Mental health and physical health: a comparative analysis of costs, quality of service and cost-effectiveness

Michael Parsonage (Centre for Mental Health)
Chris Naylor (King's Fund)

Introduction

This paper sets out a body of comparative information on mental and physical health. The general aim is to provide a number of building blocks in support of the argument that mental health should be given a higher priority in NHS spending decisions. The areas of comparison covered are:

- The burden of disease
- Costs to the NHS
- Wider economic and social costs
- The availability and quality of treatment
- The cost-effectiveness of interventions.

We conclude the paper with a short discussion of how priority setting and resource allocation decisions are made in practice within the NHS.

The paper is very much in draft form and suggestions for improvement would be greatly welcomed.

The burden of disease

The most widely cited figures on the overall burden of disease and its breakdown between different health conditions are those produced by the WHO. These are based on a composite health measure, the disability-adjusted life-year (DALY), which combines years of life lost from premature mortality (YLL) with years of life lost from disability (YLD). Conceptually, the DALY is much the same as the quality-adjusted life-year (QALY) which is used by NICE and others in this country for the evaluation of health service interventions. The main practical difference between the two is that the numerical weights attached to different levels of disability or morbidity are based on the opinions of experts in the DALY and on the opinions of the general public in the QALY.

The WHO's latest available figures for the UK relate to 2004 (WHO, 2008a) and these show that mental illness accounts for a bigger proportion of the overall burden of disease than any other health condition – see Table 1 below.

Table 1: The burden of disease (UK, 2004)

	% of total burden
Mental illness	22.8
Cardiovascular diseases	16.2
Cancer	15.6
Respiratory diseases	8.3
Sense organ diseases	7.0
Digestive diseases	5.1
Musculoskeletal diseases	4.1
Accidents	3.7
Diabetes	1.8

Note: the figure for 'mental illness' is an estimate produced by the Department of Health (DH, 2011a), based on the broader grouping of 'neuro-psychiatric conditions' used by the WHO but subtracting those conditions such as epilepsy which are not conventionally regarded as mental disorders (or treated by mental health services) and adding in suicide and self-harm (which together account for 1.3% of the total burden).

The quantitative importance of mental health conditions is clearly seen in these figures. It is striking, for example, that the burden caused by mental illness is more than five times as large as the burden associated with musculoskeletal diseases, which include a number of highly prevalent conditions such as rheumatism and arthritis, and more than ten times the burden associated with diabetes.

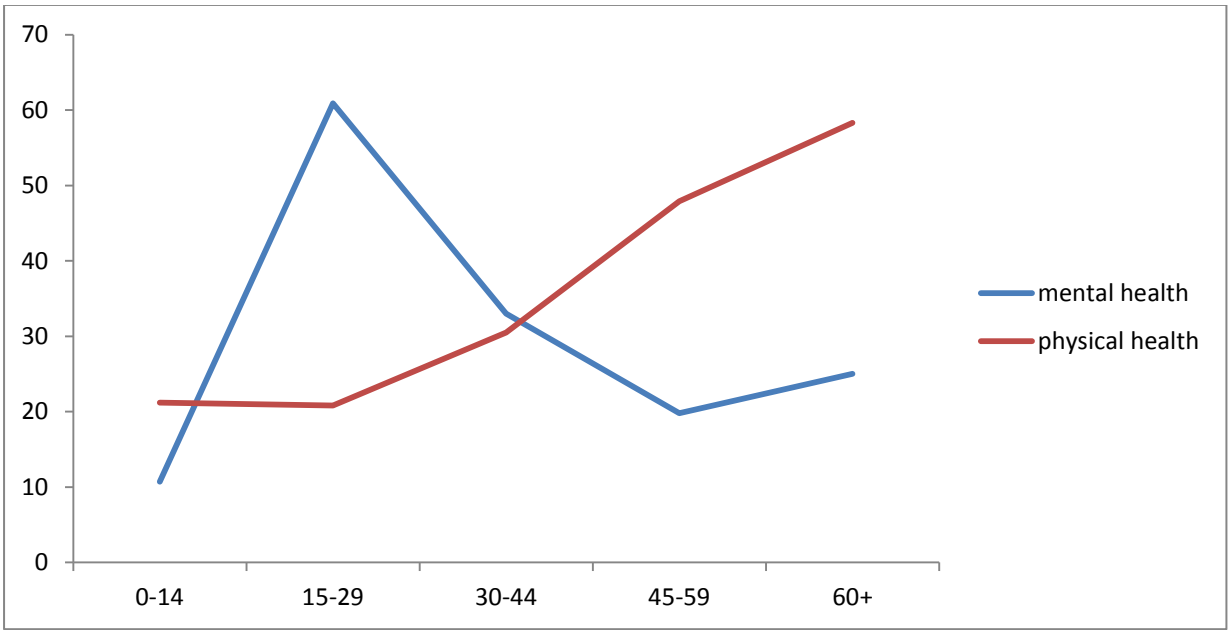
The share of mental illness in the overall burden has risen in recent years and there are good reasons for supposing that this trend will continue in the future. This is not so much because of any clear evidence that the prevalence of mental health problems is increasing but rather because the burden imposed by the two other leading health conditions (cardiovascular disease and cancer) is declining. This reflects falling death rates from these conditions, associated with advances in medical treatment and past falls in the prevalence of smoking (which will continue to feed through into improved health and longevity for many years to come). The relative size of the burden associated with mental illness is therefore likely to increase even if the absolute numbers affected remain broadly unchanged.

