

REPORT

Centre for
Mental Health



Priorities for mental health

Economic report for the NHS England Mental Health Taskforce

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Contents

	Executive summary	4
1	Introduction	8
2	Identification and treatment of maternal depression and anxiety during the perinatal period	10
3	Treatment of conduct disorder in children up to age 10	14
4	Early intervention services for first-episode psychosis	18
5	Expanded provision of liaison psychiatry services in acute hospitals	21
6	Integrated physical and mental health care in the community for people with long-term physical health conditions and co-morbid mental health problems	25
7	Improved management of people with medically unexplained symptoms and related complex needs	29
8	Expanded provision of evidence-based supported employment services for people with severe mental illness	33
9	Community-based alternatives to acute psychiatric inpatient care for people with severe mental health illness at times of crisis	36
10	Interventions to improve the physical health of people with severe mental illness	40
	References	44

Executive Summary

This report provides an economic analysis of possible priorities for service improvement in mental health. It was commissioned by NHS England as an input to the five-year strategy recently produced by the independent Mental Health Taskforce.

After 10 years of substantial expenditure growth, the NHS is now halfway through a decade of austerity and is required to find productivity improvements of around £22 billion a year by 2020/21. Essentially this means finding more ways of generating improved health outcomes at lower cost.

Past experience suggests that productivity increases in the NHS come mainly from the development and dissemination of improvements in clinical interventions, rather than from large-scale reorganisations or system changes.

There is a strong evidence base for a range of interventions in mental health which produce better outcomes at lower cost. However, these are not always widely available or their effectiveness is reduced by poor implementation.

A key ingredient of any mental health strategy should therefore be to promote the wider adoption of best practice, as represented by the delivery of specific evidence-based interventions in line with national guidelines.

In some cases this may be accelerated by supporting systems-related changes such as new payment mechanisms, particularly for integrated services operating at the mental/physical health interface, but these should always be seen as means to an end rather than ends in themselves.

The fundamental need is to define what best practice looks like in terms of evidence-based interventions and service models, and then to deliver these throughout the NHS.

This report examines nine possible areas for service improvement where there is good evidence of cost-effective interventions, with specific costed proposals. The nine areas can be grouped under three main headings.

Prevention and early intervention

Identification and treatment of maternal depression and anxiety during the perinatal period

Some 15-20% of women suffer from depression or anxiety during pregnancy or in the first year after childbirth, but about half of all these cases go undetected and untreated. This is damaging and costly, not only because of the adverse impact on the mother but also because maternal mental illness roughly doubles the risk of subsequent mental health problems in the child. According to one estimate, the long-term cost to society of a single case of perinatal depression is around £74,000, mostly because of adverse impacts on the child. The effective treatment of mothers offers the genuine prospect of primary prevention in relation to the development of mental health problems in children. The available evidence strongly supports the provision of psychological therapy as the most effective intervention, but this is currently available to only a small minority.

Proposal: improve the identification of perinatal depression and anxiety (via more screening and assessment) and provide psychological therapy to all who would benefit in line with NICE waiting time standards. Estimated cost after full implementation = £53 million a year. The value of subsequent reductions in health service use by both mothers and children would more than cover this cost over time, with about two-thirds of costs being recovered within five years.

Treatment of conduct disorder in children up to age 10

About 5% of young children suffer from conduct disorder, defined as persistent disobedient, disruptive and aggressive behaviour, and the condition continues into adolescence and beyond in about half of all cases. It is associated with a wide array of adverse outcomes extending over the life course, including continuing mental health difficulties, poor physical health often as a result of risky behaviours including smoking, drinking and drug use, poor educational attainment leading

to difficulties in the labour market, and high rates of involvement in criminal activity. The lifetime costs of conduct disorder have been estimated at around £275,000 per case. A very large body of evidence demonstrates the effectiveness of parenting programmes such as Triple P and Incredible Years in improving outcomes at relatively low cost (around £1,270 per child).

Proposal: all 5-year-old children to be screened during their first year at school, followed by the provision of an evidence-based parenting programme where a need is indicated. Estimated cost after full implementation = £51 million a year. Economic analysis indicates that every £1 invested in these programmes generates savings in public expenditure of nearly £3 over the next seven years, including savings of 95p in the NHS. Over the longer term the value of savings in public expenditure is likely to be roughly doubled.

Early intervention services for first-episode psychosis

First-episode psychosis affects about 15,000 people a year, most of whom are aged between 15 and 35. Delay in providing treatment and support can lead to poorer clinical and social outcomes over the lifetime. Schizophrenia is the most common cause of psychosis and it is estimated that this condition costs the exchequer over £7 billion a year, equivalent to a cost per person affected of around £36,000 a year. Early intervention services provided by dedicated multidisciplinary teams are strongly effective in improving outcomes and reducing health service costs.

Proposal: increase the provision of early intervention services to cover the full population of 15,000 people who experience a first episode of psychosis each year. Estimated cost after full implementation = £77 million a year. Economic analysis indicates that because of the impact of early intervention on the use of mental health services, particularly inpatient care, the full cost of additional provision would be recovered within a year. Over three years the savings to the NHS alone would outweigh the costs of intervention by a factor of more than three to one.

Better mental health care for people with physical health conditions

Expanded provision of liaison psychiatry services in acute hospitals

About half of all patients being treated for physical health problems in acute hospitals have a co-morbid mental health problem such as depression or dementia. Most of these cases of mental illness go undetected by medical staff, leading to poorer health outcomes and substantially increased costs of care, equivalent to around 15% of total expenditure in acute hospitals (£6 billion a year in total, or £25 million a year for a typical general hospital of 500 beds). There is growing evidence that a dedicated proactive liaison psychiatry service working with medical staff can substantially reduce this burden of extra costs, particularly among elderly inpatients, who should be a priority group for intervention.

Proposal: extend the provision of liaison psychiatry services to all acute hospitals in line with national guidance. Estimated cost after full implementation = £119 million a year. It is estimated on reasonably conservative assumptions that every £1 invested in these services would lead to savings of around £2.50 because of reduced bed use associated with shorter lengths of stay and lower rates of re-admission.

Integrated physical and mental health care in the community for people with long-term physical health conditions and co-morbid mental health problems

About 30% of all people with a long-term condition such as diabetes or asthma have a co-morbid mental health problem, equivalent to some 4.6 million people in England. Only about a quarter of these cases of co-morbid mental illness are detected and, in the absence of treatment, co-morbidities are associated with poorer clinical outcomes, lower quality of life, reduced ability to manage physical symptoms effectively and significantly increased costs of care. On average the NHS spends an extra £2,400 a year in physical health care costs on every single patient who has co-morbid physical and mental health problems as against a physical condition on its own. At the aggregate

level this adds up to an extra £11 billion a year, equivalent to 10% of the total NHS budget.

More integrated services are needed, with the strongest evidence relating to the collaborative care model recommended in NICE guidance. This is a structured approach involving: care coordination by a case manager; systematic patient management based on protocols and the tracking of outcomes; delivery of care by a multidisciplinary team which includes a liaison psychiatrist; and collaboration between primary and specialist care. Evidence indicates that collaborative care leads to better outcomes and, at least for some physical conditions such as diabetes and chronic respiratory problems, savings in physical health care costs which are more than sufficient to cover the costs of the intervention.

Proposal: provide collaborative care for the most costly and complex 10% of all people with long-term conditions and co-morbid mental health problems. Estimated cost after full implementation = £290 million a year. The scope for offsetting savings varies from condition to condition and a conservative assumption might be that over time the increased provision of collaborative care would be broadly cost-neutral from an NHS perspective.

Improved management of people with medically unexplained symptoms and related complex needs

Medically unexplained symptoms (MUS) are physical symptoms that do not have a readily identifiable medical cause or are disproportionate to the severity of any underlying medical illness. They are a common, distressing and costly problem in all health care settings, often associated with frequent GP consultations and referrals to secondary care for the investigation of physical symptoms. The estimated cost of MUS to the NHS is around £3.25 billion a year, with the most costly 5% of patients each costing about £3,500 a year in the avoidable over-use of physical health services. There is evidence that cognitive behavioural therapy is consistently effective in improving outcomes. Patients with MUS vary greatly in the nature and severity of their problems and

specialist services for those with complex problems are largely non-existent.

Proposal: every CCG should aim to commission a specialist MUS service, on the collaborative care model, to support patients with the most complex and costly problems. Estimated cost after full implementation = £127 million a year. There is insufficient evidence to make a detailed assessment of possible cost savings, but - as with collaborative care services for people with long-term conditions and co-morbid mental health problems - a reasonable assumption might be that over time the MUS intervention is cost-neutral from an NHS perspective.

Improved services for people with severe mental illness

Expanded provision of evidence-based supported employment services for people with severe mental illness

Most people with severe mental illness would like to work, but only a small minority do so. A low rate of employment just among those with schizophrenia is estimated to cost the economy around £3.4 billion a year and there is also evidence that those not working make more use of mental health services than those in employment, irrespective of the severity of their illness. Traditional vocational rehabilitation services focus on training, job preparation and sheltered work, but there is little evidence that this leads on to competitive employment and more emphasis is now being put on getting people into a competitive job as quickly as possible, with continuing support to ensure that the job is maintained ('place then train' rather than 'train then place'). The best-evidenced model of this approach is Individual Placement and Support (IPS), with studies from around the world showing that this is two to three times as effective as any other intervention in terms of employment outcomes. There is also evidence that IPS services result in cost savings of around £3,000 a year because of reduced use of mental health care. These savings may be sustained for a number of years and compare with a one-off cost of IPS support of around £2,700 per client.

Proposal: it is broadly estimated that the

number of mental health service users currently receiving IPS services is only about 10,000 – 20,000 a year. It is proposed that 20,000 more places should be made available, at a cost of £54 million a year. The available evidence suggests that this cost would be more than offset by savings of around £100 million over the next 18 months because of reduced use of mental health services.

Community-based alternatives to acute inpatient care for people with severe mental illness at times of crisis

Severe mental illnesses such as schizophrenia and bipolar disorder are characterised by periodic crises or relapses. The rate of relapse in people with schizophrenia is estimated at around 3.5% per month, or more than 40% in the course of a year. Relapse is not only a major clinical event but also a very costly one, with evidence suggesting that the cost to the NHS of a single crisis episode for someone with schizophrenia is around £20,000, very largely in the form of acute inpatient care. Community-based alternatives to inpatient care at times of crisis take a variety of forms, with the strongest evidence relating to crisis resolution teams, first introduced in the NHS in around 2001 as a means of providing intensive home treatment for patients who would otherwise be admitted to hospital. There is evidence that, when implemented with fidelity, crisis resolution teams provide effective support for people experiencing crises, lead to greater patient satisfaction and can result in reduced hospital admissions. Economic analysis suggests that every £1 invested in crisis resolution teams yields savings in the NHS of £1.68.

Proposal: spending on crisis resolution teams peaked in 2010/11 and has since fallen by at least 8% in real terms, despite an 18% increase in average monthly referrals. It is estimated that additional expenditure of around £29 million a year would be needed to restore provision to its previous peak and £63 million a year to allow also for an 18% increase in referrals. Using the benefit:cost ratio given above, these increases would be more than offset by savings of £49 million a year and £106 million a year respectively.

Interventions to improve the physical health of people with severe mental illness

The mortality rate among mental health service users is 3.6 times higher than in the general population, resulting in a difference in life expectancy of 15-20 years – and if anything the gap is widening. The majority of excess mortality is from diseases that are the major causes of death in the general population, particularly circulatory diseases, respiratory diseases and cancer. Important contributory causes include smoking, obesity, poor diet, illicit drug use, physical inactivity and long-term use of antipsychotic medication.

By far the strongest evidence on interventions to improve the physical health of people with severe mental illness relates to smoking cessation. Smoking rates among all people with mental health problems are high and there is also a strong link between the severity of mental illness and smoking behaviour, i.e. those with more severe problems are more likely to smoke and to smoke more heavily. The economic cost of smoking among all people with mental health problems was estimated at £2.34 billion in 2009/10, including £0.72 billion spent by the NHS on treating diseases caused by smoking. NICE guidance on smoking cessation in the general population shows that a range of interventions are extremely cost-effective and separate evidence indicates that strategies which work for the general population are just as effective for those with severe mental illness.

Proposal: the most effective multi-component intervention evaluated in the NICE guidance on smoking cessation should be made available to 150,000 mental health service users at an estimated cost of £67.5 million. Economic analysis indicates offsetting savings of around £100 million spread over a number of years, associated with lower NHS spending on smoking-related diseases. More profoundly, those who successfully quit smoking would on average gain an increase in life expectancy of around seven years.

Chapter 1: Introduction

This report provides an economic analysis of possible priorities for service improvement in mental health, as an input to the five-year strategy being developed by the independent Mental Health Taskforce, commissioned by NHS England, whose report was published in 2016.

Background

Total NHS expenditure almost doubled in real terms in the ten years from 2000, but the service is now half-way through a decade of austerity and faces the daunting challenge of generating productivity improvements of around £22 billion a year by 2020/21 in order to square the circle of rising costs and demands and relatively flat budgets. If overall standards of care are to be maintained, more ways must be found of producing better health outcomes at lower cost. The fundamental aim of all treatments in the NHS is to improve health and wellbeing but those which also save money are of particular value, as they release resources which can be used to accommodate cost and demand pressures within existing budgets.

