SMD -0.59: 95% CI -0.88 to -0.30) (systematic review and meta-analysis) (Postorino et al, 2016). Parenting mediated interventions for children with ASD had small effects across most outcome domains (meta-analysis) (Nevill et al, 2018). Young children with ASD benefit from early intervention with a combination of parent mediated and clinician implemented interventions maximising child developmental gains (review) (Landa, 2018)
- Bipolar disorder (NICE, 2014d)
- Personality disorder: Early intervention for borderline personality disorder (NICE, 2009f) resulted in improved functioning in adolescents, reduced psychopathology and para-suicidal behaviour (Chanen et al, 2013/review; Chanen et al, 2017). Early intervention for antisocial personality disorder improves outcomes (NICE, 2009a). Positive achievement experiences and positive interpersonal relationships during childhood or adolescence were significantly associated with remission from avoidant and schizotypal personality disorders (English cohort study) (Skodol et al, 2007)
- Eating disorder (NICE, 2017c): Early intervention with a parent group approach appears effective (review) (Nicholls & Yi, 2012)
- Alcohol use disorder (NICE, 2011a): Guidelines exist for school based prevention and reduction of alcohol use in children and young people (NICE, 2007b; NICE, 2007c) and in the community (NICE, 2015a). Brief interventions were effective for adolescents (meta-analysis) (Tanner-Smith & Risser, 2016) while interventions for college students were effective for college students (Scott-Sheldon et al, 2014/ meta-analytic review; Samson et al, 2015/ systematic review meta-analysis). Parenting programmes were also effective (systematic review) (Allen et al, 2016)
- Drug use disorder (review of systematic reviews) (Das et al, 2016): Screening and brief intervention programmes had small effects but can be widely applied and are probably cost-effective (review) (Strang et al, 2012). Drug testing of individuals under criminal justice supervision, accompanied by specific, immediate, and brief sentences produced substantial reductions in drug use and offending (Strang et al, 2012)
- Tobacco smoking: Since two-thirds of current and ex-smokers start smoking before the age of 18, early intervention

through school-based cessation programmes can be effective (Simon et al, 2015/review). For teenagers, although some programmes showed promise especially those that used group counselling and those that combined a variety of approaches, there was no strong evidence that any particular method was effective in helping young people to stop smoking (Cochrane systematic review) (Fanshawe et al, 2017). Furthermore, the impact of some programmes were not sustained (RCT) (Peterson et al, 2016). Those with mental disorder need to be targeted given they represent 43% of smokers under the age of 17 (GB national survey) (Green et al, 2005) although they had lower cessation rates (Moolchan et al, 2007)

- Self-harm (NICE, 2011c): Only low grade evidence exists (Cochrane systematic review) (Hawton et al, 2015)

Adult mental disorder

Early detection and implementation of evidenced based treatment for the following adult mental disorders:

- Common mental disorder (NICE, 2011d)
- Depression
 - Antidepressants were effective (systematic review and meta-analysis) (Cipriani et al, 2018)
 - Problem solving therapy was an effective treatment for depression in adults (meta-analysis of RCTs) (Cuijpers et al, 2018) and older people (meta-analysis) (Kirkham et al, 2015)
 - During pregnancy and the postnatal period, all health care professionals including primary care and health visitors (England prospective cluster trial) (Morrell et al, 2009) should consider asking the two Whooley depression identification questions and the GAD-2 as part of a general discussion about mental health and using the EPDS or PHQ-9 for monitoring (NICE, 2014a; Howard et al, 2018)
 - Early intervention for depression at work could reduce sickness absence and be facilitated by training of managers to recognise symptoms of illness such as depression (NICE, 2009g)
- General anxiety disorder and panic disorder (NICE, 2011e)
- Social anxiety disorder (NICE, 2013f)
- Phobias
- Obsessive compulsive disorder and body dysmorphic disorder (NICE, 2005)
- Post-traumatic stress disorder (NICE, 2005; Kliem & Kroger, 2013/meta-analysis) including for refugees (Patel et al, 2014/ Cochrane review; Lambert & Alhasson, 2015/ meta-analysis)
- Attention deficit hyperactivity disorder (NICE, 2008)
- Bipolar disorder (NICE, 2014d)
- Psychosis (NICE, 2014e)
 - Duration of untreated psychosis (DUP): A long DUP was associated with poor symptomatic outcome, more severe positive and negative symptoms, lower likelihood of remission and poor social functioning (systematic review and meta-analysis) (Penttila et al, 2014).

Campaigns to promote community psychosis awareness campaigns integrated with a specific youth mental health direct care pathway can halve the duration of untreated psychosis (UK cohort study) (Connor et al, 2016). However, there was lack of summary evidence that interventions were successful in reducing DUP in first episode psychosis (systematic review and meta-analysis) (Oliver et al, 2018)

- Multicomponent interventions include comprehensive use of anti-psychotic medication, individual psychological treatment, family and vocational support (review) (Fusar-Poli et al, 2017)
- Early intervention results in better outcomes including reduced psychotic symptoms, fewer hospital admissions compared with standard care (Bird et al, 2010/systematic review; Stafford et al, 2013/ systematic review and meta-analysis; Randall et al, 2015/ systematic review; Correll et al, 2018/systematic review, meta-analysis and meta-review), reduced risk of suicide (Bertelsen et al, 2007/ RT; Harris et al, 2008/ retrospective cohort) and homicide (systematic review and meta-analysis) (Nielssen & Large, 2010), improved recovery (cohort) (Alvarez-Jimenez et al, 2012), improved involvement in school or work (systematic review, meta-analysis and meta-review) (Correll et al, 2018), and better educational and occupational outcomes (systematic review) (Bond et al, 2015)
- Patients in early intervention psychosis services (EIPS) were 116% more likely (95% CI: 1.26-3.71) to gain employment, 52% more likely to be accommodated in a mainstream house (95% CI: 0.99-2.33) and 17% more likely to have improvement in the emotional wellbeing domain of the HONOS questionnaire (95%CI: 1.07-1.29) compared to those in non-EIP services (England longitudinal retrospective controlled study) (Tsiachristas et al, 2016)
- Longer-term benefits have been reported with more favourable course of illness with benefits maintained after five years (cohort) (Norman et al, 2011) and ten years (cohort) (Hegelstad et al, 2012)

- However, rate of relapse was no different between EIPS and standard care (review) (Fusar-Poli et al, 2017)
- Omega 3 fatty acids may reduce clinical symptoms in prodrome and FEP but have mixed results for those with chronic psychosis (meta-analysis) (Chen et al, 2015)

EIPS was also associated with economic savings (see Table 9):

- Annual NHS cost savings of £4,031 from EIPS (95% CI £1,281 to £6,780)
- EIPS was associated with wider economic savings of £2,087 per person over 3 years from improved employment and education outcomes, and annual savings of £957 per person over 4 years from reduced suicide (Park et al, 2016)
- EIPS in CAMHS delivered costs savings of £4,814 per patient compared to generic CAMHS (McCrone et al, 2013)
- Autism spectrum disorder (NICE, 2012a)
- Personality disorder: Borderline personality disorder (NICE, 2009f) and antisocial personality disorder (NICE, 2009a)
- Eating disorder (NICE, 2017c): Anorexia nervosa improves outcomes (review) (Treasure & Russell, 2011)
- Dementia (NICE, 2006; Robinson et al, 2015/review): To maximise cognition, people with Alzheimer's disease or dementia with Lewy bodies should be offered cholinesterase inhibitors at all stages (systematic review and meta-analysis) (Livingston et al, 2017)
- Alcohol use disorder
 - Screening and extended brief interventions for 16-and 17-year-olds at risk of alcohol use, and screening, brief interventions and extended brief interventions for adults (NICE, 2010a; NICE, 2011a) reduced alcohol consumption
 - Brief intervention in primary care was effective (systematic review of reviews) (O'Donnell et al, 2014)
 - Treatment (NICE, 2011a) and early intervention for alcohol problems also prevented alcohol associated harm particularly for higher risk groups, such

as people with affective and anxiety disorders (Australian retrospective cohort study) (Liang & Chikritzhs, 2011)

- Providing information and education increases awareness but is not sufficient to produce long lasting behaviour change (review) (Burton et al, 2017)
- Key service components within whole system commissioning of alcohol services include:
 - Opportunistic screening and effective brief interventions for adults who are hazardous and harmful drinkers (NICE, 2010a)
 - Diagnosis, assessment and management of harmful drinking and alcohol dependence in adults (NICE, 2010a)
 - Services for children and young people vulnerable to alcohol-related harm (NICE, 2015a)
 - Whole system commissioning of high quality alcohol services (NICE, 2011a)
- Drug use disorder: Interventions include
 - Contingency management (Prendergast et al, 2007/meta-analysis; Davis et al, 2016/ review/ Ainscough et al, 2017/ meta-analysis)
 - Psychosocial interventions (NICE, 2007a; Dugosh et al, 2016/ systematic review)
 - Medication (NICE, 2007d; Mattick et al, 2014/ Cochrane systematic review) although psychosocial interventions do not improve outcomes when combined with medication (Cochrane systematic review) (Amato et al, 2011)
 - Acceptance and Commitment Therapy reduced drug use (meta-analysis) (Lee et al, 2015)
 - Joint working between mental health and specialist drug treatment teams is effective for people with psychosis and comorbid substance misuse (NICE, 2011f)
- Tobacco smoking in people with mental disorder (see next section on tertiary prevention)
 - Smoking is the single largest cause of preventable death in the UK (NHSD, 2018c)

- Impact of smoking cessation on anxiety and depressive symptoms was at least as large as antidepressants (systematic review and meta-analysis) (Taylor et al, 2014)
- At an early stage of illness, all health professionals should highlight the impact of smoking on physical and mental health and refer for support
- Effective interventions include pharmacotherapy and behavioural support which can be provided in primary care (Campion et al, 2014), pharmacies (Campion et al, 2017b), secondary care (NICE, 2013d) and NHS Stop Smoking services. Other non-pharmacological interventions effective for the general population and therefore likely to support smoking cessation in those with mental disorder include:
 - Advice by doctors (RR 1.66: 95% 1.42-1.94) (Cochrane systematic review) (Stead et al, 2013a)
 - Advice by nurses (RR 1.29: 95% 1.20-1.39) (Cochrane systematic review) (Rice et al, 2013)
 - Individual behavioural counselling (RR 1.57: 95% 1.40-1.77) (Cochrane systematic review) (Lancaster & Stead, 2017)
 - Group behaviour therapy programmes (RR 1.88: 95% 1.52-2.33) (Cochrane systematic review) (Stead et al, 2017)
 - Combined pharmacotherapy and behavioural support increases smoking cessation support (Cochrane systematic review) (Stead et al, 2016)
 - Telephone counselling (RR 1.37: 95% 1.26-1.50) (Cochrane systematic review) (Stead et al, 2013b)
 - Mobile phone support (RR 1.67: 95% 1.46-1.90) (Cochrane systematic review) (Whittaker et al, 2016)
 - Internet based interventions (RR 1.15 95% 1.01-1.30) (Cochrane systematic review) (Taylor et al, 2017b)
 - Print-based self-help materials (RR 1.19: 95% 1.04-1.37) (Cochrane systematic review) (Hartmann-Boyce et al, 2014)
 - Mass media campaigns (Bala et al, 2013/ Cochrane systematic review; Sims et al, 2014/ England cross

sectional study)

- Reducing tobacco consumption doubled smoking cessation rates (Cochrane systematic review) (Lindson-Hawley et al, 2016)
- E-cigarettes were much less harmful than tobacco (review) (McNeill et al, 2015; McNeill et al, 2018) and were used by 2.4 million adults in 2017 with 48% giving the most reason for use as helping to stop smoking (NHSD, 2018c). Evidence suggests that e-cigarette use contributed tens of thousands of additional quitters in England (McNeill et al, 2018). Further evaluation suggested e-cigarette use could support population level smoking cessation (population survey) (Zhu et al, 2017). However, a Cochrane systematic review concluded that although two trials found that e-cigarettes can help smokers to stop smoking in the long term, further research was needed (Hartmann-Boyce et al, 2016)
- Self-harm (NICE, 2011c; NICE, 2013g)
- Dementia: Early provision of cost effective drug (acetylcholinesterase inhibitors) and non-drug interventions can delay cognitive deterioration and improve quality of life (review) (Robinson et al, 2015)

Early intervention for health risk behaviour and physical health

- Early screening and intervention for use of alcohol, tobacco and drugs can prevent associated physical illness
- Low cholesterol and LDL levels in first episode psychosis indicate that hypercholesterolemia in subsequent stages of illness is potentially preventable (systematic review and meta-analysis) (Pillinger et al, 2017). However, high triglyceride levels in first episode psychosis supports evidence for glucose dysregulation in this group and supports early intervention targeting nutrition, physical activity and appropriate antipsychotic medication (see pages 82-83 in next section on tertiary prevention)

Early intervention targeting higher risk groups is important including:

- Maternal mental disorder: Early detection

and treatment results in:

- Improved outcomes and parent efficacy (NICE, 2014a)
- Improved maternal/child relationship and child mental health
- Prevention of offspring mental disorder (systematic review and meta-analysis) (Siegenthaler et al, 2012)
- Prenatal yoga resulted in significant reduction in depression (SMD -0.59: 95% CI -0.94 to -0.25) (systematic review and meta-analysis) (Gong et al, 2015)
- People with learning disability and their carers (NICE, 2016a)
- People in contact with the criminal justice system (NICE, 2017d) including through liaison and diversion services (review) (Scott et al, 2013)
- Gypsies, travelers, homeless people and sex workers (commissioning guide) (Gill et al, 2013)

Early intervention for sub-threshold mental disorder

Most mental disorders begin as sub-threshold disorders (editorial) (van Os, 2013). Therefore, early intervention for people with sub-threshold mental disorder (indicated prevention) is an important opportunity.

- Depression
 - Group-based CBT for subsyndromal depression in children and adolescents significantly reduced depression incidence (RR 0.43: 95% CI 0.21-0.87) and symptoms (d -0.22: 95% CI -0.32 to -0.11) (meta-analysis and meta-regression) (Sregonja et al, 2018)
 - Psychotherapy for subclinical depression had small to moderate effect on depressive symptoms (g 0.35: 95% CI 0.23-0.47; NNT 5: 95% CI 4-8) and significantly reduced incidence of major depressive episode at 6 months (RR 0.61) (meta-analysis) (Cuijpers et al, 2014)
 - Internet based CBT for sub-threshold depression was effective (SMD -0.28: 95% CI -0.42 to -0.14) although there was lack of evidence regarding long-term impact (systematic review and meta-analysis) (Zhou et al, 2016)
- Psychosis: Intervention for the 'Clinical High Risk State' or 'Ultra High Risk State' was associated with reduced transition to psychosis (meta-analysis) (Fusar-Poli et al, 2012), severity of attenuated psychotic symptoms and duration of untreated psychosis if psychosis develops as well as being associated with fewer crises, reduced and shorter admission and less disruption to social functioning (small prospective study) (Fusar-Poli et al, 2010). Short-term (6-12 months) psychological interventions can halve the risk of illness onset at 12 months although this effect is not sustained over the longer term (meta-analysis of RCTs) (van der Gaag et al, 2013). Furthermore, 30% of people referred to one CHRIS service had other mental disorders and therefore could be referred to other services at early stages (Fusar-Poli et al, 2013b). This is important since one third of people with At Risk Mental States otherwise go on to develop psychosis (meta-analysis) (Fusar-Poli et al, 2012). Individualized risk estimation e-tools can support diagnosis of CHRIS (www.psychosis-risk.net) (Fusar-Poli et al, 2017a)

Tertiary mental disorder prevention

This involves prevention of relapse and associated impacts of mental disorder including reduced life expectancy from physical illness, health risk behaviour and suicide as well as stigma, poor housing, lack of education and unemployment which should start as early as possible (see section on secondary prevention).

However, a further range of inequalities associated with mental disorder can be prevented by:

- Addressing inequalities in access to services, experience and outcomes of treatment for mental disorder
- Increasing coverage of early treatment for mental disorder which improves outcomes and reduces associated inequalities
- Prevention of mental disorder and promotion of mental health

This part on tertiary prevention of mental disorder includes the following sections:

- Implementation of evidence based treatments for mental disorder
- Monitoring and intervention for physical health conditions
- Addressing different health risk behaviours
- Addressing socioeconomic and housing impacts of mental disorder
- Prevention of stigma and discrimination
- Suicide prevention
- Prevention of violence and abuse

Living well section includes interventions to promote recovery from mental disorder through social interaction (page 98), gardening (page 100), arts, music, positive psychology, mindfulness (page 101) and compassion (page 102).

Implementation of evidence based treatments for mental disorder

As outlined in the section on secondary prevention, NICE guidance for each mental disorder provides evidence based interventions to optimize treatment to prevent relapse and a range of adverse outcomes. Examples include:

- Common mental disorder
 - Collaborative care was associated with significant improvement in depression and anxiety outcomes compared to usual care (Cochrane systematic review) (Archer et al, 2012). Consultation liaison (mental health specialist providing consultative support to primary care) improved mental health for up to three months and satisfaction and adherence for up to 12 months in people with mental disorders particularly those who are depressed (Cochrane systematic review) (Gillies et al, 2015). Primary care providers were also more likely to provide adequate treatment and prescribe pharmacological therapy for up to 12 months. However, there was also some evidence that consultation liaison was not as effective as collaborative care in terms of mental disorder symptoms, disability, general health status, and provision of treatment
 - Psychological interventions were significantly better than treatment as usual in reducing risk of relapse of depressive disorder (RR 0.64: 95% CI 0.53-0.76) and more successful than antidepressants (RR 0.83: 95% CI 0.70-0.97) (Biesheuvel-Leliefeld et al, 2015)
 - Exercise had a large effect on depression (SMD adjusted for publication bias 1.11, 95% CI 0.79-1.43) (meta-analysis) (Schuch et al, 2018b)
 - Omega 3 fatty acids were not effective for treatment of depression in adults (Cochrane systematic review) (Appleton et al, 2015) but effective for treatment of depression in older adults (g -0.94: 95% CI -1.37 to 0.50) (systematic review and meta-analysis) (Bae & Kim, 2018)

- Psychosis
 - CBT was effective for negative symptoms in people with psychosis (pooled SMD -0.34; 95% CI -0.55 to -0.12) (systematic review and meta-analysis) (Lutgens et al, 2017) and for medication-resistant psychosis (g 0.47 for positive symptoms and g 0.52 for general symptoms) (meta-analytic review) (Burns et al, 2014b)
 - Low intensity CBT for people with psychosis had comparable effect sizes to usual intensity CBT (systematic review and meta-analysis) (Hazell et al, 2016)
 - However, CBT for schizophrenia did not increase quality of life or functioning at follow up (Laws et al, 2018)
- Dementia: People with Alzheimer's disease or Lewy body dementia should be offered cholinesterase inhibitors at all stages, or memantine for severe dementia (systematic review and meta-analysis) (Livingston et al, 2017)

Monitoring and intervention for physical health conditions

A large proportion of physical illness and associated premature mortality experienced by people with mental disorder is preventable. For instance, about 60% of the excess mortality in people with bipolar disorder and schizophrenia was avoidable (England cohort study) (Hoang et al, 2013). However, UK mortality rates worsened for this group between 2000 and 2014 (UK cohort study) (Hayes et al, 2017).

Since physical health conditions are more common in those with mental disorder, physical health needs to be monitored and physical conditions treated as early as possible as for those without mental disorder. This includes treatment of those at high risk of developing diabetes (NICE, 2012b).

Addressing health risk behaviour

Mental disorder is associated with several fold increased levels of health risk behaviour including smoking, alcohol consumption, drug misuse, poor nutrition and diet, physical inactivity, and risky sexual behaviour.

This increases risk of physical illness and premature death. Improved mental wellbeing is associated with reduced health risk behaviours as well as improved physical health and reduced mortality in healthy people and those with illness.

Interventions for health risk behaviour are effective for people with mental disorder and can prevent a large proportion of associated physical illness and premature death. These should occur at both the earliest opportunity as well as throughout the course of illness.

a) Smoking

Smoking is the largest single preventable cause of death and long-term physical health conditions in the UK with people affected by mental disorder far more likely to smoke.

Smoking rates vary by mental disorder although are highest for people with drug dependence (69%), attempted suicide (57%) (England national survey) (McManus et al, 2010) and psychosis (56%) (RCP & RCPsych, 2013). Furthermore, a large proportion of smokers have mental disorder: 42% of all tobacco consumed in England is smoked by people with mental disorders (McManus et al, 2010) and 43% of smokers under 17 in England have conduct or emotional disorders (Green et al, 2005).

Smokers with mental disorder require identification and support to stop smoking through improved access to smoking cessation interventions (HMG, 2011). Interventions to support smoking cessation and reduction for the general population are effective for people with mental disorder (RCP & RCPsych, 2013; NICE, 2013d; NICE 2013h) including for:

- Depression (van der Meer et al, 2013/

Cochrane systematic review; Secades-Villa et al, 2017/ systematic review and meta-analysis)

- Schizophrenia (Cochrane systematic review) (Tsoi et al, 2013)
- Serious mental illness (systematic review and meta-analysis) (Roberts et al, 2016; Peckham et al, 2017)
- Substance abuse (systematic review) (Thurgood et al, 2016)

Smoking cessation by people with mental disorder can prevent a large proportion of the physical illness and premature death they experience and is associated with reduced depression, anxiety and levels of medication (Campion et al, 2008a; Campion et al, 2008b; Campion et al, 2014; Campion et al, 2017b; Taylor et al, 2014/systematic review and meta-analysis).

Targeted approaches for smokers with mental disorder should be enhanced by improving systems for the identification and provision by primary care (Campion et al, 2014), pharmacists (Campion et al, 2017b), secondary mental health care (NICE, 2013d) and other providers. Staff smokers working with those with mental disorder should also be offered cessation support (NICE, 2013d). PHE has produced several resources to support secondary mental health services to become smoke-free which can be found at <https://www.gov.uk/government/publications/smoking-cessation-in-secondary-care-mental-health-settings> and ASH has suggested ways to improve coverage (Harker & Cheeseman, 2016).

b) Alcohol misuse

Alcohol misuse is more common in those with mental disorder: Alcohol use disorder was associated with major depression (OR 2.42: 95% CI 2.22-2.64) and anxiety disorder (OR 2.11: 95% CI 2.03-2.19) (systematic review and meta-analysis) (Lai et al, 2015). Interventions to prevent alcohol problems are outlined in the earlier section on primary prevention of mental disorder although higher pricing, reduced availability, reduced marketing and tighter controls on licensing are also relevant for people with mental disorder given their

higher risk of alcohol misuse.

Combined CBT and motivational interviewing for depressive and alcohol use disorders has a small but clinically significant effect in treatment outcomes (meta-analysis) (Riper et al, 2014). For people with severe mental illness, joint working between community health and social care services is also required (NICE, 2016b; PHE, 2017c).

c) Drug misuse

Drug misuse is more common in those with mental disorder. For instance, illicit drug use was strongly associated with major depression (OR 3.80: 95% CI 3.02-4.78) and anxiety disorder (OR 2.90: 95% CI 2.58-3.28) (systematic review and meta-analysis) (Lai et al, 2015). Rates of drug misuse were also higher for people with psychosis which requires joint working between mental health and specialist drug treatment teams (NICE, 2011f) as well as social care services (NICE, 2016c; PHE, 2017c).

d) Physical inactivity

Mental disorder is associated with reduced physical activity (systematic review and meta-analysis) (Schuch et al, 2017).

Impact of physical activity interventions during adolescence included:

- Significant small to moderate effects on externalising problems and internalising problems (meta-analytic review) (Spruit et al, 2016)
- Reduced depression (Korczak et al, 2017/ meta-analysis; Bailey et al, 2018/ systematic review and meta-analysis)

For adult depression:

- Physical activity programmes were associated with improved sub-threshold, mild and moderate depression (NICE, 2009g)
- In non-clinical populations, physical activity reduced depression with a medium effect (SMD -0.50: 95% CI -0.93 to -0.06) and anxiety by a small effect (SMD = -0.38: 95% CI: -0.66 to -0.11) (meta-analysis) (Rebar et al, 2015)
- In people with clinician confirmed diagnosis, physical activity had large effect

on depressive symptoms (SMD 0.80) (meta-analysis) (Rosenbaum et al, 2014)

- However, a systematic review and meta-analysis for adults with major depression found that exercise had no significant effects on quality of life, depression severity or remission (Krogh et al, 2017)

For adult anxiety disorder

- Physical activity appeared to be effective as an adjunctive treatment but less effective than antidepressant treatment (systematic review) (Jayakody et al, 2014)
- However, another systematic review and analysis found limitations with most studies (Stonerock et al, 2015)

For adults with severe mental illness (SMI)

- Reasons for exercise by people with SMI included improving health (91% of patients), losing weight (83%), improving mood (81%) and reducing stress (61%) while most common barriers towards exercise were low mood and stress (61% of patients) and lack of support (50%) (systematic review and meta-analysis) (Firth et al, 2016)
- Physical activity had a large effect (SMD 1.0) on schizophrenia symptoms and moderate effect on quality of life (SMD 0.64) and aerobic capacity (SMD 0.63) (review and meta-analysis) (Rosenbaum et al, 2014)
- Physical exercise was effective for negative symptoms in people with psychosis (pooled SMD -0.36; 95% CI -0.71 to -0.01) (systematic review and meta-analysis) (Lutgens et al, 2017).
- Exercise interventions significantly reduced psychiatric symptoms with 90 minutes of moderate-to-vigorous exercise per week (SMD 0.72: 95% CI -1.14 to -0.29) although had no significant effect on body mass index in people with schizophrenia (systematic review and meta-analysis) (Firth et al, 2015). This amount of exercise also significantly improved functioning, comorbid disorders and neurocognition
- Exercise therapies could lead to increased physical activity in people with SMI although had no noticeable impact on mental health, body mass index or body

weight (systematic review and meta-analysis) (Pearsall et al, 2014)

For people with dementia, physical activity appeared to have no benefit on cognition, neuropsychiatric symptoms or depression (Cochrane systematic review) (Forbes et al, 2015).

e) Obesity

Obesity is associated with increased risk of mental disorder while mental disorder is associated with increased risk of obesity. Obesity was also associated with increased mortality (UK cohort study) (Bhaskaran et al, 2018). For those with psychosis, treatment can contribute to weight gain with almost all antipsychotic medication resulting in weight gain (meta-analysis) (Bak et al, 2014). For first episode psychosis, antipsychotic weight gain was 3.22kg/ 1.4 points BMI in the short term and 5.3kg/ 1.9 BMI in the long term (meta-analysis) (Tek et al, 2016).

In the general population

- Weight loss can be achieved by promoting a balanced diet and sufficient exercise (Franz et al, 2007/systematic review and meta-analysis; NICE 2013; NICE, 2014f; NICE 2015)
- Vegetarian diet was associated with weight loss (systematic review and meta-analysis) (Barnard et al, 2017)
- Environmental and organisational interventions can prevent weight gain and facilitate weight loss (Bauman & Bull, 2007/review of reviews; NICE, 2008c; NICE, 2014f)
- Weight management programmes for obese children were effective and can result in improved self-esteem and quality of life (Griffiths et al, 2010/ systematic review; NICE, 2013j)
- Weight reducing diets with or without exercise may reduce premature mortality in adults with obesity (systematic review and meta-analysis) (Ma et al, 2017a).
- Mindfulness interventions supported weight loss (Olson & Emery, 2015/ systematic review; Carriere et al, 2018/ systematic review and meta-analysis)

Early targeted approaches for those with mental disorder can prevent obesity, while

mental disorder prevention and wellbeing promotion of wellbeing can prevent obesity (NICE, 2013i; NICE, 2015b).

For people with severe mental illness:

- Weight loss programmes were effective (Alvarez-Jimenez et al, 2008/ systematic review and meta-analysis; Daumit et al, 2013/RT)
- Lifestyle interventions were effective for weight loss (systematic review and meta-analysis) (Naslund et al, 2017b)
- Nutrition interventions were effective in preventing and treating weight gain (systematic review and meta-analysis) (Teasdale et al, 2017)
- Metformin was effective in treating antipsychotic weight gain (systematic review and meta-analysis) (de Silva et al, 2016). It was more effective in preventing weight gain in first episode psychosis than those who have already gained weight

Behavioural and dietary weight loss interventions were associated with consistent improvements occur in psychological outcomes (systematic review) (Lasikiewicz et al, 2014). Weight loss was also associated with reduced depression and increased self-esteem (review and meta-analyses) (Blaine et al, 2007; Fabricatore et al, 2010).

f) Poor diet

- Dietary interventions improved depression outcomes (systematic review of RCTs) (Opie et al, 2015)
- Use of S-adenosylmethionine (SAME), methylfolate, omega 3 and vitamin D with antidepressants reduced depressive symptoms (systematic review and meta-analysis) (Sarris et al, 2016)

g) Poor dental health

People with more severe mental disorder were 3.4 times more likely than their non-psychiatric peers to have total tooth loss as well as higher rates of decayed, missing or filled teeth (systematic review and meta-analysis) (Kisely et al, 2011). People with mental disorder therefore benefit more from measures to improve oral hygiene. Guidance highlights actions which local authorities and

partners can take (NICE, 2014g).

h) Sexual risk behaviours

Prevention of sexual risk behaviours is associated with reduced risk of sexually transmitted infections. In those with mental illness, such programmes reduced sexual risk behaviour (review) (Higgins et al, 2006). There was insufficient evidence regarding sexual health risk reduction interventions for people with severe mental illness (systematic review) (Pandor et al, 2015).

i) Poor sleep

See insomnia section in primary prevention of mental disorder.

Facilitating action to addressing health risk behaviours and physical illness

Action can be facilitated by training and guidance as well as regular health checks and appropriate interventions for both physical illness and health risk behaviour for people with mental disorder (IPHY, 2013; Shiers et al, 2014; RCPsych 2016, NHSE, 2016a; DH & PHE, 2016). Updated QRISK3 models can support identification of cardiovascular disease in people with severe mental illness (English prospective cohort study) (Hippisley-Cox et al, 2017).

A more integrated approach to managing health risk behaviour and physical health is also required across primary care, secondary and other providers (Naylor et al, 2016). Integrated medical-behavioural care for children and adolescents in the USA improved behavioural outcomes compared to usual primary care (d 0.32: 95% CI 0.21-0.44) (meta-analysis) (Asarnow et al, 2015).

Due to the close association between physical and mental health, mental health and wellbeing needs to be incorporated into general health improvement programmes including those on smoking, alcohol, drugs, obesity, nutrition and physical activity. However, targeted approaches are required for people with mental disorder who are both at higher risk of health risk behaviour and less likely to receive interventions to address such behaviours and associated physical illness.

Interventions to address socioeconomic and housing impacts of mental disorder

These include

- Action to address poverty and debt through debt advice (Fitch et al, 2011/ systematic review; Fitch et al, 2014)
- Employment (see page 103 on Working Well)
- Housing interventions (see page 100): Supported accommodation for people with mental disorder was effective across a range of psychosocial outcomes (systematic review) (McPherson et al, 2018). The most robust evidence supported effectiveness of permanent supported accommodation for homeless people with SMI which improved housing retention and appropriate use of clinical services. Other forms of supported accommodation reduced hospitalisation and improved service use
- Employment interventions (see page 87)

Prevention of stigma and discrimination

- Particular groups are at increased risk of mental disorder which is partly accounted for by higher stigma and discrimination. Mental disorder is then associated with further stigma and discrimination which results in social exclusion, loss of employment and other inequalities which impact on mental wellbeing (Campion et al, 2013)
- Interventions to reduce mental illness related stigma and discrimination had a consistent pattern of short-term benefits for positive attitude change, and some lesser evidence for knowledge improvement (review) (Thorncroft et al, 2016). For specific groups such as students, social-contact-based interventions usually achieved short-term attitudinal improvements and less often produced knowledge gains. Although social contact was the most effective type of intervention to improve stigma-related knowledge and attitudes in the short term, the evidence for longer-term benefit of such social contact to reduce stigma was weak
- For people with mental disorder (meta-analysis of RCTs) (Griffiths et al, 2014)
 - Interventions targeting personal stigma or social distance resulted in small but significant reductions in stigma across all mental disorders (d 0.28: 95% CI 0.17-0.39) including for depression (d 0.36: 95% CI 0.10-0.60) and psychosis (d 0.20: 95% CI 0.06-0.34)
 - Personal stigma was reduced by educational interventions (d 0.33: 95% CI 0.19-0.42) and interventions incorporating consumer contact (d 0.47: 95% CI 0.17-0.78)
 - Internet based interventions were at least as effective in reducing personal stigma as face-to-face delivery
- For people with schizophrenia, psychosis and bipolar disorder (systematic review and meta-analysis of RCTs) (Morgan et al, 2018b):
 - Contact interventions had small-to-medium effects on reducing stigmatizing attitudes (d 0.39: 95% CI 0.22-0.55) and desire for social distance (d 0.59: 95% CI 0.37-0.80) although these were less after adjustment for publication bias (d 0.24 and d 0.40 respectively. However, effects at follow up were not significant
 - Education interventions had small-to-medium effect in reducing stigmatizing attitudes (d 0.30: 95% CI 0.14-0.47) and desire for social distance (d 0.27: 95% CI 0.08-0.46). After six months, small improvements persisted for social distance (d 0.27: 95% CI 0.05-0.49) but not for attitudes
 - Combination contact and education interventions had similar effects to either intervention alone
 - Family psychoeducation interventions had small-to-medium effect on reducing stigma (d 0.41: 95% CI 0.11-0.70)
- Anti-stigma interventions in the workplace can lead to improved knowledge and supportive behaviour towards people with mental disorder (systematic review) (Hanisch et al, 2016). Impact on attitudes of employees was generally positive
- Mass media interventions may reduce prejudice but there was insufficient evidence to determine effects on discrimination (Cochrane systematic review) (Clement et al, 2013)
- Mental Health First Aid based interventions resulted in small reductions in stigma (ds 0.08-0.14) (systematic review and meta-analysis) (Morgan et al, 2018a)
- Time to Change is a national anti-discrimination programme in England. It uses an advertising campaign, mass participation exercises, community-based initiatives and a legal unit to test cases of discrimination. Targeted groups include medical students, trainee teachers and social inclusion officers. Evaluations found:
 - Reduced discrimination in employment (telephone survey of senior British employers) (Henderson et al, 2013)
 - 91% of participants reported one or more experiences of discrimination in 2008 compared with 88% in 2011 (survey of mental health service users) (Corker et al, 2013)
 - Longitudinal improvement for one intended behaviour item but not for knowledge or attitudes (online interviews) (Evans-Lacko et al, 2013b)
 - Increased positive attitudes to prejudice and exclusion (Z 0.02: 95% CI 0.01-0.05) but not for tolerance and support for community care (analysis of surveys over 10 years) (Evans-Lacko et al, 2014)
 - Improved mental health knowledge (OR 0.95: 95% CI 0.68-1.21), attitude towards mental illness (OR 0.12: 95% CI 0.09-0.16) and reported and intended behaviour (OR 0.71: 95% CI 0.51-0.92) after controlling for confounders (online interviews) (Sampogna et al, 2017)
 - Increased comfort in disclosing to family and friends (OR 1.27: 1.14-1.43) and to a current or prospective employer (OR 1.20: 95% CI 1.06-1.35) and increased likelihood of help-seeking (OR 1.18: 95% CI 1.03-1.36) (survey of nationally representative sample of adults) (Henderson et al, 2017)

Suicide prevention

The section on primary prevention highlighted suicidal prevention. However, a large proportion of the 804,000 suicides occurring across the world each year (WHO, 2016a) are by people with mental disorder (Cavanagh et al, 2003/ systematic review Hawton & van Heeringen, 2009; Phillips, 2010) and analysis of the 2010 Global Burden of Disease study found that mental and substance use disorders are responsible for 62% of DALYs allocated to suicide (Ferrari et al, 2014). Furthermore, after discharge from psychiatric facilities, suicide rates remained higher with pooled suicide rates per 100,000 patient years 654 after 3 months to one year, 494 after one to five years, and 366 after five to ten years (systematic review and meta-analysis) (Chung et al, 2017b). Therefore, it is important to improve treatment coverage and follow up for people with mental disorder to prevent a large proportion of suicides.

Suicide can be prevented through restricting access to lethal means, school based awareness programmes and pharmacological/ psychological treatment of depression (systematic review) (Zalsman et al, 2016). Evidence also suggests that lithium and clozapine have anti-suicidal effects which might be less than previously thought. Brief intervention and contact reduced suicide risk (meta-analysis) (Riblet et al, 2017).

Restriction of access to methods of suicidal behaviour is exemplified by the successful withdrawal of coproxamol (England and Wales time-series study) (Hawton et al, 2012), smaller packs of paracetamol (England and Wales time-series analysis) (Hawton et al, 2013), safety barriers on bridges (systematic review and meta-analysis) (Pirkis et al, 2015) and pesticide (systematic review) (Gunnell et al, 2017). Appropriate reporting of suicide by media is also important (WHO, 2017).

Most prevention and intervention initiatives are common to both suicide and self-harm and suicide prevention requires commissioning of dedicated self-harm services (NICE, 2013g). It also requires

provision of high-quality mental health services compliant with recommendations from the National Confidential Inquiry including 24 hour-crisis services, a policy for those with dual diagnosis and multidisciplinary reviews after suicide (While et al, 2012/ England and Wales cross sectional survey; Kapur et al, 2013/England longitudinal study), as well as alcohol and drug services.

The cross-Government suicide prevention strategy (HMG, 2012a) emphasised reducing suicide risk in high risk groups, improving mental health in specific groups and reducing access to lethal means. It highlights improvement of mental health of the whole population with a universally proportionate approach facilitating greater access to interventions for higher-risk groups. Such an approach is reflected in this report. The second annual report on the cross-government outcomes to save lives called on services to be more ambitious about suicide prevention and challenge the assumption that suicide is inevitable (DH, 2015a). The national suicide prevention strategy expanded in 2017 to include self-harm (HMG, 2017).

Prevention of violence and abuse

The section on primary prevention of mental disorder highlighted the importance of preventing child adversity including physical and sexual abuse given it is associated with several fold increased rates of all mental disorder and suicide and responsible for almost a third of adult mental disorder.

As outlined on page 15-16, mental disorders are among the strongest risk factors for interpersonal violence with risk varying by mental disorder (review of meta-analyses) (Fazel et al, 2018):

- Substance abuse (OR 7.4: 95% CI 4.3-12.7)
- Schizophrenia (OR 5.5: 95% CI 4.1-7.5)
- Non-schizophrenia psychosis (OR 4.9: 95% CI 3.6-6.6)
- Bipolar disorder (OR 4.1: 95% CI 2.9-5.8)
- Any personality disorder (OR 3.0: 95% CI 2.6-3.5)
- Hyperkinetic disorder (OR 1.8: 95% CI 1.6-1.9)

Highest population attributable fractions for violence were substance misuse, witnessing or being a victim of violence in childhood, and personality disorder (Fazel et al, 2018).