The WHO data suggest that in countries such as the UK about half of the overall burden of disease currently comes from premature mortality (YLL) and the other half from disability (YLD), with the share of the latter steadily increasing over time in line with the growing importance of chronic long-term conditions. (As might be expected, in low-income countries, premature mortality particularly associated with infectious diseases accounts for a much higher proportion of the overall health burden.) Mental ill health contributes relatively little to premature mortality (about 5% of total YLL in the UK) but is easily the biggest single cause of disability in the living population - about 40% of total YLD, compared with 9.5% for musculoskeletal diseases, 7.7% for respiratory diseases, 6.1% for cardiovascular diseases and 3.7% for diabetes.

This importance of mental illness as a cause of disability reflects both a high prevalence of mental health problems throughout the population and a high rate of disability per case. Some illustrative examples of the disability weights used by the WHO in constructing DALYs are as follows (WHO, 2008b): schizophrenia 0.526 (i.e. more than a half a life-year lost for each year with the condition, measured against a benchmark of full physical and mental health); mild depressive episode 0.140; alcohol use disorders 0.134; dementia 0.666; HIV cases 0.135; severe anaemia 0.090; hypertensive heart disease 0.246; mild-to-moderate chronic obstructive pulmonary disease 0.170; asthma 0.043; rheumatoid arthritis 0.199; epilepsy 0.113; migraine cases 0.029; cerebrovascular disease (long-term stroke survivors) 0.266.

A further point of interest is that the burden associated with mental health problems falls particularly heavily on people during their working lives. The prevalence of mental illness is highest when people are in their twenties and thirties and then declines steadily with age. This is in striking contrast to physical ill health, which for all major conditions shows a pronounced age gradient going the other way. Indeed, most of the burden of physical ill health falls in the post-retirement years. On this basis it is no exaggeration to say that mental ill health is now becoming the dominant health problem of working age, affecting people when they would otherwise be at their most productive – see Figure 1 below.

Figure 1: Life-years lost per '000 population in each age group because of morbidity/disability



Note: because age-specific data for the UK are not published by the WHO, the above figure is based on information relating to Western European countries including the UK as a group (WHO, 2008a).

Finally, there may be interest in attempting an approximate monetary valuation of the health burden caused by mental illness. Drawing on the estimates of willingness to pay for health and safety improvements employed by the Department of Transport and other government departments, the Department of Health say that a year of healthy life has a monetary value of around £60,000 to the public[1] (DH, 2011). The WHO data on DALYs indicate that the total number of equivalent life-years lost because of mental ill health in the UK is around 1.72 million a year. Combining these two figures, the monetary value of the health burden associated with mental illness may therefore be estimated at around £103 billion a year for the UK as a whole (£85 billion a year for England only).