As noted in a recent King's Fund report, past experience in the NHS suggests that productivity increases come mainly from the development and dissemination of improvements in clinical interventions, rather than from large-scale reorganisations or system changes (Alderwick et al., 2015). For example, shorter lengths of stay in acute hospitals have been a major source of efficiency gain for the NHS over several decades, driven by a series of improvements in clinical practice such as the use of new anaesthetics and minimally invasive surgery. At the aggregate level it is the accumulation of these changes and their widespread adoption that matter, rather than any single advance.

In mental health, as in the rest of the NHS, opportunities to produce better outcomes at lower cost may take a variety of forms. One is to reduce expenditure on care which is ineffective or unnecessary. For example, estimates given later in this report indicate that the costs of health care among patients being treated for

physical conditions or symptoms are increased by around £14 billion a year because of the impact on physical health care of co-morbid mental health problems that go unrecognised and untreated. (Strikingly, this means that the NHS spends as much on dealing with the indirect consequences of mental illness as on the direct costs of treating it.) Much of this extra spending on physical health care is unnecessary and avoidable.

Another way of raising productivity is to increase the provision of interventions which are known to be effective and good value for money. Unmet need is a major problem in mental health. This is particularly the case among children and young people, as only about a quarter of those with a clinically diagnosable mental health problem are currently receiving any treatment – and the numbers may even be falling because of cuts in child and adolescent mental health services (CAMHS) expenditure in recent years. Under-treatment is not because of any lack of evidence on the availability of interventions that work; on the contrary, a number of well-researched interventions are not only effective in improving mental health but are also good value for money, in some cases outstandingly so. Under-provision comes at a heavy price, as most mental health problems which develop early have a strong tendency to persist throughout the life course, often with an array of damaging and costly consequences, not only for individuals and their families but also for the NHS, other public services and wider society. As in some other areas of mental health, the current service response is best described as too little, too late, with treatment being provided (if at all) only after problems have become entrenched and more difficult to manage.

A third way of increasing productivity is to reduce the misuse of resources that is associated with wide and unwarranted variations in how care is delivered by different services around the country. Most commonly, poor performance arises because services are delivering too many interventions that are not

evidence-based, but it may also result from shortcomings in implementation such as the poor targeting of interventions, low rates of take-up and high rates of drop-out, and use of inadequately trained staff. A range of evidence suggests that outcomes for well-implemented programmes are typically two to three times better than for poorly implemented ones.

Common to problems in all these areas is a failure to follow best practice in terms of delivering evidence-based interventions in line with national guidelines. The opportunities for improvement are not hypothetical, as they are already being delivered in some parts of the NHS, and are essentially about putting knowledge into practice on a much wider scale than is currently the case. Organisational and other barriers to improved performance certainly exist and supporting changes would be helpful in a number of areas, including budgeting and payment systems, organisational culture, information systems and training programmes. But these are best seen as means to an end rather than ends in themselves, the key objectives being to define what best practice looks like in terms of specific evidence-based interventions and service models and then to implement these throughout the NHS.

Areas for service improvement

A total of nine possible areas for service improvement are analysed in this report and these can be grouped together under three main headings:

Prevention and early intervention

1. Identification and treatment of maternal depression and anxiety during the perinatal period, including as a preventive measure against the development of mental health problems in children.
2. Treatment of conduct disorder in children up to age 10.
3. Early intervention services for first-episode psychosis.

physical health conditions

4. Expanded provision of liaison psychiatry services in acute hospitals, particularly in support of elderly inpatients.
5. Integrated physical and mental health care in the community for people with long-term conditions and co-morbid mental health problems.
6. Improved management of people with medically unexplained symptoms and related complex needs.

Improved services for people with severe mental illness

7. Expanded provision of evidence-based supported employment services.
8. Community-based alternatives to acute inpatient care at times of crisis.
9. Interventions to improve the physical health of people with severe mental illness.

The analysis of each of these possible priority areas covers:

- A short review of relevant evidence on why this is a priority area, highlighting the scale and cost of the problem at existing levels of service provision, including the extent of unmet need.
- A similar short review of the evidence on the availability of interventions in this area which are both effective and good value for money.
- Identification, description and costing of a specific proposal for service improvement.
- Subject to data availability, quantitative analysis of the downstream consequences of the specified service improvement, including the possible scale of future cost savings in the NHS as a result of better health.

Better mental health care for people with

Chapter 2: Identification and treatment of maternal depression and anxiety during the perinatal period

Scale and cost of the problem

Mental health problems are very common in the perinatal period, defined as the period during pregnancy and the first year after childbirth. These take a variety of forms, including psychosis, post-traumatic stress disorder, depression and anxiety, and they call for a coordinated service response, including specialist support for women with the most complex and serious conditions. The focus here is on maternal depression and anxiety, mainly because these are the most common mental health problems in the perinatal period, but the case for improvement in these areas should always be seen as part of a wider case for strategic change in perinatal mental health care.

Evidence from a range of sources indicates that around 15-20% of all new or expectant mothers suffer from clinically diagnosable depression or anxiety at some point in the perinatal period (Heron et al., 2004). Most attention has traditionally been given to problems in the postnatal period, particularly postnatal depression, but data from longitudinal surveys increasingly suggests that maternal depression and anxiety are as least as common during pregnancy as they are in the year after childbirth. Only a minority of cases of postnatal depression and anxiety are in fact new cases, arising for the first time after childbirth rather than being a continuation of conditions which initially developed during pregnancy (Heron et al., 2004).

These studies also confirm that there is a high degree of co-morbidity between depression and anxiety in the perinatal period, as around two-thirds of all women with depression at this time have a co-existing anxiety disorder.

Perinatal depression and anxiety are of major importance as a public health issue, not only because of their high prevalence and their adverse impact on the wellbeing of mothers but also because they have been shown to compromise the healthy emotional, behavioural, cognitive and even physical

development of children, with serious and costly long-term consequences (NICE, 2014).

The risks of these adverse developmental outcomes in children are roughly doubled as a result of perinatal mental illness, after controlling for other potential influences. According to one estimate, more than a million children in the UK suffer from neurodevelopmental disorders and the proportion of these attributable to pre- and postnatal anxiety and depression is of the order of 10% (Glover, 2014).

A number of different mechanisms have a role in explaining the links between maternal mental illness and developmental problems in the child. Recent advances in neuroscience have particularly highlighted the importance of changes in the environment in the womb which can critically alter neurological development in the foetus, with a permanent effect on the child (Glover, 2013). Particular importance attaches to the impact of maternal stress on the developing brain and a growing body of evidence suggests that stress exposure during pregnancy is a significant risk factor for a wide range of adverse outcomes in the child, including emotional and behavioural problems (O'Donnell et al., 2014).

In the postnatal period, psychological rather than biological factors are more relevant, particularly the risk that maternal mental illness may lead to parenting patterns or behaviours which have a damaging impact on mother-infant attachment, for example behaviours which are hostile, intrusive or disengaged (Field, 2010). Some – but not all – forms of insecure attachment are in turn risk factors for relationship problems in the child, with potentially adverse long-term consequences (Manning and Gregoire, 2006).

Comprehensive estimates of the costs of perinatal mental health problems, covering those relating to the child as well as the mother, are given in a recent study (Bauer et al., 2014). In contrast to most cost-of-illness studies,

these estimates include an imputed monetary valuation of the adverse effect of mental illness on the quality of life. Key findings are:

- Taken together, perinatal depression and anxiety carry a total long-term cost to society of about £8.0 billion for each one-year cohort of births in the UK. This is equivalent to a cost of just under £10,000 for every single birth in the country.
- Nearly three-quarters (72%) of this cost relates to adverse impacts on the child rather than the mother.
- Over a fifth of total costs (£1.7 billion) are borne by the public sector, with the bulk of these falling on the NHS and social services (£1.2 billion).
- The most reliable estimates relate to depression, including cases with co-morbid anxiety, and it is estimated that the average long-term cost to society of one case of perinatal depression is around £74,000.

Evidence on the effectiveness of interventions

The 2014 NICE guideline on antenatal and postnatal mental health notes that evidence on interventions aimed at preventing the development of perinatal depression and anxiety “is only just beginning to emerge and is at present meagre” (NICE, 2014). The recommendations in the guideline are therefore mainly focused on treatment options, but even in this area the availability of evidence specifically relating to the perinatal period is surprisingly limited.

Guidance is therefore based on the principle that because the nature of most mental health problems during the perinatal period is little different from that of the same problems at other times in a woman’s life, it is reasonable to assume that treatments developed for the general adult population are likely to be equally effective in the perinatal context. One important qualification is that medication carries risks to the baby both in pregnancy and during breastfeeding and as a result psychological therapy is generally recommended by NICE as the first-line treatment for maternal depression

and anxiety throughout the perinatal period.

A large body of evidence demonstrates the effectiveness of structured psychological interventions such as cognitive behavioural therapy (CBT) and interpersonal psychotherapy (IPT) in the treatment of depression and anxiety in the general adult population. This includes good rates of recovery in the short term and significantly reduced rates of relapse in the longer term (Layard and Clark, 2014). The second of these is particularly important, as depression and anxiety are best characterised as chronic conditions, typically following a relapsing-remitting course, often over many years. It appears that structured interventions such as CBT promote the development of generalisable coping skills that offer protection against further episodes of illness.

In terms of the impact on measured outcomes, meta-analyses carried out by the Washington State Institute for Public Policy (WSIPP) indicate that CBT for adult depression has an effect size of 0.694, based on results from 44 randomised controlled trials, while CBT for adult anxiety is even more effective, with an effect size 0.836, based on results from 22 trials (WSIPP, 2015). As a rule of thumb, an effect size of 0.2 is conventionally regarded as small, 0.5 as medium and 0.8 as large.

These findings on the effectiveness of CBT in the general population necessarily leave out of account any consideration of the specific impact of perinatal depression and anxiety on the child. To the extent that successful treatment of the mother reduces the scale of these adverse effects, the overall effectiveness of intervention is further enhanced. Lack of long-term follow-up data in intervention studies precludes any quantification of this indirect benefit, but given the strength of the evidence demonstrating a link between poor maternal mental health and increased risks for the child, it seems implausible to argue that better maternal mental health will not mitigate these risks to some degree. To that extent, the effective treatment of mothers with perinatal depression and anxiety can be characterised as a genuine example of primary prevention in relation to the development of mental health problems in children.

The costs and benefits of intervention

Very little information is available on the economics of intervention for perinatal depression and anxiety, and such studies as do exist suffer from a number of limitations. For example, they typically measure costs and benefits from a health-only perspective, ignoring costs falling outside the NHS and benefits other than improved health outcomes; they adopt a short time horizon, usually one year; and they focus exclusively on the mother, without any allowance for impacts on the child.

This relatively narrow approach largely reflects limitations imposed by the available data, but at the same time it is bound to mean that the net economic benefits of intervention are systematically under-estimated. For example, it was noted above that adverse impacts on the child account for over 70% of the total long-term costs to society of perinatal depression and anxiety. Given the high absolute value of total costs, even a relatively small improvement in child outcomes would generate significant savings over time.

The literature on depression and anxiety in the general adult population shows that evidence-based psychological interventions are extremely good value for money. For example, detailed cost-benefit estimates produced by WSIPP based on their systematic evidence reviews indicate that every \$1 invested in CBT for depression and anxiety generates benefits of over \$100 for society as a whole (WSIPP, 2015). Mostly these benefits take the form of increased earnings, some of which accrue to the taxpayer via increased tax revenues and reduced social security payments. However, there are also significant savings in future health service costs which over time are sufficient to cover the costs of the intervention several times over.

A specific proposal for service improvement

Current provision of treatment for perinatal depression and anxiety falls well below the standards recommended in national guidance. The main shortcomings are:

- About 50% of all cases go undetected and

untreated, despite the opportunities for identification provided by routine contact with universal health services including GPs, midwives and health visitors (NICE, 2014).

- Among those who do get professional treatment, the majority are given medication and only a minority receive any form of talking therapy or counselling (4Children, 2011); this is the reverse of what is recommended by NICE.
- NICE waiting time standards relating to assessment and provision of treatment are missed in many cases (Hogg, 2013).

To remedy these shortcomings, a number of changes are needed. First, to improve the identification of cases of depression and anxiety, all women should regularly be asked during their routine contacts with universal services the simple questions on mental health recommended by NICE for use during pregnancy and after childbirth (the so-called Whooley questions). Second, all those who screen positive (i.e. give responses that indicate a possible mental health problem) should be referred to their GP or an IAPT (Improving Access to Psychological Therapies) service for more detailed assessment. Third, psychological therapy should then be provided as appropriate, depending on the findings of the assessment. Finally, assessments and the provision of treatment should conform to NICE waiting time standards.

It is estimated that making these improvements would require additional NHS expenditure of around £53 million a year at the national level, including £12.5 million on assessments and £40.5 million on psychological interventions (estimates given in Bauer et al., 2014, updated to 2015/16 prices).

Relevant unit costs are: £95 per assessment, based on the cost of one session provided by an IAPT therapist (Curtis, 2014); and £590 per course of psychological therapy, based on NICE modelling work which assumes that women with mild to moderate problems (72% of the total) receive 6-8 sessions of facilitated guided self-help at a cost of £233 per case, while those with moderate to severe problems (the remaining 28%) receive intensive psychological therapy

in the form of 16 sessions of CBT at a cost of £1,503 per case.