Therefore, violence prevention strategies should incorporate guidelines and targets for prevention and treatment of mental disorder. In particular, since 40-70% of children with conduct disorder develop antisocial personality disorder, intervention for conduct disorder during childhood can prevent antisocial personality disorder (NICE, 2009a). Since witnessing or being a victim of violence in childhood are risk factors, this suggests that interventions also need to target this group.

Identification of early warning signs and relapse prevention can reduce number and severity of violent incidents.

Regarding victimization, people with mental disorder experience higher rates of violence (England and Wales survey) (Khalifeh et al, 2015a) including intimate partner violence (England and Wales survey) (Khalifeh et al, 2015b).

However, there is a lack of intervention research for prevention of violence in people

with mental disorder which suggests that interventions from non-psychiatric populations need to be used (Gaynes et al, 2017/ systematic review; Wolf et al, 2017/ review). Although guideline dissemination and training can improve health professional knowledge about domestic violence and abuse (DVA), they do not consistently improve identification and response to DVA unless implemented with support interventions and systemic change (Zaher et al, 2014/ systematic review of RCTs; Choi & An, 2016/ scoping review). For victims of DVA, interventions such as CBT are effective (NICE, 2014c).

For offenders, interventions to prevent violence include the treatment of mental disorder (NICE, 2014h). Multisystemic Therapy (MST) is effective for young offenders with social, emotional and behavioural problems (meta-analysis) (van der Stouwe et al, 2014). Small but significant treatment effects were found on delinquency (primary outcome) and psychopathology, substance use, family factors, out-of-home placement and peer factors. Impact of MST can last into adulthood (follow up of RCT) (Sawyer et al, 2011).

For mental health and criminal justice populations, Interventions to prevent violence have small-to-moderate effects for CBT and all psychological interventions, and larger effects for atypical antipsychotic drugs (systematic review) (Hockenhull et al, 2012). Evidence suggested that interventions targeted at mental health populations, and particularly male groups in community settings, are well supported and more likely to achieve stronger effects than interventions with the other groups.

Facilitating improved coverage of secondary and tertiary prevention

Improved coverage of mental disorder treatment including as early as possible can be facilitated in several ways:

- 1) Screening and education
- 2) Improving population literacy
- 3) Settings based approaches
- 4) Maximising existing resources through self-help, less intense intervention, improving concordance with treatment and tasking shifting
- 5) Digital technology
- 6) Parenting interventions
- 7) Legislation and regulation

1) Screening and education

Improved detection can occur by screening and health professional education programmes for groups including health professionals, community workers, teachers, social workers and those working in the criminal justice system as well as those working with particular higher risk groups. For instance:

- Screening for depression
 - Evidence supports benefits of depression screening in the general adult population including pregnant and postpartum women particularly with treatment supports such as treatment protocols, care management and trained depression care providers (Siu et al, 2016; O'Connor et al, 2016/ systematic review)
 - NICE (2009) guidelines stipulate that people with a chronic health problem should be routinely screened for depression to improve detection
 - For older people, Two-Question Screen for depression was comparable with other instruments (systematic review and meta-analysis) (Tsoi et al, 2017)
- Screening for psychosis: Prodromal Questionnaire is a helpful preliminary screening tool for people at ultra-high risk for psychosis (systematic review) (Savill et al, 2018)
- Screening for dementia: The Mini Mental State Examination is effective with Mini-Cog test and ACE-R the best alternatives (systematic review and meta-analysis) (Tsoi et al, 2015)

2) Improving population literacy

School based interventions were able to promote mental health awareness in the US (systematic review) (Salerno, 2016) and internationally (systematic review) (Wei et al, 2013) although research is needed to identify key components of successful programmes.

Intervention to improve mental health literacy (MHL):

- Improved MHL had short term effects on promoting help-seeking in those with mental disorder while motivational enhancement particularly for those with substance use disorder had longer term effects (systematic review and meta-analysis) (Xu et al, 2018)
- Informational interventions enhanced MHL of less-known disorders such as anxiety disorders and anorexia but not depression (systematic review) (Tay et al, 2018). However, although interventions which improved MHL also reduced stigma, elevated MHL and reduced stigma did not improve help-seeking
- Internet based interventions can improve MHL although despite improved MHL, help seeking rates were low with self-stigma an important mediator (systematic review) (Brijnath et al, 2016)

Evaluation of Mental Health First Aid based interventions found the following:

- Improved mental health knowledge and facilitate help seeking behaviour although the review included non-peer reviewed and non-controlled studies (meta-analysis) (Hadlaczky et al, 2014)
- Improved recognition of mental disorder (ds 0.22-0.52), beliefs about effective treatment (ds 0.19-0.45), confidence in helping a person with a mental health problem (ds 0.21-0.58) and small reductions in stigma (ds 0.08-0.14) (systematic review and meta-analysis) (Morgan et al, 2018a). Overall effects were small to moderate post training and up to six months later with effects up to one year later unclear

Appropriate training to range of health, public health, policy and others groups should include improving MHL.

3) Settings based approaches

Coverage of different public mental health interventions can be facilitated by targeting particular settings accessed by large proportions of the population including antenatal classes, preschool, school and the workplace. This can support implementation of several public mental health interventions in such settings more efficiently and to scale.

Since most lifetime mental disorder arises before adulthood, childhood and adolescence is the key opportunity during the life course to implement interventions to both prevent mental disorder and offer early treatment.

a) Schools

Schools have a particularly important role to play particularly given the large amount of time children and adolescents spend at school. Furthermore, 48.5% of parents of 5-19 year olds with mental disorder had been in contact with teachers in the past year for a mental health reason (England national survey) (NHSD, 2018a) (Table 11).

- School based mental health services for elementary aged children had a small to medium effect (g 0.39) in reducing mental health problems with particularly strong effects for services integrated into student academic instruction (g 0.59), targeting externalising problems (g 0.50), incorporating contingency management (g 0.57) and implemented multiple times each week (g 0.50) (meta-analysis) (Sanchez et al, 2018)
- Child-centred play therapy in elementary schools had significant impacts on externalising problems (d 0.34) and internalising problems (d 0.21) compared to no intervention (meta-analysis and systematic review) (Ray et al, 2015)
- School based interventions were effective for higher risk groups such as refugee and asylum seeking children (systematic review) (Tyrer & Fazel, 2016)
- Evaluation of the national Targeted Mental Health in Schools initiative in England was positive (Deighton et al, 2012/ national evaluation; Deighton et al, 2013/ RCT; Wolpert et al, 2013/national evaluation; Cane & Oland, 2015) although implementation reduced due to lack of

funding

- Schools with policies aimed at supporting needs and promoting mental health were likely to use a range of approaches and activities than schools without such policies (England national survey) (Marshall et al, 2017)

b) Workplace

Workplace interventions to support recovery from mental disorder:

- Interventions to enhance return to work for employees off sick with common mental disorder, stress-related disorder, somatoform disorders and personality disorders were effective (ES 0.14: 95% CI 0.07-0.22) (systematic review and meta-analysis) (Mikkelsen & Rosholm, 2018). Strong evidence existed for contact to the workplace and multicomponent interventions and moderate evidence for graded return to work
- Depression (Cochrane systematic review) (Nieuwenhuijsen et al, 2018). Effective interventions included the following:
 - Addition of a work-directed intervention to a clinical intervention reduced sickness absence (SMD -0.40: 95% CI -0.66 to -0.14; 3) compared to a clinical intervention alone
 - Telephone or online CBT was more effective in reducing sick leave than usual primary or occupational care (SMD -0.23: 95% CI -0.45 to -0.01)
 - Structured telephone outreach and care management programmes were more effective in reducing sickness absence than usual care (SMD -0.21: 95% CI -0.37 to -0.05)
- Common mental disorder
 - Psychological interventions for people off sick with common mental disorder were more effective than usual care in reducing symptoms (g 0.21) and sick leave (g 0.15) (systematic review and meta-analysis) (Salomonsson et al, 2018)
 - Impact of IAPT on improving return to work for people with common mental disorder is still to be evaluated
- Psychosis/ severe mental illness
 - Supported employment for people with severe mental illness was more than

twice as likely to lead to competitive employment compared with traditional vocational rehabilitation (systematic review and meta-analysis) (Modini et al, 2016)

- Individual placement and support (IPS) for people with SMI compared to usual treatment conditions had better vocational incomes including any competitive employment (RR 1.63: 95% CI 1.46-1.82), job tenure (d 0.55: 95% CI 0.33-0.79), job length (d 0.46: 95% CI 0.35-0.57) and income (d 0.48: 95% CI 0.36-0.59) (meta-analysis and review) (Frederick & VanderWeele, 2019)
- Supported employment and augmented supported employment were the most effective interventions to obtain and maintain employment (network meta-analysis) (Suijkerbuijk et al, 2018)
- Skills based training was effective for negative symptoms in people with psychosis (pooled SMD 0-.44; 95% CI -0.77 to -0.10) (systematic review and meta-analysis) (Lutgens et al, 2017)
- Manager training: Mental health training for managers improved behaviour in supporting employees experiencing mental disorder (SMD 0.59: 95% CI 0.14-1.03), manager mental health knowledge (SMD 0.73: 95% CI 0.43-1.03) and manager non-stigmatising attitudes towards mental health (SMD 0.36: 95% CI 0.18-0.53) (systematic review and meta-analysis) (Gayed et al, 2018)

c) Primary care

Primary care is a particularly important health care setting for improving coverage of public mental health interventions as well as further referral to secondary mental health care if required (Campion, 2018b). Primary care based interventions include:

- Early detection and treatment of mental disorder
- Psychological interventions
 - Brief psychological therapy for anxiety and depression were effective when delivered in primary care although effect sizes were low compared to longer length treatments except brief CBT for anxiety which was comparable (meta-analysis and meta-regression) (Cape et al, 2010)

- Psychological therapy for postnatal depression in primary care was effective both immediately after treatment (SMD -0.38: 95% CI -0.49 to -0.27) and at six months follow up (SMD -0.21: 95% CI -0.37 to -0.05) (meta-analysis) (Stephens et al, 2016)
- Primary care based psychological and educational interventions to prevent depression (systematic review and meta-analysis) (Conejo-Cerón et al, 2017)
- Provision of regular health checks and appropriate interventions for both physical illness and health risk behaviour for people with mental disorder (IPHY, 2013; Shiers et al, 2014; RCPsych 2016, NHSE, 2016a; DH & PHE, 2016)
- Primary care interventions to prevent and treat tobacco smoking in school aged children and adolescents with participants 18% less likely to have started smoking (systematic review and meta-analysis) (Peirson et al, 2016)

4) Maximising existing resources

a) Self-help

Self-help can increase capacity:

- Common mental disorder
 - Anxiety: Self-help treatment had moderate-to-large effect size (g 0.78) compared to waiting list or placebo and was less effective than face-to-face treatment (g -0.20) (meta-analysis) (Haug et al, 2012). A systematic review of RCTs found similar impact on symptom reduction compared to waiting list and that addition of guidance and presentation of multimedia or web-based self-help materials improved treatment outcome (Lewis et al, 2012)
 - Depression: Self-guided psychological treatment compared to control had a small but significant effect (d 0.28 at post-test and d 0.23 after 4-12 months) (meta-analysis) (Cuijpers et al, 2011)
 - Depressive disorders in primary care: Guided self-help CBT (SMD -0.40: 95% CI -0.69 to -0.11) compared well to face-to-face CBT (SMD -0.30: 95% CI -0.48 to -0.13), no or minimal contact CBT (SMD -0.27: 95% CI -0.44 to -0.10) and remote therapist-led CBT (SMD -0.43: 95% CI -0.62 to -0.24) (systematic review and meta-analysis) (Linde et al, 2015)
 - Guided self-help for depression and anxiety disorders was as effective as face-to-face psychotherapies (systematic review and meta-analysis) (Cuijpers et al, 2010)
 - Self-help interventions for symptoms of depression, anxiety and psychological distress in patients with physical illnesses improved depressive symptoms (SMD -0.13: 95% CI -0.25 to -0.02) but not symptoms of anxiety or psychological distress (systematic review and meta-analysis) (Matcham et al, 2014)
- Psychosis
 - Self-help intervention had small-to-medium sized effect on overall symptoms (d 0.33: 95% CI 0.17-0.48) (meta-analysis) (Scott et al, 2015)
 - For people with SMI, self-

management had small to medium effects on reducing symptoms and length of admission, and improving functioning and quality of life both at end of treatment and at follow up (systematic review and meta-analysis) (Lean et al, 2019)

Self-help was effective for addressing risk factors including

- Insomnia: Self-help CBT (meta-analysis) (Ho et al, 2015) also improved associated impacts on anxiety (meta-analysis) (Belleville et al, 2011), depressive symptoms and anxiety symptoms (meta-analysis) (Ho et al, 2015)
- Smoking cessation: Print-based self-help materials (Cochrane systematic review) (Hartmann-Boyce et al, 2014)

b) Task shifting

- Shifting of tasks from more to less well trained individuals can improve coverage in the absence of primary care or appropriately trained professionals, (systematic review) (Hoeft et al, 2018)
- Non-specialist health workers showed potential to improve coverage and outcomes for different mental disorder (Cochrane systematic review) (van Ginneken et al, 2013)
- Psychological treatment for adult common mental disorder can be delivered by non-specialist providers in low and middle income countries (LMIC) (ES 0.49: 96% CI 0.36-0.62) (Singla et al, 2017)

c) Improving concordance with treatment

More than half of people with chronic mental disorder either do not take medication correctly or completely stop taking then (Chakrabarti, 2014). Interventions to improve concordance could reduce relapse and improve outcomes. High levels of self-efficacy and internal health locus of control were consistently found to promote medication adherence (systematic review) (Nafradi et al, 2017).

d) Less intense intervention

Reduced intensity of some interventions did not necessarily reduce effectiveness:

- Brief CBT for anxiety delivered in primary care was comparable to longer length

treatments (meta-analysis and meta-regression) (Cape et al, 2010)

- Low intensity CBT for people with psychosis had comparable effect sizes to usually intensity CBT (systematic review and meta-analysis) (Hazell et al, 2016)

Effective brief interventions include for:

- Alcohol including in primary care is effective (systematic review of reviews) (O'Donnell et al, 2014)
- Drug use disorder (review of systematic reviews) (Das et al, 2016): Screening and brief intervention programmes had small effects but can be widely applied and are probably cost-effective (review) (Strang et al, 2012)
- Physical activity in primary care (NICE, 2013k)
- Brief parenting interventions resulted in improved child externalising behaviours, parenting skills and parenting self-efficacy (systematic review) (Tully & Hunt, 2016)

5) Digital technology

Internet and mobile phone technology offer the opportunity to provide wider coverage at an earlier stage.

Reviews highlighted effectiveness of internet for treatment of child and adolescent mental disorder in the following areas:

- Children with disruptive behaviour: Digital based parenting training (DPT) programmes (systematic review and meta-analysis) (Baumel et al, 2016)
- CBT for children and adolescent mental disorder can be successfully delivered on the internet (Ebert et al, 2015/ meta-analysis of RCTs; Vigerland et al, 2016/ systematic review and meta-analysis)
- Common mental disorder
 - Common mental disorder in children and young people can be treated by a range of effective computer based and online interventions (systematic review of RCTs) (Stasiak et al, 2015)
 - Internet-based programmes can treat adolescent anxiety and depression (overview of systematic reviews) (Das et al, 2016)
 - Acceptability of e-mental health technology was high among children and adolescents with common mental disorder (systematic review) (Wozney et al, 2018)
- Substance misuse (systematic review) (NCCMH, 2014)
- Evidence did not support internet based interventions for child and adolescent phobias, OCD, PTSD, eating disorder, autism or psychosis (systematic review) (NCCMH, 2014)
- Insufficient evidence existed for mental health mobile apps for children and adolescents with mental disorder (systematic review) (Grist et al, 2017)

Reviews highlighted effectiveness of internet for treatment of adult mental disorder in the following areas:

- Common mental disorder
 - Combining direct contact and internet based interventions could improve treatment outcomes and coverage for CMD (systematic review) (Erbe et al, 2017)

- CBT for adult CMD via the internet (systematic review) (Arnberg et al, 2014). However, a freely available online CBT programme (MoodGYM) found non-significant effect for depression, medium effect size for anxiety symptoms but lack of effectiveness for psychological distress (meta-analysis) (Twomey & O'Reilly, 2017)
- Web-based and computer delivered interventions which improved student anxiety, depression and stress (systematic review and meta-analysis) (Davies et al, 2014)
- Internet based CBT for sub-threshold depression was effective (SMD -0.28: 95% CI -0.42 to -0.14) although there was lack of evidence regarding long-term impact (systematic review and meta-analysis) (Zhou et al, 2016)
- Anxiety
 - Therapist-supported internet CBT for anxiety was effective for adults (Cochrane systematic review) (Olthuis et al, 2015)
 - Media delivered behavioural or cognitive behavioural therapy was moderately effective compared to no intervention (SMD 0.67: 95% CI 0.55-0.80) (Cochrane systematic review of RCTs) (Mayo-Wilson & Montgomery, 2013)
- Depression
 - Internet-based psychological interventions for depression resulted in post-treatment pooled ES of standardized mean difference of -0.35 (95% CI: -0.57 to -0.12) for short term follow up, -0.22 (95% CI: -0.37 to -0.07) for medium term follow up and -0.14 (95% CI: -0.36 to 0.07) for long term follow up (systematic review and meta-analysis) (Sander et al, 2016)
 - Depressive symptoms were reduced significantly more from smartphone apps than control conditions (g 0.38: 95% CI 0.24-0.52) although this was only for those with self-reported mild to moderate depression (g 0.52: 95% CI 0.28-0.75) (meta-analysis of RCTs) (Firth et al, 2017)
 - Dropout from web based interventions for depression were higher for men (RR 1.08), lower educational level (RR 1.26) and comorbid anxiety (RR 1.18) which

could inform tailoring of such intervention (meta-analysis) (Karyotaki et al, 2015)

- Online mindfulness based interventions had small but significant impact on depression (g 0.29), anxiety (g 0.22) and wellbeing (g 0.23) as well as larger impacts on stress (g 0.51) (review and meta-analysis of RCTs (Spijkerman et al, 2016). A further meta-analysis of RCTs for online mindfulness interventions found significant large effect found for perceived-stress (g 0.70) at follow up (Jayawardene et al, 2017)
- PTSD: E-mental health interventions improved PTSD symptoms (systematic review and meta-analysis) (Simblett et al, 2017) including in conflict zones (review) (Naslund et al, 2017a)
- Psychosis: 74-86% of patients used web-based interventions efficiently, 75-92% perceived them as positive and useful, and 70-86% completed or were engaged with interventions during follow-up (systematic review) (Alvarez-Jimenez et al, 2014). Online and mobile-based interventions also showed promise in improving positive psychotic symptoms, hospital admissions, socialization, social connectedness, depression and medication adherence
- Eating disorders: Guided computer and internet based interventions were effective especially for those with bulimia nervosa (systematic review) (Schlegl et al, 2015). Videoconferencing was also effective
- Smoking cessation for the general population was effectively delivered by the internet (Cochrane systematic review) (Taylor et al, 2017b) and mobile phones (Cochrane systematic review) (Whittaker et al, 2016)
- Alcohol misuse: Low intensity internet interventions for adult alcohol misuse were effective (g 0.20: 95% CI 0.13-0.27)(meta-analysis) (Riper et al, 2014a)
- Cannabis use: Internet and computer interventions appeared effective in reducing cannabis use in the short term (meta-analysis) (Tait et al, 2013)
- Suicidal ideation: Some evidence suggested that online and mobile applications for self-management of

depression were associated with reduced suicidal ideation although there was no evidence of reduced self-harm or attempted suicide (systematic review and meta-analysis) (Witt et al, 2017)

- Guided internet interventions for mental health appeared cost effective (systematic review) (Donker et al, 2015)
- Employee mental health
 - Online mindfulness had larger impact than online CBT or stress management in reducing mental health symptoms and stress (systematic review and meta-analysis) (Stratton et al, 2017)
 - Online CBT and other psychological approaches were effective in improving psychological wellbeing and work effectiveness (systematic review and meta-analysis) (Carolan et al, 2017)

Evidence for effectiveness of mobile phones in treatment of mental disorder includes:

- Treatment adherence, symptom surveillance, appointment attendance and satisfaction with services through text messages (systematic review) (Berrouguet et al, 2016)
- Diagnosis and detection of mental disorders in LMICs (review) (Naslund et al, 2017a)
- Depression treatment (meta-analysis) (Firth et al, 2017)
- Psychosis: Mobile phones can support assessment and treatment for people with psychosis (Batra et al, 2017/ systematic review; Gire et al, 2017/ systematic review)
- Delivery of psychotherapy (systematic review) (Menon et al, 2017) and boosting effectiveness of psychotherapy and behavioural interventions (meta-analysis) (Lindhiem et al, 2015)
- Smoking cessation (Cochrane systematic review) (Whittaker et al, 2016) including during pregnancy (systematic review and meta-analysis) (Griffiths et al, 2018)
- Suicidal ideation and self-harm: There was some evidence that online and mobile applications for self-management of depression were associated with reduced suicidal ideation although there was no evidence of reduced self-harm or

attempted suicide (systematic review and meta-analysis) (Witt et al, 2017)

Telephone support

- In LMICs can promote treatment adherence and clinical outcomes in people with mental disorder as well as reducing alcohol consumption (review) (Naslund et al, 2017a)
- Telephone support for suicide prevention for suicide attempters was not effective (meta-analysis) (Noh et al, 2016)

Videoconferencing can also improve coverage of mental health services and is cost effective (review) (Hubley et al, 2016).

In LMICs, technology has a role in improving mental health care delivery in clinical settings, mental health training and education as well as detection and diagnosis of mental disorder (review) (Naslund et al, 2017a).

6) Parenting interventions

Parenting interventions are effective for the majority of children and adolescents affected by mental disorder and therefore represent a particularly important opportunity if provided to scale:

- Conduct problems: Behavioural and cognitive-behavioural group-based parenting interventions were both effective and cost-effective for child conduct problems in 3-12 year olds and improved parental mental health and parenting skills in the short term (Cochrane systematic review) (Furlong et al, 2012). Parent-based interventions had significant moderate effect on both child behaviour (SMD 0.46: 95% CI 0.38-0.54) and child externalising behaviour (SMD 0.45: 95% CI 0.35-0.55) with effects remaining stable at follow up (meta-meta-analysis) (Mingebach et al, 2018). Effect of interventions with only a parent component for child disruptive behaviours was the same as multi-component interventions (meta-analysis) (Epstein et al, 2015)
- ADHD: Improved parenting quality and self-concept, and child ADHD, conduct problems, social skills and academic performance in under 18 year olds with ADHD (meta-analysis) (Daley et al, 2014). Parenting interventions were also effective for preschool children with ADHD (meta-analysis) (Mulqueen et al, 2013)
- Autism spectrum disorder: Reduced disruptive behaviour (SMD -0.59: 95% CI -0.88 to -0.30) (systematic review and meta-analysis) (Postorino et al, 2016) and small effects across most outcome domains (meta-analysis) (Nevill et al, 2018)
- Substance use: Relatively low-intensity group parenting interventions were effective at reducing or preventing adolescent substance use (systematic review) (Allen et al, 2016)
- Parental mental health: Group parenting interventions led to short-term improvements in depression, anxiety, stress, anger and guilt (Cochrane systematic review) (Barlow et al, 2014)
- Brief parenting interventions resulted in improved child externalising behaviours, parenting skills and parenting self-efficacy (systematic review) (Tully & Hunt, 2016)
- Self-directed parenting interventions were as effective as therapist-led interventions (O'Brien & Daley, 2011/review; Tarver et al, 2014/ systematic review and meta-analysis) Digital based parenting training (DPT) programmes: DPT programmes for parents of children with disruptive behaviour resulted in improved child behaviour (ES 0.44: 95% CI 0.21-0.66), parent behaviour (ES 0.41: 95% CI 0.25-0.57) and parental confidence (ES 0.36: 95% CI 0.12-0.59) (systematic review and meta-analysis) (Baumel et al, 2016). DPT was effective for children under the age of 7 years with a clinical range of disruptive behaviours but not effective for children older than 11 years with non-clinical range of symptoms

Parenting interventions can be delivered in several ways to improve coverage:

7) Legislation and regulation

Legislation and associated enforcement is important way to support population implementation of intervention for mental disorder and associated impacts. Examples of legislation include the 2004 Children's Act, the 2006 Health Act (tobacco control), the 2010 Equality Act and UN Rights legislation including on the Rights of the Child (see page 75). For instance, the Equality Act (HMG, 2010) applies to mental disorder in all areas of life, including 'reasonable adjustments' in different settings.

Mental Health Act legislation also protects the rights of those with mental disorder.

BOX 2: MENTAL WELLBEING PROMOTION INTERVENTIONS

Starting well

- Parental mental and physical health promotion
- Breastfeeding support
- Family intervention and child centres
- Parenting support and education
- Infant attachment promotion
- Parenting programmes

Developing well

- Pre-school and early education programmes
- School-based mental health promotion programmes
- Afterschool programmes
- Family based interventions

Living well

- Promotion of social interaction
- Physical activity promotion through active travel, walkable neighbourhoods and active leisure
- Financial interventions
- Neighbourhood and housing interventions
- Access to green space
- Arts and creativity
- Positive psychology interventions
- Mindfulness, meditation, yoga, compassion, forgiveness, spirituality, religion

Working well

- Increased control/ flexible working
- Training to improve jobs
- Shared activities
- Online psychological approaches

Ageing well

- Psychosocial interventions
- Volunteering
- Physical activity
- Life review/ reminiscence
- Reablement
- Addressing hearing loss
- Interventions for 'living well' (see above)

MENTAL WELLBEING PROMOTION

Mental wellbeing promotion aims to improve individual wellbeing, enable healthier and more sustainable communities, facilitate environments which support improved health, and achieve structural changes in policy and law which benefit health and reduce health inequalities.

Interventions which promote mental wellbeing target the determinants of mental wellbeing rather than addressing the risk factors for mental disorder. There is some overlap with interventions to treat disorder since treatment of mental disorder also addresses a major determinant of poor wellbeing in its own right. Furthermore, some interventions which promote mental wellbeing outlined below also prevent mental disorder. For instance, breastfeeding, home visiting programmes and parenting programmes as well as some pre-school, school and work based programmes.

As for mental disorder prevention, mental wellbeing promotion can be considered at primary, secondary and tertiary levels (Box 2): Mental wellbeing promotion at:

- Primary level involves promotion of protective factors for mental wellbeing
- Secondary level involves early promotion of mental wellbeing for those experiencing recent reduction in mental wellbeing
- Tertiary level involves promotion of mental wellbeing in those with longstanding poor mental wellbeing

Mental wellbeing promotion can also be considered across the life course which is how the next section will be presented (Box 2). As for mental disorder prevention, interventions need to target groups at higher risk of poor mental wellbeing. An important group at higher risk poor mental wellbeing is those with mental disorder: Adults with mental wellbeing in the lowest 15% population distribution in England were at 8-30 times higher levels of mental disorder compared

to people with mental wellbeing levels in the highest 15% population distribution) (England national survey) (McManus et al, 2016) (Table 6). Targeted wellbeing promotion is important for people with mental disorder to support recovery both at an early stage (secondary promotion) and throughout their illness. Cost effective interventions to prevent mental disorder are outlined in Table 9.

Since the largest difference in wellbeing between neighbouring fifths of income and expenditure distributions were between those in the bottom and second-lowest fifths (GB survey of 8,000 people) (Lewis, 2014), this suggests that people living in lowest 20% household income require targeted interventions to both promote mental wellbeing and reduce socioeconomic inequality.

A meta-analysis of behavioural interventions to promote wellbeing found moderate effect (d 0.44) with small but significant effect (d 0.22) after 2-10 months although there was large heterogeneity between studies (Weiss et al, 2016). Interventions were more effective in clinical groups and when delivered individually

Interventions to promote mental wellbeing are carried out by a range of organizations and as for mental disorder prevention, the Mental Health Needs Assessment has an important role in mapping and facilitating coordination of such interventions.

Starting well

'Starting well' interventions aim to give young children a good start in life. They include provision of support to parents before, during and after birth, as well as interventions aimed at the child.

Parental mental and physical health promotion

Interventions to promote the mental and physical health of parents result in positive health and non-health outcomes for the child. For this section, please also see parental intervention in primary prevention section (pages 61-62):

- Maternal smoking cessation during pregnancy: Maternal smoking was associated with child conduct disorder (meta-analysis) (Ruisch et al, 2018), ADHD (He et al, 2017/ systematic review and meta-analysis; Huang et al, 2018/ meta-analysis), child depressive and anxiety behaviours (Norwegian cohort study) (Moylan et al, 2015), and schizophrenia (Finnish national birth cohort) (Niemelä et al, 2016). Smoking cessation during pregnancy can therefore prevent child mental disorder as well as improve birth weight and overall physical health
- Reduce alcohol consumption and drug misuse
- Breastfeeding can be promoted with breastfeeding support (Cochrane systematic review) (McFadden et al, 2017), targeting fathers in promotion of breastfeeding (systematic review and meta-analysis) (Mahesh et al, 2018) and skin to skin contact after birth (Cochrane systematic review) (Moore et al, 2016) including for low birth weight infants (Cochrane systematic review) (Conde-Agudelo et al, 2016)
- Parental support: Programmes which provided support to parents were effective in general populations and high-risk groups (Stewart-Brown et al, 2011/ review; Perry et al, 2014/ systematic map). Interventions targeted at higher risk groups include home visiting programmes which improved a range of child outcomes including emotional social development, reduced behavioural problems (systematic review) (Avellar & Supplee, 2013; Peacock et al, 2013), improved maternal-infant interaction (systematic review) (Goyal et al 2013), maternal behaviours (meta-analysis) (Nievar et al, 2010) and maternal life expectancy (20 year follow up of RCT) (Olds et al, 2014). However, home visits did not have impact on maternal physical or mental health (Cochrane systematic review) (Yonemoto et al, 2013) while universal psychosocial interventions offered to parents with children under one year did not show significant impact on child development or parent-child relationship (systematic review) (Pontoppidan et al, 2016)
- Parental education for expectant and new parents had small to very small but significant effects on parenting, couple adjustment, parental mental health, parental stress, health promoting behaviour of parents, child abuse, child mental health, cognitive development and social development (meta-analysis) (Pinquart & Teubert, 2010)
- Family intervention: Promotion directed at family level include family support programmes which can improve caregiver mental health, parenting and child mental health (review) (Kuhn & Laird, 2014). In the UK, Family Intervention Projects for families with identified parenting and other problems resulted in a broad range of outcomes (NCSR, 2011)
- Children's centres (SureStart) promoted better child, maternal and especially family outcomes linked to parenting (England national evaluation) (Sammons et al, 2015)

Infant attachment promotion

- Parenting and home visiting programmes improved attachment related outcomes in preschool children (review) (Barlow et al, 2016b) (see below). Parenting interventions improved attachment in children under years of age with severe attachment problems (OR 1.83: 95% CI 1.26-2.66) (systematic review and meta-analysis) (Wright & Edington, 2016). Home visiting for depressed mothers improved quality of maternal-infant interaction (RCT) (Horowitz et al, 2013)
- Breastfeeding for six months or more was associated with increased infant

attachment security (US longitudinal study) (Gibbs et al, 2018). Longer duration of breastfeeding predicted increased maternal sensitivity up to child age 11 after adjustment for confounders (US longitudinal study) (Weaver et al, 2018)

- Relationship based interventions improved supportive parent-child interactions for low-income families (d 0.23) (meta-analytic review) (Mortensen & Mastergeorge, 2014)
- Maternal sensitivity promotion: Interventions which improved maternal sensitivity reduced disorganised attachment in infants and young children who were at risk of development and who already had disorganised attachment (OR 0.50: 95% CI 0.32-0.77) (systematic review and meta-analysis) (Wright et al, 2017). In depressed mothers, sensitivity was enhanced through baby massage (g 0.85) and support groups although not through individual therapy (meta-analysis) (Kersten-Alvarez et al, 2011)
- Parent-infant psychotherapy, video feedback and mentalisation-based programmes were potentially effective methods of improving infant attachment in preschool children (review) (Barlow et al, 2016b)
- Early intervention improved attachment security and rates of disorganised attachment (systematic review and meta-analysis) (Mountain et al, 2017)
- More targeted interventions to promote attachment are required for higher risk groups such as those children who are adopted from care, in care or at high risk of going into care (NICE, 2015c)

Parenting programmes

- Improved parental mental health (Cochrane systematic review) (Barlow et al, 2014), parenting practices (d 0.56), parenting satisfaction and efficacy (d 0.52), parental adjustment (d 0.34) and parental relationship (d 0.23) (Triple P) (systematic review and meta-analysis) (Sanders et al, 2014)
- More intensive support, information and home visits using a psycho-educational approach and which develop parent's and children's skills showed more favourable outcomes including parenting behaviours, overall children's health and higher level of

fine motor skills and cognitive functioning (systematic review) (Morrison et al, 2014)

- Universal parenting programmes resulted in improved parenting efficacy and parental mental wellbeing (trial of twelve universal parenting programmes to parents of 0-6 year olds in three local authorities in England) (Lindsay & Totsika, 2017)
- Parenting skill training and behavioural change strategies represent promising approaches for promoting health lifestyle in preschool children (meta-analysis) (Ling et al, 2017)

Developing well

Interventions can promote child mental wellbeing which may also prevent mental disorder.

Pre-school and early education programmes

Interventions delivered in educational or day care centre settings results in improved cognitive development, mental health, school readiness, behaviour and educational attainment although effectiveness of different programmes varies (NICE, 2012c).

Parental reading to their children

- Improved psychosocial functioning of children and parents (SMD 0.185: 95% CI 0.077-0.293) including improved parenting competence (RES 0.288: 95% CI 0.030-0.425) compared to controls (meta-analysis of RCTs) (Xie et al, 2018)
- Prevented socioemotional difficulties: Analysis of the UK Millennium Cohort Study found that if 50% and 100% of the sample of 3 year olds were randomly allocated from the 'read to less than weekly' group to the 'read to daily' group, estimated proportion of 5 year olds with socioemotional difficulties dropped by 10% and 20% respectively (Kelly et al, 2011)

Early childhood education interventions

- Early childhood education programmes had significant impact on cognitive and achievement measures although no significant effects on child behaviour and adult outcomes such as educational attainment and employment (meta-analysis) (Magnuson et al, 2016)
- Early childhood interventions to tackle educational disadvantage in Holland involving more than 50,000 children over 15 years had no significant impact (meta-analysis) (Fukkink et al, 2017)
- Early childhood education interventions in low and middle income countries:
 - A review found such interventions could prevent mental disorder and promote mental health of children (Baker-Henningham, 2013). Gains to child mental health were most likely if interventions included activities to increase child skills including cognition, language, self-regulation and social-

emotional competence; training caregivers in the skills required to provide a cognitively stimulating and emotionally supportive environment; and attention to the caregivers' mental health, motivation and self-efficacy

- A meta-analysis found that for 3 and 4 year old children, there were no impacts from short courses of parenting education although there were short term impacts on child pre-academic skills where parents were able to practice parenting skills (meta-analysis) (Grindal et al, 2016). Parenting education through one of more home visits a month had significantly larger impacts on child cognitive outcomes than lower frequency of visits

Childcare

- Children's cortisol levels were higher at childcare than at home and more pronounced for toddlers than infants and in inhibited and aggressive children (review) (Vermeer & Groeneveld, 2017). Elevated cortisol at childcare was more pronounced in toddlers than in infants, and in inhibited and aggressive children. Childcare quality mattered whereas group sizes and type of care did not
- Affordable and accessible early learning and child care mitigated the impacts of economic and social disadvantage by facilitating parental particularly maternal employment and employability (systematic review) (Pringle et al, 2017)
- Interventions focused on childcare professionals were moderately effective in improving caregiver-child interactions (g 0.35) and childcare quality at classroom level (g 0.39), caregiver level (g 0.44) and child level (g 0.26) (meta-analysis) (Werner et al, 2016b)

High quality childcare and early education services is particularly important for vulnerable children at risk of developing (or who are already showing signs of social and emotional and behavioural problems (NICE, 2012c). They are also effective in preventing emotional and conduct disorder (Blank et al, 2009; NICE, 2013a). Cost benefit analyses of

preschool programmes for disadvantaged children showed mixed results with less good returns for more recent large scale delivery (systematic review) (Dalziel et al, 2015).

School-based mental health promotion interventions

School-based mental health promotion interventions can improve well-being, with resulting benefits for academic performance, social and emotional skills and classroom behaviour (Adi et al, 2007; NICE, 2008a; NICE, 2009b; PHE, 2015c) and can also result in reductions in symptoms of mental disorder.