The figure of £103 billion is of course a notional estimate, not being based on any kind of market transaction, and so does not represent the impact of mental illness on GDP (see below for more information on this). A comparison with the overall size of national income may nevertheless be of interest and on this basis it can be estimated that the health burden caused by mental ill health in the UK is equivalent in monetary value to 7.0% of GDP. One way of interpreting this is to say that if all mental illness could be successfully prevented or otherwise eliminated, the resulting improvement in health-related quality of life would generate a gain in population well-being that is roughly equivalent in monetary value to a permanent increase of 7% in national income.

Costs to the NHS

Pulling together data from a number of official sources (DH 2011b, DH 2011c, DH 2011d, DH 2011e, NHS Information Centre 2011), our best estimates of total NHS spending on mental health in 2010/11 (England only) are as set out in Table 2 below.

[1] This is significantly higher than the figure of £20,000-30,000 which is often argued to be the implicit monetary value of a life-year used by NICE in their economic assessments. However, this figure appears to have been unchanged for at least a decade and this makes little or no economic sense, as over this period spending on the NHS has more than doubled in cash terms, which must imply a broadly proportionate increase in the societal value attached to health.

Table 2: NHS mental health expenditure (England, 2010/11)

	£ billion
Secondary and tertiary care	
- Working-age adults	5.6
- Elderly	1.8
- Children	0.8
- Substance misuse	1.1
- Other (incl. organic mental disorders)	1.6
	10.9
Primary care	
- GP consultations	1.9
- Prescriptions	1.2
	3.1
Total	14.0

The estimate of £14.0 billion for all mental health care compares with total NHS expenditure of £107.0 billion in 2010/11. Mental health thus accounts for 13.1% of aggregate health spending.

One immediate point to note is that this is well below the share of mental health in the overall burden of disease, which as seen above is nearly 23%. While there is no reason to expect a direct 1:1 relationship between burden and spending for any individual condition, mental health's share of spending does look disproportionately low.
A possible comparison may be made with musculoskeletal problems, which have some similarities with mental health problems in terms of being chronic, largely non-fatal conditions. The WHO data indicate that as a health problem mental illness is 5.6 times as important as musculoskeletal disease, yet the available expenditure figures show that mental illness attracts only 2.3 times as much as money from the NHS budget. Put another way, if as much was spent on mental illness per unit of health burden as on musculoskeletal conditions, the overall level of spending on mental health would come to some £30 billion a year.

Two other issues on expenditure may be noted. The first concerns the question of recent trends in mental health's share of the NHS budget over time, particularly when set against the evidence that its share of the overall health burden has been steadily rising. Unfortunately a reliable long-run series of data on total mental health spending is not available, but use can be made of a consistent set of expenditure data going back to 2001/02 on secondary mental health services for adults of working age, the largest single component of aggregate spending (DH, 2011d).

This shows that between 2001/02 and 2010/11 expenditure on adult mental health services increased by 101.3% in cash terms (or by 58.5% after taking into account general inflation). In comparison, total NHS spending grew by 102.8% in cash terms, a virtually identical increase. Based on this evidence, expenditure on mental health has thus maintained a broadly constant share of the NHS budget over the last decade. To the extent that the share of mental health in the overall health burden has risen in the same period, this implies some falling back in relative status.

The second point to note is that all of the above figures on spending relate to the direct costs of mental health services. It can however be argued that the full impact of mental illness on the finances of the NHS goes well beyond these direct costs, in particular because of physical/mental health co-morbidities and medically unexplained symptoms, both of which add to the recorded costs of physical health care.