These costings assume that no extra expenditure is needed to cover the initial screening of women using the Whooley questions during routine contacts with universal services. More importantly, no allowance is made either for the cost of any overall increase in the capacity of IAPT services that may be needed to meet the NICE waiting time standards for perinatal mental health. This is mainly because of a lack of national data on the extent to which these standards are currently being missed. In principle, the standards could be met by IAPT services giving higher priority to women with perinatal mental health problems at the expense of other users. Alternatively, a dedicated sub-service could be set up within IAPT which focuses exclusively on perinatal mental health care. To the extent that either of these options is in practice likely to require some increase in overall capacity, the costs of service improvement given above will be under-estimates.

The overall financial impact on the NHS depends not just on the upfront cost of expanded service provision, but also on the extent to which better treatment of perinatal mental health problems leads to reductions in the future use of health care. In estimating the likely scale of such savings, little evidence is available which relates specifically to the perinatal context, but a broad guide may be provided by an economic analysis of the general roll-out of IAPT services between 2011/12 and 2014/15 carried out by the Department of Health (DH, 2011). This includes estimates of savings in the NHS and elsewhere in the public sector during the period of roll-out plus the two following years.

The main findings of this assessment are as follows. First, from the perspective of society as a whole, the benefits of service expansion which are measurable in monetary terms exceed the costs of expansion by a factor of six to one. Second, every £1 spent on the roll-out generates savings of £1.75 for the exchequer. And third, financial savings in the NHS over the assessment period cover more than two-thirds of the total roll-out cost. These estimates confirm that the provision of IAPT services

for common mental health problems such as depression and anxiety is generally very good value for money, though not necessarily cost-saving from an NHS perspective in the short to medium term. Over a longer time horizon it is possible that costs in the NHS will be fully recovered. This is particularly likely in the context of perinatal mental health problems, where effective intervention offers the scope for future savings in health care costs not only among the women receiving treatment, but among their children as well.

Chapter 3: Treatment of conduct disorder in children up to age 10

Scale and cost of the problem

Conduct disorder, defined as persistent disobedient, disruptive and aggressive behaviour, is the most common mental health condition found among children and young people. Two sub-groups are distinguished according to age of onset (Moffitt, 1993). In the first, the condition becomes apparent at an early age (before 10, with evidence of serious behavioural problems often emerging as early as two or three) and is associated with a high degree of persistence into later life, while in the second the condition begins in adolescence and continues beyond this phase in only a small minority of cases. The focus here is on cases of early onset.

According to the most recently available national data, the prevalence of conduct disorder among children aged 5-10 is 4.9%, equivalent to around 30,000 children in each one-year cohort in this age range in England (Green et al., 2005). More than twice as many boys are affected as girls, and the condition also has a strong socio-economic gradient, being nearly three times as common among children from unskilled and workless households as among those from professional and managerial groups.

A very substantial body of evidence demonstrates that early-onset conduct disorder is associated with a wide range of adverse outcomes, not only in childhood but throughout life. These include:

- continuing mental health difficulties (uniquely among childhood mental health conditions, early-onset conduct disorder is a risk factor for all major adult psychiatric disorders);
- poor physical health, including high rates of premature mortality, often associated with alcohol and drug misuse and other risky behaviours;
- poor educational attainment, leading on to difficulties in the labour market including high rates of unemployment;
- high rates of involvement in criminal activity

including violent crime, often starting at an early age;

- high rates of involvement in short-lived, abusive or mutually violent personal relationships.

Expressing a few of these adverse outcomes in quantitative terms, children with conduct disorder are twice as likely as their peers to leave school with no educational qualifications, three times more likely to become teenage parents, four times more likely to become dependent on drugs, six times more likely to die before age 30, eight times more likely to be on a child protection register and 20 times more likely to end up in prison. All of these multiples are calculated after taking into account possible confounding variables such as socio-economic background and cognitive ability.

An unsurprising consequence of this array of negative outcomes is that conduct disorder imposes a very heavy cost burden, both on the public sector and on society as a whole. One study which followed a sample of children from age 10 until they were 28 found that the cumulative cost of public services used by those who had conduct disorder at age 10 was around £90,000 per head higher in today's prices than among those with no problems, equivalent to extra spending of around £5,000 a year (Scott et al., 2001). About two-thirds of the additional cost fell on the criminal justice system, with most of the remainder being divided between the education sector and health and social services.

Another study has attempted a broad-based estimate of the lifetime costs of conduct disorder measured from a societal perspective, covering the costs of adverse outcomes relating to mental illness, drug misuse, smoking, suicide, unemployment and crime (Friedli and Parsonage, 2007). Overall, it is calculated that the lifetime cost of these adverse outcomes among people who had early-onset conduct disorder is around £275,000 per case in today's prices, again measured against a baseline given by people who had no conduct problems in childhood.

Evidence on the effectiveness of interventions

Children with conduct disorder are highly likely to require clinical intervention, but although the majority of parents seek advice, usually from teachers or GPs, only about a quarter get the help they need (Green et al., 2005). Generally speaking, the first line of treatment is parent training (Scott, 2008) and the evidence base on behavioural parenting programmes such as Incredible Years and Triple P includes well over a hundred randomised controlled trials, with findings summarised and assessed in a number of systematic reviews and meta-analyses, including a Cochrane review (Furlong et al., 2012) and a review by NICE (2013).

All of these reviews agree that parenting programmes are an effective intervention for childhood conduct problems. Key findings include the following:

- Parenting programmes significantly increase the quality of parenting, both by increasing positive parenting practices and reducing negative ones; there is also some evidence that they reduce child maltreatment (Lundahl et al., 2006).
- Parent training programmes are effective in reducing child problem behaviour. Overall, around two-thirds of children with conduct disorder show clear improvements and the majority of these move below the clinical threshold for a mental health diagnosis.
- Parenting programmes also lead to better behaviour among the siblings of children with conduct disorder, and they improve the mental health and well-being of parents.
- In general, the scale of improvement is largest among children with the most severe problems, but - beyond this - parenting programmes work equally well across a wide range of family and child variables, including socio-economic status and ethnicity.
- A critical determinant of programme success is effective implementation, including such factors as therapist adherence to treatment

protocols, quality of therapist training and supervision, and practical delivery (e.g. providing transport and crèches for parents attending programmes). Poor implementation reduces the impact of parenting programmes by half or more (Furlong et al., 2012).

An important unresolved question in the literature is the extent to which the benefits of parenting programmes, particularly improved child behaviour, persist over time. This is an under-researched area, as few studies have collected data on outcomes for periods longer than three or six months. Where longer-term information has been collected, this provides some evidence that treatment gains are maintained at 12 and 18 months (Bywater et al., 2009), at 4 years (Muntz et al., 2009) and at 8-12 years (Webster-Stratton et al., 2011), but other studies have found poor maintenance of gains even at 12-month follow-up.

One possible explanation for these conflicting findings is that they may in part reflect differences in the initial severity of problems among the children benefiting from an intervention. Support for this is given in a recent study which compares seven-year follow-up data for two randomised trials of the same parenting programme, one involving a group of clinic-referred children with severity of behavioural problems at around the 97th percentile and the other a community sample with less severe, sub-threshold problems at around the 82nd percentile (Scott et al., 2014). The comparison found: first, that the initial treatment effect of the intervention was almost twice as large in the clinic sample as in the community sample; and second, that these gains were very largely maintained at seven-year follow-up in the clinic sample, whereas among the community sample the intervention was not associated with any improvement in long-term outcomes. Both these findings highlight the importance of targeting interventions on those with the greatest needs.

The costs and benefits of intervention

Evidence on the economic case for intervention in early-onset conduct disorder is in relatively short supply and such studies as do exist focus largely on the extent to which improved outcomes in children are associated with short-term cost savings in health, education and other public services. This inevitably understates the full benefits of effective intervention, many of which accrue over the longer term and to beneficiaries other than the exchequer. Possible reductions in crime provide a good example: the peak period for offending is between ages 15 and 25 (i.e. around 10-20 years after the first onset of conduct disorder) and only about 20% of the overall costs of crime fall on the criminal justice system (Brand and Price, 2000).

What is clear is that because the long-term costs of conduct disorder are so high, only a small improvement in outcomes is needed to support a strong value-for-money case for intervention. As noted earlier, it is broadly estimated that on a lifetime societal basis the cost of early-onset conduct disorder is around £275,000 per case. Set against this, the average cost of an evidence-based parenting programme in today's prices is only around £1,270 per child (based on NICE, 2013). As a result, an intervention which succeeds in reducing the overall costs of conduct disorder by just 1% would pay for itself more than twice over from a societal perspective.

The absence of long-term follow-up data in effectiveness trials means that the full value-for-money case for intervention can only be assessed using an economic modelling approach which extrapolates short-term effects into the future. Perhaps the most detailed available study of this type suggests that on relatively conservative assumptions, the estimated monetary value of benefits to society over a 25-year period associated with a parent training intervention for children aged five with established conduct disorder exceeds the cost of the programme by a factor of around 14 to 1 (Bonin et al., 2011). More than a third of the benefits (36%) take the form of cost savings in the public sector, mainly the NHS, education and the criminal justice system.

A specific proposal for service improvement

National data on the coverage of evidence-based parenting programmes is not available, but it is widely accepted that:

- there is a sizeable gap between availability and need in most if not all localities;
- a good deal of existing provision is not evidence-based and/or is poorly implemented;
- much of it goes to children with sub-threshold problems.

To address these shortcomings, it is proposed that each year local commissioners should fund evidence-based parenting programmes in support of all five-year-old children in England with conduct disorder, with identification being based on the universal screening of children during their first year at school using a validated instrument such as the Strengths and Difficulties Questionnaire (SDQ). Allowing for a possible over-prediction of cases using the SDQ and also for a rising birth rate, this would require the provision of a maximum of around 40,000 training places a year. Allowing for a take-up rate of 75%, this reduces to 30,000 places a year. As noted above, cost per place is £1,270, implying total expenditure of £38 million a year, all of which is assumed to be on top of existing provision.

To estimate the net financial impact of such a programme on the NHS and other public services in the short and medium term, use is made of an adjusted version of estimates originally made by NICE (NICE, 2013) which assess the public expenditure implications of a parenting programme in support of three-year-old children with conduct disorder over a seven-year time horizon. Two adjustments are incorporated. First, it is assumed that the intervention is provided at child age five rather than three, in line with the proposal for service improvement made above. And second, estimated savings in education costs are increased to allow for the fact that NICE's original figures cover only the costs associated

with special educational needs, whereas more recent research indicates that the bulk of extra education costs caused by child conduct disorder fall on mainstream education, e.g. employment of more classroom assistants (Snell et al., 2013).

Estimated public expenditure savings over the seven-year appraisal period amount to £3,758 per child, to be set against an intervention cost of £1,282. In other words, every £1 invested in the programme generates savings in public spending of £2.83. The breakdown of these savings is:

NHS and social care	£1,207
Education	£2,215
Criminal justice	£336

The largest savings thus accrue to the education sector, though the savings within health and social care are also almost enough to cover the full costs of the intervention on their own. Savings in the criminal justice system are small mainly because of the short time horizon of the appraisal, and over a longer period these would become the largest single item. Public sector savings over a five-year period, confined to health/social care and education, are roughly twice the cost of the intervention.

Chapter 4: Early intervention services for first-episode psychosis

Scale and cost of the problem

The treatment of people with psychosis costs the NHS around £2 billion a year, over half of which is associated with psychiatric inpatient care (Knapp et al., 2014). The most common cause of psychosis is schizophrenia, and it has been estimated that for society as a whole the overall cost of this condition is around £11.8 billion a year in 2010/11 prices, taking into account wider impacts such as lost output and informal care as well as costs to the NHS (Andrews et al., 2012). The same study also puts the total cost of schizophrenia to the exchequer at about £7.2 billion a year, combining public service costs and lost tax revenue. These estimates correspond to an annual average cost to society of around £60,000 per person with schizophrenia and £36,000 to the exchequer.

According to a systematic review of the evidence, first-episode psychosis (the first time a person experiences a psychotic episode) affects around 15,000 people a year in England, most of whom are aged between 15 and 35 (Kirkbride et al., 2012). There is unequivocal evidence that treating first-episode psychosis quickly and effectively leads to improved long-term outcomes (Norman et al., 2005; Birchwood et al., 1998). The reverse is also true: a delay in receiving treatment and support for the first psychotic episode can lead to poorer clinical and social outcomes over the lifetime of the affected individual (Loebel et al 1992; McGorry et al., 1996).

Early Intervention in Psychosis (EIP) services are specifically designed to address the needs of people with first-episode psychosis for the first three to five years. While the exact components of EIP services vary from place to place, their aims include:

- Maximising engagement with young people;
- Reducing time to treatment;
- Minimising impairment;
- Promoting psychosocial recovery;

- Preventing relapse.

(NCCMH, 2014; McCrone et al., 2010).

These aims are achieved through multidisciplinary teams providing a broad range of treatments, ideally with extended opening hours and access 365 days a year. The treatments include enriched assertive community treatment, age-appropriate evidence-based pharmacological and psychosocial interventions, cognitive behavioural therapy, family interventions and vocational therapy (Department of Health, 2011; Power et al., 2007; Bertelsen et al., 2008; Craig et al., 2004; NCCMH, 2014).