- School base interventions had a wide range of benefits on children, families and communities and on a range of mental health, social, emotional and educational outcomes (review of systematic reviews and meta-analyses) (Weare & Nind, 2011). Effect sizes associated with most interventions were small to moderate. Interventions were only effective if they were completely and accurately implemented and this applied particularly to whole-school interventions which could be ineffective if not implemented with clarity, intensity and fidelity. Characteristics of more effective interventions included:
 - Teaching skills focusing on positive mental health
 - Balancing universal and targeted approaches
 - Starting early with the youngest children and continuing with older ones
 - Operating for a lengthy period of time and embedding work within a multimodal/whole-school approach which included such features as changes to the curriculum including teaching skills and linking with academic learning, improving school ethos, teacher education, liaison with parents, parenting education, community involvement and coordinated work with outside agencies
- Social and emotional learning is an example of a particularly well evaluated school based intervention
 - Meta-analysis of 270,000 students found 11% improvement in achievement tests, and 25% improvement in social and emotional skills as well as 10% in classroom misbehaviour, anxiety and

- depression (Durlak et al, 2011)
- Meta-analysis of longer term effects for 97,406 students found significant improvement in socio-emotional skills (ES 0.23: 95% CI 0.15-0.31), attitudes (ES 0.13: 95% CI 0.05-0.21), positive social behaviour (ES 0.13: 95% CI 0.05-0.21) and academic performance (ES 0.33: 95% CI 0.17-0.49), with reductions in conduct problems (ES 0.14: 95% CI 0.07-0.21), emotional distress (ES 0.16: 95% CI 0.08-0.23) and drug use (ES 0.16: 95% CI 0.09-0.24) (Taylor et al, 2017a)
 - However, evaluation of the UK social and emotional aspects of learning programme (SEAL) based on SEL above for secondary school children found lack of significant impact on social and emotional skills, general mental health difficulties, pro-social behaviour and behaviour problems (Humphrey et al, 2010; Wigelsworth et al, 2011). Furthermore, implementation in UK was variable both within and between schools (Lendrum et al, 2013)
 - Self-regulation: School based programmes to promote self-regulation improve self-esteem in the short term (g 0.29: 95% CI 0.18-0.41) and long term (g 0.16: 95% CI 0.05-0.26) and reduce internalising behaviour in the short term (g 0.20; 95% CI 0.03-0.38) (meta-analysis) (van Genugten et al, 2017). Most effective interventions were asking for social support and management of stress and emotions. For those with subclinical problems, self-regulation interventions had greater impact on internalising behaviours (g 0.56: 95% CI 0.22-0.90) and self-esteem (g 0.56: 95% CI 0.34-0.38)
 - The Good Behavior Game resulted in a significant increase in prosocial behaviour and reduction in problem behaviour (ES 0.82: 95% CI 0.78-0.87) (meta-analysis) (Bowman-Perrott et al, 2016)
 - Child-centred play therapy in elementary schools had significant impacts on self efficacy (d 0.29) and academic outcomes (d 0.36) as well as externalising problems (d 0.34) and internalising problems (d 0.21) (meta-analysis and systematic review) (Ray et al, 2015)
 - Academic interventions (including modifying task difficulty, providing instruction in reading, mathematics, or writing, and contingent reinforcement for academic performance) had small to moderate effect on behavioural outcomes (weight phi coefficient WPC 0.56: 95% CI 0.52-0.60) improving both on-task behaviour (WPC 0.64: 95% CI 0.60-0.68) and disruptive behaviour (WPC 0.42: 95% CI 0.33-0.51) (meta-analysis) (Warmbold-Brann et al, 2017). Interventions completed in individual settings had greater impact on behavioural outcomes (WPC 0.79: 95% CI 0.74-0.84) than whole group settings (WPC 0.44: 95% CI 0.38-0.50)
 - Physical activity can be increased through school-based active travel promotion schemes (NICE, 2007e; NICE, 2008a; NICE, 2009i; NICE, 2012d) such as encouraging cycling, 'walking buses' to get to school, walking promotion schemes and school sport partnership programmes (NHSIC, 2015). Physical activity interventions during adolescence had significant small to moderate effects on self-concept and academic achievement as well as externalising problems, internalising problems (meta-analytic review) (Spruit et al, 2016)
 - School based mindfulness programmes appeared to improve cognitive performance and resilience to stress (systematic review and meta-analysis) (Zenner et al, 2014). Interventions delivered during late adolescence (15–18 years) and consisting of combinations of various mindfulness activities had the largest effects on mental health and wellbeing outcomes (meta-analysis) (Carsley et al, 2018)
 - Peer support can promote mental health of children and young people with some evidence for one-to-one school based projects (review) (Coleman et al, 2017)
 - Mentoring programmes had small significant effects on psychological/emotional problems (meta-analysis) (Dubois et al, 2011)

The Targeted Mental Health Support in Schools (TaMHS) was a national programme

for pupils at risk or already experiencing mental disorder and resulted in reduced behavioural problems in 8-10 year olds although no impact in 11-13 year olds (England national evaluation) (Wolpert et al, 2013).

Evaluation of the school based Penn resiliency programme to prevent depression in adolescents through promotion of resilience, optimistic thinking and social problem-solving found no evidence for reduction in depression or anxiety (systematic review and meta-analysis) (Bastounis et al, 2016) after earlier unsuccessful UK implementation (Challen et al, 2011/ UK national evaluation; Challen et al, 2014/ controlled trial). Evaluation of interventions to promote health and wellbeing as part of the WHO Health Promoting School framework also found no evidence of effectiveness on mental health, alcohol and drug use, violence and bullying others (Cochrane systematic review) (Langford et al, 2014).

After school programmes

After school programmes which sought to enhance personal and social skills of children and adolescents were effective in increasing self-perception and bonding at school, positive social behaviours, academic achievement and reduced problem behaviours (meta-analysis) (Durlak et al, 2010).

School mental health policy

Schools with policies aimed at supporting needs and promoting mental health were likely to use a range of approaches and activities than schools without such policies (England national survey) (Marshall et al, 2017).

Commissioners and providers of services to children in primary education should develop and agree arrangements to ensure all primary schools adopt a comprehensive, 'whole school' approach to children's social and emotional wellbeing (NICE, 2008a).

A £448m funded Troubled Families Programme aimed to 'turn around' the lives of 120,000 families with multiple and complex

needs in England. At the core was the desire to achieve an overall shift in public expenditure from reactive service provision, based around responding to accumulated acute needs, towards earlier intervention via targeted interventions, where problems could be addressed before they escalated. However, evaluation showed no impact on the key objectives of the programme including employment, benefit receipt, school attendance, safeguarding and child welfare (Day et al, 2016).

Higher risk groups

Higher risk groups require more targeted approaches. For instance, early intervention to promote mental health and wellbeing of looked after children can prevent escalation of challenging behaviours (NICE, 2010c).

Focused psychosocial interventions for children in low resource humanitarian settings resulted in improved coping, hope and social support as well as reduced functional impairment and PTSD symptoms (systematic review and meta-analysis) (Purgato et al, 2018).

Living well

The following broad range of interventions support people 'live well'.

Promotion of social interaction

Social capital is associated with improved wellbeing and reduced mental disorder. Interventions to promote social capital also promote mental health and inclusion, thereby having even greater benefits for socially excluded groups, including those at higher risk of mental disorder. Some of the following interventions can also be 'socially prescribed' although a systematic review found lack of evidence for social prescribing (Bickerdike et al, 2017):

- Volunteering
 - Cohort studies showed volunteering had favourable effects on life satisfaction, wellbeing and depression but not on physical health (systematic review and meta-analysis) (Jenkinson et al, 2013)
 - Volunteering in older people, opportunities was associated with improved mental well-being, self-reported health and reduced depression (Wheeler et al, 1998/ meta-analysis; Anderson et al, 2014/ review)
 - Volunteering was also associated with reduced mortality (RR 0.78: 95% CI 0.66-0.90) (meta-analysis) (Jenkinson et al, 2013) including 24% reduction in older people (after adjustment 95% CI 16-31%) (meta-analysis) (Okun et al, 2013)
 - During 2016/17, 22% of adults in England did formal volunteering at least once a month (DDCMS, 2017)
- Enhancing community engagement (NICE, 2014i; NICE, 2016d): Community engagement interventions had positive impact on health behaviours, health consequences, self-efficacy and perceived social support outcomes, across various conditions (systematic review and meta-analysis) (O'Mara-Eves et al, 2013). Evidence suggested meaningful participation can only be achieved if organisational processes are adapted so that they are inclusive, accessible and supportive of citizens (rapid review) (De Weger et al, 2018)
- Adult learning: Evidence showed improvement in social networks, health

related behaviours, skills, employment outcomes and mental health (PHE, 2014c)

- Leisure had a mediating effect between social relationships and health (London cohort study) (Chang et al, 2014) (see impact of leisure intervention in physical activity promotion above)
 - Sport was associated with positive psychological and social outcomes including self-esteem, self-regulation, general life skills and pro-social behaviour although there were limitations in the available literature (review) (Clark et al, 2015). Football including for people with mental disorder can promote connectedness and wellbeing (review) (Friedrich & Mason, 2017)
 - Social enterprise: A systematic review highlighted five studies which found that social enterprise activity impacted positively on mental health, self-reliance, self-esteem, health behaviours, social capital and stigma all of which can contribute to overall health and wellbeing (Roy et al, 2014)
 - Kindness to others had small to moderate effect (d 0.36) on wellbeing of the giver although effect may be smaller due to low quality studies (systematic review and meta-analysis) (Curry et al, 2018)
 - Gratitude enhanced pro-sociality (r 0.374) (meta-analytic review) (Ma et al, 2017b)
 - Parental support: Peer support (systematic review) (Shaw et al, 2006) including internet-based peer support for mothers which provided emotional support, information and membership in a social community (systematic review) (Niela-Vilén et al, 2014) and group parent training (Cochrane systematic review) (Barlow et al, 2014)
 - Timebanks (Lasker et al, 2011/ evaluation; Marks, 2012/ review)
 - Individual and community empowerment (review) (Wallerstein, 2006)
 - Prevention of social isolation in older age although the quality of evidence was weak (review) (Gardiner et al, 2018). New technologies and community engaged arts are promising interventions (systematic review) (Poscia et al, 2018)
- Promotion of social interaction for people with mental disorder includes the following:
- Psychosocial interventions delivered in outpatient and primary care settings for people with depression improved social functioning (SMD 0.46: 95% CI 0.24-0.69) (meta-analysis) (De Silva et al, 2013)
 - Social group membership: Risk of depression relapse over 4 years was reduced by 24% by joining one social group and 63% by joining three social groups (English Longitudinal Study of Ageing) (Cruwys et al, 2013)
 - Peer support for adults with mental illness
 - Peer-facilitated time-limited group interventions resulted in small but significant improvements in empowerment and self-efficacy (narrative synthesis and meta-analysis) (Burke et al, 2018)
 - For people with severe mental illness, there was little or no evidence that peer support was associated with reduced hospitalisation, symptoms or satisfaction with services although inconsistent evidence for positive effects on hope, recovery and empowerment (systematic review and meta-analysis) (Lloyd-Evans et al, 2014)
 - However, a review concluded that peer support was equally effective as services provided by non-peer paraprofessionals on clinical outcomes with evidence stronger for impacts on hope, empowerment and quality of life (Bellamy et al, 2017)
 - Social skills training for people with psychosis was effective for negative symptoms and general psychopathology (meta-analysis) (Turner et al, 2018)
 - Befriending supports treatment of individuals with different physical and mental health conditions although evaluation found no significant benefit on depression, quality of life, loneliness ratings, self-esteem measures, social support structures or wellbeing (systematic review and meta-analysis) (Siette et al, 2017)
 - Social participation interventions for people with mental disorder may increase individual's social networks (review) (Webber & Fent-Newlin, 2017)

Physical activity promotion

- During childhood, physical activity led to improved mental health outcomes for all children including increased self-esteem and self-concept (ES -0.30 for RCT studies and -0.57 for non-RCT studies) as well as reduced depression, anxiety, psychological distress/PTSD and emotional disturbance (meta-analysis) (Ahn & Fedeqa, 2017)
- During adulthood, physical activity was associated with reduced depression (NICE, 2009g; Zschucke et al, 2013/ review; Schuch et al, 2018a/ meta-analysis of prospective cohort studies; Harvey et al, 2018/ Norwegian cohort study), improved wellbeing (including people with schizophrenia) (Holley et al, 2011/ systematic review), better mental health outcomes for people in primary care (NICE, 2013k), improved cognitive function in the over 50's (systematic review and meta-analysis) (Northey et al, 2018) and prevention of dementia (systematic review and meta-analysis) (Livingston et al, 2017)
- For older people, physical activity was associated with better mental health outcomes (NICE, 2008d; Bherer et al, 2013/ review) and sleep in those with depressive symptoms (England longitudinal study) (Garfield et al, 2016)

Physical activity can be promoted through:

a) Infrastructure

- Investing in infrastructure to support walking which increases physical activity across different age groups including children, adolescents (systematic review) (Carlin et al, 2015) and adults (Hajna et al, 2015/ systematic review and meta-analysis; Mueller et al, 2015/ systematic review)
- Walking and cycling (NICE, 2012d) facilitated by coordinated planning with public transport (review) (Sloman et al, 2010)
- Improving built and natural environment including traffic calming (NICE, 2008c; Rothman et al, 2014/ systematic review)
- Access to recreational infrastructure such as playgrounds and parks is associated with increased physical activity and

reduced obesity in adolescents (systematic review) (Dunton et al, 2009)

b) Particular activities

- Leisure-time physical activity was associated with
 - Improved psychological wellbeing (Sacker & Cable, 2005/ (British cohort studies; Takeda et al, 2015/ Japanese national longitudinal survey)
 - Mental health ($r=0.13$) and inversely associated with mental ill-health ($r=-0.11$) (meta-analysis) (White et al, 2017a)
 - Positive affect and life satisfaction (meta-analysis) (Wiese et al, 2018)
- Sport including for people with mental disorder (reviews) (Clark et al, 2015; Friedrich & Mason, 2017)
- Transport physical activity ($r=0.13$) had positive associations with mental health (meta-analysis) (White et al, 2017a). Significant associations occurred between psychological wellbeing and active travel/ public transport travel compared to car travel as well as switching from car travel to active travel after controlling for confounders (British cohort study) (Martin et al, 2014). Switching from private motor transport to active travel or public transport was also associated with significant reduction in BMI (British cohort study) (Martin et al, 2015)
- Group-based and peer supported sport and dance programmes may promote wellbeing enhancement in youth groups in 15-24 year olds (systematic review) (Mansfield et al, 2017)

c) Place based approaches

- Workplace physical activity programmes (NICE, 2008e; Jirathananuwat et al, 2017/ systematic meta-review)
- Home environment: Interventions introducing large exercise equipment increased physical activity (review of reviews) (Preston et al, 2017)
- Access to the natural environment (systematic review) (Calogiuri & Chroni, 2014)
- Brief advice in primary care (NICE, 2013k)

Diet

- Number of portions of fruit and vegetable people ate each day was significantly associated with wellbeing in a dose response relationship after controlling for other factors (longitudinal analysis of England surveys) (Chanfreau et al, 2013)
- Increased fruit and vegetable consumption was predictive of increased happiness, life satisfaction and wellbeing (Australian longitudinal population study) (Mujcic & Oswald, 2016)

Financial interventions

- Debt advice (Pleasence & Balmer, 2007/ randomized trial; Fitch et al, 2014)
- Enhanced financial capability (Taylor et al, 2009/ survey; Taylor et al, 2011/ British Household Panel Survey; Holkar, 2017)

Neighbourhood interventions

These include:

- Neighbourhood enhancement and regeneration which resulted in improved mental health (Thomson et al, 2009/ systematic review; Bond et al, 2012; McCartney et al, 2017/review; White et al, 2017b/Welsh cohort study)
- Neighbourhood walkability which was associated with increased walking among all age groups (systematic review and meta-analysis) (Hajna et al, 2015) which can also improve social interaction among older people (systematic review) (McCormack & Sheill, 2011)
- Increased functionality of neighbourhood and facilities (meta-analysis) (Duncan et al, 2005) can promote wellbeing. Mobility and social participation were both positively associated with proximity to resources and recreational facilities (scoping review of international cross-sectional studies) (Levasseur et al, 2015)
- Well-designed neighbourhoods improved physical activity and perceived safety (Bauman & Bull, 2007/review of reviews; Adams et al, 2013/ UK survey analysis)

Housing interventions

These can result in improved mental and physical health outcomes and include:

- Housing improvements: Interventions to improve warmth and energy efficiency

appeared to improve general health, mental health and respiratory health particularly for those without warmth and with existing chronic respiratory disease (Cochrane systematic review) (Thomson et al, 2013). Best available evidence suggests that housing which was an appropriate size for the householders and was affordable to heat was linked to improved health and may promote improved social relationships within and beyond the household. Interventions which addressed fuel poverty and ensured adequate heating were associated with improved mental health (systematic review) (Thomson et al, 2009)

- Rehousing resulted in greater self-reported benefits than changes in mental health (Scottish prospective controlled study) (Kearns et al, 2011)

Housing interventions for higher risk groups including people with mental disorder:

- Supported accommodation for people with mental disorder which was effective across a range of psychosocial outcomes (systematic review) (McPherson et al, 2018)
- Supported housing for high-risk groups, including those with mental disorder (Nelson et al, 2007/ review; CSED, 2010; Killaspy et al, 2016/England national survey), those with substance use disorders (review) (Reif et al, 2014) and care leavers (Brady, 2014)
- Housing for homeless people improved employment although ongoing residential and work stability were not achieved (systematic review) (Bassuk et al, 2014). For homeless people with mental illness, best outcomes were where health and housing interventions were delivered together (review of reviews) (Preston et al, 2017)
- Housing support for high-risk families (family intervention projects) was associated with reduced eviction rates and improved neighbourhood (evaluation report) (NCSR, 2010)

Access to green space

- Access to green space was associated with improved mental wellbeing, overall health

and cognitive development of children (systematic review) (McCormick, 2017)

- People who moved to greener areas had significantly better mental health in all three post move years (British Household Panel cohort study) (Alcock et al, 2014)
- People who visited nature regularly felt their lives to be more worthwhile after controlling for other factors (England nationally representative survey) (White et al, 2017c)
- Urban green space
 - Beneficial effects of urban green spaces included improved mental health as well as reduced cardiovascular morbidity and mortality, obesity and risk of type 2 diabetes (review) (WHO, 2016c)
 - Access to green urban areas was associated with life satisfaction (German panel and cross sectional survey) (Krekel et al, 2016). Effects were strongest for older adults and accounting for up to a third of the size of the effect of being unemployed on life satisfaction
- Green environment was associated with reduced risk of common mental disorder
 - Green environment was associated with 4.0% lower odds of major depressive disorder per interquartile increment in Normalised Vegetation Index greenness (UK cross sectional, observational, association study) (Sarkar et al, 2018)
 - Higher levels of neighbourhood green space were associated with lower levels of depression, anxiety and stress after controlling for confounders (Maas et al, 2009/Dutch survey; Nutsford et al, 2013/ New Zealand ecological study; Beyer et al, 2014/ US survey)
- Annual wellbeing value to the UK associated with frequent use of local parks and green space was estimated as £34.2 billion (survey and economic evaluation) (Fields in Trust, 2018)
- Gardening
 - Gardening resulted in a range of improved health outcomes including increased sense of community, life satisfaction and quality of life as well as reduced depression, anxiety and body

mass index (meta-analysis) (Soga et al, 2017)

- Adults with mental health problems experienced a range of benefits from gardening across emotional, social, vocational, physical and social domains (review) (Clatworthy et al, 2013)
- For people with dementia, use of outdoor space such as gardens had promising impacts on levels of agitation although quality of studies was poor (systematic review) (Whear et al, 2014)
- Allotment gardening reduced stress, created social opportunities and enabled self-development (systematic review) (Genter et al, 2016)
- Nature assisted therapy effectiveness was supported by a small evidence base (systematic review) (Annerstedt & Währborg, 2011)
- However, systematic reviews which evaluated the impacts of participation in environmental enhancement and conservation activities for health and wellbeing in adults was unable to draw definite conclusions due to quality of the evidence (Lovell et al, 2015; Husk et al, 2016)

Arts and creativity

Arts and creativity were associated with enhanced wellbeing (DH, 2007) and recovery from mental illness (Staricoff, 2004/ review; Van Lith et al, 2011/ review):

- Community-based creative activities had some positive effect on adolescent behavioural change, self-confidence, self-esteem, levels of knowledge and physical activity (overview of systematic reviews) (Das et al, 2016)
- Engagement in a wide range of cultural activities promoted overall and leisure satisfaction (UK longitudinal survey) (Wheatley & Bickerton, 2017). Although only regular participation in arts activities and sport generated positive effects, arts events were positive irrespective of frequency
- Engagement in the arts for two or more hours each week was associated with significantly better mental wellbeing than lower levels of engagement after

adjustment for confounders (Australian survey) (Davies et al, 2015)

- Prescription of arts provided meaningful occupation and participation (review) (Bungay & Clift, 2010)
- Art therapy for people with mental disorder other than psychosis was associated with positive effects and appeared to be cost effective (systematic review) (Uttley et al, 2015)

Music was associated with improved wellbeing in healthy adults (systematic review) (Daykin et al, 2016a). Strongest evidence for impact of music on wellbeing of healthy adults was music and singing in older people with singing having particular impact on morale, mental health related quality of life, loneliness, anxiety and depression. Moderate quality evidence existed for impact of music and singing for young adults, marginalised groups and people in justice settings. For people with:

- Diagnosed conditions (systematic review) (Daykin et al, 2016b): High quality evidence suggested that targeted, culturally relevant music and singing interventions, including music therapy could enhance mental wellbeing of younger and older people with diagnosed conditions in specific contexts; moderate quality evidence suggested that targeted, culturally relevant music and singing interventions could enhance mental wellbeing and decrease depression in older people with chronic conditions in residential and community settings
- Depression: Music therapy provided short-term beneficial effects for people with depression, improved depressive symptoms when added to treatment as usual, decreased anxiety levels and improved functioning of people with depression (Cochrane meta-analysis) (Aalbers et al, 2017)
- Psychosis: Music treatment was effective for negative symptoms in people with psychosis (pooled SMD -0.58; 95% CI -0.82 to -0.33) (systematic review and meta-analysis) (Lutgens et al, 2017)
- Dementia: For people with dementia in institutionalized care, provision of at least five sessions of music-based therapeutic

intervention probably reduced depressive symptoms and improved overall wellbeing (Cochrane systematic review) (van der Steen et al, 2018)

Positive psychology interventions

These promote positive thoughts and emotions. Meta-analyses show that positive psychology interventions resulted in:

- Improved optimism (g 0.41) (Malouff & Schutte, 2017)
- Improved subjective wellbeing (SMD 0.34), psychological wellbeing (SMD 0.20) and reduced depression (SMD 0.23) (Bolier et al, 2013)
- Improved wellbeing (g 0.24), depression (g 0.23) and anxiety (g 0.36) in people with psychiatric or somatic disorder with follow up after 8-12 weeks showing similar effect sizes (Chakhssi et al, 2018)

Psychotherapy for depression had a moderate effect on the mental health component of global quality of life (g 0.42: 95% CI 0.33-0.51) (meta-analysis) (Kolovos et al, 2016).

Mindfulness, meditation, yoga, qigong, compassion, forgiveness, spiritual and religious interventions

a) Mindfulness

Mindfulness interventions had greater evidence for preventing and reducing symptoms of mental disorder with only weak evidence for promoting mental wellbeing.

Mindfulness based stress reduction (MBSR) and mindfulness based cognitive therapy (MBCT) for children and adolescents was associated with improved mental health in non-clinical populations, acceptance commitment therapy was comparable to active treatments for those mental disorder, and other mindfulness based interventions were effective for improving anxiety but not depression in non-clinical populations (meta-analysis) (Kallapiran et al, 2016).

In adults, mindfulness-based interventions for mental disorder were superior to no treatment (d 0.55: 95% 0.47-0.63), minimal treatment (d 0.37: 95% 0.03-0.71), non-

specific active controls (d 0.35: 95% 0.09-0.26) and specific treatment controls (d 0.23: 95% 0.12-0.34) (systematic review) (Goldberg et al, 2018). At follow up, mindfulness interventions were superior to no treatment (d 0.50: 95% 0.36-0.65), non-specific active controls (d 0.52: 95% 0.09-0.99), specific active controls (d 0.29: 95% 0.13-0.45) and did not statistically differ from minimal treatment conditions.

Impact on depression and anxiety has been highlighted in section on prevention but are also summarised below:

- Child and adolescent depression and anxiety: Mindfulness based interventions in children and adolescents had significant impacts on depression (d 0.47) and anxiety/stress (d 0.018) (meta-analysis of RCTs) (Dunning et al, 2018)
- Anxiety, depression and stress:
 - Mindfulness meditation programmes had moderate evidence of improved anxiety (at eight weeks and 3-6 months), depression (at eight weeks and 3-6 months) and pain, low evidence of improved stress/ distress and mental health quality of life, and lack of evidence for effect on positive mood, attention, substance use, eating habits, sleep and weight (systematic review and meta-analysis) (Goyal et al, 2014)
 - Stand-alone mindfulness exercises had small to medium effects on anxiety and depression (systematic review and meta-analysis) (Blanck et al, 2018)
 - Chronic physical illness: Mindfulness-based stress reduction had small effects on depression, anxiety and psychological distress in people with chronic physical illness (meta-analysis) (Bohlmeijer et al, 2010). Mindfulness-based interventions for adults with diabetes reduced depression, anxiety and distress symptoms across several studies (systematic review) (Noordali et al, 2017)
 - Mindfulness based cognitive therapy can prevent relapse of depression (meta-analysis) (Kuyken et al, 2016) and was being delivered effectively in UK mental health services although its use had broadened to include people with current depression (Tickell et al, 2019)

- Mindfulness based interventions reduced depressive symptoms and relapse (meta-analysis) (Klainin-Yobas et al, 2012). Exposure-based cognitive therapy (d=2.09) appeared to be the most efficacious intervention, followed by mindfulness-based stress reduction programme (d=1.92), acceptance-based behaviour therapy (d=1.33), and stress less with mindfulness (d=1.31)
- Mindfulness interventions for perinatal mental disorder failed to show post-intervention benefit for depression, anxiety or stress (systematic review and meta-analysis) (Taylor et al, 2016) although another systematic review found such interventions were associated with reduced perinatal anxiety (moderate to large effect size) (Shi & MacBeth et al, 2017)
- Online mindfulness based interventions:
 - Significant beneficial impact on depression, anxiety, wellbeing and mindfulness and a moderate effect on stress (review and meta-analysis of RCTs) (Spijkerman et al, 2016)
 - Significant large effect found for perceived-stress (g 0.70) at follow up (meta-analysis of RCTs) (Jayawardene et al, 2017)
 - Reduced employee mental health and stress symptoms (g 0.60: 95% CI 0.34-0.85) (systematic review and meta-analysis) (Stratton et al, 2017)

b) Meditation

- Meditation resulted in a broad range of mental health relevant impacts (meta-analysis) (Sedlmeier et al, 2012): Largest effects for meditation were for positive changes in relationships (r 0.44), state anxiety (r 0.37), negative emotions (r 0.34) and trait anxiety (r 0.32) with smaller impacts for stress (r 0.27), positive emotions (r 0.25) and wellbeing (r 0.23)
- Kindness based meditation was moderately effective at increasing compassion (g 0.61: 95% CI 0.24-0.99), self-compassion (g 0.45: 95% CI 0.15-0.75) as well as decreasing self-reported depression (g -0.61: 95% CI -1.08 to -0.14) (systematic review and meta-analysis) (Galante et al, 2014)

c) Yoga

- Yoga type activities have potential to improve subjective wellbeing in 15-24 year olds (systematic review) (Mansfield et al, 2017)
- Yoga was associated with reduced adult anxiety (controlled ES 0.61) although quality of studies was relatively low (meta-analysis) (Hofmann et al, 2016)
- Prenatal yoga resulted in significant reduction in depression (SMD -0.59: 95% CI -0.94 to -0.25) (systematic review and meta-analysis) (Gong et al, 2015)
- Yoga had moderate evidence for short term effects on quality of life in people with schizophrenia (systematic review and meta-analysis) (Cramer et al, 2013)
- Prison based meditation and yoga programmes resulted in small improvements in psychological wellbeing and behavioural functioning (systematic review and meta-analysis) (Auty et al, 2017)

d) Qigong

Qigong consists of a set of practices including body posture, movement, breathing and meditation and is popular in China. A meta-analysis highlighted poor quality studies with non-significant effect sizes on psychological wellbeing, anxiety and depression (Wang et al, 2013). However, a further systematic review and meta-analysis of RCTs found reduced anxiety (pooled SMD -0.75: 95% CI -1.11 to -0.40) and reduced stress (pooled SMD -0.88: 95% CI -1.22 to -0.55) (Wang et al, 2014).

e) Compassion

- Self-compassion interventions led to small effects on positive affect (g 0.48: 95% CI 0.19-0.77) and life satisfaction (g 0.40: 95% CI 0.05-0.75), moderate effects for self-compassion (g 0.75: 95% CI 0.53-0.97), stress (g 0.67: 95% CI 0.37-0.96), depression (g 0.66: 95% CI 0.45-0.87) and anxiety (g 0.57: 95% CI 0.33-0.82), and large effects for eating behaviour (g 0.176) and rumination (g 1.37) (meta-analysis) (Ferrari et al, 2019)
- Self-compassion related therapies resulted in improved self-compassion (g

0.52: 95% CI 0.32-0.71), reduced anxiety (g 0.46: 95% CI 0.25-0.66) and depressive symptoms (g 0.40: 95% CI 0.23-0.57) (systematic review and meta-analysis) (Wilson et al, 2018)

- Compassion based interventions resulted in improved self-compassion (d 0.70: 95% CI 0.59-0.87), wellbeing (d 0.51: 95% CI 0.30-0.63), depression (d 0.64: 95% CI 0.45-0.82), anxiety (d 0.49: 95% CI 0.30-0.68) and psychological distress (d 0.47: 95% CI 0.19-0.56) (meta-analysis) (Kirby et al, 2017)

f) Forgiveness

Forgiveness interventions were effective in promoting positive affect (SMD -0.29: 95% CI -0.52 to -0.06) and reducing depression (SMD -0.37: 95% CI -0.68 to -0.07, stress and distress (SMD -0.66: 95% CI -0.91 to -0.41) (systematic review and meta-analysis) (Akhtar & Barlow, 2018).

g) Other interventions

- Religious and spiritual interventions had significant effects on anxiety (systematic review and meta-analysis of RCTs) (Goncalves et al, 2017)
- Spiritually orientated psychotherapy may be useful for people with depression, anxiety, stress and eating disorders (meta-analytic review) (Smith et al, 2007)
- Life review to assist people with life threatening illness cope with physical illness and associated psycho-spiritual burden was associated with improved quality of life and self-esteem as well as reduced depression (systematic review and meta-analysis) (Chen et al, 2017)

Working well

Work-based mental health promotion increased work performance and reduced rates of sickness, anxiety and depression (Kuoppala et al, 2008/ systematic review and meta-analysis; Martin et al, 2009/ meta-analysis; Czabala et al, 2011/ overview. Interventions to promote mental health at work include the following:

- Increased employee control including flexible working hours improved mental health (Egan et al, 2007/ systematic review; Joyce et al, 2010/ Cochrane systematic review)
- Training workers to improve their own jobs, training coupled with job redesign and system wide approaches that simultaneously enhance job design and a range of other employment practices resulted in improved employee wellbeing and performance (systematic review) (Daniels et al, 2017)
- Interventions which increased the frequency of shared activities between workers can improve worker wellbeing and performance (systematic review) (Daniels et al, 2017a)
- Online CBT and other psychological approaches were effective in improving work effectiveness (g 0.25: 95% CI 0.09-0.41) and psychological wellbeing (g 0.37: 95% CI 0.23-0.50) (systematic review and meta-analysis) (Carolan et al, 2017) as well as reduced mental health symptoms and stress (g 0.15: 95% CI 0.02-0.29) (systematic review and meta-analysis) (Stratton et al, 2017)
- Work placed resources can improve both employee wellbeing and organisational performance at levels of individual, group, leadership and organisation (Wagner et al, 2016/ review of systematic reviews; Nielsen et al, 2017/ systematic review and meta-analysis). Low-quality evidence suggested that organisational interventions led to improvements in teacher wellbeing and retention rates (Cochrane systematic review) (Naghieh et al, 2015)
- NICE (2015d) made relevant recommendations covering organisational commitment, physical work environment, promoting mental wellbeing at work, encouraging participation and trust, role

of senior leadership and line managers, training and job design

- Welfare-to-work interventions had negligible impacts on the mental and physical health of lone parents and their children (Cochrane systematic review) (Gibson et al, 2017). Furthermore, the programme of reassessing people on disability benefits using the Work Capability Assessment was associated with increased suicides, self-reported mental health problems and antidepressant prescribing (England longitudinal ecological study) (Barr et al, 2016)

Legislation

Under the 1974 Health and Safety at Work Act, employers have a duty to protect the health, safety and welfare of their employees and must do whatever is reasonably practical to achieve this.

See page 76 for workplace interventions to prevent mental disorder and page 87 for workplace interventions to support recovery from mental disorder.

Ageing well

Ageing well interventions promote wellbeing in later life (see NICE, 2015e).

- Psychosocial interventions for older people significantly improved positive mental health, life satisfaction and quality of life and reduced depressive symptoms (meta-analysis) (Forsman et al, 2011b). Such interventions can improve outcomes for staff and residents with dementia in care homes (systematic review) (Rapaport et al, 2017)
- Volunteering (see social wellbeing promotion section)
- Physical activity
 - Physical activity by older people was associated with better mental health outcomes (NICE, 2008d; Windle et al, 2008/ systematic review; Windle et al, 2010/ systematic review; Bherer et al, 2013/ review) and sleep in those with depressive symptoms (English longitudinal study) (Garfield et al, 2016) (see interventions to promote physical activity in Living well section)
 - Multicomponent exercise for people with dementia improved global physical and cognitive functions and activities of daily living skills (synthesis of systematic review) (McDermott et al, 2018)
- Life review interventions for older adults significantly improved wellbeing (SMD 0.54; 95% CI 0.01-1.06) (systematic review and meta-analysis) (Lan et al, 2017)
- Reminiscence interventions resulted in moderate improvements in depression and ego-integrity as well as small improvements in purpose in life, death preparation, mastery, mental health symptoms, positive wellbeing, social integration and cognitive performance with most effects maintained at follow up (meta-analysis) (Pinquart & Forstmeier, 2012)
- Reablement for older people with physical or mental disabilities can help them adapt to their condition by learning or re-learning the skills needed to function in everyday life (SCIE, 2013). Reablement had a positive impact on health-related quality of life and service utilization (systematic review) (Tessier et al, 2016). However, another systematic review of the evidence on home care reablement services found no studies fulfilling inclusion criteria and lack of agreement about the understanding of reablement (Legg et al, 2016)
- Social isolation (see page 65 of primary prevention section): Although interventions to reduce loneliness and isolation in older people reported success, the quality of evidence was weak (review) (Gardiner et al, 2018). New technologies and community engaged arts are promising interventions (systematic review) (Poscia et al, 2018)
- Group based cognitive simulation for people with dementia improved cognitive function, social interaction and quality of life (synthesis of systematic review) (McDermott et al, 2018)
- Addressing hearing loss was associated with improved quality of life (systematic review) (Chisholm et al, 2007) and can prevent dementia (systematic review and meta-analysis) (Livingston et al, 2017)

RESILIENCE PROMOTION

The section on pages 22-23 highlighted that emotional resilience can be defined as a process of negotiating, managing and adapting to significant sources of stress or trauma (review) (Windle, 2010). It arises through the interaction between factors at the individual, family and community level.

Interventions to promote resilience can promote mental wellbeing, recovery from mental disorder and prevent mental disorder from arising.

Evidence suggests some degree of effectiveness of resilience promotion programmes although there was poor operationalization of the construct and great heterogeneity of studies (systematic review of non-clinical samples) (systematic review) (Macedo et al, 2014)

a) School-based programmes

- Universal school based resilience-focused interventions reduced depressive symptoms, internalising problems, externalising problems and general psychological distress (systematic review) (Dray et al, 2017). For children, interventions were effective for anxiety symptoms and general psychological distress while for adolescents, interventions were effective for internalising problems. At long term follow up, interventions were only effective for internalising problems
- Universal school-based interventions to promote adolescent resilience reduced use of illicit substances (OR 0.78: 95% CI 0.6-0.93) but not tobacco or alcohol (systematic review and meta-analysis) (Hodder et al, 2017)
- School based life skill and resilience programmes in LMICs, had positive effects on student self-esteem, motivation and self-efficacy) (systematic review) (Barry et al, 2013)
- School based mindfulness programmes appeared to improve cognitive performance and resilience to stress (systematic review and meta-analysis) (Zenner et al, 2014)

- School based Penn resiliency programmes to prevent depression in adolescents through promotion of resilience, optimistic thinking and social problem-solving did not reduce depression or anxiety (systematic review and meta-analysis) (Bastounis et al, 2016)

b) Work-based programmes

Work-based resilience building programmes had overall small effect (d 0.21) which diminished over time (meta-analytic review) (Vanhove et al, 2016). However, programmes targeting those at higher risk of stress showed the opposite effect over time: One to one coaching was most effective while train-the-trainer and computer-based formats were least effective

c) Adult and parental support

- Adult trusted support substantially mitigated the impact of child adversity. For children with four or more ACEs, presence of always available adult support was associated with reduction of two health risk behaviours from 21.5% to 7.1% and of lower wellbeing from 8.3 higher to 3.3 higher (UK cross sectional survey) (Bellis et al, 2017)
- Parental support was associated with increased odds of good mental health among adolescents with a history of child maltreatment (adj OR 2.2-5.7) and without a history of child maltreatment (adj OR 2.1-7.1) (national US survey) (Cheung et al, 2017)

d) Resiliency training programmes

- Evidence warranted low confidence that resiliency training programmes had small to moderate effect at improving resilience and other mental health outcomes (systematic review and meta-analysis) (Leppin et al, 2014)
- Workplace resiliency training could improve personal resilience, promote mental health and subjective mental wellbeing, and enhance psychosocial functioning (systematic review) (Robertson et al, 2015). However, lack of coherence in design and implementation

did not allow firm conclusions about content and format of resilience training

Facilitating improved coverage of mental wellbeing and resilience promotion

Since the largest difference in wellbeing between neighbouring fifths of income and expenditure distributions were between those in the bottom and second-lowest fifths (GB survey of 8,000 people) (Lewis, 2014), this suggests that people living in lowest 20% household income require targeted interventions to both promote mental wellbeing and reduce socioeconomic inequality. The Five Ways to Wellbeing are evidence based actions which promote mental wellbeing developed in 2008 although searches of published and unpublished literature found virtually no evaluation of the programme (WWW, 2017).