In the case of co-morbidities, it is well established for a wide range of physical health conditions that a co-existing mental health problem (e.g. diabetes and depression) leads not only to worse health outcomes but also to increased costs of care and treatment for the physical health condition. Evidence for this is reviewed in a forthcoming report written by the King's Fund, the Centre for Mental Health and the LSE (Naylor et al., 2012), and it is estimated in this source that at the aggregate level the cost of mental health co-morbidities to the NHS in terms of increased spending on physical health care comes to between £8 billion and £13 billion a year. The higher of these estimates implies that the full cost of mental health problems to the NHS is nearly double the amount represented by the direct cost of mental health services.

Medically unexplained symptoms, presumed to be attributable to underlying psychological causes, similarly lead to additional spending on physical health services in both primary and secondary care settings, and a recent study has put the estimated cost to the NHS at around £3 billion a year (Bermingham et al., 2010).

Wider costs

Mental health problems impose a wide range of costs other than those falling on the NHS. Not all of these are measurable in monetary terms, e.g. disrupted personal relationships. Three broad areas where some degree of quantification is possible are discussed below. These are: non-NHS costs of care; employment costs; and costs of crime. At the end of this section, there is also a brief discussion of the lifetime costs of mental health problems, as an alternative to the conventional cross-section measures which focus on costs in the current year.

<u>Non-NHS costs of care</u>

People with mental health problems are significant users of social care as well as health care, and official sources indicate that the aggregate cost of such care provided by local authority social service departments currently amounts to around £2.8 billion a year in England (DH 2011d, DH 2011e). Combining this with the estimate for NHS spending given

above, it may be calculated that the combined costs of publicly funded health and social care for people with mental health problems come to £16.8 billion a year. This represents 1.3% of GDP.

Also important is the cost of informal care provided to people with mental health problems by relatives and friends. Such informal care is not generally paid for and so does not feature in GDP, but it clearly still has an economic benefit and the usual convention is to impute a monetary value on the basis of what it would cost to produce an equivalent service if undertaken as paid employment by a homecare worker. Drawing on a recent study published by the King's Fund (McCrone et al., 2008), it may be estimated that the aggregate cost of informal care provided for people with mental health problems is around £6.7 billion a year (England, 2010/11).

Employment costs

It has already been noted that poor mental health is very common among people of working age. This imposes major costs, both on individuals and on the economy as whole. For individuals, it can mean difficulties in finding employment, increased risk of losing a job, frequent or prolonged periods of sickness absence and, at worst, long-term unemployment and detachment from the labour market, leading to a downward cycle of low income, worsening health and social exclusion. For the economy, there are very high costs because of the lost production of people who are unable to work or whose attendance and performance at work are disrupted by their mental health condition.

Overall, it is estimated that the costs of lost output attributable to the adverse effects of mental ill health on people's ability to work come to around £52 billion a year in England. This is equivalent to 4.1% of GDP. The total divides roughly equally between lost output among those who are currently in work (£25 billion) and lost output among those who are not in work (£27 billion).

To elaborate briefly, the estimate of costs among people currently in work is based on a study published in 2007 by the Centre for Mental Health (CMH, 2007), which looked in detail at three main components of in-work cost: sickness absence; presenteeism (defined as the loss in productivity that occurs when employees come to work even when unwell and consequently function at less than full capacity); and staff turnover.

The most reliable estimates relate to sickness absence and a variety of sources shows that mental ill health now accounts for around 40% of all days off work for health reasons, much more important than any other cause. On average, people with mental health problems who are in work take twice as much time off as employed people generally, and spells of absence are typically much longer than those associated with other health conditions. (In passing, it is important to note that only a small proportion - less than 20% - of mental health-related sickness absence appears to be directly caused by work or working conditions. On the whole work is very good for mental health and most mental ill health in the workforce has other causes.)

Much less information is available on the scale of presenteeism, but drawing on the international evidence and adapting it to the UK context, it is conservatively estimated in the source cited above that in the UK presenteeism attributable to mental health problems accounts for 1.5 times as much working time lost as sickness absence. This is almost certainly on the low side. For example, a recent survey in Unilever (Tscharnezki, 2008) has found that for all health conditions combined the productivity losses associated with presenteeism are three times as large as those resulting from sickness absence, with even higher ratios for common mental health problems such as depression. The same survey also found that 50% of all working time lost from sickness absence and presenteeism combined was attributable to mental health conditions. Such evidence again underlines that mental ill health is now the leading health problem in working age.