EIP teams for people aged 14-35 were introduced into the NHS following publication of the National Service Framework for mental health in 1999, with detailed guidance set out in a subsequent Policy Implementation Guide (Department of Health 2001). Since then, EIP teams have been rolled out across England, although never on a scale sufficient to support all cases of first-episode psychosis. There is also evidence that service provision has been cut back in recent years (Rethink, 2014; McNicoll, 2015), with the second of these sources indicating that overall spending on EIP teams fell by 26% between 2010/11 and 2014/15.

There is also evidence of long waiting times in some areas, with data from the 2014 Mental Health Minimum Dataset showing 21% of people waiting more than 9 weeks and 12.5% waiting more than 18 weeks for their first face-to-face contact with an EIP team (cited in Department of Health, 2014a). In response to this, a new waiting time standard has been introduced for 2015/16, with more than 50% of people experiencing a first episode of psychosis to be treated with a NICE-approved care package within two weeks of referral (Department of Health, 2014b).

Evidence on the effectiveness of intervention

A recent review of the evidence as part of the development of the NICE Clinical Guidelines on psychosis and schizophrenia (NCCMH, 2014) compared EIP services with standard care. The review found strong evidence that EIP services lead to reductions in:

- The number of psychiatric hospital admissions;
- The overall number of inpatient bed days used per patient;
- Contact with services at the end of the intervention;
- The risk of subsequent relapse;
- The risk of suicide.

The review also found that EIP services are associated with improved employment and education outcomes, better service engagement and higher levels of client satisfaction. Overall, the evidence is clear that EIP is effective across all service, clinical and social outcomes at post-treatment follow-up (Craig et al., 2004; Power et al., 2007; NCCMH, 2014; Alvarez-Jiménez et al., 2011).

Long-term follow-up of service users discharged from EIP services to usual care suggests that the benefits of EIP teams may not be maintained once treatment is discontinued. This highlights a need to improve the skills of conventional community mental health teams in supporting people beyond first episode-psychosis (NCCMH, 2014).

Evidence on the cost-effectiveness of intervention

Economic evidence on early intervention for psychosis is not extensive, but studies from a number of countries including Australia, Denmark, Italy and Hong Kong as well as this country reach broadly similar conclusions. In particular, there is strong agreement that EIP is cost-effective compared with standard care, with positive outcomes achieved at a lower unit cost. The intervention is also likely to be associated with cost savings both in the health

service and in the economy more widely, for example because of the impact of effective early intervention on employability.

The annual cost of providing EIP services is higher per patient than providing standard care, but this is more than offset by cost savings due to reduced numbers of inpatient bed days, lower rates of relapse and other improvements in patient outcomes. Moreover, some of these savings are typically realised very quickly, meaning that the costs of EIP services are more than fully recovered from year one onwards. The overall scale of cost savings in the health service varies from study to study, but broadly it is found that, for patients supported by an EIP service, total health service costs are lower by 20-50% compared with standard care for periods up to five years (see for example McCrone et al., 2010; Mihalopoulos et al., 2009; Cochi et al., 2000; and Hastrup et al., 2013).

Detailed economic modelling of the costs and benefits of EIP services in this country has been undertaken by McCrone and colleagues (2009), with results updated in 2012 (Andrews et al., 2012) and extended in 2014 (Park et al., 2014). Using data from the Lambeth Early Onset (LEO) study and other sources, it is estimated that EIP services reduce the probability of a compulsory admission from 44% to 23% in the first two months of psychosis and from 13% to 6% in each two-month period thereafter. This translates into sizeable cost savings and overall it is estimated that at 2010/11 prices the introduction of an EIP service lowers the overall cost of mental health services per patient by £5,493 in the first year of psychosis and by £15,742 during the first three years. It should be noted that these are net savings, i.e. after taking into account the costs of EIP provision.

The follow-up work by Park et al. reports broader public and societal benefits, with benefits associated with improved employment outcomes valued at £2,087 per person in years 1-3 and reduced suicide and homicide outcomes valued at £6,222 per person in years 4-10. This further strengthens the economic case for EIP services.

A specific proposal for service improvement

Given the strength of the evidence and in line with NICE guidelines, it is recommended that EIP services are expanded to cover the full population of 15,000 people who experience a first episode of psychosis each year. This is well above existing levels of provision. Figures cited by the Department of Health (2014a) indicate that around 16,500 people are currently receiving treatment from EIP services, but because treatment typically lasts for three years, this implies that only about a third of these, i.e. 5,500 people, are new cases each year. This leaves a shortfall of around 9,500 places a year, which we increase to 10,000 to allow a margin of capacity to ensure that the new waiting time standard is met.

Based on data used in the economic modelling work by McCrone and colleagues, it is estimated that in today's prices the cost of EIP services is £2,560 per patient per year, or £7,680 per patient over three years. The total cost of treating a cohort of 10,000 more patients would therefore be £25.6 million in the first year and £76.8 million over three years. The latter figure also corresponds to total additional expenditure needed each year in steady state, with a third of this amount in any one year dealing with new cases, a third with continuing treatment for those who were new cases in the previous year and similarly a third for those who were new cases two years previously. Extra spending on EIP services could therefore be phased in over three years, with baseline expenditure being increased by £25.6 million in year 1, £51.2 million in year 2 and £76.8 million in year 3, and then remaining at this higher level in future years. This ensures that from year 3 onwards all 15,000 new cases of first-episode psychosis each year would receive three years of treatment by an EIP service.

These estimates of extra expenditure do not of course allow for the very substantial cost savings that are associated with early intervention. Again based on data in the modelling work by McCrone et al., it is estimated that in today's prices the total value of savings in the NHS to be set against these costs is £8,510 per patient in the first year and £24,728

per patient over three years. For a one-year cohort of 10,000 new patients, the total savings to be set against the cost of additional EIP provision are therefore £85.1 million in year one and £247.3 million over three years. As before, the figure of £247.3 million also corresponds to aggregate annual savings in steady state. Aggregate net savings in the NHS, i.e. gross savings less the increased costs of intervention, build up from £51.2 million in year one to £170.5 million a year in steady state.

One further point may be noted. In their impact assessment of the new waiting time standard for early intervention in psychosis, the Department of Health use a figure of £6,000 a year for the cost of EIP services. This is more than double the figure used here, which is based on the actual costs of an EIP team in south London, whereas the DH estimate derives from advice from a clinical expert on what it would cost to provide NICE-accordant treatment, including an expanded workforce with increased numbers of therapists and vocational workers compared with a typical EIP team. Unfortunately it is not stated by DH whether this more intensive level of provision is associated with increased benefits including cost savings, because if not, it is not clear why it should be introduced. Setting this to one side, it remains the case that even at a unit cost of £6,000 a year with benefits unchanged, early intervention for psychosis is good value for money from an NHS perspective, with net cost savings of £2,510 per patient in year one (£25.1 million for 10,000 patients) and £6,728 per patient over three years (£67.3 million in total).

Chapter 5: Expanded provision of liaison psychiatry services in acute hospitals

Scale and cost of the problem

Liaison psychiatry services support the mental health needs of people who are being treated primarily for physical health conditions, providing a rare example of integrated care at the physical/mental health interface. For the most part these services work with patients in acute hospital settings and their availability has expanded considerably in recent years. There nevertheless remain major gaps in current provision and wide variations from place to place. Some hospitals have large multidisciplinary teams while others have little more than a visiting community psychiatrist.

Mental health support is needed in acute hospitals for three related reasons:

- A very high proportion of patients in these hospitals have diagnosable mental health conditions;
- Many of these conditions typically go undetected and untreated;
- In the absence of effective intervention they lead to poorer health outcomes and significantly increased costs of care.

People aged 65 and over now account for over two-thirds of all inpatients in acute hospitals (Health and Social Care Information Centre, 2015) and the overall prevalence of mental health conditions among this group is estimated at around 60% (Royal College of Psychiatrists, 2005). The most common problems are dementia, delirium and depression. The prevalence of mental health problems in younger inpatients is around half the rate in older people, implying an overall prevalence of physical/mental health co-morbidities in the inpatient population of some 50%.

Many cases of mental illness among hospital inpatients go undetected by medical staff. Estimates of detection rates vary between studies but are commonly put at around 50% and may be even lower for some conditions such as delirium. There are various reasons

for this. For example, the presence of physical illness can make the detection of mental health problems more difficult. Hospital staff often have little training or expertise in the identification of mental health conditions. And they may focus exclusively on the primary health condition for which a patient has been admitted.

Mental health problems are very common in other settings within acute hospitals. For example, mental illness is the primary cause of about 5% of all A&E attendances (Royal College of Psychiatrists, 2004), including significant numbers with psychosis, and alcohol misuse is implicated in a further 10% of attendances (Royal College of Physicians, 2001). Self-harm is another large and growing problem, with the numbers attending emergency departments estimated at around 200,000 a year (NHS England, 2013). And all A&E departments are familiar with the phenomenon of frequent attenders, who are mainly people with untreated mental health problems alongside other difficulties such as social isolation.

Co-morbid mental health problems lead to much poorer outcomes for people with physical health conditions. For example, mortality rates for people with co-morbid asthma and depression are twice as high as among people with asthma on its own (Walters et al., 2011), while people with chronic heart failure are eight times more likely to die within 30 months if they also have depression (Junger et al., 2005). Delirium increases the risk of death or subsequent institutionalisation in older adults (Witlox et al., 2010). And about 1% of adults who have presented to hospital with self-harm die by suicide in the following year, which is about 100 times higher than the rate in the general population (Royal College of Physicians and Royal College of Psychiatrists, 2003).

Concerning the impact on NHS costs, evidence reviewed in Naylor et al. (2012) shows that co-morbid mental health problems are typically associated with increases of 45-75% in the costs of physical health care for long-term conditions. Increases of this order are

observed across a wide range of physical health conditions and are based on costs measured after adjustment for the severity of physical disease.

Based on this and other evidence, it has been estimated that the extra cost of physical health care in acute hospitals associated with co-morbid mental health problems (including medically unexplained symptoms) is of the order of £6 billion a year. This is equivalent to around 15% of total expenditure in these hospitals (Parsonage et al., 2012). For a typical general hospital of 500 beds, this corresponds to an extra cost of around £25 million a year.

Evidence on the effectiveness and cost-effectiveness of interventions

Evidence on the impact of liaison psychiatry services is relatively limited in extent and quality. This is for a number of reasons. Liaison psychiatry interventions are inherently complex and therefore not easy to evaluate using randomised controlled trials, which work best when applied to single-component interventions in tightly controlled settings. The patients seen by liaison psychiatry services are heterogeneous in nature and also supported by other services, making it difficult to isolate the specific impact of the liaison psychiatry input. Liaison psychiatry interventions typically have multiple outcomes, which complicates the interpretation of results. And there are wide variations in models of service delivery, reducing the extent to which findings can be compared or generalised. For example, some services focus mainly on rapid-response support and patient management in the wards and in A&E, while others concentrate more on the provision of psychological and other treatments in outpatient clinics.

As noted in a recent systematic review (Wood and Wand, 2014), perhaps the main conclusion to be drawn from the existing evidence is that liaison psychiatry services can be very cost-effective, reflecting the savings they are able to generate in hospital costs particularly among older patients. A body of evidence going back over 30 years shows that the effective management of elderly inpatients with mental health conditions can significantly reduce

lengths of hospital stay (Levitan and Kornfeld, 1981). Estimates of savings vary between studies but generally suggest reductions in the range 2-5 days per patient, corresponding to cost savings of £550 – £1,275 per case, based on the national cost of an “excess” or marginal hospital bed-day (Department of Health, 2014a). Further savings come from reduced rates of hospital re-admission and institutionalisation after discharge, with one study showing that a sample of older patients with mental health conditions were twice as likely to return to independent living if they received liaison psychiatry support as a matched sample receiving care as usual (Cole et al., 1991).

Evaluation of the RAID liaison psychiatry service in Birmingham City Hospital (a 24/7, rapid response, all-ages, all-conditions service) identified a total reduction of 14,500 bed days in the first full year after the service was introduced, equivalent to savings of £3.55 million (Parsonage and Fossey, 2011). About half of this saving related to shorter lengths of stay in hospital and half to reduced rates of re-admission. (Reduced rates of discharge to institutional care were also identified but not costed.) Some 90% of the financial benefits resulted from reduced bed use among older patients, even though this group accounted for only 60% of referrals from inpatient wards. Overall, the financial benefits attributable to RAID exceeded the cost of the service by a factor of 4 to 1. (Interestingly, an almost identical finding was reported in a US study, also published in 2011, which evaluated the impact of a liaison psychiatry service based on a very proactive model of provision, including case finding based on the review of all admissions, rapid intervention and close follow-up (Desan et al., 2011). The findings include “a very conservative estimate” that the financial savings associated with reduced bed use exceeded the costs of the service by a factor of 4.2 to 1.)