Improved coverage of promotion of interventions to promote mental wellbeing and resilience can be facilitated in several ways:

- 1) Settings based approaches
- 2) Digital technology
- 3) Particular interventions such as physical activity promotion

1) Settings based approaches

a) Schools

- Social and emotional learning is an example of a particularly well evaluated school based intervention. Meta-analysis of longer term effects for 97,406 students found significant improvement in socio-emotional skills, attitudes, positive social behaviour and academic performance, with reductions in conduct problems, emotional distress and drug use (Taylor et al, 2017a)
- Self-regulation: School based programmes to promote self-regulation resulted in improved self-esteem in the short term and long term as well as reduced internalising behaviour in the short term (meta-analysis) (van Genugten et al, 2017)
- School based psychosocial interventions delivered by teachers reduced student internalising outcomes (systematic review and meta-analysis) (Franklin et al, 2017). The Good Behavior Game resulted in significantly increased prosocial behaviour

and reduced problem behaviour (meta-analysis) (Bowman-Perrott et al, 2016)

- Child-centred play therapy in elementary schools had significant impacts on self efficacy and academic outcomes as well as externalising problems and internalising problems (meta-analysis and systematic review) (Ray et al, 2015)
- Physical activity interventions during adolescence had significant small to moderate effects on self-concept and academic achievement as well as externalising problems and internalising problems (meta-analytic review) (Spruit et al, 2016). Physical activity can be increased through school-based interventions (NICE, 2007e; NICE, 2008a; NICE, 2009i; NICE, 2012d)
- Academic interventions (including modifying task difficulty, providing instruction in reading, mathematics, or writing, and contingent reinforcement for academic performance) had small to moderate effect on behavioural outcomes, improving both on-task behaviour and disruptive behaviour (meta-analysis) (Warmbold-Brann et al, 2017)
- Mindfulness: School based programmes improved cognitive performance and resilience to stress (systematic review and meta-analysis) (Zenner et al, 2014) while university based cognitive, behavioural and mindfulness interventions were associated with reduced anxiety and depression (review and meta-analysis) (Regehr et al, 2013)
- After school programmes which sought to enhance personal and social skills of children and adolescents were effective in increasing self-perception and bonding at school, positive social behaviours, academic achievement and reduced problem behaviours (meta-analysis) (Durlak et al, 2010)
- Structured universal interventions for children living in conflict areas in LMICs improved student emotional and behavioural wellbeing including improved self-esteem and coping skills coping skills (systematic review) (Barry et al, 2013)

School-based resilience promotion

- Universal school based resilience-focused interventions reduced depressive symptoms, internalising problems, externalising problems and general psychological distress (systematic review) (Dray et al, 2017).
- Universal school-based interventions to promote adolescent resilience reduced use of illicit substances but not tobacco or alcohol (systematic review and meta-analysis) (Hodder et al, 2017)
- In LMICs, school based lifeskill and resilience programmes had positive effects on student self-esteem, motivation and self-efficacy (systematic review) (Barry et al, 2013)
- School based mindfulness programmes appeared to improve cognitive performance and resilience to stress (systematic review and meta-analysis) (Zenner et al, 2014)

Schools with policies to support needs and promote mental health were likely to use a range of approaches and activities than schools without such policies (England national survey) (Marshall et al, 2017).

b) Workplaces

Workplace wellbeing promotion

- Work placed resources can improve both employee wellbeing and organisational performance at individual, group, leadership and organisation levels (Wagner et al, 2016/ review of systematic reviews; Nielsen et al, 2017/ systematic review and meta-analysis)
- Work-based mental health promotion increased work performance at work and reduced rates of sickness, anxiety and depression (Kuoppala et al, 2008/ systematic review and meta-analysis; Martin et al, 2009/ meta-analysis)
- Increasing employee control including flexible working hours improved mental health (Egan et al, 2007/ systematic review; Joyce et al, 2010/ Cochrane systematic review)
- Training workers to improve their own jobs, training coupled with job redesign and system wide approaches that simultaneously enhance job design and a range of other employment practices

resulted in improved employee wellbeing and performance (systematic review) (Daniels et al, 2017)

- Interventions which increased frequency of shared activities between workers can improve worker wellbeing and performance (systematic review) (Daniels et al, 2017a)
- Online CBT and other psychological approaches were effective in improving work effectiveness (g 0.25: 95% CI 0.09–0.41) and psychological wellbeing (g 0.37: 95% CI 0.23–0.50) (systematic review and meta-analysis) (Carolan et al, 2017) as well as reduced mental health symptoms and stress (g 0.15: 95% CI 0.02–0.29) (systematic review and meta-analysis) (Stratton et al, 2017)
- NICE (2015d) made recommendations covering organisational commitment, physical work environment, promoting mental wellbeing at work, encouraging participation and trust, role of senior leadership and line managers, training and job design

c) Neighbourhoods

- Neighbourhood enhancement and regeneration resulted in improved mental health (Thomson et al, 2009/systematic review; McCartney et al, 2017/review; White et al, 2017b/ Welsh cohort study)
- Neighbourhood walkability was associated with increased walking (systematic review and meta-analysis) (Hajna et al, 2015) which can improve social interaction among older people (systematic review) (McCormack & Sheill, 2011)
- Increased functionality of neighbourhood and facilities (meta-analysis) (Duncan et al, 2005) can promote wellbeing. Mobility and social participation were both positively associated with proximity to resources and recreational facilities (scoping study) (Levasseur et al, 2015)
- Well-designed neighbourhoods improved physical activity and perceived safety (Bauman & Bull, 2007/review of reviews; Adams et al, 2013/ UK survey analysis)

d) Housing

- Housing improvements: Interventions to improve warmth and energy efficiency

appeared to improve general health, mental health and respiratory health particularly for those without warmth (Cochrane systematic review) (Thomson et al, 2013)

- Targeted interventions such as supported housing for high-risk groups including those with mental disorder (Nelson et al, 2007/ review; Killaspy et al, 2016/England national survey), those with substance use disorders (review) (Reif et al, 2014) and care leavers (Brady, 2014)
- For homeless people with mental illness, best outcomes are where health and housing interventions were delivered together (review of reviews) (Preston et al, 2017)
- Supported accommodation for people with mental disorder was effective across psychosocial outcomes (systematic review) (McPherson et al, 2018)

e) Libraries

Libraries represent a place where many public mental health interventions can be accessed. Economic impacts range widely (meta-analysis) (Kim, 2011).

f) Gardens

- Gardening resulted in a range of improved health outcomes including increased sense of community, life satisfaction and quality of life as well as reduced depression, anxiety and body mass index (meta-analysis) (Soga et al, 2017)
- Adults with mental health problems also experienced benefits across emotional, social, vocational, physical and social domains (review) (Clatworthy et al, 2013)
- Allotment gardening reduced stress, created social opportunities and enabled self-development (systematic review) (Genter et al, 2016)

g) Older people's care homes

Psychosocial interventions improved outcomes for staff and residents with dementia in care homes (systematic review) (Rapaport et al, 2017).

2) Digital technology

- Online CBT and other psychological approaches were effective in improving work effectiveness and psychological wellbeing (systematic review and meta-analysis) (Carolan et al, 2017) as well as reduced mental health symptoms and stress (systematic review and meta-analysis) (Stratton et al, 2017)
- Online mindfulness based intervention had the following effects:
 - Significant beneficial impact on depression, anxiety, wellbeing and mindfulness and a moderate effect on stress (review and meta-analysis of RCTs) (Spijkerman et al, 2016)
 - Significant large effect found for perceived-stress at follow up (meta-analysis of RCTs) (Jayawardene et al, 2017)
 - Reduced employee mental health and stress symptoms (systematic review and meta-analysis) (Stratton et al, 2017)

3) Particular interventions such as physical activity promotion

- During childhood, physical activity led to improved mental health outcomes for all children including increased self-esteem and self-concept as well as reduced depression, anxiety, psychological distress/PTSD and emotional disturbance (meta-analysis) (Ahn & Fedeqa, 2017)
- During adulthood, physical activity was associated with reduced depression (Schuch et al, 2018a/ meta-analysis of prospective cohort studies; Harvey et al, 2018/ Norwegian cohort study), improved wellbeing (including people with schizophrenia) (Holley et al, 2011/ systematic review), better mental health outcomes for people in primary care (NICE, 2013k), improved cognitive function in the over 50's (systematic review and meta-analysis) (Northey et al, 2018) and prevention of dementia (systematic review and meta-analysis) (Livingston et al, 2017)
- For older people, physical activity was associated with better mental health outcomes (NICE, 2008d; Bherer et al, 2013/ review) and sleep in those with depressive symptoms (English longitudinal study) (Garfield et al, 2016). Multicomponent exercise for people with dementia improved global physical and cognitive functions and activities of daily living skills (synthesis of systematic review) (McDermott et al, 2018)
- Access to recreational infrastructure such as playgrounds and parks is associated increased physical activity and reduced obesity in adolescents (systematic review) (Dunton et al, 2009)

b) Particular activities

- Leisure-time physical activity was associated with improved psychological wellbeing 15 years later (Sacker & Cable, 2005/ (British cohort studies; Takeda et al, 2015/ Japanese national longitudinal survey), mental health (meta-analysis) (White et al, 2017a), and positive affect and life satisfaction (meta-analysis) (Wiese et al, 2018)
- Sport including for people with mental disorder (reviews) (Clark et al, 2015; Friedrich & Mason, 2017)
- Transport physical activity had positive associations with mental health (meta-analysis) (White et al, 2017a). Significant associations occurred between psychological wellbeing and active travel/ public transport travel compared to care travel (British cohort study) (Martin et al, 2014)
- Group-based and peer supported sport and dance programmes may promote wellbeing enhancement in youth groups in 15-24 year olds (systematic review) (Mansfield et al, 2017)

c) Place based approaches

Physical activity can be promoted through:

a) Infrastructure

- Investing in infrastructure to support walking which increases physical activity across different age groups including children, adolescents (systematic review) (Carlin et al, 2015) and adults (Hajna et al, 2015/ systematic review and meta-analysis; Mueller et al, 2015/ systematic review)
- Walking and cycling (NICE, 2012d) facilitated by coordinated planning with public transport (review) (Sloman et al, 2010)
- Improving built and natural environment including traffic calming (NICE, 2008c; Rothman et al, 2014/ systematic review)
- Workplace physical activity programmes (NICE, 2008e; Jirathananuwat et al, 2017/ systematic meta-review)
- Home environment: Interventions introducing large exercise equipment increased physical activity (review of reviews) (Preston et al, 2017)
- Access to the natural environment (systematic review) (Calogiuri & Chroni, 2014)
- Brief advice in primary care (NICE, 2013k)

ECONOMICS OF PUBLIC MENTAL HEALTH AND INTERVENTIONS

Costs of mental disorder

The global annual economic cost of mental illness in 2010 was estimated as US\$2,493 billion with US\$823 billion as direct costs and US\$1,671 billion as indirect costs reflecting the broad range of impacts (Bloom et al, 2011). Furthermore, global annual economic cost will more than double to US\$6,046 billion by 2030.

National costs of mental disorder

In England, the annual cost of mental disorder in England was estimated as £105 billion which arises from costs of health and social care (£21.3 billion) as well as unemployment, absenteeism and presenteeism (£30.3 billion) (CMH, 2010). The economic cost of presenteeism was 5-10 times the cost of absenteeism (Knapp & Lacko, 2016).

Another study estimated the annual cost of mental disorder in the UK was €93 billion which included €2.8 billion for child and adolescent mental disorder, €19.3 billion for mood disorders, €11.7 billion for anxiety disorder, €16.7 billion for psychotic disorder, €4.9 billion for personality disorder, €22.2 billion for dementia, €0.1 billion for eating disorder, €11.8 billion for addiction and €3.5 billion for somatoform disorder (Fineberg et al, 2013).

The economic impact of mental disorder also persists across generations (data from British Cohort Study) (Johnston et al, 2013).

Costs of childhood mental disorder

- Health, social care and education costs of a one year cohort of children with conduct, emotional and hyperkinetic disorders in Great Britain in 2012 were estimated to be £1.6 billion over 3 years and £2.4 billion over the long term (Strelitz, 2013 based on Snell et al, 2013)
- Estimated health, social care and education costs of childhood conduct, emotional and hyperkinetic disorders per child were £2,220 in the short term and £3,310 in the long term
- Preschool children with hyperactivity had 17.6 times higher average annual costs mediated by later psychiatric morbidity (Chorozoglou et al, 2015). These were £562 for each hyperactive individual compared to £30 for control
- Estimated lifetime costs per child were £85,000 for moderate behavioural problems and £260,000 for severe behavioural problems (Parsonage et al, 2014)
- Service costs associated with childhood psychiatric disorders were 12 times greater for frontline education services than for specialist mental health services (Snell et al, 2013)
- Estimated lifetime costs of a one year cohort of children with conduct disorder in the UK (6% of the child population) was £5.2 billion (£150,000 per case) (Friedli & Parsonage, 2007). Crime was responsible for 71% of the costs of conduct disorder, with 13% due to mental illness in adulthood and 7% due to lost lifetime earnings

Costs of adult mental disorder

- Depression: Total annual cost in England was estimated as £20.2-23.8 billion which included health service costs (£1.7 billion), lost earnings (£5.8 billion), lower productivity rates (£1.7-2.8 billion), and human costs (£9.9-12.4 billion) (national review) (McCrone et al, 2008). These costs did not include informal care or other public service costs. Furthermore, 90% of the societal cost of depression was due to unemployment and absenteeism (Thomas & Morris, 2003)
- Anxiety: Annual cost of anxiety disorders in England was estimated as £8.9 billion with £1.2 billion due to health service costs and the remainder due to lost employment (McCrone et al, 2008)
- Medically Unexplained Symptoms: Annual costs in England was estimated as £17.4 billion with £2.9 billion NHS costs, £5.2 billion costs due to lost productivity and £9.3 billion to reduced quality of life (Birmingham et al, 2010)
- Psychosis
 - Annual UK cost of schizophrenia (non-affective psychosis) was estimated as £8.8 billion (Kirkbride et al, 2012). This included health service costs totaling £3.5 billion (of which psychiatric inpatient care represented £1.7 billion), informal care £1.2 billion (13%) and lost employment £4.1 billion (47%)
 - Annual UK cost of affective psychosis was estimated as £5 billion with NHS costs of £4 billion, informal care costs of £167 million, and costs of lost employment £829 million (Kirkbride et al, 2012)
 - Annual health service and productivity cost of psychosis and substance misuse was estimated as £3.3-£4 billion (NICE, 2011f)
- Personality disorder: In 2007, service costs for people with diagnosable personality disorder in England in contact with primary care were estimated as £704 million and projected to rise to £1.1 billion by 2026 (national review) (McCrone et al, 2008). These figures increased to £7.9 billion and

- £12.3 billion respectively if lost employment costs were included
- **Suicide:** Estimated lifetime cost of each suicide by someone of working age in England was £1.7m at 2009 prices (Knapp et al, 2011). In 2008 the total estimated annual costs of the 4,200 suicides that occurred that year was £7.1 billion with costs including intangible costs (loss of life to the individual and the pain and suffering of relatives) (68%), lost output (both waged and unwaged) (31%) and police time and funerals (1%)
 - **Dementia**
 - Annual UK costs were estimated as £26.3 billion (Prince et al, 2014)
 - Social care was either publicly funded (£4.5 billion) or privately funded (£5.8 billion) with cost of unpaid care £11.6 billion (Prince et al, 2014)
 - Total annual cost per person with dementia was £29,298 for people in the community and £36,738 for people in residential care (Prince et al, 2014)
 - Between 2007 and 2026, total cost of dementia care in England was projected to rise from £14.8 billion to £34.8 billion (national review) (McCrone et al, 2008)
 - **Alcohol misuse**
 - In England, annual costs from alcohol related harm associated with health care, crime and antisocial behaviour were £12.6 billion although annual wider costs in England were estimated to be £20–£55 billion (NICE, 2010d)
 - Tax revenue from alcohol sales in UK during 2017 was £11.6 billion (HMRC, 2018)
 - Economic burden of alcohol equated to 1.3%–2.7% of annual GDP (PHE, 2016)
 - **Smoking**
 - Annual wider cost of smoking in the UK was £13.7 billion which included NHS costs (£2.7 billion), loss in economic output from the deaths of smokers (£4.1 billion) and passive smokers (£713 million), loss in productivity from smoking breaks (£2.9 billion), increased absenteeism (£2.5 billion), cost of smoking related house fires (£507 million) and cost of cleaning up cigarette butts (£342 million) (Nash & Featherstone, 2010)
 - Tax revenue from tobacco sales in UK during 2017 was £9.5 billion (HMRC, 2018)
 - Household expenditure on tobacco in 2016 in UK was £18.9 billion (HSCIC, 2017). Since 42% of tobacco consumption is by people with mental disorder (England national survey) (McManus et al, 2010), people with mental disorder spent £7.9 billion in 2016
 - Cost of smoking related illness in people with mental disorder: The NHS spent an estimated £720 million a year treating smoking related disease in people with mental disorder (RCP & RCPsych, 2013). These costs arose from an annual estimated 2.6 million avoidable hospital admissions, 3.1 million GP consultations, and 18.8 million prescriptions. Smoking also increased psychotropic drug costs in the UK by up to £40m each year (RCP & RCPsych, 2013)
 - **Drug misuse:** Annual economic and social cost of class A drugs was £15.4 billion in England and Wales in 2003/04 with 89% of these costs from crime, 6% from drug related deaths, and 3% due to health costs (Gordon et al, 2006)
- Costs of mental disorder for different groups and settings**
- Annual cost of perinatal depression, anxiety and psychosis in UK for each one-year cohort of births was estimated as £8.1 billion with 72% of cost from adverse impacts on the child (Bauer et al, 2014)
 - **Workplace mental disorder:** Mental ill health cost UK employers £28 billion at 2009 pay levels (NICE, 2009c), with a further £31 billion in costs due to people not currently in work owing to mental health problems (based on McCrone et al, 2008). Costs of presenteeism were 5–10 times larger than absenteeism (Evans-Lacko & Knapp et al, 2016)
 - **Co-morbid mental disorder in people with long term physical illness** led to 45% higher health care costs (report) (Naylor et al, 2012). Furthermore, £8–13 billion or 12–18% of all NHS expenditure in England on long-term (physical) conditions was linked to poor mental health and wellbeing (Naylor et al, 2012). This equated to £1 in every £8 spent in England on long-term conditions is linked to poor mental health (Naylor et al, 2012)
 - **Inequalities:** Annual cost of social and economic inequality in England was £56–£58 billion which comprised productivity losses of £31–£33 billion as well as lost taxes and higher welfare payments in the range of £20–£22 billion (Marmot et al, 2010)
 - **Stigma and discrimination related to mental illness** have a range of financial impacts, affecting employment, income, public views about resource allocation and healthcare costs (systematic review) (Sharac et al, 2010)

Economic benefits of mental wellbeing

Although less information exists about the economic impacts of mental well-being, these are likely to be significant on account of the wide range of associated health and non-health benefits of mental wellbeing outlined on (see pages 20-21).

Public mental health interventions can deliver large economic savings

Public mental health interventions result in economic savings from:

- Reduced costs of mental disorder through prevention and improved outcomes from early intervention
- Reduced welfare dependency, less use of health and social care services, less crime and greater social cohesion
- Reduced health risk behaviour and subsequent physical illness
- Improved educational outcomes, higher employment rates, and greater economic productivity

Economic savings and benefits:

- Often occur within short time frames
- Occur within and outside healthcare services – a significant proportion of savings often occur outside the health sector, such as education, employment and criminal justice
- Arise from co-ordination and planning with other services to encourage them to co-invest in interventions in order to benefit from these savings

The type of savings which can be made from public mental health interventions are highlighted in Tables 9 and 10. However, many effective public mental health interventions do not have economic evaluation although are likely to result in significant economic benefits.

Future costs of mental disorder can be reduced through greater focus on whole-population mental health promotion, mental disorder prevention and early mental disorder treatment.

Improved outcomes across government departments result in significant savings to the public purse. The significant economic savings from public mental health interventions (Knapp et al, 2011) can help meet the challenge to make efficiency savings in the NHS and social care as well as promote quality and productivity. Future costs of mental disorder can be reduced through a more population focused approach including more upstream interventions.

TABLE 9: ECONOMIC SAVINGS RESULTING FROM SELECTED INTERVENTIONS TO PREVENT MENTAL DISORDER**PRIMARY MENTAL DISORDER PREVENTION**

- Primary school-based interventions result in net returns for each £ spent of:
 - £10.7 for women and £16.8 for men by age 21 year from bullying prevention (McDaid et al, 2017)
 - £84 from social and emotional learning programmes to prevent conduct disorder (Knapp et al, 2011)
- Debt advice services net returns per £ spent range from £2.6 (McDaid et al, 2017) to £3.6 (Knapp et al, 2011)
- Prevention of workplace stress results in net returns of £2 for each £ spent (McDaid et al, 2017)
- Prevention of depression in older people is highly cost effective at £3,196 per depression/ anxiety-free year gained (Van't Veer-Tazelaar et al, 2010)
- Prevention of loneliness in older people through psychosocial group therapy reduces health-care costs by €943 per person (Pitkala et al, 2009) and through signposting services to social activities resulted in return on investment (ROI) of £1.26 for each £ after 5 years (McDaid et al 2017)
- Functional Family Therapy results in per \$ savings of \$11.2 per \$ in institutions and \$7.9 in probation (WSIPP, 2017)
- Substance use prevention
 - Smoking: Savings per \$ spent for school prevention programmes (\$58.9) and antismoking media campaign (youth \$102.0, adult \$57.0) (WSIPP, 2017)
 - Prevention of alcohol related harm by reducing affordability (NICE, 2009): Over 10 years, a minimum price of 40p and 50p per unit could result in savings of £3.1 billion and £7.1 billion respectively (Meier et al, 2009). Over 5 years, a minimum price of 60p per unit would save £3.2 billion (PHE, 2016)
 - Computer based substance prevention programmes result in savings of \$30.2 for each \$ (WSIPP, 2017)

SECONDARY MENTAL DISORDER PREVENTION

- Postnatal health visitor support to detect and treat depression results in net returns of £0.80 for each £ spent (Knapp et al, 2011)
- Parent training interventions for conduct disorder result in net returns of £8 for each £ spent over 35 years (Knapp et al, 2011)
- Behaviour parent training for children with ADHD results in \$21.2 savings for each \$ spent (WSIPP, 2017)
- Disruptive behaviour interventions per \$ savings include Stop Now and Plan (\$4.1), multimodal therapy (\$6.1), Incredible Years Parent Training (\$5.8), Triple P Positive Parenting Programme (individual) (\$7.8), brief strategic family therapy (\$2.7), community based mentoring (\$2.6) and collaborative primary care (\$3.5) (WSIPP, 2017)
- Early detection and treatment of depression at work results in net returns of £5 for each £ spent (Knapp et al, 2011)
- Early intervention of psychosis results in net returns of £18 for each £ spent with net returns to the NHS by end of first year (Knapp et al, 2011)
- Early intervention during the phase preceding psychosis (clinical high risk state) results in net returns of £10 for each £ spent (Knapp et al, 2011)
- Substance misuse
 - Screening and brief intervention in primary care for alcohol misuse results in net returns of £12 for each £ spent (Knapp et al, 2011)
 - Brief intervention for substance misuse disorder results in per \$ savings of \$10.3 in primary care, \$14.8 in hospital and \$5.6 in A&E (WSIPP, 2017)
- Suicide: Improving GP skills to assess suicide risk results in net returns of £44 for each £ spent (Knapp et al, 2011)

TERTIARY MENTAL DISORDER PREVENTION

- Common mental disorder
 - Anxiety: Savings for each \$ spent are \$24.2 for CBT in adolescents, \$56.1 for CBT in adults and \$50.8 for Acceptance and Commitment Therapy (WSIPP, 2017)
 - Depression in adults: CBT results in savings of \$50.1 for each \$ spent (WSIPP, 2017)
 - Collaborative care with primary care for people with:
 - Depression results in savings of \$12.7 for each \$ spent (WSIPP, 2017)
 - Depression with comorbid medical conditions: Savings for each \$ are \$7.5 (adults) and \$3.7 (older adults) (WSIPP, 2017). ROI for adults with depression and diabetes or CHD results in ROI of £1.52 over 2 years (McDaid et al, 2017)
 - Anxiety results in savings of \$15.2 for each \$ spent (WSIPP, 2017)
 - Telemedicine for depression has ROI of €1.45-1.76 over 5 years (Lokkerbol et al, 2014)
- Psychosis
 - CBT for schizophrenia results in net savings of \$9.5 for each \$ spent (WSIPP, 2017) and £989 to health and social care per person (NCCMH, 2014)
 - Family therapy for people close to someone with schizophrenia results in £4,202 savings per individual with schizophrenia over 3 years (Knapp et al, 2014)
 - Crisis Resolution Home Treatment teams reduce costs of services for people with mental disorder by up to 30% (Knapp et al, 2014)
 - Mobile crisis response results in savings of \$1.2 for each \$ spent (WSIPP, 2017)
- Substance misuse
 - Smoking cessation programmes: Savings for each \$ spent for computer based programmes (\$838.7), text messaging programmes (\$384.6) and for pregnant mothers (\$48.0 for contingency management, \$29.7 for NRT and \$24.2 for intensive behavioural interventions) (WSIPP et al, 2017)
 - Smoking cessation for smokers identified during psychiatric hospitalisation highly cost effective over long term with ICER of \$428 per QALY (Barnett et al, 2015)
 - Drug treatment for drug misusers results in net savings of £2.5 for each £ spent (Davies et al, 2009)
 - Contingency management for substance use disorders results in savings of \$35.4 (higher cost) and \$10.2 (lower cost) for each \$ spent (WSIPP, 2017)
 - Motivational interviewing to enhance treatment engagement results in savings of £22.1 for each \$ spent (WSIPP, 2017)
 - Cognitive behavioural coping skills therapy for alcohol or drug disorders results in savings of \$22.3 for each \$ spent (WSIPP, 2017)
 - Needle exchange has lifetime ROI of \$A1.3-5.5 (Kwon et al, 2012) and one year return on investment of 6.38-7.58 to one (Nguyen et al, 2014)
- Self-harm: CBT results in net savings of £39.1 after 10 years for each £ spent (McDaid et al, 2017)
- Medically Unexplained Symptoms (MUS): CBT results in net savings of £1.75 for each £ spent (Knapp et al, 2011)
- Stigma prevention campaigns result in £421 saved per person with depression (McCrone et al, 2010) and £0.70-£1.90 ROI over one year (Evans-Lacko et al, 2013c)

TABLE 10: ECONOMIC SAVINGS RESULTING FROM SELECTED INTERVENTIONS TO PROMOTE MENTAL WELLBEING**PRIMARY MENTAL WELLBEING PROMOTION**

- Home visiting:
 - Total value of benefits per family is more than \$27,000 over a 15-year follow-up period compared with costs of around \$6,300 (Reynolds et al, 2011)
 - Nurse Family Partnership for low income families during pregnancy and first two years after birth results in \$1.6 savings for each \$ spent (WSIPP, 2017) and cost benefit ratio 1.94 (Little et al, 2013)
 - Prenatal home visiting programmes result in savings of \$17.1 for each \$ spent (WSIPP, 2017)
- Parenting programmes
 - Triple P Positive Parenting Programmes (All levels): Cost-benefit ratio 5.05 (Little et al, 2013) and savings of \$10.4 for each \$ spent (WSIPP, 2017)
 - Parent Involvement Programmes: Cost-benefit ratio 2.80 (Little et al, 2013)
 - Safecare parent training programme for higher risk parents: Cost-benefit ratio 2.02 (Little et al, 2013)
- Early childhood education programmes
 - At state and district level result in \$4.6 savings for each \$ spent (WSIPP, 2017)
 - For higher risk children result in \$4.19 savings for each \$ spent (Ramon et al, 2017)
 - For socioeconomically deprived families: Return on investment over 20 years is \$10.83 for preschool programmes, \$3.97 for school age programmes and \$8.24 for extended programmes (Reynolds et al, 2011)
 - Curiosity Corner preschool programme for 3-4 year olds at risk of school failure due to poverty helps teachers increase language ability in children and develop high quality learning environments through use of materials, parent involvement and professional development: Cost-benefit ratio 70.08 (Little et al, 2013)
- Preschool programmes
 - High Scope Preschool/ Perry Preschool programmes for all children to age 5: Cost-benefit ratio 1.61 (Little et al, 2013)
 - Sunshine Circle Model to improve socio-emotional skills and behaviour in preschool children results in savings of \$33.3 for each \$ spent (WSIPP, 2017)
- School based programmes (WSIPP, 2017)
 - Positive Action which improves social and emotional learning results in savings of \$32.4 for each \$ spent (WSIPP, 2017)
 - Promoting Alternative Thinking Strategies (PATHS) is a socioemotional programme which results in savings of \$22.2 for each \$ spent (WSIPP, 2017)
 - Physical activity promotion programmes result in savings of \$32.8 for each \$ spent (WSIPP, 2017)
 - Tutoring: Each \$ spent result in savings of \$137.9 for peer tutoring, \$10.5 for tutoring by certified teachers (small group, structured), \$6.2 for tutoring by adults (one-to-one structured), \$16.7 for tutoring by non-certified teachers (small group, structured), \$6.7 for out of school time tutoring by adults
 - Consultant teachers: Savings per \$ spent are \$35.6 for literacy collaborative, \$64.5 for online coaching and \$183.7 for content-focused coaching
 - Good Behaviour Game to reduce aggressive/ disruptive classroom behaviour and prevent criminality results in savings of \$66.3 for each \$ spent
 - Mentoring by teachers or staff results in savings of \$6.2 for each \$ spent
- Work based mental health promotion results in net returns of £10 for each £ with most savings accruing to employer after one year (Knapp et al, 2011). A more recent analysis estimated net returns of £2.4 for each £ (McDaid et al, 2017)
- Physical activity: Brief physical activity interventions cost £57-14,002 per QALY (Vijay et al, 2015). Walking and physical activity programmes in older people to promote mental wellbeing cost £5,000 - £12,000 per QALY (Windle et al, 2008)
- Group activities and a signposting service for older people results in net savings of £1.26 for each £ (McDaid et al, 2017)
- Befriending services result in net savings of £424 per person each year (Knapp et al, 2013) and £271 per older woman after 10 months (Owen et al, 2016)
- Timebanks result in annual net savings of £1,312 per person (Knapp et al, 2013)

SECONDARY MENTAL WELLBEING PROMOTION

- Community navigators for debt advice result in £1,205 net savings by end of the first year (Knapp et al, 2013)
- Community navigators for housing advice result in £1,912 net savings by end of the first year (Knapp et al, 2013)

TERTIARY MENTAL WELLBEING PROMOTION

- Employment support: Individual Placement Support for people with severe mental illness
 - Results in savings of \$7.9 for each \$ spent (WSIPP, 2017)
 - More cost effective as a way back into competitive employment than standard vocational rehabilitation services (Knapp et al, 2013)
- Supported housing (Knapp et al, 2014)
 - £11,000-£20,000 per person in annual savings from housing schemes for men with enduring mental illness (CSED, 2010)
 - £120,000 per person in annual savings from supported housing for women with multiple complex needs
- Peer support
 - Addition of a peer specialist to the treatment team results in savings of \$1.7 for each \$ spent (WSIPP, 2017)
 - Results in potential savings of £5 for each £ spent through reduced inpatient care (Trachtenberg et al, 2013)
- Physical activity and healthy eating interventions for people with mental disorder are cost effective (£3,357/QALY for men and €3,766/QALY for women (Verhaeghe et al, 2014)

OTHER IMPACTS OF PUBLIC MENTAL HEALTH INTERVENTIONS

Support broad range of improved outcomes

Improved mental wellbeing and reduced mental disorder are associated with important health and non-health benefits outlined in the early sections on impacts of mental disorder and wellbeing. Non-health benefits include higher educational achievement, reduced unemployment, reduced reliance on welfare and disability benefits, higher productivity in the workplace, reduced crime and antisocial behaviour, and better social relationships and community involvement.

These all contribute to important national outcome measures across government departments and result in significant savings to the public purse.

Savings from public mental health interventions (Knapp et al, 2011; Knapp et al, 2014; McDaid et al, 2017) can help meet the challenge to make efficiency savings in the NHS and promote quality and productivity.

Reduce health and socioeconomic inequalities

As outlined on pages 8-16, mental disorder is associated with a range of health and other impacts as well as wider socioeconomic inequalities. In contrast, mental wellbeing is associated with a broad range of benefits.

Since socioeconomic inequality underpins many of the risk factors for mental disorder, interventions which address and prevent health and socioeconomic inequalities can also prevent mental disorder and poor wellbeing (Campion et al, 2013) (see pages 60-74 on primary mental disorder prevention). Mental disorder results in a further range of health and socioeconomic inequalities which can also be prevented by:

- Early identification and treatment of mental disorder
- Early intervention to address and prevent associated impacts of mental disorder such as health risk behaviours and physical illness
- Targeted mental wellbeing promotion to facilitate recovery of those with mental disorder

Public mental health interventions can therefore reduce and prevent health and socioeconomic inequalities which impact on individuals, communities and higher risk groups (Campion et al, 2013).

PUBLIC MENTAL HEALTH INTERVENTION GAP

This section highlights that nationally, only a minority with mental disorder except psychosis receive any treatment (Tables 11 and 12). In contrast, most people with physical illness receive treatment even in low and middle income countries (Ormel et al, 2008). Furthermore, there is significant variation in delivery of mental health services across the country (DH, 2014c).

Globally, only a minority of people with mental disorder receive treatment (WHO, 2018b) with only 10% of people with mental disorder in the European Union receiving notionally adequate treatment (Wittchen et al, 2011). A survey of 21 countries found that only 16.5% of people with major depressive disorder in the previous year received minimally adequate treatment which varied from 22.4% in high income countries to only 3.7% in lower-middle income countries (Thornicroft et al, 2017).

Furthermore, treatment is not initiated until several years after onset of mental disorder (review) (de Girolamo et al, 2012) with many people waiting more than ten years after the first onset of a mental disorder before seeking treatment (Wang et al, 2007).

National coverage of interventions to prevent impacts of mental disorder is less while coverage of interventions to prevent mental disorder from arising or promote mental wellbeing is far less.

Child and adolescent mental disorder treatment gap

In 2004, only 30-40% of children and adolescents who experience clinically significant mental disorder were offered evidence-based interventions at the earliest opportunity for maximal lifetime benefits (GB national survey) (Green et al, 2005). Increased access was associated with more severe difficulties as well as contact with key referrers particularly teachers (England national survey) (Ford et al, 2008)

The Care Quality Commission recently concluded that the barriers to getting child and adolescent mental health care were unacceptably high and that recent commitments to improved funding were not enough to achieve the scale of change required (CQC, 2018b).

In 2017, proportion of 5-19 year olds with mental disorder who had been in contact with the following in the past year for a mental health reason was as follows (England national survey) (NHSD, 2018a):

- Professional services (66.4%)
 - Health: Primary care professionals (33.4%), mental health specialist (25.2%), physical health specialist (15.4%)
 - Educational: Teachers (48.5%), educational support services (22.6%)
 - Social care services (8.0%)
 - Youth justice services (1.3%)
- Informal support (48.6%)
 - Family and friends (44.6%)
 - Internet (19.6%)
 - Self-help group (5.2%)
 - Telephone helpline (4.4%)

Furthermore, there has been little overall change in the proportion of children and adolescents with mental disorder receiving treatment between 2004 (Green et al, 2005) and 2017 (NHSD, 2018a):

- a) Behavioural disorder: Proportion in the previous year contacted a:
- Professional was 76% of 5-16 year olds in 2004 compared to 79% of 5-19 year olds in 2017
 - Teacher was 60% of 5-16 year olds in 2004 and 61% of 5-19 year olds in 2017

- Mental health specialist was 28% of 5-16 year olds in 2004 and 28% of 5-19 year olds in 2017
- Educational support service was 24% of 5-16 year olds in 2004 and 32% of 5-19 year olds in 2017

b) Emotional disorder: Proportion who in the previous year contacted a:

- Professional was 64% of 5-16 year olds in 2004 and 5-19 year olds in 2017
- Teacher was 47% of 5-16 year olds in 2004 and 46% of 5-19 year olds in 2017
- Primary care was 29% of 5-16 year olds in 2004 and 33% of 5-19 year olds in 2017
- Mental health specialist was 24% of 5-16 year olds in 2004 and 27% of 5-19 year olds in 2017

c) Hyperkinetic disorder: Proportion who in the previous year contacted a:

- Professional was 93% of 5-16 year olds in 2004 and 83% of 5-19 year olds in 2017
- Teacher was 70% of 5-16 year olds in 2004 and 64% of 5-19 year olds in 2017
- Mental health specialist was 52% of 5-16 year olds in 2004 and 30% of 5-19 year olds in 2017
- Primary care was 46% of 5-16 year olds in 2004 and 45% of 5-19 year olds in 2017
- Educational support service was 37% of 5-16 year olds in 2004 and 32% of 5-19 year olds in 2017

Proportion taking pharmacological treatment in 2017 (England national survey) (NHSD, 2018a)

- 2.5% of 5-19 year olds were taking medication for a mental disorder
- 14.0% of 5-16 year olds with mental disorder were taking psychotropic medication including stimulants (7.0%), melatonin (6.1%) and SSRI antidepressants (2.1%) in 2017. This compared to 2004 when proportion of 5-16 year olds with mental disorder taking medication was 7% for conduct disorder, 7% for emotional disorder, 43% for hyperkinetic disorder and 13% for autism spectrum disorder (Green et al, 2005)
- 16.4% of 5-19 year olds with a mental

disorder were taking psychotropic medication for following disorders

- Behavioural disorder: 14.8% (8.2% stimulants, 8.1% melatonin)
- Emotional disorder: 15.2% (9.1% SSRI antidepressants, 3.8% melatonin, 2.6% stimulants)
- Hyperactivity disorder: 45.9% (37.7% stimulants, 14.9% melatonin)
- Less common disorder: 27.7% (12.3% melatonin, 9.8% SSRI antidepressants, 7.8% stimulants)
- 23.0% of 17-19 year olds with mental disorder were taking psychotropic medication including 17.9% SSRI antidepressants, 3.7% stimulants and 2.4% melatonin
- Proportion of children aged 3-17 receiving antidepressants in the UK doubled between 2006 and 2015 despite the FDA black box warning in 2004 (Sarginson et al, 2017)

Treatment coverage for particular groups

- Special Educational Need (SEN): A third of 5-19 year olds with a mental disorder were recognised as having a SEN (26.8% with emotional disorder, 42.4% with behavioural disorder, 62.9% with hyperactivity disorder and 64.8% with other less common mental disorder) (England national survey) (NHSD, 2018a). Half (49.6%) of children with SEN had an Educational, Health and Care Plan in place
- Children associated with gangs were over-represented in those with SEN but without a statement (report) (Clarke, 2019)

Referrals, waiting times and perceived helpfulness of child and adolescent services

Number of referrals to specialist CAMHS increased by 26% between 2013 and 2018 (survey of 60 child and adolescent mental health services) (Crenna-Jennings & Hutchinson, 2018). However, 21.1% of referrals were deemed inappropriate for specialist treatment with no or limited follow up after rejection of referral.

More than two thirds of 5-19 year olds with mental disorder who had accessed professional services waited less than ten weeks although one-fifth waited more than six months including 20.7% to see a mental health specialist and 21.9% for educational support services (England national survey) (NHSD, 2018a).

A review of child and adolescent mental health services found that too many children and young people had a poor experience of care and some were unable to access timely and appropriate support (CQC, 2017).

Proportion of 5-19 year olds with mental disorder findings services helpful ranged from 73.1% for education support services to 60.5% for social care services although a higher proportion (84.8%) found informal support from friends and family helpful (England national survey) (NHSD, 2018a). However, a significant proportion who accessed services found them unhelpful including 17.0% for primary care, 13.3% for mental health specialists, 12.4% for social care services, 10.1% for teachers and 9.1% for education support.