The same story emerges among people who are unemployed or have dropped out of the labour market altogether for health reasons. In particular, over 40% of all people in receipt of long-term disability benefits are claiming because of a mental health condition, far more than from any other cause. The numbers receiving long-term benefits for mental health reasons are currently around 1.3 million and total social security expenditure on this group amounts to about £8 billion a year, equivalent to nearly £120 a week for each individual case.

Sizeable as these numbers are, they do not show the full extent of mental ill health in the workless population. For example, there are around 0.5 million people in the UK who are receiving health-related benefits primarily because of a physical health condition but who also suffer from a co-existing mental health problem. Also, not all workless people with a mental health condition are in receipt of health-related benefits and according to one estimate there may be as many as 1 million in this group (Perkins et al., 2009). All told, these figures suggest that there may be approaching 3 million people of working age in this country who have mental health problems and are not in work.

Costs of crime

It is well established that people with mental health problems are heavily over-represented in the criminal justice system. For example, an ONS survey has found that as many as 90% of people in prison have at least one type of mental disorder (Singleton et al., 1998). The nature of the relationship between mental health problems and offending is complex, but the following broad generalisations appear to be supported by the evidence:

- most crime is committed by adolescent and young adult males, many with a history of serious behavioural or conduct problems in early life;
- the mental health conditions most commonly associated with offending are substance misuse (alcohol and drugs) and personality disorder, particularly anti-social personality disorder;
- multiple diagnoses significantly increase the risk of offending, e.g. anti-social personality disorder combined with hazardous drinking; this is confirmed by the ONS survey mentioned above, which found that 70% of all prisoners had two or more disorders at the same time;

- "recent good evidence supports a small but independent association" between schizophrenia and violence (Walsh et al., 2002), although in absolute terms the risks of violence from people with severe mental illness are extremely low.

Comprehensive estimates of the economic and social costs of crime were first published by the Home Office in 2000 and partially updated in 2005 (Brand and Price, 2000; Dubourg et al., 2005). These show, for example, that the total cost crime in England and Wales in 1999/2000 was around £60 billion. This covers not just costs falling on the criminal justice system (police, prisons etc) but also – and much more important in quantitative terms – costs falling on the victims of crime, including the value of stolen or damaged property, losses in earnings associated with crime-related injuries etc, and an imputed monetary value of the emotional and physical impact of crime on victims.

Some illustrative estimates of the costs of crime linked to mental health problems are as follows.

First, drawing on the evidence from longitudinal studies that early behavioural problems are a major risk factor for subsequent offending, a recent study (CMH, 2009) has estimated that around 30% of all crime in Britain is committed by people who suffered from a clinically diagnosable conduct disorder in childhood or adolescence.

Second, according to an estimate published by the Department of Health (DH, 2008), the aggregate economic and social costs of alcohol misuse in England in 2006/07 amounted to £18 - £25 billion. Crime costs accounted for more than half the total, at £9-£15 billion.

And third, a Home Office study published in 2006 (Gordon et al., 2006) reported that the economic and social costs of class A drug use amounted to £15.4 billion in England in 2003/04, with costs relating to crime accounting for just over 90% of the total.

It should be noted that these estimates are not independent of each other, in particular because conduct disorder in childhood is a risk factor not only for offending but also for alcohol and drug misuse. Adding together the above figures would therefore entail an element of double counting.

<u>Lifetime costs</u>

Evidence from longitudinal studies shows that, in the absence of effective intervention, many mental health problems tend to be highly persistent and recurrent. There is a particularly high degree of persistence or continuity between adverse mental health states in childhood and those in adult life. Most children who have mental health difficulties will also have mental health problems as adults and conversely most adults who have mental health problems will also have had mental health problems as children.