The RAID service was subsequently rolled out to other hospitals in the Birmingham and Solihull area and an in-house evaluation reported broadly comparable results, with identified financial savings exceeding the costs of additional provision by a factor of 3 to 1 (Wyatt, 2013). Most of the savings came from reduced

lengths of stay rather than reduced rates of re-admission, although interestingly it was also found in this study that patients seen by the RAID service in A&E were significantly less likely than matched controls to be admitted as inpatients, a finding not reported in the original evaluation.

A specific proposal for service improvement

Recent guidance on the commissioning of liaison psychiatry services in acute hospitals has set out specifications for four service models, described as Core, Core 24, Enhanced 24 and Comprehensive (Aitken et al., 2014). These differ in the range and quantity of services provided, with the basic Core model representing a minimum clinically appropriate level of provision and the other models adding on services as required, for example to meet the needs of hospitals with large and busy emergency departments. The estimated costs of these service models are in the range £0.7 – £1.4 million per 500 beds.

According to an estimate produced by the Department of Health (DH), providing appropriate liaison psychiatry services in all acute hospitals in England in line with this guidance would cost around £183 million a year in 2014/15 prices (Department of Health, 2014b). In comparison, estimated total NHS spending on liaison psychiatry services in 2014/15 is put at around £68 million. Subject to various caveats, these figures indicate a large shortfall in current provision, with aggregate spending needing to more than double in order to meet the specified service standards. The DH document just referenced sets out an illustrative path for the increase in annual expenditure that would be required to achieve this objective over the next five years. Including an allowance for set-up costs, this shows extra annual spending of £30 million in 2015/16 rising progressively to £119 million in 2019/20.

This is a path for gross rather than net additional expenditure and, in line with the findings of the original RAID evaluation, DH assume that every £1 spent on the additional provision of liaison psychiatry services would generate financial savings in the NHS of £4,

falling progressively to £3.50 as services are rolled out to an increasing number of hospitals. For various reasons this is probably on the optimistic side and a more realistic assessment might take, as an upper limit, an initial return of £3 for every £1 invested, in line with the findings of the RAID roll-out study, falling over time to £2.50. By the end of the five-year period, this implies a recurring net financial saving to the NHS of over £170 million a year, based on additional spending of £115 million a year to fill the gap between current and target provision of liaison psychiatry services and cost savings associated with reduced inpatient bed use of £287.5 million a year (= £115 million x 2.5).

It is important that new - and indeed existing - services are targeted at those areas of activity which the evidence suggests will yield the greatest benefits. In terms of support for inpatients, this is particularly likely to mean a strong focus on elderly people, not only because of the high level of need in this group but also because of the greater opportunities for cost savings. Average length of stay is more than twice as high among elderly inpatients as among those of working age (7.9 days compared with 3.7 days (HSCIC, 2015)) and the much shorter duration of stay in the latter group necessarily limits the scope for reductions in health care use and cost.

Similarly, in emergency departments, services should seek to work with those who make heavy use of A&E, keeping a register of frequent attenders combined with regular review of these patients and proactive case management. Evaluation of a service on these lines in Hull showed evidence of a reduction of 60% in the number of patients with mental health problems who attended A&E five or more times a year (cited in Parsonage et al., 2012).

Finally, there is a strong case for saying that the provision of liaison psychiatry services in acute hospitals should be funded by the acute hospitals themselves rather than from a mental health budget. One obvious reason for this is that all the financial benefits of liaison support take the form of cost savings in those hospitals where the support is provided. Another is that funding on this basis promotes more integrated

and holistic care, with liaison psychiatry being acknowledged as an essential ingredient in the provision of high-quality and efficient acute hospital care.

Chapter 6: Integrated physical and mental health care in the community for people with long-term physical health conditions and co-morbid mental health problems

Scale and cost of the problem

The ageing of the population combined with better ways of dealing with acute episodes of physical illness mean that the bulk of NHS resources are increasingly devoted to the care of patients with chronic long-term health conditions. Overall, it is estimated that more than 15 million people in this country have one or more long-term conditions such as diabetes, asthma, cardiovascular disease or arthritis and that spending on these conditions now accounts for around 70% of the total NHS budget (Department of Health, 2010).

Poor physical health is a major risk factor for poor mental health and research evidence across a wide range of conditions indicates that people with chronic physical illnesses are two to three times more likely to experience mental health problems than the general population. According to one review, at least 30% of all those with a long-term physical condition have a co-morbid mental health problem (Cimpean and Drake, 2011), equivalent to around 4.6 million people in England. (Seen the other way round, nearly half of all people with a mental health problem have a co-existing long-term physical illness.)

Co-morbid mental health problems are particularly common among people with multiple long-term physical conditions and indeed the overall number of physical conditions is more predictive of mental ill-health than the presence of any particular physical illness (Gunn et al., 2010). One study found that the prevalence of mental health problems among people with three or more long-term conditions was 40-50%, with strong associations between all forms of multi-morbidity and socio-economic deprivation (Mercer and Watt, 2007).

The co-existence of physical and mental health problems has a number of serious adverse consequences, both for patients and for the

health system. These include poorer clinical outcomes, lower quality of life, reduced ability to manage physical symptoms effectively and significantly increased costs of care.

The following examples illustrate the adverse impact on patients:

- Depression leads to a two- to three-fold increase in mortality rates among people with coronary heart disease (Barth et al., 2004) while mortality rates for people with co-morbid asthma and depression are twice as high as among those with asthma alone (Walters et al., 2011).
- People with one long-term physical condition and co-morbid depression have much lower quality of life than those with multiple long-term physical conditions but no depression (Moussavi et al., 2007).
- Rates of non-compliance with recommended medical treatments are three times higher among patients who are depressed than among those are not (DiMatteo et al., 2000).

Concerning the impact on NHS spending, evidence across a range of long-term conditions indicates that the presence of a co-morbid mental health problem increases the costs of physical health care by around 45-75% per case (Naylor et al., 2012). Taking 60% as a mid-point, this implies that on average the NHS spends an extra £2,400 a year on every individual patient who has co-morbid physical and mental health problems as against a physical condition on its own. (Average total costs per patient are estimated at £6,400 a year in the former case and £4,000 a year in the latter). At the aggregate level, extra spending on physical health services costs the NHS no less than £11 billion a year, equivalent to 10% of the total health service budget.

The cost increases associated with mental health co-morbidity rise sharply in line with the number of long-term physical conditions

from which a patient suffers. Thus, according to US data reported in Naylor et al. (2012), for a patient with one chronic physical condition the additional costs of physical health care associated with mental health co-morbidity are around \$2,050 a year. This increases to \$4,150 a year if the patient has two chronic conditions, \$6,450 a year for three conditions, and up to \$25,350 a year for six conditions.

Co-morbid mental health problems also have wider economic costs. For example, one study found that individuals with diabetes and co-morbid depression are seven times more likely to take time off work than those with diabetes on its own (Das-Munshi et al., 2007).

Evidence on the effectiveness and cost-effectiveness of interventions

A recent study of cancer patients with major depression found that less than a quarter received adequate treatment for their mental health condition (Walker et al., 2014). One reason for inadequate care is that many cases of co-morbid mental illness go undetected, implying a need for more active case-finding, in line with NICE guidelines (NICE, 2009). Improved identification is, however, only useful if linked to effective treatment programmes. There is now a substantial body of evidence to indicate that, while stand-alone mental health interventions can be effective in some circumstances, more significant benefits, including much greater take-up of mental health interventions, flow from a whole-person approach which seeks to integrate treatment for physical and mental health needs in a seamless way.

The strongest evidence for integration relates to the collaborative care model recommended in NICE guidance, which has now been the subject of more than a hundred trials, mostly in the US but with a small number in NHS settings as well. Collaborative care is a form of systematic team-based care with a number of ingredients, including: a case manager responsible for the coordination of different components of care; a structured care management plan, shared with the patient; systematic patient management based on protocols and the tracking of outcomes; delivery of care by a multidisciplinary

team which includes a liaison psychiatrist; and collaboration between primary and specialist care. (For an example in the UK context, see Walker and Sharpe, 2009.)

The published literature on collaborative care indicates that:

- There is consistent and robust evidence that this approach is effective in treating mental health problems among people with chronic physical illness and consequently in improving their general quality of life.
- The cost of collaborative care is relatively low, implying that the approach is not only effective but also cost-effective; indeed, NICE modelling suggests a cost per quality-adjusted life-year (QALY) gained of only around £4,000, which is well below the cut-off range of £20,000 - £30,000 used by NICE to assess whether interventions pass a value-for-money test.
- The impact on physical health outcomes such as mortality rates is less clear-cut, but this may largely reflect short follow-up periods, which are only 6 or 12 months in most research studies.
- There is a reasonable body of evidence to show that, at least for some conditions, collaborative care can lead to savings in physical health care costs which are more than sufficient to cover the costs of the intervention (see, for example, Simon et al., 2007).
- A US economic modelling study based on a systematic review of the evidence on collaborative care for patients with physical illness and co-morbid depression indicates that, from a societal perspective, every \$1 invested in this intervention yields benefits of around \$5 (WSIPP, 2015). Over half the benefits relate to increased employment and earnings among programme participants, but it is also the case that benefits exceed costs from a purely public sector perspective.

Recent years have seen a growing number of local initiatives in this country to provide more integrated care for people with co-morbid physical and mental health problems. Many

of these are described in a report published by the NHS Confederation Mental Health Network (2012), which notes that the physical conditions most commonly covered are diabetes, chronic obstructive pulmonary disease (COPD) and coronary heart disease.

A number of these services have been subject to local evaluation and in some cases provide evidence of substantial cost savings associated with the impact of integrated care on physical health care use. One of these relates to a breathlessness clinic in Hillingdon for patients with COPD which includes the use of cognitive behavioural therapy and psycho-education to address anxiety, panic attacks and depression. A small-scale evaluation found that, compared with controls, patients attending the clinic reduced their use of acute hospital services to such an extent that over a six-month period the resulting financial savings exceeded the costs of the intervention by a factor of around 4 to 1. Similar findings are reported for a number of other services supporting patients with COPD, coronary heart disease and diabetes.

These findings should be treated with a degree of caution, as the studies in question are often based on small sample sizes, do not always use control or comparison groups and are invariably based on short follow-up periods (although the last of these is likely to mean that if anything the scale of financial savings is under-estimated rather than the reverse). The scope for savings may also vary by type of chronic illness. For example, a high-quality evaluation of a collaborative care service in Oxford for patients with cancer and co-morbid depression has so far found only very small reductions in the use of physical health care services (Duarte et al., forthcoming). The intervention is nevertheless very cost-effective using the standard NICE metric of cost per QALY gained, as this comes in at less than £10,000, well below the cut-off range of £20,000 - £30,000. A possible explanation is that the use of physical health care services may be inherently more variable in some chronic illnesses than others depending on the patient's mental state, e.g. patients with COPD or heart disease may be particularly prone to panic attacks leading to frequent use of emergency care, while this is less common among those with cancer.

A specific proposal for service improvement

Health services are not currently organised in a way that supports an integrated response to co-morbid physical and mental health problems, and it is clear that improvements are needed on a number of fronts. Some of these are of a systems nature, for example changes to budgeting and payment methods in the NHS in order to support care organised around the individual rather than around each disease they may have. Others include:

- More training of physical health care professionals to build their mental health skills;
- Increased detection of co-morbid mental health problems, linked to care pathways for long-term conditions which should always include support for mental health needs;
- Closer working between GPs and IAPT services with the latter having a major role to play in the provision of talking therapy for the very sizeable numbers of patients with chronic physical conditions whose co-morbid mental health problems are of a mild to moderate nature.

The specific proposal made here is for the increased provision of collaborative care services for those with more complex needs, particularly where these result in high costs to the NHS. This might include, for example, patients with multiple long-term physical conditions, and indeed the suggestion has been made in the US literature that a possible approach to organising collaborative care services is to identify clusters of co-existing physical illnesses with compatible management guidelines, e.g. diabetes and coronary heart disease (Katon et al., 2010). As noted earlier, the excess costs of physical health care associated with mental health co-morbidities increase sharply in line with the number of chronic illnesses, implying that the potential economic benefits of improved mental health treatment are greatest in those with multiple physical conditions. Such benefits might accrue if, for example, better mental health results in improved adherence to recommended medical treatments across the whole range of physical

conditions from which a patient is suffering.

The presence of multiple chronic illnesses is not, however, the only cause of complexity or high cost and a more general approach might be to prioritise all patients in whom the management of their medical condition(s) is complicated by a psychiatric disorder at a diagnostic threshold above which basic GP care is unlikely to be effective. There is no straightforward way of estimating the overall numbers of patients who meet this criterion, but as a first approximation it may be put at around 10% of all those with long-term conditions and co-morbid mental health problems, i.e. around 0.46 million people.

For costing purposes, use is made of an estimate of £630 per patient relating to the Oxford collaborative care service for patients with cancer and co-morbid depression mentioned above. This includes an allowance for relevant training costs and is towards the upper end of the range for unit costs suggested in the literature. It is also measured as an additional cost, i.e. over and above the cost of care as usual. On this basis, total extra NHS expenditure on collaborative care services to support 0.46 million patients would be around £290 million a year.

These are increases in gross rather than net expenditure and, as seen, there is good evidence in the literature that collaborative care services can generate savings in health service costs which more than outweigh the costs of intervention. A conservative assumption might be that, over time, the increased provision of collaborative care would be cost-neutral from an NHS perspective, i.e. every £1 of spending on collaborative care would be offset by £1 of savings resulting from the reduced use of physical health services.