Parental recognition of child mental disorder

A large proportion of parents were able to detect whether their children had difficulties with emotions, concentration, behaviour or how they got on with others (England national survey) (NHSD, 2018a)

- For parents of 5-10 year olds with mental disorder, 69.3% recognised that their children had definite or severe difficulties compared to 4.0% of parents of those without mental disorder
- For parents of 11-16 year olds with mental disorder, 59.1% recognised that their children had definite or severe difficulties compared to 4.6% of parents of those without mental disorder

Contact with professional services or informal support was more likely where parents and young people recognised that there were definite and severe difficulties with emotions, concentration, behaviour or getting on with others. For those with definite or severe difficulties with emotions, behaviours and getting on with others (England national survey) (NHSD, 2018a):

- 32.2% of 5-10 year olds and 36.4% of 11-16 year olds were in contact with professional services or informal support in the last year
- 2.7% of 5-10 year olds and 3.3% of 11-16 year olds had no contact with professional services or informal support in the last year

TABLE 11. PROPORTION OF 5-19 YEAR OLDS IN ENGLAND RECEIVING MENTAL DISORDER TREATMENT DURING 2017 (NHSD, 2018a)

Mental disorder	Proportion receiving treatment for mental disorder
Behavioural disorder	<ul style="list-style-type: none"> • Proportion of 5-19 year olds with behavioural disorder who contacted for a mental health reason in previous year <ul style="list-style-type: none"> ○ Professional service (78.5%) including <ul style="list-style-type: none"> - Health: Primary care (41.7%), mental health specialists (27.9%), physical health specialist (22.8%) - Education: Teachers (61.2%), educational support services (31.9%) - Social care service (14.7%) ○ Informal source including family member/friends (44.2%), internet (23.7%), telephone helpline (4.9%) and self-help group (7.2%) • 14.8% of 5-19 year olds with behavioural disorder took psychotropic medication (8.1% stimulants)
Emotional disorder	<ul style="list-style-type: none"> • Proportion 5-19 year olds with emotional disorder who contacted for a mental health reason in previous year <ul style="list-style-type: none"> ○ Professional service (63.5%) including <ul style="list-style-type: none"> - Health: Primary care (33.1%), mental health specialists (27.4%), physical health specialist (12.2%) - Education: Teachers (45.7%), educational support services (20.1%) - Social care (7.4%) ○ Informal source including family member/friends (47.4%), internet (19.7%), telephone helpline (5.5%) and self-help group (4.3%) • 15.2% of 5-19 year olds with emotional disorder took psychotropic medication (9.1% SSRI antidepressant, 3.8% melatonin, 2.6% stimulants)
Hyperkinetic disorder (ADHD)	<ul style="list-style-type: none"> • Proportion of 5-19 year olds with ADHD who contacted for a mental health reason in previous year <ul style="list-style-type: none"> ○ Professional service (82.8%) including: <ul style="list-style-type: none"> - Health: Primary care (45.2%), physical health specialist (35.1%), mental health specialists (30.4%) - Education: Teachers (64.1%), educational support service (32.1%) - Social care (13.1%) ○ Informal source including family member/friends (45.4%), internet (25.6%), telephone helpline (4.2%) and self-help group (9.2%) • 45.9% of 5-19 year olds with hyperkinetic disorder took psychotropic medication (37.7% stimulants, 14.9% melatonin)
Less common disorder	<ul style="list-style-type: none"> • Proportion of 5-19 year olds with less common disorder who contacted for a mental health reason in previous year <ul style="list-style-type: none"> ○ Professional service (76.4%) including <ul style="list-style-type: none"> - Health: Primary care (37.8%), mental health specialists (32.5%), - Education: Teachers (58.3%), educational support service (39.0%) - Social care (11.2%) ○ Informal source including family member/friends (51.0%), internet (27.1%), telephone helpline (4.4%) and self-help group (12.3%) • 27.7% of children with less common disorder took psychotropic medication (12.3% melatonin, 9.8% SSRI antidepressants, 7.8% stimulants)

Adult public mental health intervention gap

Proportion receiving any treatment in 2014 for different mental disorder was as follows (England national survey) (McManus et al, 2016) (Table 12).

- Common mental disorder (CMD): 37% compared to 24% in 2007 mainly due increase psychotropic medication. Factors associated with higher treatment rates included being female, older, White British, economically inactive and in poor general health. Employed people were less likely to receive treatment. People with CMD living in lower income households were more likely to have requested but not received particular mental health treatment. People from highest household income quintile were less likely to receive publicly provided psychotherapy (OR 0.43: 95% CI 0.34-0.55) but more likely to receive private psychotherapy (OR 3.33: 95% CI 2.36-4.71) than people from lowest household income quintile (British Household Panel Surveys) (Jokela et al, 2013)
- Bipolar disorder: 41%
- Psychotic disorder: 81% (McManus et al, 2016) with 36% offered some form of psychological therapy, 26% offered CBT for psychosis, 12% offered family intervention and 11% involved in some form of work or study (England national audit) (RCPsych, 2018a) despite the evidence base for such interventions (NICE, 2014e)
- Personality disorder: 27%
- Autism spectrum disorder despite high psychiatric comorbidity: 4%
- Alcohol dependence: 6%
- Cannabis dependence: 15%
- Dependence on drugs other than cannabis: 36%
- Smoking: No information was available about rates of intervention or outcomes for people with different mental disorder

Treatment coverage for particular groups

- BME: People in Black ethnic groups had particularly low treatment rates (England national survey) (McManus et al, 2016). Certain Black ethnic patients experienced worse clinical, social and service use outcomes (England 10 year follow up study) (Morgan et al, 2017b). In contrast, higher treatment rates occurred for White British, female or middle aged people (McManus et al, 2016)
- Lower income: People living in lower income households were more likely to have requested but not received a particular mental health treatment (McManus et al, 2016)
- Refugees and asylum seekers inadequately accessed mental services in EU countries (systematic review) (Satinsky et al, 2019) and experienced worse perinatal mental health outcomes and care (systematic review of systematic reviews) (Heslehurst et al, 2018)
- Gypsy, Roma and travellers (systematic review) (McFadden et al, 2018)
- Medical students: 80% with mental health issues felt under supported (UK survey) (Billingsley, 2015)

Community secondary mental health care

The majority of people who received treatment from secondary mental services received it in the community with 94.9% of people in contact with secondary mental health services in England not spending time as an inpatient as part of their care in 2017/18 (NHSD, 2018d). A national survey of people accessing secondary community mental health services in England found that (CQC, 2018c):

- 43% had seen NHS mental health services enough in the past year
- 58% were given enough time to discuss their needs with health and social care workers (7% decrease since 2014)
- 29% received help or advice with finding support to get financial advice or benefits (3% decrease since 2014-2017)

Physical care coverage for adults with mental disorder

Treatment of physical illness in those with mental disorder was lower compared to

those without mental disorder (Mitchell et al, 2011/ meta-analysis; Thornicroft, 2011; Mitchell et al, 2012/ meta-analysis; Crawford et al, 2014/ national England cross-sectional study). However, physical illness is responsible for most of the 7-25 year lower life expectancy (Table 5).

A national survey of people accessing secondary community mental health services in England found that only 30% received help or advice with finding support for their physical health needs (5% decrease since 2017) (CQC, 2018c). Furthermore, mortality rates for people with schizophrenia and bipolar disorder worsened between 2000 and 2014 (UK cohort study) (Hayes et al, 2017).

Health risk behaviour checks and intervention coverage

People with mental disorder accessed interventions for health risk behaviour much less than those without mental disorder despite their higher rates of health risk behaviour.

Smoking cessation

- 42% of adult tobacco consumption was by those with mental disorder (England national survey) (McManus et al, 2010)
- However, local information was not routinely collected about their access to smoking cessation interventions and outcomes (review of 23 JSNAs) (Campion et al, 2017a)
- People with depression were less likely to stop smoking than those without depression (OR 0.64: 95% CI 0.49-0.80) (systematic review and meta-analysis) (Ayerbe et al, 2018)
- During 2017/18 in England, there were 274,021 attempt to stop smoking although the only information on attempts by people with mental disorder was that 252 attempts occurred in psychiatric hospitals and 256 attempts occurred in community psychiatric settings representing 0.2% of all

quit attempts (NHSD, 2018e)

- In primary care, 10% of smokers with mental disorders received cessation medication with lower intervention per consultation rate for smokers with mental disorders compared to smokers without (UK GP survey) (Szatkowski & McNeill, 2013)
- In secondary mental health care in England in 2017, 49% of people were current smokers, 86% had smoking status recorded and 79% were offered smoking cessation (national audit) (RCPsych, 2018a)

The proportion with psychosis who had action on different health risk behaviours in 2017, was as follows (England national audit) (RCPsych et al, 2018a):

- Glucose control: 59% had glucose blood level recorded at least once in previous year and 75% were offered intervention when monitoring indicated this was required
- Lipids: 57% had monitoring at least once in previous year and 52% were offered intervention when monitoring indicated this was required
- Blood pressure: 66% had blood pressure recorded in previous year and 58% were offered intervention when monitoring indicated this was required
- BMI: 65% had BMI recorded in previous year and 79% were offered intervention when monitoring indicated this was required
- Alcohol consumption was monitored in 87% in previous year and 89% were offered intervention when monitoring indicated this was required
- Substance misuse was monitored in 86% in previous year and 83% were offered intervention when monitoring indicated this was required

In 2017, only 42% of people in secondary care with psychosis with known relevant medical history at higher risk were screened for five cardiovascular risk factors (England national audit) (RCPsych, 2018a).

Furthermore, only 4% of those with psychosis had a record of Q-Risk score as recommended by NICE for the general population.

The UK primary care payment-for-performance system (Quality Outcomes Framework) to incentive annual physical health checks for people with SMI improved identification of cardiovascular risk factors although did not affect pharmacological management of these risks (retrospective cohort study of UK general practice) (Wilson et al, 2017).

Lack of monitoring or intervention for other mental disorder

The figures above only cover people with SMI. There was no information about coverage of monitoring or interventions for health risk behaviour and physical illness in people with other mental disorder despite physical illness being responsible for most of their 7-25 year lower life expectancy (Table 5).

For people with learning disability, 55.1% received an annual health check (national analysis of primary care data) (NHSD, 2019b). People with type 2 diabetes and depression had lower glycated haemoglobin than those without depression (OR 0.18: 0.06-0.31) (systematic review and meta-analysis) (Ayerbe et al, 2018).

Other secondary/tertiary prevention coverage

Only 15% of psychiatrists and nurses routinely asked services users about domestic violence while 27% reported that they had provided information to mental health service users after a disclosure of domestic violence or

abuse (UK survey) (Nyame et al, 2013). Mental health service users reported low levels of satisfaction with psychiatric service response to domestic violence and abuse (qualitative meta-synthesis) (Trevillion et al, 2014).

Primary care coverage

In 2017/18 in England, the proportion of people with different mental disorder seen in primary care (QOF prevalence) as well as exception rates (where patients did not attend) were as follows (NHSD, 2018f):

- Depression 9.9% prevalence with 22.4% exception rate: If exception rate is combined with prevalence rate, proportion of people with depression seen in primary care was 7.7%. However, national prevalence of depression in 2014 was 3.3% with prevalence of common mental disorder 15.7% (table 1) (McManus et al, 2016). This would suggest that some people identified with depression in primary care either did not have depression or may have had another common mental disorder
- SMI 0.9% prevalence with 11.5% exception rate: If exception rate is combined with prevalence rate, proportion with psychosis seen in primary care was 0.8%. This contrasts with 2014 national prevalence of SMI of 2.8% (psychosis 0.8% and bipolar disorder 2.0%) (table 1) (McManus et al, 2016). This would suggest that 28.6% of people with SMI were seen in general practice in 2017/18
- Dementia 0.8% prevalence with 9.8% exception rate: If exception rate is combined with prevalence rate, this would give the proportion with dementia seen in primary care as 0.7%

Social care coverage

Although NICE (2014e) recommended that carers of people with psychosis should have their needs assessed, this occurred for 55% of cases (England national audit) (RCPsych, 2018a).

Primary prevention and promotion coverage

Analysis of local planning arrangements for prevention of mental health problems in 35 local authority areas in England found highly variable prevention planning arrangements (PHE & Kings Fund, 2017). Information about coverage of public mental health interventions for higher risk groups is often not collected in national statistics which therefore requires local data collection

Examples of lack of provision include child adversity and smoking:

a) Action to address child adversity

Intervention to address child adversity is particularly important since it accounts for almost a third of adult mental disorder (Kessler et al, 2010). Past year experience of physical, sexual or emotional abuse, or neglect by a parent or caregiver was 2.5% for children under 11 years and 6% of 11-17 year olds (Radford et al, 2013) equivalent to 188,725 under 11 year olds, 258,960 11-17 year olds and 447,685 under 18 year olds in England (ONS, 2018a). However, last information about protection for 'children in need' shows a large gap (DfE, 2017b):

- 389,430/3.3% children aged less than 18 were defined as in need of social services between 2016 and 2017 which was the same over the last seven years
- 203,671 (52.3%) of children defined as 'in need' on 31/3/17 were because of abuse or neglect
- 185,450 section 47 enquires occurred in 2017 required if a local authority identified there was reasonable cause to suspect the child was suffering or is likely to suffer significant harm
- 51,080 children were the subject of a child protection plan (CPP) with 24,416 (47.8%) CPPs recording neglect as the latest

category and 18,746 (36.7%) of CPPs recording emotional abuse as the latest category

b) Smoking cessation

Smoking cessation can prevent both mental disorder and physical illness. Smoking cessation is also at least as effective as antidepressants on reducing anxiety and depression (systematic review and meta-analysis) (Taylor et al, 2014).

Given the adult national smoking rate of 15.1% (ONS, 2018c) and adult population of 43,752,473 in England (ONS, 2018a), there were 6,606,623 smokers of whom 274,021 attempted to stop smoking during 2017/18 (NHSD, 2018e) which represented only 4.15% of all smokers. Furthermore, the only information on smoking cessation attempts by people with mental disorder was that 252 attempts occurred in psychiatric hospitals and 256 attempts occurred in community psychiatric settings representing 0.2% of all quit attempts (NHSD, 2018e) (see page 118).

The number of successful quits in England dropped from 400,955 in 2011/12 to 138,426 in 2017/18 while net ingredient cost for pharmacotherapy dropped from £64.6m in 2011/12 to £26.0m in 2017/18 (NHSD, 2018e).

TABLE 12. PROPORTION OF ADULTS IN ENGLAND RECEIVING TREATMENT FOR MENTAL DISORDER DURING 2014**(MCMANUS ET AL, 2016)**

Mental disorder	Proportion receiving treatment for mental disorder
Common mental disorder	Proportion who had discussed mental health with GP in previous year (44.1%), were receiving some treatment (37.3%) or psychological therapy (11.8%)
• Depression	Proportion receiving treatment (59.4%), on medication (51.4%) and psychological treatment (22.9%)
• Generalised anxiety disorder	Proportion receiving treatment (48.2%) and psychological treatment (17.9%)
• Phobias	Proportion receiving treatment (51.6%), psychological treatment (25.4%), consultation with a psychiatrist (14.3%)
• Obsessive compulsive disorder	Proportion receiving treatment (52.1%), psychological treatment (23.4%), consultation with a psychiatrist (18.5%)
• Panic disorder	Proportion receiving treatment (20.9%), medication (15.1%) and psychological treatment (7.7%)
• CMD- NOS	Proportion receiving treatment (24.7%), medication (23.1%) and psychological treatment (5.6%)
Post-traumatic stress disorder	Proportion receiving mental health treatment (47.9%) and diagnosed by health professional (12.8%)
Attention deficit hyperactivity disorder	Proportion screening for ADHD receiving psychotropic medication or psychological therapy (32.2%) or taking medication for ADHD (0.5%)
Bipolar disorder	Proportion receiving treatment (41.1%), psychotropic medication (37.8%) and psychological therapy (16.4%)
Psychotic disorder	Proportion receiving treatment (80.6%), medication (74.6%), antipsychotics (45.7%), antidepressants (48.2%), drugs used for anxiety (35.5%) and sleep problems (17.4%), psychological therapy (54.4%)
Personality disorder	Proportion receiving treatment for any personality disorder (27.1%), ASPD (25.8%) and BPD (39.1%)
Autism spectrum disorder	Proportion using health services for a mental health reason (3.7%)
Eating disorder	24% screening positive for eating disorder reported using health care services for a mental or emotional reason (McManus et al, 2009)
Dementia	<ul style="list-style-type: none"> • 67.3% of adults over 65 years with dementia received a diagnosis (NHSD, 2018h) • 36.3% of adults with dementia received anti-dementia medication (Donegan et al, 2017)
Alcohol dependence	Proportion with probable alcohol dependence receiving medication for substance misuse (6.1%), counselling for substance misuse (6.3%) or treatment for mental or emotional problem (men 26.9%, women 47.3%)
Drug use and dependence	<ul style="list-style-type: none"> • Proportion receiving mental health treatment with signs of dependence on drugs other than cannabis (50.1%) and cannabis only (12.6%) • Proportion receiving treatment, help or advice specifically because of drug use with current signs of dependence on drugs other than cannabis (36.2% ever, 28.8% in past six months) and cannabis-dependence (14.6% ever, 5.5% in past six months)
Tobacco smoking	<ul style="list-style-type: none"> • Total 274,021 attempts to stop smoking in England during 2017/18 in England (NHSD, 2018e): 6,606,623 smokers in England representing only 4.15% of all smokers • Only information on attempts by people with mental disorder was that 252 attempts occurred in psychiatric hospitals and 256 attempts occurred in community psychiatric settings representing 0.2% of all quit attempts (NHSD, 2018e) • 79% of smokers with psychosis in secondary care offered smoking cessation in 2017 (RCPsych, 2018a) • No figures available for smoking cessation coverage for other mental disorder
Suicide	Proportion of people who attempted suicide who sought help after most recent attempt (50.1%) <ul style="list-style-type: none"> • GP: 26.4% • Hospital or specialist medical or psychiatric service: 25.5% • Help from friends or family: 21.7%

Impact of the public mental health intervention gap

The public mental health intervention gap results in large scale preventable suffering with a broad range of impacts including 7-25 years reduced life expectancy (Table 5), other impacts (see pages 8-16 on impacts of mental disorder) and associated economic costs.

Public mental health intervention gap as a breach of the right to health

The Equality Act (HMG, 2010b) makes it illegal to discriminate on the basis of age, disability, gender reassignment, marriage/ civil partnership, pregnancy, race, religion or belief, sex or sexual orientation. This means that it is illegal to discriminate against people with mental disorder. Lack of provision of evidence based public mental health interventions represents discrimination.

Clinical Commissioning Groups (CCGs) and Local Authorities have equal and joint statutory duties under the Health and Social Care Act (DHSC, 2012) to assess health and social need through JSNA's and then prepare Joint Health and Wellbeing Strategies to meet identified need. However, there is lack of information about public mental health unmet need in JSNAs in England (review of 23 JSNAs) (Campion et al, 2017a).

The United Nations Human Rights Council adopted a resolution entitled 'Mental health and human rights' which re-iterated key universal human rights and specific rights protections required for people with mental disorder (UNHRC, 2016).

Under Article 28 of the UN's Convention on the Rights of Persons with Disabilities, the state commits to ensure equal access to appropriate and affordable services, social protection programmes and poverty reduction programmes (including access for persons with disabilities and their families living in poverty to state assistance with disability-related expenses, such as adequate training, counseling, financial assistance and respite care)

Taking a broader perspective, the public mental health intervention gap also represents a breach of the right to health since it denies people the access to effective interventions to effective interventions to promote mental wellbeing, prevent mental disorder from arising and prevent associated impacts of mental disorder as well as treat mental disorder.

Causes of the public mental health intervention gap

Causes of the public mental health intervention gap include:

- 1) Lack of public mental health knowledge and training
- 2) Lack of information about public mental health unmet need at national or local level
- 3) Lack of appropriate policy targets to reflect required coverage and parity
- 4) Inadequate resource allocation
- 5) Specific causes of treatment gap including lack of clinical skills, poor mental health literacy and perceived need, poor concordance with and negative attitudes towards treatment, treatment provided not meeting minimal standards, and stigma and discrimination

1) Lack of public mental health knowledge and training

There is lack of public mental health knowledge and training for professionals and trainees in public health (HEE, 2018), primary care, secondary mental health care, social care, commissioning and policy.

2) Lack of information about public mental health unmet need at national or local level

At local level, there was

- Lack of information about public mental health unmet need in JSNAs in England (review of 23 JSNAs) (Campion et al, 2017a)
- Lack of representation of child and adolescent mental health with two thirds of JSNAs in England having no specific section for child and adolescent mental health (review of 145 JSNAs) (Olivia & Lavis, 2013)
- Highly variable prevention planning arrangement in an analysis of local planning arrangements for prevention of mental health problems in 35 local authority areas in England (PHE & Kings Fund, 2017)
- Lack of coverage of alcohol in JSNAs (review) (Alcohol Concern, 2014)

Nationally, information was unavailable about national impacts and associated economic savings of improved coverage

(Campion & Knapp, 2018). Internationally, only 37% of WHO member states compiled a mental health specific data report in the previous two years (WHO, 2018b) while estimates of coverage of mental health programmes were usually unavailable (systematic review) (De Silva et al, 2014).

3) Lack of appropriate policy targets to reflect parity and required coverage

For instance, it is unclear how the following targets from implementing the five year forward view (NHSE, 2016b) were decided, took account of the need for parity with physical health or took account of equality legislation:

- Treatment of child and adolescent mental disorder: Proportion of children and young people with mental disorder who received treatment was to increase from 25% to at least 35% by 2020/21
- Increased access to specialist perinatal mental health support in England, in the community or in-patient mother and baby units, allowing at least an additional 30,000 women each year to receive treatment by 2020/21 (additional 8,000 by 2018/19)
- Access to treatment: Proportion of people with common mental disorder accessing psychological therapies to increase from 15.8% in 2016/17 to 25% by 2020/21
- Proportion with first episode psychosis starting treatment with a NICE-recommended package of care with a specialist early EIP service within two weeks of referral was to increase from 50% in 2016/17 to 60% in 2020/21
- Proportion of acute hospitals with all-age mental health liaison teams in place which met the 'Core 24' service standard as a minimum was to increase from 7% in 2016/17 to 50% by 2020/21
- Number of people with SMI receiving an annual physical health check was to increase from 140,000 in 2017/18 to 280,000 in 2020/21
- Individual Placement Support (IPS) to enable people with severe mental illness to find and retain employment: In

2016/17, a baseline audit of IPS provision was to be followed by selection of STP areas for targeted funding. Access to IPS was to double between 2017/18 and 2020/21

- By 2020/21, the Five Year Forward View for Mental Health set the ambition that the number of people taking their own lives would reduce by 10% compared to 2016/17 levels.

4) Inadequate resource allocation Systematic and institutional inequality of resource allocation to address unmet need is the main cause of the public mental health intervention gap.

a) Mental disorder treatment resource

Although mental disorder is responsible for at least 23.8% of UK disease burden as measured by Years Lived with Disability (YLD's) (WHO, 2018a), 12.0% of total England NHS expenditure by CCGs and NHS England was spent on mental disorder treatment in 2017/18 equivalent to £12.0 billion (NHSE, 2018a). Proportion of CCG expenditure on mental health in 2017/18 was slightly higher at 13.7% (NHSE, 2018a). Inadequate expenditure on treatment of mental disorder is reflected by only a minority with mental disorder in the UK receiving any treatment.

Long-term analysis of mental health expenditure across the NHS is no longer possible because of changes in reporting methodology and responsibility for service provision since the introduction of the Health & Social Care Act (DHSC, 2012). However, there was:

- A 50% increase in investment occurred between 1999 and 2010 as part of the National Service Framework for Mental Health for England (McCrone et al, 2008)
- 'Tariff deflators' imposed by NHS England and Monitor have been consistently higher for mental health and community organisations than for their acute counterparts which prevents realisation of parity between mental and physical health

Regarding mental health trust expenditure

- Building on earlier work (Gilburt, 2016), analysis of trust annual reports and consolidated trust accounts (DH, 2016; NHS Improvement, 2017) showed that combined operating income of the 57 mental health trusts during 2016/17 (£11.8 billion) was around £105 million lower in real terms (2016/17 prices) than five years earlier (£11.9 billion) (RCPsych, 2018b). Operating income in real terms increased by 1.1% in 2016/17 compared to the previous year which merely made up for reductions between 2012/13 and 2014/15

For treatment of child and adolescent mental disorder:

- Although there was some growth in services during 2008-2011 with targeted ring-fenced area funds, there was reduction in funding and consequent reduction in service provision between 2011 and 2013 (NHSBN, 2013). FOI requests found that in 2015/16, only 36% of CCGs increased their expenditure on child mental health while 64% had used some or all of the extra money to backfill cuts or spend on other priorities (Young Minds, 2017). In 2015/16, half of CCGs increased their expenditure on child mental health to reflect additional government funds
- Expenditure by former Primary Care Trusts on child and adolescent mental health services fell from £758 million in 2008/9 to £717 million in 2012/13 (at constant prices) (Knapp et al, 2016)
- In 2017/18, CCGs spent £640.5m on children and young people's mental health services (excluding learning disabilities) and an additional £46.7m specifically on eating disorders for children and young people (NHSE, 2018a) which compared to £577.1m and £41.5m respectively in 2016/17 (NHSE, 2017a)
- In 2018/19, planned expenditure on child low-level mental health services in England was £226 million which equated to £14 per child and was an overall 17% increase compared to 2017/18 (Children's Commissioner, 2019). Half of this funding came from NHS and half from Local

Authority (LA) with three-fifths of LA expenditure through children's services and two-fifths through public health. However, there was wide regional variation in expenditure with 37% of areas experiencing real term falls which was often driven by reduced LA expenditure: During 2018/19, expenditure on low level mental health per child varied in LAs from £17.9 in London to £5.3 in East of England and in CCGs from £12.8 in North of England to £5.8 in the Midlands & East.

Lack of resource impacts on staffing

- Number of NHS mental health nurses fell by 12% between 2010 and 2017 (CQC, 2017). Between 2011 and 2018, the number of psychiatrists at all grades increased by just 0.9%. Between 2013 and 2018, the number of consultant psychiatrists increased by 3.3% and child psychiatrists fell by 5.8% while number of consultants across the rest of the NHS increased by 21%.
- UK vacancy rates at consultant level were 5% in 2013, 7% in 2015 and 9% in 2017 (RCPsych, 2017)
- Doctors experienced particular high levels of mental disorder leading to absenteeism and presenteeism (review) (Kinman & Teoh, 2018)

b) Public health resource on mental health

For public health expenditure on mental health:

- Only 1.6% (£52.0 million) of the national public health budget was allocated to mental health in 2018/19 (DCLG, 2018) which was 1.1% more in real terms than in 2017/18 (DCLG, 2017)
- Between 2010/11 and 2017/18 across England, real term local authority (NAO, 2019):
 - Expenditure reduced by 28.6%
 - Funding from government reduced by 49.1%
 - Expenditure on social care services reduced by 3.0%
 - Expenditure on non-social care

services reduced by 32.6%

- Planned cuts to the public health grant to local authorities in England will average 3.9% a year until 2020/21 (BMA, 2017), do not reflect the needs of local populations and are leading to unacceptable variation in quality and quantity of services available to the public (BMA, 2018)
- County Council Network predicted that at least £1 billion savings would be required to cover a £1.5 billion short fall by 2020 (County Council Network, 2018)
- Local authority funding to address homelessness reduced by £5 billion since 2009 (Thunder & Rose, 2019)

c) Social care resource on mental health

For social care expenditure for adults with mental health needs.

- Local authority spending on social care services in England reduced by 3.0% in real terms between 2010/11 and 2016/18 (NAO, 2019)
- Proportion of adults with mental disorder receiving state funded social care in England reduced by 48% between 2005/6 and 2012/13 (analysis of national datasets) (Fernandez et al, 2013)
- Working age adults with mental health needs: Real term social care expenditure in 2013/14 (£1.16 billion) was 3.7% lower than in 2012/13 (£1.21 billion) which was 3.6% lower than in 2011/12 (£1.25 billion) which in turn was 6.7% lower than in 2010/11 (£1.34 billion) (NHSD, 2017b). Change in expenditure was essentially flat in real terms in 2015/16 but increased by 2.3% in 2016/17 and 1.8% in 2017/18 (NHSD, 2018g)
- Older adults with mental health needs: NHS Digital commenced reporting on social care expenditure for older adults with mental health needs from 2014/15 onwards as part of a new approach to reporting methodologies (NHSD, 2017b). Expenditure for older adults rose by 4.7% in real terms in 2015/16 and then 1.8% in 2016/17 but dropped by 2.9% in 2017/18 (NHSD, 2018g). Possible reasons for the sharp decline for working age adults compared to previous years is the result of the new reporting system introduced in 2014/15 which offers different categories

and includes far more in 'other' and 'social care activities'

- All adults with mental health needs: Social care expenditure increased by 2.1% in 2015/16 and 2016/17 in real terms but decreased by 0.4% in 2017/18 (NHSD, 2018g).

d) Research funding for mental health

Inadequate resource allocation extends to research funding: The proportion of total UK research expenditure on mental health was estimated to be between 5.5% (AMS, 2013) and 5.8% (MQ Landscape Analysis, 2015).

5) Specific causes of treatment gap

a) Lack of clinical skills

In primary care, GPs were unable to identify a large proportion of mental disorder

- GPs identified that the majority of barriers preventing effective management of child and adolescent mental disorder related to identification, management and/or referral which highlights the need for appropriate tools and training (systematic review) (O'Brien et al, 2016)
- GPs were able to identify half the cases of depression although a considerable proportion of those identified were inadequately treated (Mitchell et al, 2009)

For smoking cessation, a significant proportion of mental health professionals held misconceptions which were likely to undermine delivery of smoking cessation interventions and identified lack of training as a barrier (systematic review and meta-analysis) (Sheals et al, 2016).

b) Poor mental health literacy and perceived need

- Most important barriers to help-seeking for mental disorder identified by young people included poor mental health literacy and a preference for self-reliance (systematic review) (Gulliver et al, 2010)
- Low perceived need and negative attitudes towards treatment: Globally, low perceived need was the most common reason for not initiating treatment while a desire to handle the problem on one's

- own was the most common barrier among those with perceived a need for treatment (68.3%) (results from the WHO mental health surveys) (Andrade et al, 2014). Attitudinal barriers dominated for mild-moderate cases and structural barriers for severe cases
- In the US, low perceived need was reported by 44.8% of people with a disorder who did not seek treatment (national comorbidity survey replication) (Mojtabai et al, 2011). Attitudinal/ evaluative factors were more important than structural barriers both to initiating (97.4% v 22.2%) and continuing (81.9% v 31.8%) treatment
 - Self-stigma and negative attitudes towards people with mental illness reduced the likelihood of personally considering psychiatric help (systematic review and meta-analysis) (Angermeyer et al, 2017)
 - Most important barriers to help-seeking for mental disorder identified by young people included perceived stigma and embarrassment (systematic review) (Gulliver et al, 2010)

c) Poor concordance with and negative attitudes towards treatment

- More than half of people with chronic mental disorder either do not take medication correctly or completely stop taking them (Chakrabarti, 2014)
- Perceived ineffectiveness of treatment was the most often reported reason for treatment drop out (39.3%) (results from the WHO mental health surveys) (Andrade et al, 2014)

d) Poor quality treatment

Much of the treatment provided does not meet minimal standards of clinical practice guidelines and is not targeted at those in greatest need (review of evidence from four countries) (Jorm et al, 2017).

e) Stigma and discrimination

Stigma and discriminatory attitudes to mental health contributed to not seeking help and compound the factors outlined above:

- Stigma had a small to moderate sized negative impact on help seeking (systematic review) (Clement et al, 2015)
- Negative attitudes towards mental health help-seeking (OR 0.80: 95% CI 0.73-0.88) and stigmatising attitudes towards people with mental illness (OR 0.82: 95% CI 0.69-0.98) were associated with less active help seeking (systematic review and meta-analysis) (Schnyder et al, 2017)

FACILITATING IMPROVED PROVISION OF PUBLIC MENTAL HEALTH INTERVENTIONS

Population impact of effective public mental health interventions depends on their implementation, coverage and outcomes. However, as for other disease areas such as cardiovascular disease, treatment alone is insufficient to reduce associated impact of mental disorder. Therefore, a coordinated balance of different types of public mental health interventions is required.

Public mental health interventions are provided by different organisations across various sectors including health (primary and secondary care), public health, social care, housing, education, criminal justice, the voluntary sector and other sectors. This highlights the importance of coordination of the activities of these providers.

Given the impact of the public mental health intervention gap and the availability of cost effective public mental health interventions, there is duty to act. Approaches include:

- 1) Local mental health needs assessment
- 2) Public mental health practice to inform local needs assessments, policy development, coordination and commissioning
- 3) National approach to public mental health intervention gap
- 4) Improve population public mental health literacy and early detection
- 5) Training for professionals
- 6) Settings based approaches
- 7) Integrated approaches
- 8) Use of digital technology
- 9) Maximising existing resources
- 10) Addressing socioeconomic inequalities
- 11) Particular interventions
- 12) Legislation, regulation and a human rights approach
- 13) Public mental health lead roles

1) Local mental health needs assessment

Mental health needs assessment includes bringing together the following public mental health intelligence which informs the JSNA and commissioners about local (Campion et al, 2017a):

- Levels of mental disorder and wellbeing
- Risk factors for mental disorder and protective factors for mental wellbeing
- Numbers from higher risk groups to enable targeting of public mental health interventions
- Coverage and outcomes of public mental health interventions from different sectors
- Estimated economic costs of mental disorders to both health and other sectors
- Size and cost of the gap in provision of public mental health interventions
- Expenditure on different types of public mental health interventions
- Estimated impact and associated economic savings to different sectors from improved coverage of public mental health interventions which can support improved local implementation (Campion et al, 2019)

Mental health needs assessments are usually carried out by public health professionals who require appropriate training although psychiatrists can support this (RCPsych, 2010).

CCGs and local authorities have equal and joint statutory duties under the Health and Social Care Act (DHSC, 2012) to provide information about the size of health and social need including broader determinants in JSNA's as well as prepare a Joint Health and Wellbeing Strategy through their health and wellbeing board to meet identified need.

However, mental health is inadequately represented in JSNA's which contributes to perpetuation of the public mental health intervention gap (review of 23 JSNAs) (Campion et al, 2017a). Analysis of local planning arrangements for

prevention of mental health problems in 35 local authority areas in England found highly variable prevention planning arrangements and recommended national support for processes to develop and implement plans (PHE & Kings Fund, 2017).

This gap could be addressed by

- Appropriate training (see 5).
- Information about the local public mental health intervention gap size on the MHIN website would support localities to clearly outline this information in their needs assessment

2) Public mental health practice

Public mental health practice supports coordination, planning and resource allocation across a range of organisations to improve coverage and outcomes in four key steps (Campion & Knapp, 2018; Campion, 2018a):

a) Mental health needs assessment which involves local and national assessment of:

- Level of provision of public mental health interventions
- Size, impact and cost of unmet public mental health need
- Impact and associated economic savings from improved provision

b) Use of such information to inform the JSNA, mental health strategy and policy development to address identified unmet need, implementation, commissioning, inter-agency coordination and wider advocacy in order to improve coverage and outcomes of public mental health interventions

c) Implementation at population level

d) Evaluation of intervention coverage and outcomes

3) National approach to public mental health intervention gap

The public mental health intervention gap has a huge impact and associated economic cost. This situation contrasts with cancer where almost all receives some intervention and there would be an outcry if only a minority received intervention.

A key reason for the intervention gap is lack of required resource: Mental disorder accounts for 23.8% of UK disease burden (WHO, 2018a) while 12.0% of NHS expenditure and 13.7% of CCG expenditure was allocated to mental disorder treatment in England in 2017/18 (NHSE, 2018a). Furthermore, only 1.6% of public health expenditure was allocated to mental health in 2018/19 (DCLG, 2018).

A key action is to provide the required level of resource to enable appropriate coverage of treatment and prevention of associated impacts as well as prevention of mental disorder and promotion of mental wellbeing. Local unmet public mental health need reflects national unmet public mental health need. In view of the national public mental health intervention gap, responsibility cannot be simply devolved to localities. Therefore, a national mental health needs assessment is first required to (Campion & Knapp, 2018):

- Assess size, impact and cost of public mental health unmet need at national level
- Estimate impact and associated economic savings if a range of cost effective public mental interventions were provided to all those who would benefit including timeframes and where such savings accrue
- Inform transparent agreement about national acceptable standards for minimum level of coverage of different evidence based public mental health interventions to inform localities
- Inform required level of funding to implement public mental health interventions since coverage is unlikely to increase without appropriate investment
- Ensure that wider policy initiatives do not increase inequality and associated mental disorder and poor wellbeing particularly for higher risk groups

Improved coverage would have a dramatic impact on population mental health as well as a range of impacts and associated economic savings. For instance, comprehensive coverage across England of several public mental health interventions outlined in England's mental health strategy (HMG, 2011; Knapp et al, 2011) would result in conservative net savings of (Campion & Knapp, in 2018):

- £4,147m after 5 years and £6,532m after 10 years from school-based social and emotional learning programmes to prevent conduct disorder for a one year cohort of 10 year olds
- £9,726m from school-based interventions to reduce bullying for all 5-18 year olds
- £386m from parenting interventions for parents of a one year cohort of 5 year olds with conduct disorder
- £4,518m after 2 years from workplace screening and early treatment of depression and anxiety disorder for all employees
- £568m after one year and £1,040m after 5 years from suicide awareness training for all GPs in England
- £62m after one year and £477m after 10 years from early intervention for all adults developing psychosis in a year
- £457m after one year and £1,693m after 7 years from primary care-based screening and brief intervention for all hazardous and harmful/mild dependent drinkers
- £310m after 3 years to the health sector from CBT for all adults with schizophrenia in previous year
- £18,864m after one year to employers from provision of a simple set of interventions to promote wellbeing of all employee

Similarly, substantial scaling up of effective treatment for depression and anxiety in 36 countries between 2016 and 2030 would result in net savings of \$310 billion from healthy life-years and \$399 billion from improved productivity equivalent to benefit cost ratios of 3.3-5.7 (Chisolm et al, 2016).

4) Improve population public mental health literacy and early detection

- Targeting certain settings e.g. schools, workplaces (see next page)
- Training school staff is important (DfE, 2016) and school based interventions promoted mental health awareness in the USA (systematic review) (Salerno, 2016) and internationally (systematic review) (Wei et al, 2013)
- Interventions to improve population recognition of mental disorder
 - Improved MHL had short term effects on promoting help-seeking in those with mental disorder while motivational enhancement particularly for those with substance use disorder had longer term effects (systematic review and meta-analysis) (Xu et al, 2018)
 - Informational interventions enhanced mental health literacy (MHL) of less-known disorders such as anxiety disorders and anorexia but not depression (systematic review) (Tay et al, 2018). However, although interventions which improved MHL also reduced stigma, elevated mental health literacy and reduced stigma did not improve help-seeking
 - Internet based interventions can improve MHL although despite improved MHL, help seeking rates were low with self-stigma an important mediator (systematic review) (Brijnath et al, 2016)
 - Mental Health First Aid based interventions can improve recognition of mental disorder, beliefs about effective treatment, confidence in helping a person with a mental health problem and result in small reductions in stigma (systematic review and meta-analysis) (Morgan et al, 2018a). Overall effects were small to moderate post training and up to six months later with effects up to one year later unclear
 - Screening can improve earlier detection of autism spectrum disorder, depression, psychosis prodrome and dementia

5) Training for professionals

Since at least 23.8% of UK disease burden is due to mental disorder (WHO, 2018a), public mental health training should be a key component of supporting the development of the future health care and public health workforce.