To illustrate, the 1946 British birth cohort survey provides data on symptoms of depression and anxiety measured in the same sample of individuals at various ages between 13 and 53. A study using this information (Colman et al., 2007) has shown that, looking forward, among all children with depression or anxiety as many as 86% continued to have these problems in

adult life and similarly, looking back, among all adults with depression or anxiety 71% first manifested symptoms in childhood.

The importance of continuity as shown by these figures suggests that a valuable way of analysing the costs of mental health problems is over the lifetime, as a supplement to the annual figures of the type given so far in this paper. To illustrate this approach, some broad estimates of the lifetime costs of conduct disorder are given below.

Conduct disorder is the most common mental health disorder in childhood, affecting about 5% of all children (Green et al., 2005), and there is strong evidence to suggest that its prevalence has increased significantly over the last 30 years (Collishaw et al., 2004). Longitudinal studies show that the condition is predictive of a wide range of adverse outcomes in later life, including not only continuing mental health problems (uniquely, childhood conduct disorder is associated with increased risk for all major types of adult psychiatric disorder) but also poor educational and labour market performance, substance misuse, criminality, disrupted personal relationships and even reduced life expectancy (Colman et al., 2009; Abbott and Richards, 2009).

Because of this wide range of adverse consequences, the long-term costs of conduct disorder are very high. One study (Scott et al., 2001) has shown that by age 28 the costs incurred by public services for individuals diagnosed with conduct disorder at age 10 were nearly 10 times higher than for those with no conduct problems at the same age (£70,019 against £7,423 at 1998 prices). More recently, a broader but less detailed study (Friedli and Parsonage, 2007) has suggested that the lifetime costs of childhood conduct disorder, relative to individuals with no conduct problems, may be of the order of £225,000 per case, taking into account such factors as reduced lifetime earnings, poor mental and physical health and costs relating to crime.

In sum, whether measured on an annual or lifetime basis, it is clear that mental health problems impose very high costs, both on individuals and their families and on society as whole. The scale of these costs reflects three key features of mental ill health:

- Mental health problems are extremely common at all ages, affecting about one in ten children and more than one in five adults; as will be seen below, many of these problems go undiagnosed and untreated.

- Mental health problems often have their origins in early life, with a high tendency towards persistence and recurrence throughout the life course.

- The consequences of mental ill health are often pervasive, adversely affecting many different aspects of people's lives, and these adverse consequences are often compounded by stigma and discrimination.

In all of these dimensions there are important differences between mental health and physical health. Failure to recognise these differences means that the overall scale of mental illness as a health and societal problem is always likely to be under-estimated.