Finally, as a way of giving reality to the concept of whole-person care, there is a strong case for saying that the costs of collaborative care should be built into the budget for the physical health condition to which the service relates. For example, if cancer patients need treatment for depression, this should be funded out of the same budget as any other treatment for cancer patients. The case is particularly strengthened when it is noted that: (i) the cost of collaborative

care for a cancer patient is £630 a year, which is only about 2% of the overall average cost of treating a cancer patient at around £30,000 a year (NHS England, 2011); and (ii) in terms of cost per QALY gained, collaborative care is considerably more cost-effective than many conventional physical treatments for cancer. Indeed, by displacing less cost-effective treatments, the full costs of collaborative care could be met within existing budgets for cancer. This implies that if any future savings in physical health care costs are realised, the overall outcome could genuinely be described as better health at lower cost.

Chapter 7: Improved management of people with medically unexplained symptoms and related complex needs

Scale and cost of the problem

Medically unexplained symptoms (MUS) are defined as physical symptoms that do not have a readily identifiable medical cause or are disproportionate to the severity of any underlying medical illness. The symptoms are nonetheless real and can cause significant disability and distress.

The initial presentation of MUS is almost invariably in primary care settings and because patients do not see themselves as having a psychological problem, there may be a lengthy interval before the GP is able to make an accurate assessment. In the meantime, significant costs (and risks of iatrogenic harm) may be incurred through frequent re-attendance at the GP surgery and – in some cases – multiple referrals to secondary care for the investigation of physical symptoms. Even when a diagnosis is eventually made, the GP may find it difficult to manage the case, particularly as the patient will often be unwilling to engage with mental health services.

Patients with MUS form a heterogeneous group, with wide variations in the severity and presentation of symptoms. Many suffer from co-morbid anxiety or depression and there is also evidence that MUS are frequently co-morbid with features of personality disorder (Stern et al., 1993). Only a minority of patients with MUS have problems which are sufficiently severe to merit a clinical diagnosis of psychiatric disorder and for less serious cases the prognosis is generally good, with the majority resolving within a year without the need for specific treatment (Hartman et al., 2009). However, among more serious and complex cases the outlook is less good, particularly for those with specific somatic syndromes such as fibromyalgia (chronic widespread pain), irritable bowel syndrome and chronic fatigue syndrome, and problems in these cases may persist for years rather than weeks or months (Cairns and Hotopf, 2005).

Medically unexplained symptoms are a common

and costly problem in all health care settings. For example, they account for at least 20% of all new consultations with GPs (Escobar et al., 1998) and their prevalence among hospital outpatients may be even higher, with one study finding that the proportion of new attenders with MUS was in the range of 50-60% in all of the following outpatient departments: chest, cardiology, gastroenterology, rheumatology, neurology, gynaecology and dental (Nimnuan et al., 2001). A significant proportion of patients with MUS become frequent users of services in both primary and secondary care.

The overall cost of MUS to the NHS in England is estimated at around £3.25 billion a year in today's prices, equivalent to a cost of around £700 per head among all individuals identified with MUS including those with sub-threshold problems, rising to about £3,500 a year among the most costly 5% (based on data in Bermingham et al., 2010). About 40% of this additional spending falls on primary care and 60% on secondary care. Evidence from the US shows that higher spending on health care among people with MUS is not attributable to the impact on service use of co-existing depression or other mental health problems (Barsky et al., 2005). Medically unexplained symptoms also have wider economic costs, with the study by Bermingham et al. estimating that sickness absence associated with MUS costs the economy about £5.9 billion a year, again measured in today's prices.

Evidence on the effectiveness and cost-effectiveness of interventions

Although still relatively limited in overall scale, a growing body of evidence on the effectiveness and cost-effectiveness of psychological and other interventions for patients with MUS suggests the following conclusions:

- There is some evidence that training GPs to provide a better explanation of a patient's problems ('symptom re-attribution') can improve the management of MUS, including

better doctor-patient relationships, although a recent study found little evidence of a positive impact on patient outcomes (Morris et al., 2007).

- A review of the efficacy of interventions for MUS based on 34 randomised controlled trials found that cognitive behavioural therapy (CBT) is “the best established treatment” and is “consistently effective” in improving patient outcomes (Kroenke, 2007).
- This review did not cover the treatment of specific functional somatic syndromes such as irritable bowel syndrome, but there is evidence from other studies that CBT is also effective for these conditions, as are some other forms of psychotherapy such as graded exercise (Guthrie, 2006; White et al., 2011).
- There is moderate evidence that antidepressant drugs improve outcomes and that this benefit is not predicted by the presence of depression and anxiety disorders.
- The evidence on cost-effectiveness for CBT and related psychological interventions suggests that treatment can lead to some cost savings associated with the reduced use of health services after treatment, but that these savings may not always fully offset the cost of the intervention (see for example Creed et al., 2003 and McCrone et al., 2008).

A common limitation of research studies in this area is that their findings are usually based on relatively short follow-up periods, typically 6 or 12 months. There is, however, some evidence that the benefits of CBT for MUS may be maintained for longer than this and may even increase progressively (Lidbeck, 2003).

This has important implications, particularly for the cost-effectiveness of interventions. For example, an economic modelling study carried out for the Department of Health has found that if the benefits of a combined GP training and CBT intervention for patients with MUS are maintained over three years, the costs of the programme are fully offset by the value of subsequent reductions in health service use

(McDaid et al., 2011). Also taking into account reductions in sickness absence, the intervention is extremely good value for money from a societal perspective as well as being cost-neutral for the NHS. The payback period for the NHS is as short as one year if the intervention is specifically targeted at high-cost patients.

Little evidence is available on the effectiveness and cost-effectiveness of different service models for the delivery of support for people with MUS, even though this is in many ways more important than the question of what works in terms of specific clinical interventions. A major reason for this is that clinical interventions can only work if patients take them up. As seen, many people with MUS do not attribute their problems to their mental state and are consequently unwilling to access help from traditional mental health services. In any event these services are not generally well equipped to deal with psychosomatic conditions.

Another critical consideration is that patients with MUS are heterogeneous on many domains and vary greatly in the severity of their problems. Some specialist services are available, albeit on a limited scale, for those with the most complex and serious difficulties, including for example the Yorkshire Centre for Psychological Medicine (a highly specialist inpatient unit based at Leeds General Infirmary which delivers assessment and treatment for patients with the most intractable and persistent problems), and the Bath Centre for Pain Services (which offers intensive residential treatment for patients disabled by complex chronic pain which has failed to respond to conventional pain management interventions). Patient outcomes at the Bath Centre include an average increase of 30% in general ability to function with the current level of pain, a reduction in psychosocial disability, a 50% reduction in GP visits and a three-fold increase in work involvement (NHS Confederation, 2012). Specialist services for patients with specific functional somatic syndromes are also provided in outpatient clinics run by hospital-based liaison psychiatry services in some localities, for example the chronic fatigue syndrome services at Barts and King’s College Hospitals in London.

Further expansion of these specialist services is almost certainly justified in terms of health need, but the sheer scale of the challenge of MUS means that the great majority of patients will continue to be managed in primary care. A key requirement here is more support for GPs, particularly in the management of patients with complex problems. An example of a service meeting this need is provided by the Primary Care Psychotherapy Consultation Service (PCPCS) which supports GPs in Hackney and the City of London.

The PCPCS is a small multidisciplinary team of professionals from psychology, psychiatry, nursing and social work which has two main functions: first, to support GPs and practice staff in their management of patients with complex needs through training and case discussions; and second, to provide a direct clinical service to patients referred by GPs in the form of assessments and psychological interventions of up to 16 sessions. Referrals run at 40-50 a month.

A small evaluation of the service, based on a sample of 282 patients directly treated by the PCPCS, shows: moderate to large improvements in patient outcomes across a range of measures; an estimated cost per QALY of around £11,000, which is well below the NICE threshold range of £20,000 - £30,000; a reduction in NHS service use of over £460 per patient at the end of a 12-month follow-up, equivalent to about a third of the average cost of a course of treatment by the service; and very high levels of GP satisfaction (Parsonage et al., 2014).

Another model of provision is given by a primary care psychological health service in the London borough of Kensington and Chelsea which provides a continuum of support for patients with complex needs including MUS, bridging GPs and specialist mental health services. The service is headed by a primary care liaison psychiatrist and includes community psychiatric nurses and the local IAPT team within a single integrated structure. The input provided by the liaison psychiatrist enables the service to support patients with more complex needs than would be seen by a typical IAPT service. A combined liaison psychiatry and IAPT service has also been developed in Cambridge to

address the mental health needs of patients with long-term physical health conditions as well as those with MUS.

A specific proposal for service improvement

Patients with MUS can be roughly divided into three groups depending on whether their symptoms are mild, moderate or severe. For those in the first group, problems are usually short-lived and no specific intervention is required except perhaps more training for GPs in recognition and symptom management. For those with moderate and more persistent problems, a combination of self-help and CBT may be a useful strategy, to be provided in primary care settings by IAPT services working closely with GPs.

This leaves a group, accounting for around 5% of all those with MUS, whose problems are particularly severe, persistent and complex. Dedicated clinical services for these patients are largely non-existent in this country, despite the high costs that their problems impose on the NHS, and to fill this gap it is proposed that, over time, every CCG should aim to commission a specialist MUS service in its locality that would work across traditional boundaries between primary and secondary care and between mental and physical health.

Suggested features of the service might include:

- The target group would be patients with persistent complex problems that result in frequent use of health services in both primary and secondary care settings (i.e. the most costly 5% of all those with MUS). Many of these patients have a complex mix of mental and physical health problems, often combined with a history of social difficulties, isolation, neglect and trauma.
- The service would be provided by a small multidisciplinary team headed by a liaison psychiatrist and would have ready access to specialist medical opinion to help clarify the nature of current and new symptoms.
- It would provide both training and clinical interventions.
- Training in the recognition and management

of MUS would be given both to GPs and to hospital consultants, particularly those in specialities such as neurology and gastroenterology where the prevalence of MUS is known to be very high.

- Similarly, referrals to the service for clinical interventions would be accepted from both GPs and hospital consultants.
- The number of patients receiving clinical interventions might be of the order of 400-500 a year.

Taking the PCPCS service in City and Hackney as a possible model, the cost of each specialist team would be of the order of £0.6 million a year, implying a national cost of around £127 million a year if services are set up in all CCG areas. This is of course a gross cost and, given that the service is targeted at frequent health care users, the net cost to the NHS is likely to be much lower or indeed negative. As noted earlier, the most costly 5% of patients with MUS cost the NHS around £3,500 a year, or £10,500 over three years. This compares with an intervention cost of around £1,350 per patient, again based on the PCPCS model. If the service reduces the use of health care by just 15% a year for three years, this would more than cover the full costs of intervention. Proportionate cost savings of this magnitude are well within the range suggested by the available literature. Limitations in the evidence rule out a precise calculation, but a reasonable assumption is that over time a specialist MUS service on the lines proposed would be cost-neutral from an NHS perspective.

Chapter 8: Expanded provision of evidence-based supported employment services for people with severe mental illness

Scale and cost of the problem

Employment rates for people with severe and enduring mental health problems are very low. For example, a study of 37 different countries found that, on average, only 19% of people diagnosed with schizophrenia were in paid employment, against an average in the general population of 75% (Haro et al., 2011). Employment rates for people with schizophrenia in this country are even lower at around 8%, compared with a national average of 71% (Bevan et al., 2013). It is estimated that the cost to the economy associated with this low rate of employment among people with schizophrenia is around £3.4 billion a year (Andrew et al., 2012).

Studies report that the proportion of all people with severe mental illness who are willing and able to work is as high as 70% (Macias et al., 2001). However, not all get the help they would like. For example, the 2014 survey of mental health service users carried out by the Care Quality Commission found that, among all those wanting to work, 26% said that they were definitely receiving support for work, 29% said that they were receiving support 'to some extent' for help or advice finding or keeping work, and 44% said that they were not receiving help finding or keeping work but would like some (Care Quality Commission, 2014).

The evidence that work is beneficial is strong. Stable employment embodies recovery, (especially for younger adults with a recent diagnosis), enhances income and quality of life, and promotes citizenship and contribution to society (Schizophrenia Commission, 2012; Care Quality Commission, 2014; Bond et al., 2012; Bush et al., 2009; Repper & Perkins 2003). The reverse is also seen: without employment an individual has limited income, routines and choices and experiences social isolation, all of which are recognised stressors.

Vocational rehabilitation services for people with severe mental illness are of two main types: 'place then train' or 'train then place'.

The first quickly finds and places someone in a competitive job, thereafter supporting them to make the job work. The second spends time preparing a person through training or sheltered or voluntary work that may or may not eventually lead to competitive employment.

'Place then train' vocational rehabilitation is often referred to as supported employment and the most well-defined and widely researched supported employment programme is Individual Placement and Support (IPS). The key principles of this approach are:

- It aims to get people into competitive employment;
- It is open to all those who want to work;
- It tries to find jobs consistent with people's preferences;
- It works quickly;
- It brings employment specialists into clinical teams;
- Employment specialists develop relationships with employers based upon a person's work preferences;
- It provides time unlimited, individualised support for the person and their employer;
- Benefits counselling is included.