Public mental health relevant training should be directed to professionals and trainees in public health, primary care, secondary mental health care, social care, criminal justice, commissioning as well as local and national policy. Such training would include:

- Impacts of mental disorder and wellbeing
- Risk factors, protective factors and higher risk groups
- Public mental health interventions
- Unmet public mental health need: Improving understanding about size, impact and cost of public mental health unmet need by professionals from public health, primary care, secondary mental health care social care and funding bodies requires education and training including appropriate integration of mental health into public health training, public health into mental health training, and training about how to carry out mental health needs assessments. Broader public mental health training is also important for the wider population with schools, workplaces and different media outlets having particularly important roles
- Estimation of impact and associated economic savings of improved coverage of public mental health interventions
- Carrying out mental health needs assessments and using this information to inform policy and commissioning and both national and local level
- Implementation of public mental health practice at national policy level as well as primary care, secondary mental health care, public health, social care and commissioners: For children and adolescents, this is facilitated by (systematic review) (Novins et al, 2013)
 - Training and use of specific technologies to support intervention use
 - Improved organisational climate and culture were associated with improved

sustainment of child and adolescent interventions as well as outcomes

- Fidelity monitoring and supervision which had the strongest evidence
- Evaluation of coverage and outcomes including for higher risk groups

6) Settings based approaches

Public mental health intervention coverage can be facilitated by implementation of interventions in settings which large proportions of the population or particular groups access.

a) Antenatal and postnatal settings

Offer opportunities to address risk factors for mental disorder including substance use, prematurity, prenatal infection, low birth weight, poor nutrition as well as support breast feeding, treat and prevent parental mental disorder.

b) Preschools

- Early child education programmes prevented externalising behaviour problems (meta-analysis) (Schindler et al, 2015)
- Parental reading to their children improved psychosocial functioning of children and parents as well as parenting competence (meta-analysis of RCTs) (Xie et al, 2018)

c) Schools

Most lifetime mental disorder arises by early adulthood and therefore childhood and adolescence is the key opportunity to implement interventions to both prevent mental disorder and offer early treatment. In particular, 48.5% of parents of 5-19 year olds with mental disorder had been in contact with teachers in the past year for a mental health reason (England national survey) (NHSD, 2018a) (Table 11).

School based primary prevention

- School based prevention of smoking, alcohol and drug use (Hale et al, 2014/ systematic review; Onrust et al, 2016/ systematic review and meta-regression analysis)
- School based violence prevention programmes can reduce violence (systematic review of systematic reviews) (Lester et al, 2017), bullying (systematic review) (Evans et al, 2014), cyberbullying (review) (Aboujaoude et al, 2015), aggression (meta-analysis) (Barnes et al, 2014), dating violence (meta-analysis) (De La Rue et al, 2017), sexual abuse (Cochrane Systematic

Review) (Walsh et al 2015), sexual violence perpetration (systematic review) (DeGue et al, 2014) and domestic violence (review) (Stanley et al, 2015)

- Suicide prevention by school based awareness programmes (systematic review) (Katz et al, 2013)
- Physical activity interventions during adolescence reduced externalising and internalising problems as well as improve self-concept and academic achievement (meta-analytic review) (Spruit et al, 2016). Physical activity can be increased by school-based active travel promotion schemes (NICE, 2007e; NICE, 2008a; NICE, 2009i; NICE, 2012d)
- Screen time reduction (meta-analysis) (Friedrich et al, 2014)

School based secondary prevention

- Early intervention for mental disorder during childhood and adolescence could prevent 25-50% of adult mental disorder (cohort study) (Kim-Cohen et al, 2003)
- School based mental health services for elementary aged children had a small to medium effect in reducing mental health problems (meta-analysis) (Sanchez et al, 2018). Services integrated into student academic instruction, targeting externalising problems, incorporating contingency management and implemented multiple times each week had particularly strong effect
- Child-centred play therapy in schools had significant impacts on externalising and internalising problems (meta-analysis and systematic review) (Ray et al, 2015)

School based mental wellbeing promotion

- Social emotional learning programmes resulted in long term reductions in conduct problems, emotional distress and drug use as well as improved socio-emotional skills, attitudes, positive social behaviour and academic performance (meta-analysis) (Taylor et al, 2017a)
- School based programmes to promote self-regulation improved self-esteem in the short and long term, and reduced internalising behaviour in the short term (meta-analysis) (van Genugten et al, 2017)

- School based psychosocial interventions delivered by teachers reduced student internalising outcomes (systematic review and meta-analysis) (Franklin et al, 2017)
- The Good Behavior Game resulted in in significant reduction in problem behaviour and increase in prosocial behaviour (meta-analysis) (Bowman-Perrott et al, 2016)
- Child-centred play therapy in schools improved self efficacy and academic outcomes (meta-analysis and systematic review) (Ray et al, 2015)
- Physical activity interventions during adolescence (see previous column)
- Academic interventions improved both on-task behaviour and disruptive behaviour (meta-analysis) (Warmbold-Brann et al, 2017)
- Mindfulness: School based programmes improved cognitive performance and resilience to stress (systematic review and meta-analysis) (Zenner et al, 2014) while university based cognitive, behavioural and mindfulness interventions were associated with reduced anxiety and depression (review and meta-analysis) (Regehr et al, 2013)
- After school programmes to enhance personal and social skills of children and adolescents increased self-perception and bonding at school, positive social behaviours, academic achievement and reducing problem behaviours (meta-analysis) (Durlak et al, 2010)
- Structured universal interventions for children living in conflict areas in LMICs had significant positive effects on student emotional and behavioural wellbeing including improved self-esteem and coping skills (systematic review) (Barry et al, 2013)

School based resilience promotion

- Universal resilience-focused interventions in schools reduced depressive symptoms internalising and externalising problems, general psychological distress (systematic review) (Dray et al, 2017) and substance use (systematic review and meta-analysis) (Hodder et al, 2017)
- In LMICs, school based lifeskill and resilience programmes improved student

self-esteem, motivation and self-efficacy) (systematic review) (Barry et al, 2013)

Schools with policies aimed at supporting needs and promoting mental health were likely to use a range of approaches and activities than schools without such policies (England survey) (Marshall et al, 2017)

d) Workplaces

Workplace mental wellbeing promotion

- Work placed resources improved both employee wellbeing and organisational performance at levels of individual, group, leadership and organisation (Wagner et al, 2016/ review of systematic reviews; Nielsen et al, 2017/ systematic review and meta-analysis)
- Work-based mental health promotion increased work performance at work and reduced rates of sickness, anxiety and depression (Kuoppala et al, 2008/ systematic review and meta-analysis; Martin et al, 2009/ meta-analysis)
- Increasing employee control including flexible working hours improved mental health (Egan et al, 2007/ systematic review; Joyce et al, 2010/ Cochrane systematic review)
- Training workers to improve their own jobs, training coupled with job redesign and system wide approaches that simultaneously enhance job design and a range of other employment practices resulted in improved employee wellbeing and performance (systematic review) (Daniels et al, 2017)
- Increased frequency of shared activities between workers can improve worker wellbeing and performance (systematic review) (Daniels et al, 2017a)
- Workplace resilience promoting programmes were more effective if targeted at those at higher risk of stress (meta-analytic review) (Vanhove et al, 2016)
- Online CBT and other psychological approaches were effective in improving work effectiveness and psychological wellbeing (systematic review and meta-analysis) (Carolan et al, 2017)

Workplace mental disorder prevention and stress reduction

- Workplace interventions prevented employment related stress and mental disorder (systematic review and meta-analysis) (Tan et al, 2014)
- Targeted online stress management interventions for employees had moderately large effects at both post intervention and follow up although no effect in unselected groups (systematic review and meta-analysis) (Stratton et al, 2017)
- Workplace based mindfulness programmes were associated with positive outcomes to most measures (systematic reviews) (Lomas et al, 2017/ Janssen et al, 2018)
- Physical activity programmes (NICE, 2008e; Jirathananuwat et al, 2017/ systematic meta-review)
- Protective labour and social policies modified association between work stress and mental disorder (three longitudinal studies) (Lunau et al, 2013)
- Procedural justice and relational justice in the workplace were associated with reduced depression (systematic review) (Ndjaboue et al, 2012)

Workplace interventions to support recovery of people with mental disorder

- Interventions to enhance return to work for employees off sick with different mental disorder were effective (systematic review and meta-analysis) (Mikkelsen & Rosholm, 2018)
- Depression: Effective interventions included addition of a work-directed intervention to a clinical intervention, telephone or online CBT, and structured telephone outreach and care management programmes (Cochrane systematic review) (Nieuwenhuijsen et al, 2018)
- Common mental disorder: Psychological interventions for people off sick with common mental disorder were more effective than usual care in reducing symptoms and sick leave (systematic review and meta-analysis) (Salomonsson et al, 2018)
- Psychosis/ severe mental illness (SMI): Supported employment was effective (Modini et al, 2016/ systematic review and

meta-analysis; Suijkerbuijk et al, 2018/ network meta-analysis; Frederick & VanderWeele, 2019/ meta-analysis and review)

- Skills based training was effective for negative symptoms in people with psychosis (systematic review and meta-analysis) (Lutgens et al, 2017)
- Manager training improved behaviour supporting employees with mental disorder, manager knowledge and non-stigmatising attitudes (systematic review and meta-analysis) (Gayed et al, 2018)

e) Neighbourhoods

- Neighbourhood enhancement and regeneration resulted in improved mental health (Thomson et al, 2009/systematic review; McCartney et al, 2017/review)
- Neighbourhood walkability was associated with increased walking among all age groups (systematic review and meta-analysis) (Hajna et al, 2015) which can also improve social interaction among older people (systematic review) (McCormack & Sheill, 2011)
- Increased functionality of neighbourhood and facilities can promote wellbeing (meta-analysis) (Duncan et al, 2005)
- Well-designed neighbourhoods improved physical activity and perceived safety (Bauman & Bull, 2007/review of reviews; Adams et al, 2013/ UK survey analysis)

f) Primary care

In the UK, primary care represents a key setting to detect mental disorder early and if necessary refer to secondary care (Campion, 2018b) which saw 4.5% of the adult population for mental disorder, learning disability and autism in 2017/18 (NHS, 2018d). Integration of mental health into primary care is supported by appropriate resources and training of primary care staff.

Primary care based interventions include:

- Early detection and treatment of mental disorder
- Primary care based psychological and educational interventions to prevent depression (systematic review and meta-analysis) (Conejo-Cerón et al, 2017)

- Psychological interventions in primary care include brief psychological therapy for anxiety and depression (meta-analysis and meta-regression) (Cape et al, 2010) and psychological therapy for postnatal depression (meta-analysis) (Stephens et al, 2016)
- Provision of regular health checks and appropriate interventions for physical illness and health risk behaviour for people with mental disorder (IPHY, 2013; Shiers et al, 2014; RCPsych 2016, NHSE, 2016a; DH & PHE, 2016)
- Primary care interventions to prevent and treat tobacco smoking in school aged children and adolescents with participants 18% less likely to have started smoking (systematic review and meta-analysis) (Peirson et al, 2016)

g) Gardens

- Gardening resulted in a range of improved health outcomes including increased sense of community, life satisfaction and quality of life as well as reduced depression and anxiety (meta-analysis) (Soga et al, 2017)
- Adults with mental disorder experienced a range of benefits across emotional, social, vocational, physical and social domains (review) (Clatworthy et al, 2013)
- Allotment gardening reduced stress, created social opportunities and enabled self-development (systematic review) (Genter et al, 2016)

h) Older people's care homes

Psychosocial interventions can improve outcomes for staff and residents with dementia in care homes (systematic review) (Rapaport et al, 2017).

i) Libraries

Libraries are a place where many public mental health interventions can be accessed.

7) Integrated approaches

Mental disorder and poor wellbeing has a broad range of impacts across different sectors. More integrated approaches to mental health facilitate coordinated delivery of public mental health interventions across sectors to reduce these impacts.

This includes more integrated approaches at both local and national levels:

- To primary and secondary care to address mental and physical health (Naylor et al, 2016) including through collaborative care (Cochrane systematic review) (Archer et al, 2012) and consultant liaison (Cochrane systematic review) (Gillies et al, 2015)
- For medical-behavioural care for children and adolescents which improved behavioural outcomes compared to usual primary care in the USA (meta-analysis) (Asarnow et al, 2015)
- Across particular settings (see 6)
- To incorporate mental health into areas such as health risk behaviour and cancer care
- To particular interventions such as physical activity (review) (Reis et al, 2016)
- Though mental health needs assessment
- Through joined up leadership across different sectors such as health, social care, public health and education

8) Digital technology

As highlighted in the intervention section, use of digital technology has an important role in improving public mental health intervention coverage.

a) Internet based interventions

Reviews highlight the following internet-based interventions to prevent mental disorder:

- Anxiety and depression prevention: Online CBT had small but positive effect although inadequate evidence in medium to longer term (systematic review and meta-analysis) (Deady et al, 2017)
- Insomnia with computerised CBT (meta-analysis of RCTs) (Ye et al, 2016)
- Smoking cessation during pregnancy with computer-based interventions (systematic review and meta-analysis) (Griffiths et al, 2018)
- School based drug and alcohol prevention programmes (systematic review) (Champion et al, 2013)
- Employee mental health (systematic review and meta-analysis) (Stratton et al, 2017)
 - Online mindfulness interventions reduced employee mental health and stress symptoms
 - Targeted online stress management interventions had moderately large effects at both post intervention and follow up in targeted groups although no effect in unselected groups
 - Online CBT for employees had smaller impacts
- Eating disorder prevention (systematic review) (Schlegl et al, 2015)
- Binge drinking prevention in college populations (systematic review) (Bhochhibhoya et al, 2015)
- Carer stress, distress, anxiety and depression (systematic review and meta-analysis) (Sherifali et al, 2017)
- Mental health literacy promotion (systematic review) (Brijnath et al, 2016)

Reviews highlight effectiveness of internet for treatment of child and adolescent mental disorder in the following areas:

- Children with disruptive behaviour: Digital based parenting training (DPT) programmes (systematic review and

- meta-analysis) (Baumel et al, 2016)
- CBT for children and adolescent mental disorder can be successfully delivered on the internet (Ebert et al, 2015/ meta-analysis of RCTs; Vigerland et al, 2016/ systematic review and meta-analysis)
- Common mental disorder (CMD)
 - CMD in children and young people can be treated by a range of effective computer based and online interventions (systematic review of RCTs) (Stasiak et al, 2015)
 - Internet-based programmes can treat adolescent anxiety and depression (overview of systematic reviews) (Das et al, 2016)
 - Acceptability of e-mental health technology was high among children and adolescents with CMD (systematic review) (Wozney et al, 2018)
- Substance misuse (systematic review) (NCCMH, 2014)
- Evidence did not support internet based interventions for child and adolescent phobias, OCD, PTSD, eating disorder, autism or psychosis (systematic review) (NCCMH, 2014)
- Insufficient evidence existed for mental health mobile apps for children and adolescents with mental disorder (systematic review) (Grist et al, 2017)

Reviews highlight effectiveness of internet for treatment of adult mental disorder in the following areas:

- Common mental disorder
 - Combining direct contact and internet based interventions can improve CMD treatment outcomes and coverage (systematic review) (Erbe et al, 2017)
 - CBT for adult CMD via the internet (systematic review) (Arnberg et al, 2014). However, a freely available online CBT programme (MoodGYM) found non-significant effect for depression but medium effect size for anxiety symptoms (meta-analysis) (Twomney & O'Reilly, 2017)
 - Web-based and computer delivered Interventions improved student

- anxiety, depression and stress (systematic review and meta-analysis) (Davies et al, 2014)
 - Internet based CBT for sub-threshold depression was effective although there was lack of evidence regarding long-term impact (systematic review and meta-analysis) (Zhou et al, 2016)
- Anxiety
 - Therapist-supported internet CBT for anxiety was effective (Cochrane systematic review) (Olthuis et al, 2015)
 - Media delivered behavioural or CBT was moderately effective compared to no intervention (Cochrane systematic review of RCTs) (Mayo-Wilson & Montgomery, 2013)
- Depression
 - Internet-based psychological interventions for depression was effective in the short and long term (systematic review and meta-analysis) (Sander et al, 2016)
 - Depressive symptoms were reduced significantly more from smartphone apps than control conditions although this was only for those with self-reported mild to moderate depression (meta-analysis of RCTs) (Firth et al, 2017)
 - Online mindfulness based interventions had small but significant impact on depression, anxiety and wellbeing as well as larger impacts on stress (review and meta-analysis of RCTs) (Spijkerman et al, 2016). A further meta-analysis of RCTs for online mindfulness interventions found significant large effect found for perceived-stress (Jayawardene et al, 2017)
- PTSD: E-mental health interventions which improved PTSD symptoms (systematic review and meta-analysis) (Simblett et al, 2017) including in conflict zones (review) (Naslund et al, 2017a)
- Psychosis: 74-86% of patients used web-based interventions efficiently, 75-92% perceived them as positive and useful, and 70-86% completed or were engaged with interventions during follow-up (systematic review) (Alvarez-Jimenez et al, 2014). Online and mobile-based interventions showed promise in improving positive

- psychotic symptoms, hospital admissions, socialisation, social connectedness, depression and medication adherence
- Eating disorder: Guided computer and internet based interventions were effective especially for bulimia nervosa (systematic review) (Schegl et al, 2015). Videoconferencing was also effective
- Smoking cessation for the general population was effectively delivered by the internet (Cochrane systematic review) (Taylor et al, 2017b) and mobile phones (Whittaker et al, 2016)
- Alcohol misuse through low intensity internet interventions for adult alcohol misuse were effective (meta-analysis) (Riper et al, 2014)
- Cannabis use: Internet and computer interventions reduced cannabis use in the short term (meta-analysis) (Tait et al, 2013)
- Suicidal ideation: Some evidence suggested that online and mobile applications for self-management of depression were associated with reduced suicidal ideation although there was no evidence of reduced self-harm or attempted suicide (systematic review and meta-analysis) (Witt et al, 2017)
- Stigma: Internet based interventions to reduce personal stigma were at least as effective as face-to-face delivery (meta-analysis of RCTs) (Griffiths et al, 2014)
- Guided internet interventions for mental health appear cost effective (systematic review) (Donker et al, 2015)
- Employee mental health
 - Online mindfulness had larger impact than online CBT or stress management in reducing mental health symptoms and stress (systematic review and meta-analysis) (Stratton et al, 2017)
 - Online CBT and other psychological approaches were effective in improving psychological wellbeing and work effectiveness (systematic review and meta-analysis) (Carolan et al, 2017)

b) Mobile phone based interventions

Mobile phones can support:

- Treatment adherence, symptom surveillance, appointment attendance and satisfaction with services through text

9) Maximising existing resources

messages (systematic review) (Berrouiguet et al, 2016)

- Diagnosis and detection of mental disorders as well as improved adherence and clinical outcomes in LMICs (review) (Naslund et al, 2017a)
- Depression treatment (meta-analysis of RCTs) (Firth et al, 2017)
- Psychosis assessment and treatment (Baltra et al, 2017/ systematic review; Gire et al, 2017/ systematic review)
- Delivery of psychotherapy (systematic review) (Menon et al, 2017) and boosting effectiveness of psychotherapy and behavioural interventions (meta-analysis) (Lindhiem et al, 2015)
- Smoking cessation (Cochrane systematic review) (Whittaker et al, 2016) including during pregnancy (systematic review and meta-analysis) (Griffiths et al, 2018)

However, there was insufficient evidence for mental health mobile apps for children and adolescents with mental disorder (systematic review) (Grist et al, 2017).

Videoconferencing can improve coverage of mental health services and is cost effective (review) (Hubley et al, 2016).

a) Self-help

Self-help can increase capacity in treatment:

- Common mental disorder
 - Anxiety: Self-help treatment (meta-analysis) (Haug et al, 2012). Addition of guidance and presentation of multimedia or web-based self-help materials improved treatment outcome (systematic review) (Lewis et al, 2012)
 - Depression: Self-guided psychological treatment (meta-analysis) (Cuijpers et al, 2011)
 - Depressive disorders in primary care: Guided self-help CBT (systematic review and meta-analysis) (Linde et al, 2015)
 - Guided self-help for depression and anxiety disorders was as effective as face-to-face psychotherapies (systematic review and meta-analysis) (Cuijpers et al, 2010)
 - Self-help interventions for symptoms of depression, anxiety and psychological distress in patients with physical illnesses improved depressive symptoms (systematic review and meta-analysis) (Matcham et al, 2014)
- Psychosis
 - Self-help interventions (meta-analysis) (Scott et al, 2015)
 - For people with severe mental illness, self-management had small to medium effects on reducing symptoms and length of admission, and improving functioning and quality of life both at end of treatment and at follow up (systematic review and meta-analysis) (Lean et al, 2019)

Self-help was effective for addressing risk factors including

- Insomnia: Self-help CBT (meta-analysis) (Ho et al, 2015) also improved associated impacts on anxiety (meta-analysis) (Belleville et al, 2011), depressive symptoms and anxiety symptoms (meta-analysis) (Ho et al, 2015)
- Smoking cessation: Print-based self-help materials (Cochrane systematic review) (Hartmann-Boyce et al, 2014)

b) Task shifting

- Shifting of tasks from more to less well trained individuals can improve coverage in

the absence of primary care or appropriately trained professionals, (systematic review) (Hoeft et al, 2018)

- Non-specialist health workers showed potential to improve coverage and outcomes for different mental disorder (Cochrane systematic review) (van Ginneken et al, 2013)
- Psychological treatment for adult common mental disorder can be delivered by non-specialist providers in low and middle income countries (LMIC) (Singla et al, 2017)

c) Improving concordance with treatment

More than half of people with chronic mental disorder either do not take medication correctly or completely stop taking then (Chakrabarti, 2014). Interventions to improve concordance can reduce relapse and improve outcomes. High levels of self-efficacy and internal health locus of control are consistently found to promote medication adherence (systematic review) (Nafradi et al, 2017).

d) Less intense intervention

Reducing intensity of some interventions does not necessarily reduce effectiveness:

- Brief CBT for anxiety delivered in primary care was comparable to longer length treatments (meta-analysis and meta-regression) (Cape et al, 2010)
- Low intensity CBT for people with psychosis had comparable effect sizes to usually intensity CBT (systematic review and meta-analysis) (Hazell et al, 2016)

Effective brief interventions include for:

- Alcohol (NICE, 2007b; NICE, 2007c; NICE, 2010a; PHE, 2016a/review; Burton et al, 2017/ review) including in primary care is effective (systematic review of reviews) (O'Donnell et al, 2014)
- Drug use disorder (review of systematic reviews) (Das et al, 2016): Screening and brief intervention programmes had small effects but can be widely applied and are probably cost-effective (review) (Strang et al, 2012)
- Physical activity in primary care (NICE, 2013k)
- Brief parenting interventions result in

improved child externalising behaviours, parenting skills and parenting self-efficacy (systematic review) (Tully & Hunt, 2016)

e) Traditional healers

Traditional healers are commonly used in LMICs and can both provide support people with mental disorder and refer on (Nortje et al, 2016). They represent an important resource particularly in LMICs some of which have attempted to incorporate into their health care systems.

10) Addressing socioeconomic inequalities

Socio-economic inequality underpins many other risk factors for mental disorder (Campion et al, 2013; Reiss, 2013/ systematic review). Mental disorder also results in a range of inequalities. Furthermore, the largest difference in wellbeing between neighbouring quintiles of income and expenditure distributions were between the lowest and second lowest fifths (GB survey) (Lewis, 2014).

Addressing socioeconomic inequality is therefore a key intervention. For instance, if all children had the same risk as the most socially advantaged, this would result in potential reduction of 59% for conduct disorder, 34% for emotional disorder and 54% for hyperkinetic disorder (based on Great Britain national survey) (Spencer, 2008).

Effective evidence-based strategies to reduce health inequalities in England exist in the following areas (Marmot et al, 2010):

- Giving every child the best start in life
- Enabling all children, young people and adults to maximise their capabilities and have control over their lives
- Creating fair employment and good work for all
- Ensuring a healthy standard of living for all
- Creating and developing healthy and sustainable places and communities
- Strengthening the role and impact of ill health prevention

National government economic policy including taxation is an important overarching intervention which would impact across a large proportion of the population at higher risk of mental disorder and poor mental wellbeing. Increased taxation also reduces consumption of alcohol and tobacco.

During recession, predicted increases in suicide can be prevented by more generous unemployment protection (cross-sectional time-series data analysis from 30 countries) (Norström & Grönqvist, 2015).

Primary care is also an important setting to facilitate a proportionate universalistic approach to inequalities including early child

development (Woolfenden et al, 2013).

Improved coverage of specific interventions to address socioeconomic inequalities include prevention and action to address:

- Debt (Fitch et al, 2014)
- Financial capability (British Household Panel Survey) (Taylor et al, 2011)
- Fuel poverty (PHE, 2014b; Butcher, 2014; Maryon-Davis & Ballard, 2015)
- Food insecurity (Shankar et al, 2017/ systematic review; Bhutta et al, 2013/ review)

11) Particular interventions

The following four interventions would result in particularly large population impacts if implemented to scale.

a) Parenting programmes

Prevention of mental disorder by parenting programmes

- Prevent child internalising problems (meta-analysis of RCTs) (Yap et al, 2016), conduct problems (Cochrane systematic review) (Furlong et al, 2012), externalising behaviour (meta-meta-analysis) (Mingebach et al, 2018), substance use (systematic review) (Allen et al, 2016), antisocial behaviour and delinquency (meta-analysis) (Piquero et al, 2016)
- Reduce negative or harsh parenting practices (Cochrane systematic review) (Furlong et al, 2012)
- Reduce unintentional injury (Kendrick et al, 2013/ Cochrane systematic review; Desai et al, 2017/review)

Mental disorder improvement from parenting programmes

- Parenting interventions were effective for the majority of children and adolescents with mental disorder and therefore represent a particularly important opportunity if provided to scale
- Conduct problems: Behavioural and cognitive-behavioural group-based parenting interventions were both effective and cost-effective for child conduct problems in 3-12 year olds, improved parental mental health and parenting skills in the short term (Cochrane systematic review) (Furlong et al, 2012)
- Child disruptive behaviours: Effect of interventions with only a parent component was the same as multicomponent interventions (meta-analysis) (Epstein et al, 2015)
- Externalising behaviour: Parent-based interventions had significant moderate effect on both child behaviour and externalising behaviour with effects remaining stable at follow up (meta-meta-analysis) (Mingebach et al, 2018)

- ADHD: Improved child ADHD, conduct problems, social skills and academic performance in under 18 year olds with ADHD as well as improved parenting quality and self-concept (meta-analysis) (Daley et al, 2014). Parenting interventions were also effective for preschool children with ADHD (meta-analysis) (Mulqueen et al, 2013)
- Autism spectrum disorder: Reduced disruptive behaviour (systematic review and meta-analysis) (Postorino et al, 2016)
- Substance use: Relatively low-intensity group parenting interventions were effective at reducing or preventing adolescent substance use (systematic review) (Allen et al, 2016)
- Parental mental health: Group parenting interventions led to short-term improvements in depression, anxiety, stress, anger and guilt (Cochrane systematic review) (Barlow et al, 2014)

Promotion impacts of parenting programmes

- Improved child behaviour (meta-meta-analysis) (Mingebach et al, 2018) including in under 4 year olds (systematic review) (Barlow et al, 2016a), and children with ADHD (meta-analysis) (Lee et al, 2012), autism spectrum disorder (Oono et al, 2013/ Cochrane systematic review; Beaudoin et al, 2014/review), developmental disability (meta-analysis) (Skotarczak & Lee, 2015) and foster children (meta-analysis) (Soloman et al, 2016)
- Improved parenting practices, parenting satisfaction and efficacy, parental adjustment, efficacy, parental adjustment and parental relationship (Triple P) (systematic review and meta-analysis) (Sanders et al, 2014) with impacts for ethnic minority parents, foster parents, young offender parents, parents of children with disability and parents with intellectual disabilities
- Improved parental mental health (Cochrane systematic review) (Barlow et al, 2014)

Parenting interventions can be delivered in a number of ways to improve coverage:

- Brief parenting interventions resulted in improved child externalising behaviours, parenting skills and parenting self-efficacy (systematic review) (Tully & Hunt, 2016)
- Self-directed and therapist-led parenting interventions were equally effective (systematic review and meta-analysis) (Tarver et al, 2014)
- Online: Digital based parenting training (DPT) programmes for parents of children with disruptive behaviour resulted in improved child behaviour, parent behaviour and parental confidence (systematic review and meta-analysis) (Baumel et al, 2016)

Parent training programmes were equally effective for disadvantaged and non-disadvantaged families immediately post treatment although maintenance of treatment gain is harder for disadvantaged families (meta-analysis) (Leijten et al, 2013).

Extensive adaptation of parenting programmes was not required for successful transportation between countries (systematic review and meta-analysis) (Gardner et al, 2016).

b) Addressing parental mental disorder

Parental mental disorder (NICE, 2014a) is associated with a range of adverse outcomes for offspring including increase mental disorder in childhood, adolescence and adulthood. Relevant interventions include:

- Treatment of parental mental disorder which prevent 40% of mental disorder in off-spring (systematic review and meta-analysis) (Siegenthaler et al, 2012)
- Prevention of parental mental disorder: For instance, maternal postpartum depression can be prevented through psychosocial and psychological interventions (Cochrane systematic review) (Dennis & Dowswell, 2013) with some evidence for interpersonal therapy, CBT (review) (Werner et al, 2016a) and peer support (review) (Leger & Letourneau, et al, 2014)

c) Addressing child adversity

Child adversity accounted for almost a third of adult mental disorder (Kessler et al, 2010) and therefore a key issue to both prevent and address. Child adversity also accounted for a large proportion of health harming behaviour in England including 11.9% of binge drinking, 13.6% of poor diet, 22.7% of smoking, 52.0% of violence perpetration and 58.7% of heroin/ crack cocaine use (England national survey) (Bellis et al, 2014).

Addressing adversity is an important child protection issue and is supported by a range of legislation which can support improved interventions to both prevent and address it

Prevention of child maltreatment and abuse can occur through a range of evidence interventions which require improved implementation including:

- Relevant legislation
- Parent training programmes which result in reduce child maltreatment, unintentional injury by parents, negative or harsh parenting practices, and childhood antisocial behaviour
- Parental education for expectant and new parents
- Home visiting programmes
- School based programmes which can reduce violence, bullying, sexual abuse, sexual violence perpetration and domestic violence
- Parental and adult trusted support which substantially mitigated impact of child adversity
- Prevention of PTSD and reduction of symptoms through psychological therapies for children and adolescents exposed to trauma
- Safeguarding vulnerable children and adults including address abuse early (such as through Child Protection Plans)
- Community violence prevention
- Preventing alcohol misuse
- Address domestic violence

Early intervention to address child maltreatment and abuse is also important (NICE, 2009h).

Seven strategies for reducing violence against children include implementation and enforcement laws, norms and values, safe environments, parental and caregiver support, income and economic strengthening, response and support services, and education and skills (INSPIRE) (WHO, 2016b; Hillis et al, 2016b/ evidence review).

d) Physical activity promotion

- During childhood, physical activity led to improved mental health outcomes for all children including increased self-esteem and self-concept as well as reduced mental disorder (meta-analysis) (Ahn & Fedeqa, 2017)
- During adulthood, physical activity was associated with reduced depression (Schuch et al, 2018a/ meta-analysis of prospective cohort studies; Harvey et al, 2018/ Norwegian cohort study), improved wellbeing (including people with schizophrenia) (Holley et al, 2011/ systematic review), better mental health outcomes for people in primary care (NICE, 2013k), improved cognitive function in the over 50's (systematic review and meta-analysis) (Northey et al, 2018) and prevention of dementia (systematic review and meta-analysis) (Livingston et al, 2017)
- For older people, physical activity was associated with better mental health outcomes (NICE, 2008d; Bherer et al, 2013/ review) and sleep in those with depressive symptoms (English longitudinal study) (Garfield et al, 2016). Multi-component exercise for people with dementia improved global physical and cognitive functions and activities of daily living skills (synthesis of systematic review) (McDermott et al, 2018)

Physical activity can be promoted through:

i) Infrastructure

- Investing in infrastructure to support walking which increases physical activity across different age groups including children, adolescents (systematic review) (Carlin et al, 2015) and adults (Hajna et al, 2015/ systematic review and meta-analysis; Mueller et al, 2015/ systematic review)

- Walking and cycling (NICE, 2012d) facilitated by coordinated planning with public transport (review) (Sloman et al, 2010)
- Improving built and natural environment including traffic calming (NICE, 2008c; Rothman et al, 2014/ systematic review)
- Access to recreational infrastructure such as playgrounds and parks is associated increased physical activity and reduced obesity in adolescents (systematic review) (Dunton et al, 2009)

ii) Particular activities

- Leisure-time physical activity was associated with improved psychological wellbeing (Sacker & Cable, 2005/ British cohort studies; Takeda et al, 2015/ Japanese national longitudinal survey), mental health (meta-analysis) (White et al, 2017a) and positive affect and life satisfaction (meta-analysis) (Wiese et al, 2018)
- Sport including for people with mental disorder (reviews) (Clark et al, 2015; Friedrich & Mason, 2017)
- Transport physical activity had positive associations with mental health (meta-analysis) (White et al, 2017a). Significant associations occurred between psychological wellbeing and active travel/ public transport travel (British cohort study) (Martin et al, 2014)
- Group-based and peer supported sport and dance programmes may promote wellbeing enhancement in youth groups in 15-24 year olds (systematic review) (Mansfield et al, 2017)

iii) Place based approaches

- Workplace physical activity programmes (Jirathananuwat et al, 2017/ systematic meta-review)
- Home environment: Interventions introducing large exercise equipment increased physical activity (review of reviews) (Preston et al, 2017)
- Access to the natural environment (systematic review) (Calogiuri & Chroni, 2014)
- Brief advice in primary care (NICE, 2013k)

12) Legislation, regulation and adopting a human rights approach

Legislation to support prevention of mental disorder include:

- Children's Act (1989)
- Children's Act (2004)
- Children and Families Act (2014), the Children and Social Work Act (2017)
- UN Rights legislation including on the Rights of the Child
- Health Act (2006) (tobacco control): Smoke-free legislation is also associated with substantial benefits to child health (systematic review and meta-analysis) (Faber et al, 2017)
- Equality Act (2010b) places a legal duty to not discriminate against people with mental disorder by not providing appropriate coverage of evidence based public mental health interventions
- Health and Social Care Act (DHSC, 2012) under which CCGs and Local Authorities have equal and joint statutory duties under the to assess health and social need through JSNA's and then prepare Joint Health and Wellbeing Strategies to meet identified need
- Health and Safety at Work Act (1974) under which employers have a duty to protect the health, safety and welfare of their employees and must do whatever is reasonably practical to achieve this
- Homelessness Reduction Act (2018)

In England, all state schools are legally obliged to have a policy to prevent all types of bullying. Similarly, regulation can reduce availability of alcohol and access to means of suicide. Mental Health Act legislation protects the rights of those with mental disorder.

A rights approach to mental health is supported by the United Nations Human Rights Council which adopted a resolution entitled 'Mental health and human rights' which re-iterated key universal human rights and specific rights protections required for people with mental disorder (UNHRC, 2016)

13) Public mental health lead roles

Funded public mental health lead roles for primary care, secondary mental health care and public health in every locality would facilitate coordination of local public mental health work.

Good public mental health practice and commissioning

Good public mental health practice takes a population approach to mental health to support the implementation of a balance of effective public mental health interventions to treat mental disorder, prevent associated impacts, prevent mental disorder from arising and promote mental wellbeing including for people recovering from mental disorder.

Public mental health practice involves four key steps (Campion, 2018a):

- 1) Mental health needs assessment of size, impact and cost of unmet need for effective public mental health interventions as well as impact and estimated economic savings from improved provision (Campion, 2013; Campion et al, 2017a)
- 2) Use of this information to inform the JSNA, policy and strategy development to address identified unmet need, implementation, commissioning plans, inter-agency coordination and wider advocacy to improve public mental health intervention coverage
- 3) Implementation at population level
- 4) Evaluation of intervention coverage and outcomes to inform further commissioning and implementation

Joint Strategic Needs Assessments and Mental Health Needs Assessments

JSNAs are both a *process* and a *product*. The JSNA process involves the collection of a range of quantitative and qualitative data to provide a comprehensive picture of the current and future health needs for adults and children. The JSNA is key to understanding local health inequalities in the area, the wider determinants which influence these inequalities and unmet need, and how these impact on health and wellbeing outcomes across the community (DH, 2012).

JSNAs should provide information about local levels of health and social care needs and their broader determinants to enable the NHS, local authorities and partners to provide the most appropriate services to meet those needs (DH, 2012). Clinical commissioning groups (CCG's) and local authorities have equal and joint statutory duties under the Health and Social Care Act (DHSC, 2012) to provide information about local levels of health and social needs and their broader determinants in Joint Strategic Needs Assessments (JSNA's) and then prepare a Joint Health and Wellbeing Strategy to meet the identified needs.

However, mental disorder and wellbeing is poorly covered in JSNAs which perpetuates the public mental health intervention gap (Campion et al, 2017a). Mental Health Needs Assessments (MHNAs) can provide this information in a standardised structure which can inform both the JSNA, the Joint Health and Wellbeing Strategy and commissioning. Particular types of public mental health intelligence are required in JSNAs including (Campion et al, 2017a):

- Levels of mental disorder and wellbeing
- Levels of risk and protective factors
- Proportion from different higher risk groups
- Estimated economic costs of mental disorder to both health and other sectors
- Coverage and outcomes of public mental health interventions
- Expenditure on different types of public mental health intervention
- Size and cost of the gap in provision of public mental health interventions
- Estimated impact and associated economic savings to different sectors from improved coverage of a range of public mental health interventions

Joint Strategic Assets Assessments (JSAAs) complement JSNAs by identifying the assets available in an area that can contribute towards protecting health and wellbeing and improving health and social care outcomes. This includes the quality and accessibility of services and other community resources. It also includes assessing levels of protective factors for mental wellbeing across the local population. Social assets approaches look at the social and cultural resources which already exist within a community that can improve wellbeing. As many of the key assets required for health are found within the social context of people's lives, an assets-based approach can contribute to reducing health inequalities (Morgan & Ziglio, 2007).