(Adapted from Bond et al., 2008.)

Evidence on the effectiveness and cost-effectiveness of IPS

There is extensive evidence demonstrating the effectiveness of IPS compared with alternative interventions, including two Cochrane Reviews and a NICE Clinical Guideline (NCCMH, 2014; Kinoshita et al., 2013; Bond et al., 2014; Bond et al., 2012; Bond et al., 2008; Crowther et al., 2001).

These reviews consistently report that IPS is more effective than other services across a range of employment outcomes. The NICE

Clinical Guidelines report employment rates of 50% for those using IPS services compared with 20% in a control group. Very similar findings are given in the Cochrane review (Kinoshita et al., 2013), which also found IPS to be more effective at increasing the likelihood of any employment, increasing the duration of employment, increasing job tenure and reducing time to first job. Bond et al. (2014) report employment rates as high as 82% for IPS against 42% for a control service in a review of employment support for people with severe mental illness aged under 30.

IPS was first developed and evaluated in the US and a meta-analysis (Bond et al., 2012) comparing IPS services in the US with those in other countries found somewhat higher IPS-related employment rates in the former (62% compared with 47%). However, there were consistently positive findings wherever the setting: 50% for IPS compared with 20% for other services. These findings are very similar to those in a European six-site study which reported employment rates of 55% for IPS compared with 28% for other services. One of these sites was in London, which reported employment rates of 48% for IPS and 17% for a pre-vocational service (Burns et al., 2007).

Two further conclusions have been established in the research literature. The first is that high-fidelity IPS programmes (i.e. those adhering closely to the key principles of the intervention) produce better employment outcomes than low fidelity ones (Henry et al., 2014). Linked to this, there is evidence that regional trainers responsible for maintaining fidelity of services can have a marked impact on employment rates (Centre for Mental Health, 2012). The second is that scoring well on the fidelity scale needs to be accompanied by provision of a 'therapeutic dose'. In other words, the frequency of contact between employment specialists and their clients needs to be maintained at a high level to be effective; 'cutting corners' will undermine the effectiveness of the intervention (Latimer 2010).

Overall, the evidence for the effectiveness of IPS is extremely strong. Further, there is no evidence that being in paid work is damaging to mental health. Emerging findings also provide evidence that employment outcomes

are maintained over the long term and are associated with reduced use of mental health services.

A five-year study of IPS from Switzerland (Hoffmann et al., 2014) reported that 44% of those receiving IPS were employed for at least 50% of the time over five years, compared with just 11% in a control group. Time in employment, tenure of longest job and yearly income were all better for the IPS group at five years. (These findings support the proposition that if IPS can make people more employable, its potential benefits may extend over many years.)

The additional striking finding from this study was the impact on mental health service use, as it was found that while those receiving IPS spent an average of 38.6 days in hospital over the five-year period, the corresponding time spent in hospital among those in the control group was 96.8 days, a difference of 58.2 days. Translating this finding to the English setting equates to a saving of around £20,000 per person over five years.

A US study with a 10-year follow-up (Bush et al., 2009) identified three trajectories in employment patterns among people with severe mental illness based on numbers of hours worked: steady work (27%), intermittent work (30%) and no work (42%). Due to similarities in outcomes, the results for the intermittent work and no work groups were merged into a 'minimum work' group for comparison with the steady work group. Again, the findings relating to mental health care resource use were striking, as service costs for an average steady worker were \$14,473 per year compared with \$31,108 a year for an average member of the minimum work group. Over the 10 years of the study this resulted in reduced health service costs of \$166,350 per steady worker (equivalent to around £120,000 in today's prices). As noted, the steady workers accounted for 27% of the sample, implying that savings averaged over the group as a whole were around \$44,915 per head (£32,400).

Reductions in health service costs were also reported in the six-site European study (Knapp et al., 2013). In particular, only 20% of IPS participants were hospitalised at any time

during an 18-month period compared with 30% of those in traditional services, while the proportion of time spent in hospital over the 18 months was only 4.6% for IPS clients against 8.9% for those in traditional services. Overall, the difference in costs was around £5,125 per person over 18 months.

Finally, based on economic modelling, it has been estimated by NICE that supported employment generally, rather than IPS specifically, has a cost per QALY gained of £5,723 compared with ‘treatment as usual’, which is well below the acceptability threshold of £20,000 - £30,000. One limitation of this analysis in the current context is that the intervention was not exclusively IPS, despite the wide body of evidence associated with this form of supported employment. Another is that supported employment was compared with ‘treatment as usual’, which is typically a low-cost intervention with little or no vocational component. NICE highlights that a more likely comparator would be pre-vocational training which it concludes would be both more costly and less effective. In other words, on this basis of comparison, supported employment results in better health at lower cost.

Specific proposal for service improvement

Little information is available on the numbers of mental health service users currently receiving IPS services, but they are broadly estimated to be in the range 10,000 – 20,000 a year. Taking the upper end of this range as a starting point, the proposal made here is that over the next five years the provision of IPS places should be doubled, i.e. from 20,000 a year to 40,000 a year. It is also proposed that additional support should be targeted at younger people with severe mental illness (those aged 18-30), partly because of the evidence noted above that IPS is particularly effective with this group.

Based on a number of sources, it is estimated that the average cost of IPS support is around £2,700 per client. The total cost of 20,000 additional places would therefore be £54 million a year. To be conservative, it is assumed that all of this expenditure is on top of existing provision for vocational support, whether IPS or

otherwise. In practice, some of the cost could be met by using IPS instead of, rather than as well as, less effective programmes of the ‘train then place’ variety. The cost estimate of £54 million a year should therefore be regarded as an upper limit.

Allowance should also be made for reductions in the future use of mental health services, which the evidence suggests are likely both in the short term and in the longer term. The three studies cited above with relevant data show savings of £5,125 over 18 months, £20,000 over five years and £32,400 over 10 years. Measured on an annualised basis, these are all within the range of £3,000 - £4,000 a year. Even taking the lower end of this range, the figures suggest that IPS would pay for itself within a year (cost of intervention = £2,700, savings = £3,000).

A conservative assumption might be to include only those savings which relate to the first 18 months. On this basis, £54 million of additional expenditure on IPS services would be offset by subsequent savings of £102.5 million because of reduced use of mental health services.

Chapter 9: Community-based alternatives to acute inpatient care for people with severe mental illness at times of crisis

Scale and cost of the problem

Severe mental illnesses such as schizophrenia and bipolar disorder are characterised by periodic crises or relapses, as manifested in a significant increase in symptom severity, a significant decrease in social functioning or a major change in the pattern of care such as hospitalisation. There may also be increased risks of harm, both to the individuals themselves and to others. Only about a fifth of people with schizophrenia or bipolar disorder recover fully after an initial episode, with the remainder at high risk of experiencing multiple episodes of severe illness extending over many years (Wiersma et al., 1998; Mackin and Young, 2005). The rate of relapse in people with schizophrenia is estimated at around 3.5% a month, or more than 40% in the course of a year (Csernansky and Schuhart, 2002). Bipolar disorder is similarly characterised by high rates of episodic recurrence; after a manic episode, there is a 50% chance of recurrence within 12 months (Tohen et al., 1990).

Relapse is not only a major clinical event but also a very costly one. For example, a study of a sample of patients with schizophrenia in Leicester found that over a six-month period mental health service costs for those who had experienced a relapse were over four times higher than for those who had not (Almond et al., 2011). Also drawing on a similar study of a sample of patients in south London (Munro et al., 2011), it may be estimated that in today's prices the cost to the NHS of a crisis episode among patients with schizophrenia is around £19,800. A French study of patients with bipolar disorder suggests a somewhat lower figure of around £12,300 for this condition (Olié and Lévy, 2002).

According to NHS reference cost data, mental health services spent £188 million in 2013/14 on inpatient psychiatric care for patients in psychotic crisis (Department of Health, 2015). The average daily cost of this was £376, higher than for any other mental health patient

grouping or cluster.

The very high costs of acute inpatient care have encouraged the development of a number of community-based alternatives to crisis care, as part of the wider move towards de-institutionalisation that has dominated mental health policy and service planning for many years. Mainly because of the availability of relevant evidence, the focus here is on two specific interventions: crisis resolution teams and crisis houses.

Crisis resolution teams

Crisis resolution teams (CRTs), also known as 'crisis resolution and home treatment teams', 'crisis assessment and treatment teams' and 'intensive home treatment teams', were established throughout the NHS following their recommendation in the 1999 National Service Framework for mental health. The aim of these teams is to provide intensive treatment and support in the community to those undergoing a severe mental health crisis that would otherwise result in hospital admission. As described in Johnson (2013), the roles of the team are to:

- Assess all patients being considered for admission to acute psychiatric wards, thus acting as a gatekeeper;
- Initiate a programme of home treatment with frequent visits (usually at least daily) for all patients for whom this appears a feasible alternative to hospital treatment;
- Continue home treatment until the crisis has resolved and then transfer patients to other services for any further care they may need;
- Facilitate early discharge from acute wards by transferring inpatients to intensive home treatment.

These services are provided by multidisciplinary teams which on average include 17 staff at an overall cost of around £1.0 million per team (Curtis, 2014). Support is available 24 hours a day, seven days a week.

Evidence of effectiveness

There is some evidence indicating that, when implemented with fidelity, crisis teams provide effective support for people experiencing crises and can result in reduced admissions (Andrew et al., 2012). The evidence demonstrates that model implementation and outcomes vary considerably and utilising crisis teams to their full potential is essential (Wheeler et al., 2015, Andrew et al., 2012). It is important to note that the studies reported are of varying quality, presenting a challenge in drawing firm conclusions (NICE, 2014).

Several systematic reviews and individual studies have found that crisis teams reduce admissions to inpatient care. A Cochrane review of eight RCTs compared crisis intervention models with standard care (Murphy et al., 2012). Relative to standard care, crisis interventions appeared to reduce repeat admissions to hospital after the initial crisis, especially for mobile teams. The most recent NICE guideline on schizophrenia and psychosis (NICE, 2014) presents mixed results, with some studies suggesting that crisis teams reduce risk of admittance at 6, 12 and 24-month follow-up when compared with standard care. In a systematic review examining the impact of crisis teams, it was found that in eight of the studies, using a pre- and post-intervention study design, CRTs had an impact on reducing readmissions and numbers of days in inpatient care (Carpenter et al., 2013). For example, one study demonstrated a 24% reduction in psychiatric admissions, a 22% reduction in mean duration of stay, a 17% reduction in Mental Health Act admissions and a 4% fall in readmissions. One study included in the systematic review was a randomised controlled trial of a crisis team in North Islington which found that patients in contact with the crisis team were less likely to be admitted during eight weeks and within six months post-crisis (Johnson et al., 2005).

In relation to clinical outcomes, the Cochrane review found that at three month follow-up people supported by crisis teams had a better mental state than those who received standard care. The review did not find any difference in mortality outcomes.

Concerning patient satisfaction, studies generally found that there was greater satisfaction with crisis teams than with standard care (Murphy et al., 2012, Johnson et al., 2005, NICE 2014). The NICE review found some evidence that at 6 and 12 month follow-up there was greater satisfaction amongst patients in CRTs (2014). Johnson and colleagues (2005) found that individuals in the intervention arm were more satisfied with care.

On a less positive note, a report by the Healthcare Commission (2008) found that CRT teams were often not implemented as intended. Over a six-month period, CRTs were involved in 61% of nearly 40,000 admissions to acute wards. This varied between 9% and 100% across the country. Among almost 40,000 discharges, only 25% (range 0% to 70%) occurred early with CRT support. Similarly, a survey of 500 admissions by the National Audit Office indicated that only 50% were assessed by a CRT team and that 20% of inpatient admissions could have been suitable for home treatment instead (NAO, 2007).

Evidence of cost- effectiveness

The evidence suggests that, when implemented with fidelity, CRTs can make savings (Knapp et al., 2014). A prospective non-randomised study compared service costs before and after implementation of a crisis resolution team in south Islington (McCrone et al., 2009a). Mean costs for the cohort following implementation of a CRT were £1,738 lower than before the service, although the difference was not statistically significant (McCrone et al., 2009a).

McCrone and colleagues subsequently assessed the cost-effectiveness of a crisis resolution team as part of a randomised controlled trial in north Islington (2009a) and found that mean total service user costs were £2,520 lower for those randomised into the CRT group (McCrone et al., 2009b).

Crisis houses

Crisis houses offer a community-based residential alternative to acute psychological wards for people experiencing severe mental health crises. Residential crisis models

vary considerably and include clinical crisis houses, specialist crisis houses, crisis team beds, recovery houses and non-clinical third sector alternatives (JCPMH, 2014). Crisis houses tend to have 24-hour staffing by trained mental health staff and support workers. Support includes treatment planning and implementation and help with everyday activities.

Evidence of effectiveness

Only limited evidence is available on the effectiveness of crisis houses and evaluating their impact is complicated further by the diversity of service models, making it difficult to compare studies and draw firm conclusions (Howard et al., 2010, Knapp et al., 2014). The main findings relate to service user preference for crisis houses over acute inpatient care (Howard et al., 2010; Slade et al., 2010; Larsen and Griffiths, 2013). One study, adopting a patient-preference randomised controlled trial, compared crisis houses and inpatient wards for women in a severe mental health crisis (Howard et al., 2010). This found greater satisfaction with care for those admitted to the crisis house. However, it was also found that, regardless of treatment, participants who obtained their preferred treatment were more satisfied (Howard et al., 2010).

Rethink Mental Illness Crisis Houses provide 24-hour emotional and practical support for people in mental health crises. A national evaluation reported improved recovery outcomes such as better management of mental health, identity and self-esteem, and hope and self-care amongst individuals with mental health diagnoses including schizophrenia, depression, personality disorder, bipolar disorder and anxiety (Larsen and Griffiths, 2013).

Slade and colleagues compared five alternatives (clinical crisis houses, short-stay wards, crisis team beds and two non-clinical alternatives) with standard acute inpatient care, and reported a significant improvement in severity and functioning at discharge among patients in the former group, 40% of whom had symptoms or a formal diagnosis of psychosis (Slade et al., 2010; Knapp et al., 2014). A review of 27 studies examining the effectiveness of crisis

houses found no significant difference in clinical outcomes between trial arms (Lloyd-Evans et al, 2009). However, findings did indicate that no crisis house had poorer outcomes than standard care and, where there was a difference in outcomes, it favoured the crisis houses.

Evidence of cost-effectiveness

A randomised controlled trial of women's crisis houses showed a reduced mean total cost of 14% over three months when compared with inpatient care, although the difference was not statistically significant (Howard et al., 2010). Comparing five residential alternatives with standard care, Slade and colleagues found that the former were on average 22% cheaper than traditional services, but again the difference was not statistically significant (Slade et al., 2010).

A specific proposal for service improvement

The available evidence on the effectiveness and cost-effectiveness of crisis houses as an alternative to admissions is too limited to support a recommendation for practice. It is, however, possible to make such a proposal in relation to crisis resolution teams, as there is growing evidence that when implemented as intended these teams are effective in reducing admissions and reducing length of stay in hospital without any adverse impact on clinical outcomes. They are also preferred by patients.

Despite this favourable verdict, spending on CRTs has been cut in recent years, with one recent survey of mental health trusts finding that expenditure on these teams fell by 8.3% in real terms between 2010/11 and 2014/15 (McNicoll, 2015). Moreover, this was despite an 18% increase in average monthly referrals. Based on data collected in a now-discontinued annual survey of investment in adult mental health services (Mental Health Strategies, 2013), it is estimated that it would cost £29 million to restore spending to its real terms level of 2010/11 and £63 million to allow also for an 18% increase in referrals.

Assuming that caseloads are at the level specified in the Department of Health's original

implementation guidance for CRTs (DH, 2001), it is estimated that additional expenditure of £29 million would support home treatment for around 8,500 patients who might otherwise have been admitted to hospital. Net cost savings are put at £2,305 per patient, derived as an average of the two studies by McCrone and colleagues cited above, expressed in terms of today's prices. Total cost savings thus equal £19.6 million. It should be emphasised that this is a net figure, which already takes into account the costs of additional provision on CRTs. If these costs are accounted for separately, the relevant figures are: additional spending on CRTs = £29 million, gross savings in NHS costs = £48.6 million. Every £1 invested in CRTs thus yields savings of £1.68. Applying this benefit:cost ratio to the spending of £63 million needed to accommodate an 18% increase in referrals to CRTs, estimated gross savings would be £106 million.

Chapter 10: Interventions to improve the physical health of people with severe mental illness

Scale and cost of problem

The mortality rate among mental health service users is 3.6 times higher than in the general population (HSCIC, 2013). The increased risk is lifelong and affects men and women more or less equally. The end result is that people with severe mental illness die between 15 and 20 years earlier than the population average (Rethink, 2013; Wahlbeck et al., 2011), and there is some evidence that this gap in life expectancy has, if anything, been increasing in recent years (Brown et al., 2010). Premature mortality due to schizophrenia alone costs UK society £1.4 billion a year (Andrews et al., 2012).

Although suicide rates are very high among people with severe mental illness, the majority of excess mortality is from diseases that are the major causes of death in the general population, particularly circulatory diseases, respiratory diseases and cancer (Brown et al., 2010; Leucht et al., 2007). The factors contributing to this excess mortality are many and interrelated but include smoking, obesity, poor diet, illicit drug use, physical inactivity and long-term antipsychotic use (Royal College of Physicians, 2013; Brown et al., 2010; Chang et al., 2011). There are also service-level challenges, as the identification and treatment of physical health problems among people with severe mental illness require joint working between primary and specialist care.

The focus of this analysis is on the effectiveness and cost-effectiveness of interventions and is therefore limited to two main areas of intervention where there is a reasonable evidence base: smoking cessation and weight management interventions. While there are interesting screening and joint working initiatives (NHS England, 2015), there is not yet sufficient evidence to evaluate these.

Smoking

Smoking rates among people with mental health problems are high. Estimates range from

around 33% for those living in the community, which is nearly twice the general population average, to 59% for those currently on antipsychotic medication and around 70% for people in psychiatric inpatient units (McManus et al., 2010; Royal College of Physicians, 2013; Jochelson & Majrowski, 2006; Brown et al., 2010). There is a strong link between the severity of mental illness and smoking: people with severe mental illness are more likely to smoke and to smoke more heavily than those with milder problems (Royal College of Physicians, 2013). A study of people with schizophrenia from Southampton found that the mortality risk for smokers was double that for non-smokers, with smoking-related disease accounting for 70% of the excess mortality (Brown et al., 2010).

The economic cost of smoking among all people with mental health problems has been estimated at around £2.34 billion in 2009/10 in the UK (Wu et al., 2014). Some 31% of the total (£719 million) was spent on treating diseases caused by smoking, while premature mortality accounted for a further 34% (£797 million). Because of the effect that smoking has on the metabolism of antipsychotic drugs, smokers may need up to a 50% higher dose of medication than non-smokers, increasing the NHS medicines bill by at least £10 million a year (Royal College of Physicians, 2013). It is also worth noting that people with severe mental illness may spend up to 40% of their disposable income on cigarettes and tobacco (Public Health England, 2015).

Obesity

Obesity is between 1.5 and 4 times higher in people with severe mental illness than in the general population (Faulkner et al., 2007). Studies have reported rates of obesity of up to 60% for people with schizophrenia or bipolar disorder. A US study of 169 randomly selected outpatients with severe mental illness found that 50% of the females and 41% of the males were obese compared with 27% and 20%

respectively in the general population (McElroy 2009).

Obesity doubles the risk of all-cause mortality, coronary heart disease, stroke and type 2 diabetes. It also increases the risk of some cancers, leads to musculoskeletal problems and loss of function, and has negative psychological consequences (Faulkner et al., 2007).

Antipsychotic medications are associated with weight gain (Rethink Mental Illness, 2013) and cardio-metabolic risks appear within weeks of commencing them (NCCMH, 2014). While treatment with second-generation antipsychotics is frequently invoked as the cause of weight gain in schizophrenia, the explanation is multi-factorial and includes pre-treatment and pre-morbid genetic vulnerabilities, socioeconomic disadvantages and unhealthy lifestyle (Manu et al., 2015).

At the general population level, a recent study commissioned by the consultancy firm McKinsey has estimated that obesity costs the UK economy nearly £47 billion a year, equivalent to 3.0% of national income (McKinsey, 2014). This includes £6 billion a year on the NHS costs of treating conditions directly related to obesity. (The same study also puts the aggregate cost of smoking at £57 billion a year or 3.6% of national income.) Based on the McKinsey figures, a very approximate estimate is that the economic cost of obesity among people with severe mental health problems is around £1.9 billion a year.

Effectiveness and cost-effectiveness of interventions

Smoking

Reviews of smoking cessation among people with severe mental illness have considered interventions which include behavioural programmes (individual and group therapy), nicotine replacement (patches and inhalers) and pharmacological treatments (bupropion and varenicline). These interventions can be applied singly or in combination. Thus the NICE public health guidance on smoking cessation evaluated 12 separate interventions involving different combinations of the various components (NICE, 2008).

An important finding from a review of studies specifically relating to people with severe mental illness is that treating tobacco dependence is effective and the strategies that work for the general population are equally effective for those with severe mental illness (Banham and Gilbody, 2010). This review also found that if participants were psychiatrically stable at initiation of quit attempts, smoking cessation interventions did not worsen their mental state.

The recent NICE guideline on schizophrenia and psychosis and a recent Cochrane review have assessed pharmacological (bupropion and varenicline) and nicotine replacement strategies (NCCMH, 2014; Tsoi et al., 2010). Both found that bupropion is effective: smokers with schizophrenia who used bupropion to aid smoking cessation had a two and a half times higher rate of abstinence at the end of treatment compared with placebo and this was sustained six months after the treatment. Tsoi and colleagues also reported no evidence that using bupropion for smoking cessation adversely affected positive, negative or depressive symptoms compared with those on placebo (Tsoi et al., 2010). Varenicline was also reported to be effective (NCCMH, 2014).

Analysis by NICE has found that most treatments are both more effective and less costly than doing nothing, as the latter has costs associated with the day-to-day management of smoking-related illnesses for the NHS (NICE, 2008). The highest cost per QALY reported for intervention is still less than £10,000, comfortably below the NICE threshold of £20,000-£30,000 (Flack et al., 2007). Halving the effectiveness of the interventions still results in highly cost-effective treatment when compared to the NICE threshold (Jochelson & Majrowski, 2006).

Interventions specific to people with severe mental illness may be even more cost-effective than for the general population, due to the reduction in cost associated with reduced antipsychotic dosing and increased quality of life because of the consequent reduction in side-effects.

The key outcome of smoking cessation is increased life expectancy. Life years gained are shown for different age groups in Table 1.

Table 1: Years of life gained from smoking cessation (from Doll et al., 2004)

Age at quitting	Year of life regained
<35	10
35-44	9
44-54	6
55-64	3

In line with the Royal College of Physicians report (2013), the same benefit may be assumed for people with severe mental illness as in the general population.

Obesity

Some, albeit limited, evidence is available on the prevention of weight gain or supporting weight loss in people with severe mental illness. Both behavioural and pharmacological approaches have been studied. A recent review of the evidence relating to non-pharmacological interventions reported a mean weight reduction of 3.12kg over 8 to 24 weeks (Caemmerer et al., 2012). The NICE guideline reported evidence of a beneficial effect of behavioural interventions focused on promoting both moderate activity and healthy eating (weight reduction of 2.88kg at the end of treatment), although there were no data beyond 6 months. These align with findings from a Cochrane Review and previous systematic reviews (Faulkner et al., 2007; McElroy, 2009; Manu et al., 2015), as summarised in Table 2.

The two main limitations of the evidence base on interventions for obesity in people with severe mental illness are: first, that little is known about the extent to which weight reductions are maintained beyond the short to medium term; and second, that even less is known about the cost-effectiveness of interventions, though preliminary economic modelling work suggests promising results (reported in Knapp et al., 2014).

A specific proposal for service improvement

Smoking cessation has been shown to be perhaps the single most effective and cost-effective intervention in the whole field of public health. Given the further evidence that the prevalence of smoking is particularly high among mental health service users and that interventions are just as effective in this group as in the rest of the population, it is clear that the wider provision of smoking cessation services for people with severe mental illness should be a high priority.

National data show that in 2013/14 (the latest available year) around 1.7 million people of all ages had some contact with secondary mental health services in England (HSCIC, 2015). However, many of these had only one or two contacts, e.g. for assessment, and it may be more feasible and realistic, at least initially, to target services specifically on those mental health service users who are on

Table 2: Evidence relating to weight management treatments (from Faulkner et al., 2007)

	Cognitive/Behavioural Interventions	Pharmacological Interventions
Preventing weight gain	Medium term: -3.38kg End of treatment: -4.87kg	End of treatment: -1.16kg
Treating weight gain	Medium term: -1.69kg	End of treatment: -3.85kg

the Care Programme Approach (CPA). These are generally people with the most severe problems and, as seen, there is a strong link between severity of mental illness and smoking behaviour. Altogether there are around 358,000 people on CPA (HSCIC, 2015) and if it is further assumed that 60% are smokers and that 69% of these would like to quit (Royal College of Physicians, 2013), this gives a target population of approximately 150,000 people.

The proposed intervention is the most effective of all those evaluated in economic analysis prepared for the NICE guidance on smoking cessation (Flack et al., 2007), with an estimated quit rate of 35%. It is a multi-component intervention, comprising nicotine patches plus pharmacist counselling plus a behavioural programme. The unit cost of the intervention is £450 in today's prices, giving a total cost for 150,000 people of £67.5 million.

Estimated savings are £100.8 million, spread over a number of years, due to reduced smoking-related NHS costs. More profoundly, those successfully quitting would on average gain an increase in life expectancy of around seven years.

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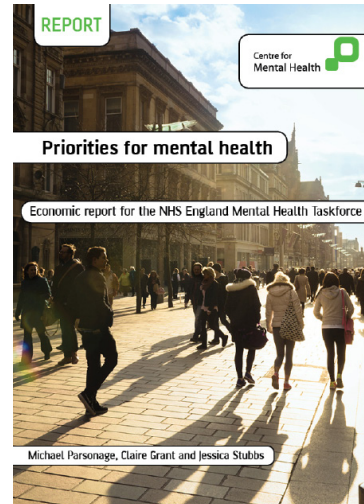
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