Components of good public mental health commissioning include the

- *Public Mental Health Commissioning Cycle* – the process which underpins provision (box 3)
- *Relevant people and organisations central to this cycle* – appropriate public mental health intervention provision is built upon capacity and coordination between sectors
- *Informing of service provision by coverage and outcomes of public mental health interventions* – these include NHS, Public Health, and Social Care Outcomes as well as relevant Commissioning for Quality and Innovation (CQUIN) standards (see appendix)

Public mental health commissioning should include ten steps (see Box 3):

Public mental health practice and commissioning cycle

Public mental health practice should occur at both national and local levels. In particular, mental health needs assessment at national level informs decisions about acceptable coverage of effective public mental health interventions as well as required resource to enable required local level of implementation.

1 Assess public mental health need

Public mental health need includes levels of:

- Different mental disorder and wellbeing
- Future mental disorder
- Risk factors for mental disorder and protective factors for mental wellbeing
- Higher risk groups including numbers with mental disorder

2 Estimate impacts and associated costs of mental disorder and poor mental wellbeing

Mental disorder and poor mental wellbeing result in a range of impacts and associated costs which can be estimated at local and national level.

3 Identify effective public mental health interventions

A range of effective public mental health interventions exist (see pages 59-108).

4 Assess coverage and outcomes of effective public mental health interventions

Nationally, only a minority with mental disorder (except psychosis) receive any treatment (NHSD, 2018a; McManus et al, 2016) (Tables 11 and 12) while even fewer receive interventions to prevent associated impacts, prevent mental disorder from arising or promote mental wellbeing.

Such local information is an important part of the JSNA and MHNA as it allows the calculation of levels of unmet need for coverage and outcomes of cost effective public mental health interventions provided by different sectors including for higher risk groups.

BOX 3: THE PUBLIC MENTAL HEALTH PRACTICE AND COMMISSIONING CYCLE

1. Assess public mental health need including levels of mental disorder and wellbeing, risk and protective factors, and higher risk groups
2. Estimate impacts and associated costs of mental disorder and poor wellbeing
3. Identify effective public mental health interventions
4. Assess coverage and outcomes of effective public mental health interventions
5. Assess expenditure on different public mental health interventions
6. Assess size, impact and cost of public mental health intervention unmet need
7. Assess impacts and associated economic savings of improved coverage of different public mental health interventions
8. Agree public mental health commissioning plan
9. Implement public mental health commissioning plan
10. Evaluate public mental health commissioning plan

Some of this information can be obtained from various national datasets although information for a large proportion of interventions needs to be collected by providers and commissioners (see next section).

5 Assess expenditure on public mental health interventions

Some of this information is obtained from nationally collected datasets which enables comparison of expenditure rates for areas of similar profiles. However, certain information needs to be collected from providers and commissioners.

6 Assess size, impact and cost of public mental health intervention gap

This is obtained by bringing together national and local information about:

- Level of mental disorder, poor mental wellbeing, risk and protective factors, and higher risk groups (part 1 of commissioning cycle)
- Proportion receiving effective public mental health interventions and associated outcomes (part 4 of commissioning cycle)
- Impact and cost of mental disorder and poor mental wellbeing (part 2 of commissioning cycle)

Such information on the MHIN website would support localities to clearly outline their public mental health intervention gap size and thereby fulfill their statutory duty under the Health & Social Care Act (DHSC, 2012).

7 Assess impacts and associated economic savings of improved coverage of different public mental health interventions

This includes assessment of impacts and associated economic savings of

improved provision of public mental health interventions currently provided as well as those not being provided. Savings outlined in Tables 9 and 10 are applied to 100% coverage to outline maximum potential savings which is what the author did for MHNAs for Local authorities covering several million people in England. Such work can support improved local service implementation (Campion et al, 2019). A return on investment tool for eight public mental health interventions was commissioned by PHE (McDaid et al, 2017).

8 Agree public mental health commissioning plan

Discussion should be informed by

- National mental health needs assessment which includes transparent decisions about acceptable levels of coverage, required resource
- Local mental health needs assessment

This supports agreement between commissioners, different providers and other representatives about:

- Which public mental health interventions and at what coverage
- Implementation plan for delivery of these interventions

9 Implement public mental health commissioning plan

Different public mental health interventions are provided by a range of providers. In order to effectively implement such interventions, providers should have:

- Ability to deliver the intervention to a high standard
- Appropriately trained staff
- Capacity to deliver to the size of the population requiring the intervention

- Appropriate systems for monitoring and recording the delivery and outcome of the intervention

10. Evaluate public mental health commissioning plan

Evaluation ensures that interventions are of the highest quality, effective and offering value for money, as well as meeting the contract specifications and delivering to national and local quality standards. Evaluation includes assessment of:

- Coverage, outcomes and associated economic impact of public mental health interventions including for higher risk groups
- Identification of those interventions which are effective and those which are not working as expected including reasons

A range of measures are available to assess the coverage, outcomes and associated economic impact of different public mental health interventions. These include outcomes outlined in the Public Health, NHS, Social Care, Child and Commissioning Outcomes Frameworks (see Appendix).

OTHER ELEMENTS OF GOOD PUBLIC MENTAL HEALTH PROVISION

Interventions across the life course

Interventions should reflect the needs and profile of the different age groups across the life course within the local population. Since most lifetime mental disorder arises before adulthood (table 3), services which provide treatment for mental disorder need to be able to engage adolescents while services to prevent mental disorder have greatest impact in pre-teenage years.

'Proportionate universality'

Groups at higher risk of mental disorder or poor mental wellbeing should receive higher levels of public mental health intervention to prevent further widening of inequalities and to comply with equality legislation (Campion et al, 2013).

Co-ordination of activities

Public health, clinical commissioning groups (CCGs) and health & wellbeing boards (HWBs) have an important role in ensuring coordination between providers across different agencies. This includes 'read across' with a district council strategy which covers housing, environmental health, sport, leisure, parks and gardens, and trading standards.

Engaging the local population

Engaging the local population in the commissioning process is important. Information about effective public mental health interventions should be given to the public, as it can help promote the uptake of such intervention (NICE, 2014i).

HOW EFFECTIVE PUBLIC MENTAL INTERVENTIONS CAN MEET LOCAL POPULATION NEED

As well as the steps outlined in the public mental health commissioning cycle (Box 3), other important elements include:

- Use of information to inform resource provision about size, impact and cost of public mental health intervention gap
 - Locally to advocate to a broad range of local sectors
 - Nationally since this informs decisions by central government and treasury about required levels of funding
- Ensuring allocated resources are used for public mental health
 - Ensuring that public health departments ring-fence a proportion of their resources to public mental health, particularly in the light of its impact on other priorities such as physical illness and health risk behaviour
 - Payment by Results (PbR): Investment in public mental health interventions can be incentivised by inclusion in the PbR schedule (with specific areas for payment by promotion, prevention and recovery through early intervention)
- Leadership from different sectors including primary care, secondary care, public health, social care, health & wellbeing board and CCGs
- Coordination of the activities of different providers of public mental health interventions which public health has a key role in
- Use of particular settings to deliver range of public mental health interventions to particular groups
- Representation in public mental health activities from different sectors e.g.
 - Ensuring that clinicians dedicate a proportion of their time to public mental health activities (RCPsych, 2010)
 - Local public mental health champions to facilitate and improve communication and coordination between service providers
<http://www.mentalhealthchallenge.org.uk/the-challenge/>
- Integration into care pathway: Support from health and social care professionals for public mental health interventions throughout the patient care pathway – every NHS contact should be a mental health and wellbeing promoting contact
- Training and education
 - Public mental health training for commissioners, public health and different providers including primary care, secondary care, social care, public health and third sector. This should be coordinated between the Royal Medical Colleges, Royal Society for Public Health, Faculty of Public Health, Royal College of Nurses and Health Education England
 - Appropriate public mental health information for the general public including patients and carers, employers
 - Raising awareness of mental disorder and wellbeing among public sector staff and the general public through training programmes including Mental Health First Aid (Hadlaczky et al, 2014; Morgan et al, 2018a)

Public mental health data required for mental health needs assessment

Box 3 outlined the following steps of the public mental health commissioning cycle the first seven steps consisting of a Mental Health Needs Assessment (MHNA)

1. Assess levels of mental disorder and wellbeing, risk and protective factors, and higher risk groups
2. Estimate impacts and associated costs of mental disorder and poor wellbeing
3. Identify effective public mental health interventions
4. Assess coverage and outcomes of effective public mental health interventions
5. Assess expenditure on public mental health interventions
6. Assess size, impact and cost of public mental health intervention unmet need
7. Assess impacts and associated economic savings of improved coverage of different public mental health interventions
8. Agree public mental health commissioning plan
9. Implement public mental health commissioning plan
10. Evaluate public mental health commissioning plan

The first five steps of the public mental health commissioning cycle require data from a range of sources which were outlined in the last edition of this document. Since publication of the JCPMH public mental health commissioning guidance, the Mental Health Intelligence Network has produced a Fingertips resource which provides a range of relevant public mental health data available at local levels. More recently, Public Health England has produced a 'Better mental health JSNA toolkit' which brings a section of public mental health data together (PHE, 2017g) including for older people (PHE, 2018).

However, data is often several years old. Furthermore, data covering a range of up to date public mental health relevant areas remains unpublished and so requires local collection.

The following section outlines public mental health data required for a Mental Health Needs Assessment.

1. Assess levels of mental disorder and wellbeing, risk and protective factors

Population size

Assessing the size of the population is an important first step. The most accurate estimate can be found by looking at ONS latest population estimates.

Similarly, accurate prediction of population growth enables local authority planners, commissioners of social care, providers and support organizations to estimate impact of changes in demographics and certain conditions including mental disorder.

Population turnover is also important to measure since it has an important impact on social cohesion.

Higher risk groups

Particular groups have a higher risk of mental disorder and poor wellbeing (see pages 53-58). Information about numbers from different higher risk factors is important in determining numbers requiring public mental health interventions to prevent further widening of inequalities. Such information for some of these groups can be found on the PHE fingertips resource but otherwise can be estimated from national estimates.

Levels of mental disorder

The level of disorder varies significantly according to locality (NHSD, 2018a; McManus et al, 2016). Therefore, it is important to accurately assess the local proportion experiencing different disorders (including from higher risk groups). This needs to include numbers with mental disorder from higher risk groups by applying the local numbers from such groups with the level of increased risk they experience.

Levels of child and adolescent mental disorder

Although national rates of different mental disorder are outlined in Table 1, there is a three-fold variation in local prevalence levels according to level of deprivation (Green et al, 2005) and two-fold difference in those from highest 20% household income and lowest 60% household income (NHSD, 2018a). Information about estimated local prevalence of different mental disorder for 5-16 year olds is available from the MHIN Fingertips site

Those with emotional, conduct and hyperkinetic disorders have several fold higher rate of substance and tobacco use as well as self-harm (Table 4) which also needs to be estimated.

Levels of mental disorder in higher risk child and adolescent groups

Levels of mental disorder also need to be estimated in higher risk groups by applying the local numbers from such groups (see earlier higher risk group section) to the level of increased risk they experience.

Levels of adult mental disorder Although national rates of different mental disorder are outlined in Table 1, several-fold variation occurs in local prevalence of different adult mental disorder according to level of different risk factors. Local prevalence for some mental

disorders can be estimated using the MHIN resource although sometimes data is several years old. Numbers affected can then be estimated by applying local population size.

Levels of mental disorder in higher adult groups

Particular groups are at several-fold increased risk of mental disorder (see earlier higher risk group section). Levels of mental disorder need to be estimated in higher risk groups by applying the local numbers from such groups to the level of increased risk they experience.

Levels of risk factors for mental disorder

A range of factors are associated with mental disorder (see risk factor section on pages 24-42).

Local levels of different risk factors can be found in nationally published datasets many of which can be found on the PHE fingertips resource.

Other important risk factor levels not available on this site can be collected locally or estimated from national rates.

Levels of mental wellbeing

While the Health Survey for England found only small differences in wellbeing across different regions of the country (NHSIC, 2011), significant variation can occur even within a locality.

Wellbeing can be assessed by objective and subjective measures. The ONS developed national measures of wellbeing and of human and cultural capital.

Annual surveys of subjective wellbeing are carried out by ONS. Local wellbeing levels are available on the PHE fingertips website and include measures of life satisfaction, life being worthwhile and happiness.

Wellbeing levels available for higher risk groups include adults using social care, carers and older people.

Levels of protective factors for mental wellbeing

Certain factors are associated with mental wellbeing (see protective factor section on pages 43-49). Protective factors are less routinely measured than risk factors and datasets are often several years old.

Data for levels of some protective factors for wellbeing can be found at MHIN fingertips website although others require local collection

2 Estimate impacts and associated costs of mental disorder and poor wellbeing

Mental disorder and wellbeing result in a range of impacts (see pages 8-21). Using the information about estimated local numbers affected by mental disorder, local impacts and associated economic costs can be estimated.

3 Identify effective public mental health interventions

Sections on prevention of mental disorder and promotion of mental wellbeing highlight effective public mental health interventions (see pages 59-108). Tables 9 and 10 outline effective public mental health interventions with cost benefit evaluation.

4 Assess coverage and outcomes of effective public mental health interventions

This can be done by dividing up into primary, secondary and tertiary mental disorder prevention and mental wellbeing promotion. Such information on the MHIN website would support localities to clearly outline their public mental health intervention coverage and assess level of unmet thereby fulfilling their statutory duty under the Health & Social Care Act (DHSC, 2012).

Primary prevention of mental disorder

Local provision level and outcomes of interventions to address different risk factors in for higher risk groups (see sections on risk factors, higher risk groups and primary prevention interventions). These include also include coverage of screening such as home visiting assessments after birth, at 6-8 weeks and 2-2.5 years to assess

communication, skills, problem solving, social-emotional development.

Secondary and tertiary prevention of mental disorder

For each mental disorder, published and locally available data enables assessment of:

- Proportion with different mental disorder receiving early treatment from primary care and secondary care (community and inpatient)
- Proportion with different mental disorder receiving different types of treatment from primary care and secondary care (community and inpatient)
- Proportion with different mental disorder from different higher risk groups (including parents with mental disorder) receiving treatment
- Information on waiting times, satisfaction and treatment outcomes

Interventions to prevent associated impacts of mental disorder include:

- Physical illness prevention: Proportion of people with different mental disorder receiving interventions in primary and secondary care to promote physical activity, healthy diet, weight reduction, smoking cessation/reduction and an annual primary care physical health screen including associated outcomes
- NHS England aims to ensure that by 2020 to 2021, 280,000 more people living with severe mental illness have their physical health needs met. This will be achieved by increasing early detection and expanding access to evidence based physical care assessment and intervention each year. Collaboration between public health, primary care and secondary care mental health services is crucial to realising this aim
- Suicide prevention activities

Data should be benchmarked against other CCGs, national levels and deprivation. Within a CCG, variation across GP practices should be assessed including exception rates.

Secondary mental health care has a range of further information about treatment which can be benchmarked against other CCG's, mental health trusts, national levels and deprivation including:

- Access to secondary mental health care
- A&E attendance for mental health conditions
- Hospital admissions
- Bed availability, occupancy and length of stay
- Delayed transfers of care
- Discharges
- Detention under Mental Health Act (MHA)
- Care Programme Approach
- Crisis care
- Community secondary care
- Liaison
- Balance between community and inpatient care
- Information on secondary care by cluster
- Service quality indicators
- Workforce

Social care has a range of further information which can be benchmarked against national levels, CCG's and deprivation.

Different third sector and voluntary organisations also provide support for people with mental disorder. Information about numbers of people with mental disorder receiving support from such organisations as well as associated outcomes is not collected nationally so requires local collection.

Promotion of mental wellbeing at primary, secondary and tertiary levels – coverage and outcomes

Local provision level and outcomes of mental wellbeing promotion interventions on pages 92-104.

5 Assess expenditure on public mental health interventions

Some of this information is obtained from nationally collected datasets which enables comparison of expenditure rates against deprivation and other areas. However, certain information needs be collected locally from relevant sectors, providers or commissioners.

- Mental disorder treatment expenditure
 - NHS expenditure on mental disorder treatment
 - Primary care prescribing expenditure on mental health conditions
 - NHS secondary mental health care expenditure
 - Social care expenditure for people with mental disorder
- Expenditure on prevention of associated impacts of mental disorder such as premature mortality
- Expenditure on prevention of mental disorder from arising by addressing key risk factors
- Expenditure on promotion of mental wellbeing by promoting protective factors

Public mental health relevant policy

Public mental health and national mental health strategy

The cross-Government mental health strategy *No Health without Mental Health* (HMG, 2011) takes a twin-track approach as did the previous Government mental health strategy *New Horizons* (HMG, 2009). This approach combines treatment for mental disorder with promoting the mental health of the whole population, with the overarching aim to reduce the total burden of mental disorder.

The importance of public mental health is reflected in *No Health without Mental Health* (HMG, 2011) which states that:

- More people of all ages and backgrounds will have better wellbeing and good mental health
- Fewer people will develop mental disorder
- Wellbeing and good mental health are essential to reach our full potential
- Promotion of mental health, wellbeing and resilience is necessary for a more healthy, productive and fair society
- Prevention of mental disorder and promotion of mental wellbeing can significantly improve outcomes for individuals and increase the overall resilience of the population
- Mental health is central to quality of life and economic success – wider government objectives for employment, education, training, safety and crime reduction, reducing drug and alcohol dependence and homelessness cannot be achieved without improvements in mental health
- Mental health should be 'everyone's business' – not just the concern of health and social care

sectors but a priority for the whole Government and for employers, education services and third sector agencies

- to achieve this, mental health should be mainstreamed and should have 'parity of esteem' with physical health

The mental health strategy took a life-course approach and emphasizes the importance of early intervention, patient choice and control (personalisation), reducing inequality, tackling stigma and monitoring outcomes. The strategy and subsequent policy development also highlighted improving quality and efficiency (QIPP) in the context of a challenging financial climate (DH, 2011b).

Mental health strategy implementation framework

The mental health strategy implementation framework (HMG, 2012b) set out the action local leaders should take to implement the strategy and ensure services work together 'to promote wellbeing, to tackle the causes of mental ill health and to act quickly and effectively when people seek the support they need to make their lives better'

The implementation framework explained what organisations and agencies could do to achieve the Government's strategic goals for mental health and contribute towards the three relevant Outcomes Frameworks for the NHS, Public health and Adult Social Care.

Health and Wellbeing Boards are specifically recommended to encourage joint commissioning between health and health-related services using pooled and community budgets and to consider the mental health impact of services and initiatives outside health and social care, such as initiatives to address inequalities and social disadvantage. They were also encouraged to:

- Ensure local mental health needs are properly assessed using the JSNA process and giving particular attention to seldom-heard groups. However, a review of JSNAs covering several million people in England showed that mental health and relevant information about higher risk groups is inadequately represented in JSNA's (review of 23 JSNAs) (Campion et al, 2017a)
- Ensure mental health receives priority equal to physical health
- Bring together local partnerships including joint commissioning between health and health-related services
- Involve local people and community groups in all aspects of development of JSNAs and JHWSs
- Consider the mental health impact of services and initiatives beyond health

and social care, to ensure recognition of the wider determinants

Local Authorities were urged to:

- Appoint an elected member as 'mental health champion' to raise awareness of mental health issues across the full range of the authority's work
- Assess how its strategies, commissioning decisions and directly provided services support and improve mental health and wellbeing (most areas of local authority responsibility can impact on mental health and wellbeing)
- Consider using 'whole place' or community budgets to improve quality and efficiency of support offered to people with multiple needs including mental disorder
- Sign up to the Time to Change campaign to tackle stigma in relation to mental disorder

Care Act

The Care Act 2014 was another significant national strategy, enshrined the new statutory principle of individual wellbeing as the driving force behind the Act, and made it the responsibility of local authorities to promote wellbeing when carrying out any of their care and support functions (LGA, 2015).

Several significant changes as part of this legislation included (LGA, 2015):

- Principle of wellbeing: Local authorities must promote wellbeing when carrying out any of their care and support functions in respect of a person, and that person should be enabled to participate as fully as possible in decisions at every stage in their care
- Assessment, including carers: Local authorities must undertake an assessment for any adult, including a carer (see below), who appears to have any level of needs for care and support, irrespective of whether the local authority thinks the individual has eligible needs
- National Eligibility Criteria: The Care Act introduces a national eligibility threshold for adults with care and support needs which consists of three criteria, all of which must be met for a person's needs to be eligible. The eligibility threshold has been set at a level which is intended to allow local authorities to maintain their existing access to care and support
- Care planning and review: If the local authority has a duty to meet a person's needs, it must help the person decide how their needs are to be met by preparing a care and support plan, or support plan for carers. The plan must describe what needs the person has and which needs the local authority is to meet
- Deferred payments: From April 2015, a new scheme will mean that people should not have to sell their homes in their lifetime to pay for residential care. Termed 'deferred payments', this arrangement must be offered by all local authorities to people who meet certain eligibility criteria governing the scheme

- Funding reforms: From April 2015 intermediate care for up to six weeks and reablement requiring minor aids and adaptations up to the value of £1,000 must continue to be arranged by the local authority free of charge – in line with NHS funded intermediate care

Mental health crisis concordat

The Mental Health Crisis Care Concordat was established in 2014 and consisted of 27 national bodies involved in health, policing, social care, local government and the third sector. In a commitment to improving outcomes for people experiencing a mental health crisis, the Crisis Care Concordat (HMG, 2014) outlined four main areas:

- Access to support before crisis point – making sure people with mental health problems can get help 24 hours a day and that when they ask for help, they are taken seriously.
- Urgent and emergency access to crisis care – making sure that a mental health crisis is treated with the same urgency as a physical health emergency.
- Quality of treatment and care when in crisis – making sure that people are treated with dignity and respect, in a therapeutic environment.
- Recovery and staying well – preventing future crises by making sure people are referred to appropriate services.

Different organisations had individual and joint actions as part of the Crisis Concordat programme that contribute towards achieve shared goals of the Concordat (Crisis Concordat, 2016). As part of the Crisis Care Concordat programme, between February 2014 and June 2015, the Care Quality Commission (CQC) conducted a thematic review of crisis care services in England to review the quality, safety and effectiveness of care provided to those experiencing a mental health crisis (CQC, 2015). The CQC recommended that when reviewing provision, commissioners:

- Look at the demographics of their local area and the needs of their local population
- Use evidence-based approaches that are aligned with national objectives
- Make full use of commissioning guidance to inform their decision-making process

Closing the Gap

In February 2014, HM Government published *Closing the Gap* as the follow up to *No Health Without Mental Health*, bringing together existing commitments and new actions for the government, the NHS, local authorities and other organisations involved in taking forward the implementation strategy. *Closing the Gap* set out 25 areas of mental health care which the government prioritised for action (DH, 2014c). These commitments were based upon greater access to mental health services, better integration between health and social care, early intervention and improving the quality of life of people with mental health problems.

Parity in progress?

In 2015, the All Party Parliamentary Group (APPG) on Mental Health published the report *Parity in Progress?* (APPG, 2015) which was the group's inquiry into parity of esteem for mental health. The APPG found that while the Government was making steps towards achieving parity of esteem, they called for action in the following three areas:

- Reducing premature mortality for people with mental health problems
- Improving the quality of mental health emergency care
- Increasing public spending on mental health and ensuring that mental health is a public priority

The APPG recommended that CCGs should:

- Commission a wide range of community-based support services for people in crisis.
- Ensure sufficient mental health inpatient beds were commissioned to avoid people being turned away or forced to travel out of their local area to receive support.
- Ensure that systems were in place locally so that primary and secondary care services are clear about their respective responsibilities for monitoring and managing the physical health of people with mental health problems

Future in Mind

A report of Children and Young People's Mental Health and Wellbeing 'Future in Mind' (DH, 2015b) made several proposals the government wished to see by 2020 through greater partnership working between the NHS, local authorities, voluntary and community services, schools and other local services the taskforce. These included:

- Tackling stigma and improving attitudes to mental illness
- Introducing more access and waiting time standards for services
- Establishing a 'one stop shop' support services in the community
- Improving access for children and young people who are particularly vulnerable

By April 2016, the government committed to implementing waiting time standards for mental health services outlined in *Achieving Better Access to Mental Health Services by 2020* (DH/ NHSE, 2014). The first set of waiting times targets were set for:

- People accessing Improving Access to Psychological Therapies (IAPT). Government set targets of treatment within 6 weeks for 75% of people referred to the IAPT programme. 95% were expected to be treated within 18 weeks of referral
- People experiencing a first episode of psychosis. Over 50% of people were expected to receive treatment within two weeks

To support commissioners to introduce these waiting time standards NHS England produced guidance to support the introduction of access and waiting time standards for mental health services in 2015/16 (NHSE, 2015c).

Five Year Forward View

The *Five Year Forward View* (NHSE, 2014a), a five-year vision for the NHS, articulated the changes needed to improve quality of care, funding of services and closing the gap on health outcomes for the general population. It defined actions required of national and local leaders to support delivery, emphasising the importance of integration of care and the roles of system leaders, NHS staff, patients and the public in developing the health system. Improving mental health outcomes is one of the priorities for the NHS, outlining how services will work towards achieving 'parity of esteem' (DH, 2014c) between mental and physical health by 2020. Introducing new models of care, the Five Year Forward View encouraged commissioners to commission services to suit local needs and to focus attention on prevention.

The *Five Year Forward View* described a vision for improving outcomes for mental health with a focus on:

- Better prevention
- Increased early access to effective treatments and crisis care
- Integration of care to reduce premature mortality
- New commissioning models

NHS England established the Five Year Forward View mental health taskforce (NHSE, 2015a) to be responsible for creating and publishing a new, five-year all age national strategy for mental health to 2020.

To inform the strategy and identify the priority areas of focus, the taskforce engaged with over 20,000 stakeholders (NHSE, 2015b) including people with personal experience of mental health problems, families, carers and professionals. Top priorities included:

- Prevention and stigma
- Access and choice
- Quality and experience

Forward View Into Action: Planning for 2015/16

The joint planning guidance, *Forward view into action 2015/16* (NHSE, 2014b) made clear the requirement that commissioners agree robust implementation plans with providers as part of their 2015/16 contract development work.

- For Early Intervention In Psychosis (EIP) and Improving Access to Psychological Therapies (IAPT) commissioners were required to agree Service Development and Improvement Plans (SDIPs) as part of their 2015/16 contract with mental health providers, setting out how providers would prepare for and implement the new standards during 2015/16 and achieve them on an on-going basis from 1 April 2016.
- For liaison psychiatry commissioners were required to agree SDIPs with acute providers, setting out how providers would ensure there were adequate and effective levels of liaison psychiatry services across acute settings. Supplementary planning guidance (NHSE, 2014c) made clear the expectation that all acute trusts should, by 2020, have in place effective models of liaison psychiatry (all ages, appropriate to the size, acuity and specialty of the hospital).
- For IAPT CCGs were also required to submit plans setting out how they would meet the new waiting time standards and these would be monitored throughout the year.

The supplementary planning guidance highlighted the importance of meeting legal duties with regard to equality.

Local Transformation Plans for Children and Young People's Mental Health and Wellbeing

This guidance and support for local areas publication (NHSE, 2015d):

- Sets out the strategic vision for delivering improvements in children and young people's mental health and wellbeing over the next 5 years
- Outlines a phased approach to securing locally driven sustainable service transformation
- Provides guidance to support local areas in developing their Local Transformation Plans through a planning process that can be tailored to meet the individual needs and priorities of different local areas
- Provides information on the assurance process and programme of support

Five Year Forward View For Mental Health

The final report of an independent taskforce entitled 'The five year forward view for mental health (NHSE, 2016c) was published in 2016 and outlined the state of mental health across the NHS. It proposed a three-pronged approach to improve care through expansion of mental health care such as seven day access in a crisis, integrated physical and mental health care, and promotion of good mental health and prevention of poor mental health. For promotion and prevention, it recommended:

- Need for prevention and promotion during childhood and for the implementation of the Future in Mind recommendations (see previous page)
- At least 70,000 more children and young people should have access to high-quality mental health care by 2020/21
- Each year, up to 29,000 more people with mental disorder should be supported to find or stay in work by 2020/21
- Creating mentally healthy communities with local Mental Health Prevention Plans based on high quality evidence
- Specialist housing support for vulnerable people with mental disorder
- Support those in criminal justice system with mental disorder
- End stigma about mental disorder
- Research and implementation strategy
- Data and transparency revolution: Information gathered by the NHS should reflect social as well as clinical outcomes which requires linkage across the NHS, public health, education and other sectors. By 2020/21, CCGs should be required to publish a range of benchmarking data to provide transparency about mental health spending and performance
- Health and Wellbeing Boards should have plans in place to promote good mental health, prevent problems arising and improve mental health services based on detailed local data for risk factors, protective factors and levels of unmet need. These should specifically identify which groups are effected by inequalities related to poor mental health and be co-produced with local communities to generate innovative approaches to care and improving quality

Specific recommendations in the area of commissioning for prevention and quality of care included:

- Implementation of Future in Mind (Recommendation 1): This must include helping 70,000 more children and young people to access high quality mental health care when they need it. The CYP Local Transformation Plans should be refreshed and integrated into the forthcoming Sustainability and Transformation Plans (STPs), which cover all health and care in the local geography, and should include evidence about how local areas are ensuring a joined-up approach that is consistent with the existing statutory framework for children and young people.
- JSNA and prevention plans (Recommendation 2): PHE should develop a national Prevention Concordat programme that will support all Health and Wellbeing Boards and CCGs to put in place updated JSNAs and joint prevention plans that include mental health and co-morbid alcohol and drug misuse, parenting programmes, and housing, by no later than 2017.
- Suicide prevention plans (Recommendation 3): The Department of Health, PHE and NHS England should support all local areas to have multi-agency suicide prevention plans in place by 2017, reviewed annually thereafter and supported by new investment.
- Alcoholism and drug addiction (Recommendation 4): The Cabinet Office should ensure that the new Life Chances Fund of up to £30 million for outcome-based interventions to tackle alcoholism and drug addiction through proven approaches requires local areas to demonstrate how they will integrate assessment, care and support for people with co-morbid substance misuse and mental disorder. It should also be clear about the funding contribution required from local commissioners to pay for the outcomes that are being sought.
- Employment for people with mental disorder (Recommendation 5): By 2020/21, NHS England and the Joint Unit for Work and Health should ensure that up to

29,000 more people per year living with mental disorder should be supported to find or stay in work through increasing access to psychological therapies for common mental disorder and doubling the reach of Individual Placement and Support (IPS). The Department of Work and Pensions should also invest to ensure that qualified employment advisers are fully integrated into expanded psychological therapies services.

- Joint commissioning to improve mental health and employment outcomes: The Department of Health and the Department for Work and Pensions, working with NHS England and PHE, should identify how the £40 million innovation fund announced at the Spending Review and other investment streams should be used to support devolved areas to jointly commission more services that have been proven to improve mental health and employment outcomes, and test how the principles of these services could be applied to other population groups and new funding mechanisms (e.g. social finance). The Department for Work and Pensions should also ensure that when it tenders the Health and Work Programme it directs funds currently used to support people on Employment Support Allowance to commission evidence-based health-led interventions that are proven to deliver improved employment outcomes – as well as improved health outcomes – at a greater rate than under current Work Programme contracts (Recommendation 7).
- Co-production pilots (Recommendation 8): NHS England should work with NHS Improvement to run pilots to develop evidence based approaches to co-production in commissioning by April 2018.
- Population commissioning across the life course (Recommendation 9): NHS England should ensure that by April 2017 population-based budgets are in place which give CCGs or other local partners the opportunity to collaboratively commission the majority of specialised services across the life course. In 2016/17, NHS England should also trial new models through a vanguard programme that allow secondary providers of these services to manage care budgets for tertiary

(specialised) mental health services to improve outcomes and reduce out of area placements.

- Supported housing (Recommendation 11): The Department of Health, Department of Communities and Local Government, NHS England, HM Treasury and other agencies should work with local authorities to build the evidence base for specialist housing support for vulnerable people with mental health problems and explore the case for using NHS land to make more supported housing available for this group. The Department of Work and Pensions should, based on the outcome of the “Supported Housing” review in relation to the proposed Housing Benefit cap to Local Housing Allowance levels, use the evidence to ensure the right levels of protection are in place for people with mental health problems who require specialist supported housing (Recommendation 12).
- Time to Change (Recommendation 12): The Department of Health should work with PHE to continue to support proven behaviour change interventions, such as Time to Change, and to establish Mental Health Champions in each community to contribute towards improving attitudes to mental health by at least a further 5 per cent by 2020/21.

Recommendations for a seven day mental health service included:

- Care pathways (Recommendation 13): By 2020/21, NHS England should complete work with arms-length bodies (ALB) partners to develop and publish a clear and comprehensive set of care pathways, with accompanying quality standards and guidance. These standards should incorporate the relevant physical health care interventions and the principles of co-produced care planning.
- Psychological therapies for common mental disorder (Recommendation 14): NHS England should invest to increase access to integrated evidence-based psychological therapies for an additional 600,000 adults with anxiety and depression each year by 2020/21 (resulting in at least 350,000 completing treatment), with a focus on people living

with long-term physical health conditions and supporting 20,000 people into employment. There must also be investment to increase access to psychological therapies for people with psychosis, bipolar disorder and personality disorder

- Perinatal mental health services (Recommendation 15): By 2020/21, NHS England should support at least 30,000 more women each year to access evidence-based specialist mental health care during the perinatal period. This should include access to psychological therapies and the right range of specialist community or inpatient care so that comprehensive, high quality services are in place across England.
- Early Intervention Psychosis services (Recommendation 16): The NHS should ensure that from April 2016 50% of people experiencing a first episode of psychosis have access to a NICE– approved care package within two weeks of referral, rising to at least 60% by 2020/21.
- Crisis services (Recommendation 17): By 2020/21, NHS England should ensure that a 24/7 community-based mental health crisis response is available in all areas across England and that services are adequately resourced to offer intensive home treatment as an alternative to an acute inpatient admission. For adults, NHS England should invest to expand Crisis Resolution and Home Treatment Teams (CRHTTs); for children and young people, an equivalent model of care should be developed within this expansion programme.
- Liaison services (Recommendation 18): By 2020/21, NHS England should invest to ensure that no acute hospital is without all-age mental health liaison services in emergency departments and inpatient wards, and at least 50% of acute hospitals are meeting the ‘core 24’ service standard as a minimum. NHS England should also ensure that people being supported in specialist older-age acute physical health services have access to liaison mental health teams – including expertise in the psychiatry of older adults – as part of their package of care, incentivised through the introduction of a new national

Commissioning for Quality and Innovation (CQUIN) framework or alternative incentive payments, and embedded through the Vanguard programmes (Recommendation 21)

- Reducing premature mortality in people with severe mental illness (Recommendation 19): NHS England should undertake work to define a quantified national reduction in premature mortality among people with severe mental illness, and an operational plan to begin achieving it from 2017/18. NHS England should also lead work to ensure that by 2020/21, 280,000 more people living with severe mental illness have their physical health needs met by increasing early detection and expanding access to evidence-based physical care assessment and intervention.
- Screening and prevention programmes (Recommendation 20): PHE should prioritise ensuring that people with mental health problems who are at greater risk of poor physical health get access to prevention and screening programmes. This includes primary and secondary prevention through screening and NHS Health Checks, as well as interventions for physical activity, obesity, diabetes, heart disease, cancer and access to ‘stop smoking’ services. As part of this, NHS England and PHE should support all mental health inpatient units and facilities (for adults, children and young people) to be smoke-free by 2018.
- Least restrictive care (Recommendation 22): In 2016, NHS England and relevant partners should set out how they will ensure that standards are introduced for acute mental health care, with the expectation that care is provided in the least restrictive way and as close to home as possible. These plans should include specific actions to substantially reduce Mental Health Act detentions and ensure that the practice of sending people out of area for acute inpatient care as a result of local acute bed pressures is eliminated entirely by no later than 2020/21. Plans should also include specific action to substantially reduce Mental Health Act detentions and targeted work should be undertaken to reduce the current significant overrepresentation of BAME and any other disadvantaged groups within detention rates. Plans for

introduction of standards should form part of a full response to the Independent Commission on Acute Adult Psychiatric Care, established and supported by the Royal College of Psychiatrists, by no later than end 2016/17.

- Programme to prevent admissions and support recovery (Recommendation 23): NHS England should lead a comprehensive programme of work to increase access to high quality care that prevents avoidable admissions and supports recovery for people of all ages who have severe mental health problems and significant risk or safety issues in the least restrictive setting, as close to home as possible. This should seek to address existing fragmented pathways in secure care, increase provision of community based services such as residential rehabilitation, supported housing and forensic or assertive outreach teams and trial new co-commissioning, funding and service models.
- Integrated health and justice mental health pathway (Recommendation 24): The Ministry of Justice, Home Office, Department of Health, NHS England and PHE should work together to develop a complete health and justice pathway to deliver integrated health and justice interventions in the least restrictive setting, appropriate to the crime which has been committed.

Recommendations to use innovation and research to drive change included:

- Payment for routine integrated care adequately reflects the mental health needs of people with long-term physical health conditions (Recommendation 25): Multi-speciality community providers (MCP), primary and acute care systems (PACS), urgent and emergency care (UEC) vanguards and the Integrated Personalised Commissioning programme should be supported to ensure that the inclusion of payment for routine integrated care adequately reflects the mental health needs of people with long-term physical health conditions. Vanguard sites should also provide greater access to personal budgets for people of all ages, including children and young people who have

multiple and complex needs, to provide more choice and control over how and when they access different services.

- Development and implementation of research (Recommendation 26): The Department of Health, working with all relevant parts of government, the NHS ALBs, research charities, independent experts, industry and experts-by-experience, should publish a report one year from now setting out a 10-year strategy for mental health research. This should include a coordinated plan for strengthening and developing the research pipeline on identified priorities, and promoting implementation of research evidence.
- Parity of funding for mental health research (Recommendation 27): The Higher Education Funding Council for England (HEFCE) should review funding requirements and criteria for decision-making to support parity through the Research Excellence Framework and take action to ensure that clinical academics in mental health (including in psychiatry and neuroscience) are not disadvantaged relative to other areas of health research, starting in 2016/17.
- Funding for digital infrastructure (Recommendation 28): The Department of Health, through the National Information Board, should ensure there is sufficient investment in the necessary digital infrastructure to realise the priorities identified in this strategy. Each ALB should optimise the use of digital channels to communicate key messages and make services more readily available online, where appropriate, drawing on user insight. Building on trial findings, NHS England should expand work on NHS Choices to raise awareness and direct people to effective digital mental health products by integrating them into the website and promoting them through social marketing channels from 2016 onwards.
- Drive and scale improvements in integration (Recommendation 29): The Department of Health and relevant partners should ensure that future updates to the Better Care Fund include mental health and social work services.

- Navigators (Recommendation 30): NHS England and NHS Improvement should encourage providers to ensure that 'navigators' are available to people who need specialist care from diagnosis onwards to guide them through options for their care and ensure they receive appropriate support. They should work with HEE to develop and evaluate this model.
- New models of care for 16-25 year olds (Recommendation 31): NHS England should work with CCGs, local authorities and other partners to develop and trial a new model of acute inpatient care for young adults aged 16–25 in 2016, working with vanguard sites.

Workforce recommendations include:

- Workforce to deliver mental health strategy (Recommendation 32): HEE should work with NHS England, PHE, the Local Government Association and local authorities, professional bodies, charities, experts-by-experience and others to develop a costed, multi-disciplinary workforce strategy for the future shape and skill mix of the workforce required to deliver both this strategy and the workforce recommendations set out in Future in Mind. This must report by no later than 2016.
- Workforce mental health (Recommendation 33): NHS England should ensure current health and wellbeing support to NHS organisations extends to include good practice in the management of mental health in the workplace, and provision of occupational mental health expertise and effective workplace interventions from 2016 onwards.
- Financial incentives for mental health staff (Recommendation 34): NHS England should introduce a CQUIN or alternative incentive payment relating to NHS staff health and wellbeing under the NHS Standard Contract by 2017
- Assessing measures of staff awareness and confidence (Recommendation 35): NHS England should develop and introduce measures of staff awareness and confidence in dealing with mental health into annual NHS staff surveys across all settings.
- Mental health training for primary care (Recommendation 36): The Department of Health and NHS England should work with the Royal College of GPs and HEE to ensure

that by 2020 all GPs, including the 5,000 joining the workforce by 2020/21, receive core mental health training, and to develop a new role of GPs with an extended Scope of Practice (GPwER) in Mental Health, with at least 700 in practice within 5 years.

- Social workers (Recommendation 37): The Department of Health should continue to support the expansion of programmes that train people to qualify as social workers and contribute to ensuring the workforce is ready to provide high quality social work services in mental health. This should include expanding 'Think Ahead' to provide at least an additional 300 places.
- Prescribing standards (Recommendation 38): By April 2017, HEE should work with the Academy of Medical Royal Colleges to develop standards for all prescribing health professionals that include discussion of the risks and benefits of medication, and take into account people's personal preferences, including preventative physical health support and the provision of accessible information to support informed decision-making.

Recommendations for transparency and data included:

- Improved availability of data (Recommendation 39): The Department of Health, NHS England, PHE and the HSCIC should develop a 5-year plan to address the need for substantially improved data on prevalence and incidence, access, quality, outcomes, prevention and expenditure across mental health services. They should also publish a summary progress report by the end of 2016 setting out how the specific actions on data, information sharing and digital capability identified in this report and the National Information Board's Strategy are being implemented.
- Mental health outcomes data for children and young people (Recommendation 40): The Department of Health should develop national metrics to support improvements in children and young people's mental health outcomes, drawing on data sources from across the whole system, including NHS, public health, local authority children's services and education, to

report with proposals by 2017.

- Data transparency (Recommendation 41): The Department of Health, HSCIC and MyNHS, working with NHS England, should improve transparency in data to promote choice, efficiency, access and quality in mental health care, ensuring that all NHS-commissioned mental health data are transparent (including where data quality is poor) to drive improvements in services. The CCG Performance and Assessment Framework should include a robust basket of indicators to provide a clear picture of the quality of commissioning for mental health. To complement this, NHS England should lead work on producing a Mental Health Five Year Forward View Dashboard by the summer of 2016 that identifies metrics for monitoring key performance and outcomes data that will allow us to hold national and local bodies to account for implementing this strategy. The Dashboard should include employment and settled housing outcomes for people with mental health problems.
- Identify unnecessary data collection (Recommendation 42): NHS England and the HSCIC should work to identify unnecessary data collection requirements, and then engage with NHS Improvement to prioritise persistent non-compliance in data collection and submission to the MHSDS, and take regulatory action where necessary.
- Support for Mental Health Intelligence Network (Recommendation 43): During 2016 NHS England and PHE should set a clear plan to develop and support the Mental Health Intelligence Network over the next five years, so that it supports data linkage across public agencies, effective commissioning and the implementation of new clinical pathways and standards as they come online.
- Data sharing (Recommendation 44): By 2020/21, NHS England and NHS Improvement should work with the HSCIC and with Government to ensure rapid using and sharing of data with other agencies. The Department of Health should hold the HSCIC to account for its performance, and consult to set minimum service expectations for turning around new datasets or changes to existing

datasets by no later than summer 2016.

- Summary Care Records (Recommendation 45): The Department of Health and HSCIC should advocate the adoption of data-rich Summary Care Records that include vital mental health information, where individuals consent for information to be shared, by 2016/17.
- Regular prevalence surveys (Recommendation 46): The Department of Health should commission regular prevalence surveys for children, young people and adults of all ages that are updated not less than every seven years.

Recommendations for incentives, levers and payment included:

- Revised payment system (Recommendation 47): NHS England and NHS Improvement should together lead on costing, developing and introducing a revised payment system by 2017/18 to drive the whole system to improve outcomes that are of value to people with mental health problems and encourage local health economies to take action in line with the aims of this strategy. This approach should be put in place for children and young people's services as soon as possible.
- Make funding inequalities and level of unmet need transparent (Recommendation 48): NHS England should disaggregate the inequalities adjustment from the baseline funding allocation for CCGs and primary care, making the value of this adjustment more visible and requiring areas to publicly report on how they are addressing unmet mental health need and inequalities in access and outcomes.
- Revise resource allocation for mental health (Recommendation 49): Advisory Committee for Resource Allocation (ACRA) should review NHS funding allocation formulas, including the inequalities adjustment, to ensure it supports parity between physical and mental health in 2016/17. They should also be reviewed to ensure they correctly estimate the prevalence and incidence of conditions across the mental health spectrum. Membership of ACRA should be revisited with the specific goal of ensuring that mental health expertise is adequately represented across the disciplines involved, e.g. clinical, academic, policy and providers.

- Transparent data on mental health expenditure (Recommendation 50): The Department of Health and NHS England should require CCGs to publish data on levels of mental health spend in their Annual Report and Accounts, by condition and per capita, including for children and Adolescent Mental Health Services, from 2017/8 onwards. They should require CCGs to report on investment in mental health to demonstrate the commitment that commissioners must continue to increase investment in mental health services each year at a level which at least matches their overall allocation increase.

Recommendations for fair regulation and inspection included:

- Mental Health Act revision (Recommendation 51): The Department of Health should work with a wide range of stakeholders to review whether the Mental Health Act (and relevant Code of Practice) in its current form should be revised in parts, to ensure stronger protection of people's autonomy, and greater scrutiny and protection where the views of a individuals with mental capacity to make healthcare decisions may be overridden to enforce treatment against their will. Recommendation 52: The Department of Health should carry out a review of existing regulations of the Health and Social Care Act to identify disparities and gaps between provisions relating to physical and mental health services. This should include considering how to ensure that existing regulations extend rights equally to people experiencing mental health problems (e.g. to types of intervention that are mandated, to access to care within maximum waiting times).
- CQC approach to regulation and inspection (Recommendation 53): Within its strategy for 2016–2020, the CQC should set out how it will strengthen its approach to regulating and inspecting NHS-funded services to include mental health as part of its planned approach to assessing the quality of care along pathways and in population groups.
- Regulation of psychological therapy

services (Recommendation 54): The Department of Health should consider how to introduce regulation of psychological therapy services not currently inspected unless provided within secondary mental health services.

- Assessment of how systems address child mental health (Recommendation 55): The CQC should work with Ofsted, Her Majesty's Inspectorate of Constabulary and Her Majesty's Inspectorate of Probation to undertake a Joint Targeted Area Inspection to assess how the health, education and social care systems are working together to improve children and young people's mental health outcomes.
- Investigation of deaths in mental health Care (Recommendation 56): The Department of Health should ensure that the scope of the Healthcare Safety Investigation Branch includes deaths from all causes in inpatient mental health settings and that there is independent scrutiny of the quality of investigation, analysis of local and national trends, and evidence that learning is resulting in service improvement.
- Learning from suicide (Recommendation 57): NHS Improvement and NHS England, supported by PHE should identify what steps services should take to ensure that all deaths by suicide across NHS mental health settings are learned from, to prevent repeat events. This should build on insights through learning from never events, serious incident investigations and human factors approaches. The CQC should then embed this information into its inspection regime.

The final Recommendation (58) was that by no later than Summer 2016, NHS England, the Department of Health and the Cabinet Office should confirm what governance arrangements will be put in place to support the delivery of this strategy. This should include arrangements for reporting publicly on how progress is being made against recommendations for the rest of government and wider system partners, and the appointment of a new equalities champion for mental health to drive change.

Implementing the five year forward view for mental health

This was published in July 2016 (NHSE, 2016b). It stated that as local areas develop and implement their own plans to deliver the Five Year Forward View for Mental Health, it will be important that common principles are followed. These should include:

- Co-production with people with lived experience of services, their families and carers
- Working in partnership with local public, private and voluntary sector organisations, recognising the contributions of each to improving mental health and wellbeing
- Identifying needs and intervening at the earliest appropriate opportunity to reduce the likelihood of escalation and distress and support recovery
- Designing and delivering person-centred care, underpinned by evidence, which supports people to lead fuller, happier lives
- Underpinning the commitments through outcome-focused, intelligent and data-driven commissioning

Child and young people's mental health

- Access to treatment: The proportion of children and young people with mental disorder who receive treatment will increase from 25% to at least 35% by 2020/21 (representing at least 70,000 additional children and young people each year receiving treatment)
- In delivering this expansion within community-based services, CCGs should commission improved access to 24/7 crisis resolution and liaison mental health services which are appropriate for children and young people. During 2016/17, NHS England will invest in local areas to accelerate work to develop the evidence base and achieve consensus on effective, high-value models of care that can be shared to stimulate further expansion over the coming years.
- By 2020/21, evidence-based community eating disorder services for children and young people will be in place in all areas, ensuring that 95% of children in need receive treatment within one week for urgent cases, and four weeks for routine cases.
- By 2020/21, in-patient stays for children

and young people will only take place where clinically appropriate, will have the minimum possible length of stay, and will be as close to home as possible to avoid inappropriate out of area placements. Inappropriate use of beds in paediatric and adult wards will be eliminated. All general in-patient units for children and young people will move to be commissioned on a 'place-basis' by localities, so that they are integrated into local pathways.

- By 2020/21, at least 1,700 more therapists and supervisors will need to be employed to meet the additional demand
- All localities should ensure a highly skilled workforce by working with the existing Children and Young People's Improving Access to Psychological Therapies (CYP IAPT) programme to deliver post-graduate training in specific therapies, leading organisation change, supervision in existing therapeutic interventions and whole-team development. By 2018, all services should be working within the CYP IAPT programme, leading to at least 3,400 staff being trained by 2020/21 in addition to the additional therapists above.
- For 2016/17 a bespoke data collection has been established to allow CCGs to provide a self-assessment against progress

Perinatal mental health

- Increased access to treatment: Currently, 85% of localities have not service or a service which does not meet NICE guidelines. There will be increased access to specialist perinatal mental health support in all areas in England, in the community or in-patient mother and baby units, allowing at least an additional 30,000 women each year to receive evidence-based treatment by 2020/21 (additional 2,000 by 2017/18 and 8,000 by 2018/19)
- By 2020/21, all teams should be sufficiently staffed to meet the recommended levels.
- £365 million will support achievement

of this objective by 2020/21.

- Data will be published and a bespoke collection completed to support transparency
- Common mental disorder
- Access to treatment: Proportion of people with common mental disorder who access psychological therapies will be increased from 15.8% in 2016/17 to 25% (representing 1.5 million) by 2020/21.
 - Two-thirds of the additional people receiving services will have co-morbid physical and mental health conditions or persistent medically unexplained symptoms.
 - The majority of new services will be integrated with physical healthcare. As part of this expansion, 3,000 new mental health therapists will be co-located in primary care, as set out in the General Practice Forward View.
 - Investment will be £20m in 2016/17 and £88m in 2017/18 in integrated services with additional £157m in 2018/19, £233 in 2019/20 and £308m in 2020/21
 - Expected net savings would increase from £26m in 2017/18 to £364 in 2020/21 (Chiles et al, 1999; CMH, 2015)
 - The already well-developed data collection system will be expanded

Adult mental health community, acute and crisis care:

- Crisis care: All areas will provide crisis resolution and home treatment teams (CRHTTs) delivering a 24/7 community-based crisis response and intensive home treatment as an alternative to acute in-patient admissions by 2020/21. Additional CCG funding will increase from £43m in 2017/18 to £146m in 2020/21. Funding for crisis care will be supplemented by £15 million of additional capital investment over 2016/17 and 2017/18 to improve health-based places of safety. Associated expected net savings would increase from £64m in 2018/19 to £168m in 2020/21 (Parsonage et al,

2016)

- Out of area placements will be eliminated for acute mental health care for adults. In 2016/17, all localities should put in place plans to ensure robust monitoring of OATs for all bed types, with the aim of delivering a demonstrable reduction in acute OATs by March 2017
- Early Intervention Psychosis (EIP) Services: Proportion with first episode psychosis starting treatment with a NICE-recommended package of care with a specialist early EIP service within two weeks of referral will increase from 50% in 2016/17 to 60% in 2020/21. Additional CCG funding will increase from £11m in 2017/18 to £70m in 2020/21. Associated expected net savings would increase from £4m in 2017/18 to £20m in 2020/21 (Knapp et al, 2014)
- Liaison services: Proportion of acute hospitals with all-age mental health liaison teams in place which meet the 'Core 24' service standard as a minimum will increase from 7% in 2016/17 to 50% by 2020/21. Additional CCG funding will increase from £15m in 2017/18 to £120m in 2020/21. Associated expected net savings would increase from £15m in 2018/19 to £84m in 2020/21 (Fossey & Parsonage, 2011)
- Physical health care: Proportion of people with SMI on the GP register who receive NICE-recommended screening and access to physical care interventions will increase to 30% in 2017/18 and 60% in 2018/19. Number of people with severe mental illness (SMI) receiving a full annual physical health check will increase from 140,000 in 2017/18 to 280,000 in 2020/21. Additional CCG funding will increase from £41m in 2017/18 to £83m in 2020/21. Associated expected net savings would increase from £27m in 2017/18 to £108m in 2020/21 (Dorning et al, 2015)
- Individual Placement Support (IPS) to enable people with severe mental illness to find and retain employment: In 2016/17, a baseline audit of IPS provision will be followed by selection of STP areas for targeted funding. Access to IPS will be doubled between 2017/18 and 2020/21. This will be funded from central

programme funding for community mental health services

- Increased access to psychological therapies for people with psychosis, bipolar disorder and personality disorder. This will be funded from central programme funding for community mental health services
- By 2020/21, all NHS-commissioned mental health providers will have armed forces champions and a specific named clinician with an expertise in military trauma.

Adult mental health secure pathway

- By 2020/21, NHS England should lead a comprehensive programme of work to increase access to high quality care that prevents avoidable admissions and supports recovery for people who have severe mental health problems and significant risk or safety issues in the least restrictive setting as close to home as possible. This should seek to address existing fragmented pathways in secure care, increase provision of community-based services and trial new co-commissioning funding and service models.
- The first comprehensive individual-level and provider-level data collection and analysis of current use of secure care services will report in summer 2016.
- Additional funding to support transformation of secure services totals £94 million over the period from 2017/18 to 2020/21.
- Data and metrics on spend, access, quality and recovery outcomes will be developed through the trial and evaluation of community-based services, with substantive input from experts by experience, carers and clinicians.

Health and justice

- By 2020/21, there will be evidenced improvement in mental health care pathways across the secure and detained settings.
- Access to liaison and diversion services will be increased from the current 50% to reach 100% of the population by

2020/21, whilst continuing to ensure close alignment with police custody healthcare services.

- Improved coverage will be funded by an additional £92m from 2016 to 2021

Suicide prevention

- By 2020/21, the Five Year Forward View for Mental Health set the ambition that the number of people taking their own lives will be reduced by 10% nationally compared to 2016/17 levels.
- To support this, by 2017 all CCGs will fully contribute to the development and delivery of local multi-agency suicide prevention plans, together with their local partners (PHE, 2015b; PHE, 2016b)
- Each plan should demonstrate how areas will implement evidence-based preventative interventions that target high-risk locations and support high-risk groups (including young people who self-harm) within their population, drawing on localised real time data (PHE, 2016b)
- Between 2018 and 2021, £25 million will support suicide prevention

Sustaining transformation: Testing new approaches

- From 2016/17, NHS England would lead a new programme which aims to put local clinicians and managers in charge of both managing tertiary budgets and providing high-quality secondary care treatment.
- A total of £1.8 million has been provided in 2016/17 to pump-prime the establishment of new approaches in six areas

Sustaining transformation: A healthy NHS workforce

- In 2016, NHS England introduced a £450 million financial incentive focused on improving staff health and wellbeing. To gain access to the money, NHS trusts were asked to improve the health and wellbeing schemes on offer to staff, take action on unhealthy food sold on NHS premises and improve the uptake of the flu vaccination amongst staff

- Mental health support for staff working in the NHS is a key part of this scheme, with £150 million in incentives available for the successful introduction of health and wellbeing schemes, including in relation to mental health. To access this money, providers will be required to take three specific actions on mental health over the course of the next year:

- Develop plans to improve the mental health support for all staff
- Implement an improved set of mental health initiatives for staff to access in the workplace
- Ensure that locally agreed uptake rates and access metrics are met.
- In addition to this, NHS England pledged £5 million in September 2015 to support the development of health initiatives for NHS staff. NHS England is currently supporting 12 pilot organisations in improving staff health and wellbeing, with particular emphasis on mental health, through the NHS Healthy Workforce Programme. The mental health initiatives include stress management, psychological therapies, mindfulness and NHS health checks

NHSE introduced a national Mental Health Dashboard that brought together the most relevant measures and mapped them against the aims of the Five Year Forward View for Mental Health to provide a concise view of progress (NHSE, 2017a).

CQUIN

Commissioning for Quality and Innovation (CQUIN) aims to deliver clinical quality improvements and drive transformational change. During 2017/19, indicators include

1. Improving staff health and wellbeing
3. Improving physical healthcare to reduce premature mortality in people with serious mental illness (SMI)
4. Improving access for people with mental health needs who present to A&E
5. Transitions out of Children and Young People's Mental Health Services
8. Supporting proactive and safe discharge
9. Preventing ill health by risky behaviours – alcohol and tobacco

Mental Health Code of Practice

The revised version of the Mental Health Code of Practice (DH, 2015c) came into force on 1st April 2015 and sought to provide stronger protection for patients and clarify roles, rights and responsibilities. This included involving the patient and as appropriate, their families and carers in discussions about the patient's care at every stage; providing personalised care; minimising the use of inappropriate blanket restrictions, restrictive interventions and the use of police cells as places of safety.

Since the last publication of the code in 2008, further changes included:

- Five new overarching principles;
 - Least restrictive option and maximising independence
 - Empowerment and involvement
 - Respect and dignity
 - Purpose and effectiveness
 - Efficiency and equity
- New chapters on care planning, human rights, equality and health inequalities
- Consideration of when to use the Mental Health Act and when to use the Mental Capacity Act 2005 and Deprivation of Liberty Safeguards and information to support victims
- New sections on physical health care, blanket restrictions, duties to support patients with dementia and immigration detainees
- Significantly updated chapters on the appropriate use of restrictive interventions, particularly seclusion and long-term segregation, police powers and places of safety
- Further guidance on how to support children and young people, those with a learning disability or autism

Prevention Concordat for Better Mental Health

This was published in August 2017 to promote evidence based planning and commissioning to increase the impact on reducing health inequalities (PHE, 2017d; PHE, 2017e). It agreed:

- The need to focus on prevention and wider determinants of mental health
- The need for joint cross-sector action to prevent mental disorder and promote mental health
- To secure improvements tailored to local needs and assets, and effective use of limited resources
- Build capacity and capability across the workforce to prevent mental disorder and promote mental health

Other public mental health relevant national guidance

Annual report of the Chief Medical Officer Our children deserve better: prevention pays (DH, 2013)

This highlights the prevalence covers epidemiology of public mental health.

Wellbeing and health policy (DH, 2014b)

These documents highlight some of the important issues and relationships between wellbeing and health across the life course. Key findings are that wellbeing:

- adds years to life and improves recovery from illness
- is associated with positive health behaviours in adults and children
- is associated with broader positive impacts
- influences the wellbeing and mental health of those close to us
- affects how staff and health care providers work with implications for decisions for patient care practices and services, and treatment decisions
- affects decisions about local services
- may reduce the healthcare burden

Annual report of the Chief Medical Officer Public mental health: Investing in the evidence (DH, 2014a)

This covers epidemiology of public mental health, quality of evidence, possible future innovations in science and technology, and the economic case for mental health. It outlines the importance of both treating mental health as equal to physical health and of focusing on the needs and safety of people with mental illness. Highlights include:

- Mental health is as important as physical health, mental health services need to be valued, and the scale of disease burden caused by mental illness needs to be acknowledged
- Most people with mental disorder in the UK receive no treatment
- More needs to be done to help people with mental illness stay in work, as since 2009, the number of working days lost to 'stress, depression and anxiety' has increased by 24% and the number lost to serious mental illness has doubled
- 14 recommendations to improve public

mental health services.

Mental Health Treatment for Offenders – Supporting Integrated Delivery Guidance (NOMS, 2014)

Non-statutory guidance provides support to service commissioning and provider agencies so that appropriate mental health service provision and inter-agency partnerships enable Mental Health Treatment Requirements (MHTR) delivery locally. It reflects the changes to responsibility for probation services in England and Wales from 2014 resulting from the Government's Transforming Rehabilitation reforms and the Offender Rehabilitation Act 2014.

Maximising the school nursing team (DH & PHE, 2014a)

Maximising the school nursing team contribution to the public health of school-aged children: Guidance to support the commissioning of public health provision for school aged children 5-19.

Health visiting and school nurse programme (DH & PHE, 2014b)

Health visiting and school nurse programme: supporting implementation of the new service offer: Promoting emotional wellbeing and positive mental health of children and young people

Promoting the health and wellbeing of looked after children (DfE & DH, 2015)

Statutory guidance on the planning, commissioning and delivery of health services for looked-after children supports commissioners to commission services that ensure looked-after children have access to required physical or mental health care.

Helping people with mental health problems find work (DH and DWP, 2015)

Report on the pilot of a scheme to help people with mental health problems, who are claiming Employment Support Allowance, find paid work. The scheme provided employment support based on the Individual Placement and Support (IPS) model

alongside the Improving Access to Psychological Therapies (IAPT) programme.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/415177/IPS_in_IAPT_Report.pdf

NHS public health functions agreement 2017 to 2018 (DH and NHSE, 2017)

This document set out for commissioners and health providers NHS England's commissioning interventions for certain Public Health services. The 'NHS public health functions agreement' sets out the arrangements under which the Secretary of State delegates responsibility to NHS England for certain public health services (known as Section 7A services). It aims to improve public health outcomes and reduce health inequalities contribute to a more sustainable public health, health and care system. However, mental health was absent.

Commissioning of public health services for children (PHE, 2016d) highlighting Health Visitors

From October 2015, the responsibility for commissioning children's public health services, including health visitors, transferred from NHS England to local authorities. The Department of Health, alongside its partners, identified six areas where health visitors have the most impact on children aged 0 to 5's health and wellbeing. Local authorities should use this information to ensure that health visiting services are commissioned effectively.

Keeping children safe (DfE, 2016)

Keeping children safe in education: Statutory guidance for schools and colleges.

Counselling in schools (DfE, 2016)

Counselling in schools: a blueprint for the future: departmental advice for school staff and counsellors.

Alcohol guidelines (DH, 2016)

New guidelines about alcohol consumption were based on an expert review which highlighted a stronger association with certain types of cancer and other health harms than previously identified (DH, 2016). Guidelines recommended no more than 14 UK units of

alcohol per week and to avoid alcohol binges. The revised advice in pregnancy is that the safest approach is to abstain.

Faculty of Public Health and Mental Health Foundation (2016): A public health approach to health improvement

This report outlines actions to improve mental health of individuals, families and communities through a public health approach.

Guidance for health professionals on domestic violence (DH, 2017a)

This guidance helps health professionals to recognise factors that may indicate domestic violence and abuse and describes steps to ensure appropriate support and referral where necessary.

Drugs strategy (HO, 2017)

The drugs strategy aims to reduce drug use and increase recovery from dependence.

Tobacco strategy (DH, 2017b)

The 2017 tobacco control plan for England aims to prevent people starting to smoke (through training for health professionals), reduce smoking during pregnancy, improve smoking cessation including for people with mental disorder and support evidence based innovation to support smoking cessation. For people with mental disorder the strategy advised that 'commissioners and providers of the local health and social care system assess the need of stop smoking support for people with mental health conditions and deliver targeted and effective interventions'.

Stocktake of local prevention of mental disorder (DH & Kings Fund, 2017)

Analysis of local planning arrangements for prevention of mental health problems in 35 local authority areas in England found highly variable prevention planning arrangements and recommended (PHE & Kings Fund, 2017):

- National support for processes to develop and implement plans
- Aligning key local stakeholders to approaches being taken
- Focus on outcome measurement

- Guidance on practical issues regarding translation of high level strategy into deliverable commitments

Role of the Care Quality Commission

The Care Quality Commission (CQC) is the independent regulator of health and social care in England. The CQC's role is to monitor, inspect and regulate services to make sure they meet fundamental standards of quality and safety.

Whilst it is not the role of CQC to monitor commissioners, the CQC has the power to review commissioning arrangements under Section 48 of the Health and Social Care Act 2008. In order to conduct any such review, the regulator must obtain approval from the Secretary of State. CQC regulates all NHS and Independent health and social care providers which include:

- Adult social care services
- Hospitals and community services
- Mental health services
- GPs and GP out-of-hours services and;
- Dentists

Before a care provider can carry out any of the regulated activities, they must first register and meet a set of fundamental standards set by CQC. The fundamental standards form part of changes to the law recommended by Sir Robert Francis following his inquiry into care at Mid Staffordshire NHS Foundation Trust (TSO, 2013). Once a service is registered, it is then monitored, using information provided during registration, data provided by other organisations (including data from the patient survey and NHS Choices), information provided by people who use the service, their families and carers and information provided by local groups such as the local Healthwatch.

All registers services undergo inspections. Inspections are carried out by a mixture of inspectors, healthcare professionals and Experts by Experience. The aim of the inspections is to assess whether the overall service is: safe, effective, caring, responsive to people's needs and well-led. Each individual service is rated under these five areas.

Following the inspection, each provider will receive an overall rating of either: Outstanding, Good, Requires Improvement or Inadequate. All inspection reports are published on CQC's website.

In May 2017, 68% of NHS core services were rated as good and 6% as outstanding (CQC, 2017). Among independent services, 72% were rated as good and 3% as outstanding.

If a service receives a rating of 'inadequate' the provider is required to make changes set by the Care Quality Commission. The service is required to make these changes within six months where the CQC will return to re-inspect the service. If the service receives a further rating of inadequate, the CQC is can make recommendations to de-register and close the service.

Sustainability and Transformation Partnerships (STPs)

STPs are key mechanisms for delivering the five year forward view. Plans cover NHS spending across 44 areas England. The scope of plans is broad and includes:

- Improving quality and developing new models of care
- Improving health and wellbeing
- Improving efficiency of services
- Identification of key priorities
- Deliver financial balance to the NHS
- Improving integration with social care and other local authority services

This report highlights that public mental health is key to these approaches. However, the level of priority to mental health has not always been sufficiently high in vanguard sites (Naylor et al, 2017).

Key International Public Mental Health publications

WHO's mental health action plan (WHO, 2013) highlighted the need to:

- Promote mental wellbeing and prevent mental disorder as well as treatment and prevention of associated outcomes
- Provide comprehensive, integrated and responsive mental health and social care services in community-based settings
- Implement effectively
- Strengthen information systems

Cross cutting principles included universal health coverage, human rights, evidence based practice, a life course approach, a multi-sector approach, and empowerment of people with mental disorder.

The United Nations Sustainable Development Goals (UN, 2016):

- Made mental health a core part and
- Committed to treatment and prevention of non-communicable disease including mental disorder as well as promotion of mental wellbeing

Appendix

Public Health Outcomes Framework

The Public Health Outcomes Framework covers four domains (box 4).

BOX 4: PUBLIC HEALTH OUTCOMES FRAMEWORK

<https://fingertips.phe.org.uk/profile/public-health-outcomes-framework/data#gid/1000041>

Improving the wider determinants of health – indicators include:

- 1.01 Children in low income families
- 1.02 School readiness
- 1.03 Pupil absence
- 1.04 First-time entrants to the youth justicesystem
- 1.05 16 to 18-year-olds not in education, employment or training
- 1.06 Adults with learning disability in settled accommodation
- 1.07 People in prison who have a mental illness or significant mental illness
- 1.08 Employment related measure for people with long term health condition, learning disability and in contact with mental health services
- 1.09 Sickness absence
- 1.10 Killed and seriously injured on England's roads
- 1.11 Domestic abuse incidents and crimes
- 1.12 Violent crime
- 1.13 Re-offending levels
- 1.14 Rate of complaints about noise
- 1.15 Statutory homelessness
- 1.16 Use of outdoor space for exercise/health reasons
- 1.17 Fuel poverty
- 1.18 Social isolation

Health improvement – indicators include the number/status of:

- 2.03 Breastfeeding
- 2.03 Smoking status at delivery
- 2.04 Under 18 conceptions
- 2.05 Proportion of 2-2.5 year olds offered ASQ-3
- 2.06 Child excess weight
- 2.07 Hospital admissions caused by unintentional and deliberate injuries in children
- 2.08 Average difficulties score for looked-after children
- 2.09 Smoking prevalence in 15-year-olds and adults (over-18s)
- 2.10 Emergency hospital admissions for intentional self-harm
- 2.11 Average number of portions of fruit and vegetables consumed daily (adults)
- 2.12 Proportion of adults overweight or obese
- 2.13 Percentage of physically active and inactive adults
- 2.14 Smoking prevalence in adults
- 2.15 Successful completion of drug and alcohol treatment
- 2.16 Successful engagement in substance misuse treatment after prison
- 2.18 Alcohol-related admissions to hospital
- 2.23 Self-reported wellbeing

Health protection (from major incidents and other threats, while reducing health inequalities) indicators include public sector organisations with board-approved sustainable development management plans.

Public healthcare and preventing premature mortality - indicators include:

- 4.03 Mortality from causes considered preventable
- 4.09i Excess mortality in adults under 75 years with SMI
- 4.09ii Proportion of adults in the population in contact with MH services
- 4.10 Suicide rate
- 4.15 Excess winter deaths
- 4.16 Estimated dementia diagnosis rate

NHS Outcomes Framework

The 2018 NHS Outcomes Framework (NHSD, 2018i) covers five domains:

- Domain 1: Preventing people from dying prematurely
- Domain 2: Enhancing quality of life for people with long-term conditions
- Domain 3: Helping people to recover from episodes of ill health or following injury
- Domain 4: Ensuring that people have a positive experience of care
- Domain 5: Treating and caring for people in a safe environment and protecting them from avoidable harm.

Relevant indicators towards which public mental health interventions can contribute are summarised in box 5.

BOX 5: NHS OUTCOMES FRAMEWORK

See <https://indicators.ic.nhs.uk/webview/>

Indicators relevant to public mental health

- **Domain 1:**
 - 1.5i Excess mortality in people with serious mental illness
- **Domain 2:**
 - 2.1 Proportion who feel supported to manage their conditions
 - 2.4 Health-related quality of life for carers
 - 2.5i Employment of people with mental illness
 - 2.6i Estimated diagnosis rate for people with dementia
 - 2.7 Health related quality of life for people with three or more long term conditions
- **Domain 3:**
 - 3.6i Proportion of older people (65 and over) who were still at home 91 days after discharge from hospital into reablement/ rehabilitation services
 - 3b Emergency readmissions within 30 days of discharge from hospital
- **Domain 4:** patient experience of hospital care, GP services, GP out of hours services and dental services
 - 4.1 Patient experience of outpatient services
 - 4.2 Responsiveness to inpatients' personal needs
 - 4.4i Access to GP services
 - 4.4ii Access to NHS dental services
 - 4.7 Patient experience of community mental health services
 - 4a.i Patient experience of GP services
 - 4a.ii Patient experience of GP out-of-hours services
 - 4b.i Patient experience of hospital care
- **Domain 5:** treating and caring for people in a safe environment and protecting them from avoidable harm
 - 5.6 Patient safety incidents reported

Adult Social Care Outcomes Framework

The updated (2018/19) Adult Social Care Outcomes Framework (DH, 2018) covers four domains:

- Domain 1: Enhancing quality of life for people with care and support needs
- Domain 2: Delaying and reducing the need for care and support
- Domain 3: Ensuring that people have a positive experience of care and support
- Domain 4: Safeguarding people whose circumstances make them vulnerable and protecting from avoidable harm.

Indicators towards which public mental health interventions may contribute are summarised in Box 6.

BOX 6: ADULT SOCIAL CARE OUTCOMES FRAMEWORK

(DH 2017 Adult Social Care Outcomes Framework)

These indicators are available for each locality in the Adult Social Care Outcomes Framework reports which can be found at

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/664582/20171129_ASCOF_Handbook_of_Definitions_17-18.pdf

Indicators relevant to public mental health

Domain 1: Enhancing quality of life for people with care and support needs

- 1A Social care-related quality of life
- 1J Adjusted Social care-related quality of life – impact of Adult Social Care Services
- 1B Proportion of people who use services who have control over their daily life
- 1C Proportion using social care who receive self-directed support and direct payments
- 1D Carer-reported quality of life
- 1E Proportion of adults with a primary support reason of learning disabilities in paid employment
- 1F Proportion of adults in contact with secondary mental health services in paid employment
- 1G Proportion of adults with learning disabilities who live in their own home or with their family
- 1H Proportion of adults in contact with secondary mental health services living independently, with or without support
- 1I Proportion of people who use services and their carers who reported that they had as much social contact as they would like

Domain 2: Delaying and reducing the need for care and support

- 2A Long-term support needs met by admission to residential and nursing care homes per 100,000 population
- 2B Proportion of older people (65 and over) who were still at home 91 days after discharge from hospital into reablement/rehabilitation services
- 2C Delayed transfers of care from hospital, and those which are attributable to adult social care per 100,000 population
- 2D Outcomes of short-term support: sequel to service
- 2E Effectiveness of reablement services
- 2F Dementia – a measure of the effectiveness of post-diagnosis care in sustaining independence and improved quality of life

Domain 3: Ensuring that people have a positive experience of care and support

- 3A Overall satisfaction of people who use services with their care and support
- 3B Overall satisfaction of carers with social services
- 3C Proportion of carers who report that they have been included or consulted in discussions about the person they care for
- 3D Proportion of people who use services and carers who find it easy to find information about services
- 3E Effectiveness of integrated care

Domain 4: Safeguarding adults whose circumstances make them vulnerable and protecting them from avoidable harm

- 4A Proportion of adults who use services who feel safe
- 4B Proportion of people who use services who say that those services have made them feel safe and secure

Clinical Commissioning Group Outcomes

The CCG Outcomes Indicator Set (NHS Digital, 2017) are outlined in box 7.

This builds on the NHS Outcomes Framework and measures the health outcomes and quality of care (including patient reported outcome measures and patient experience) achieved by clinical commissioning groups. It will allow NHS England to identify the contribution of CCGs to achieving the priorities for health improvement in the NHS Outcomes Framework, while also being accountable to patients and local communities. It will also enable the commissioning groups to benchmark their performance and identify priorities for improvement. Indicators are either derived directly from the NHS Outcomes Framework; based on NICE Quality Standards; or from other sources to support the NHS Outcomes Framework.

BOX 7: CLINICAL COMMISSIONING GROUP OUTCOMES INDICATOR SET 2017/18 (NHS DIGITAL, 2017)

Public mental health relevant indicators:

Domain 1: Preventing people from dying prematurely

- 1.1 Potential years of life lost from causes considered amenable to care
- 1.12 People with severe mental illness (SMI) who have received the complete list of physical health checks
- 1.14 Maternal smoking at delivery
- 1.15 Breastfeeding prevalence at 6-8 weeks
- 1.23 Smoking rates in people with SMI

Domain 2: Enhancing quality of life for people with long term conditions

- 2.1 Health related quality of life for people with long-term conditions
- 2.2 Proportion of people who are feeling supported to manage their condition
- 2.9 Access to community mental health services by people from Black and Minority Ethnic (BME) groups
- 2.10 Access to psychological therapies services by people from BME groups
- 2.11a Proportion of referrals to IAPT with reliable recovery after treatment completion
- 2.11b Proportion of referrals to IAPT with reliable improvement after treatment completion
- 2.11c Proportion of referrals to IAPT with reliable deterioration after treatment completion
- 2.13 Estimated diagnosis rate for people with dementia
- 2.14 People with dementia prescribed antipsychotic medication
- 2.15 Health-related quality of life for carers aged 18 and above
- 2.16 Health-related quality of life for people with a long term mental health condition

Domain 3: Helping people to recover from episodes of ill health or following injury

- 3.1 Emergency admissions for acute conditions that should not need admission
- 3.14 Alcohol-specific admissions
- 3.15 Emergency alcohol-specific readmission within 30 days of discharge after alcohol-specific admission
- 3.16 Unplanned readmission to mental health services within 30 days of a mental health discharge
- 3.17 Proportion of adult in contact with secondary mental health services in employment

Domain 4: Ensuring that people have a positive experience of care

- 4.1 Patient experience of GP out-of-hours services
- 4.2 Patient experience of hospital care
- 4.3 Family and friends test
- 4.4 Patient experience of outpatient services
- 4.5 Responsiveness to inpatients personal needs
- 4.8 Patient experience of community mental health services
- 4.9 Bereaved carers views on quality of care in last 3 months of life

Domain 5: Treating and caring for people in a safe environment and protecting them from avoidable harm

- 5.1 Patient safety incidents

CQUIN schemes

Commissioning for Quality and Innovation schemes were introduced in 2009/10 and are intended to incentivise practice through financial reward. They include schemes to support improvements and focus on inequalities and quality outcomes.

During 2017/19, indicators include:

1. Improving staff health and wellbeing
3. Improving physical healthcare to reduce premature mortality in people with serious mental illness (SMI)
4. Improving access for people with mental health needs who present to A&E
5. Transitions out of Children and Young People's Mental Health Services
8. Supporting proactive and safe discharge
9. Preventing ill health by risky behaviours – alcohol and tobacco

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