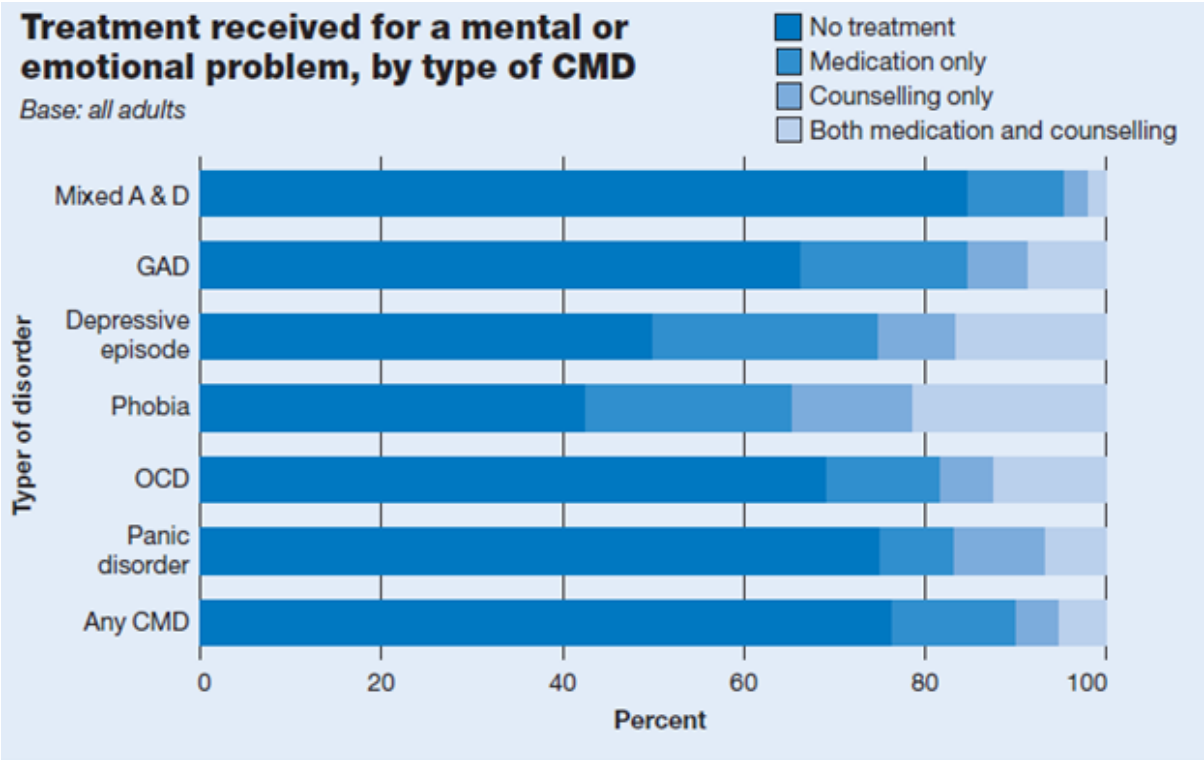
Availability of treatment

Psychiatric morbidity surveys indicate that a considerable proportion of adults and children experiencing mental health problems in the UK do not receive any treatment at all. This is particularly the case for people experiencing emotional disorders such as depression and anxiety. Eating disorders and substance dependence also go untreated in the majority of cases (see table 3 and figure 2).

Table 3 - Evidence of non-treatment in mental health

Condition	**% receiving treatment**
ADULTS (Source: McManus et al 2009)	
Any common MH problem	24
Phobia	57
Mixed anxiety and depressive disorder	15
PTSD	28
Self-harm (men)	42
Self-harm (women)	53
Probable psychosis	80
Psychotic disorder (with psychotic episode in last 12 months)	65
ADHD (adults)	20
Eating disorder	19
Alcohol dependence	14
Cannabis dependence	14
Other drug dependence	36
CHILDREN (Source: Green et al 2005)	**% 'sought help or advice from MH specialist'**
Emotional disorders	24
Conduct disorders	28
Hyperkinetic disorders	52
Autistic spectrum disorders	43

Figure 2 - Evidence of under-treatment of common mental disorders (CMDs)
(Source: McManus et al 2009)



International research suggests the UK is not alone in failing to provide treatment for many of those experiencing mental health problems. The World Mental Health Surveys conducted by the WHO found that between a third and a half of all people with serious mental health problems in developed countries (and many more in developing countries) had received no treatment in the previous 12 months (Demyttenaere et al 2004). Research in Finland found that "About 60% of persons in need of care were not receiving any treatment" and that "Half of the treatment received was assessed as inadequate" (Lehtinen et al 1990). In Canada, only 40% of respondents with probable depression reported any consultation about their condition with a general practitioner or mental health specialist (Starkes et al 2005). An international systematic review suggested that only around one quarter of those with eating disorders seek treatment (Hart et al 2011).

The figures for non-treatment in mental health are striking, but mental health is not *entirely* unique in this respect. Many people with physical long-term conditions do not have their conditions diagnosed, or experience long time-lags before this happens. For example, research suggests that the majority of cases of Chronic Obstructive Pulmonary Disorder (COPD) go undiagnosed (see table 4). There is also some evidence of undiagnosed angina and myocardial infarction, but it is difficult to estimate the prevalence of this - the 2006 Health Survey for England suggests majority of cases are diagnosed successfully (Craig & Mindell 2008).

Table 4 - Under-diagnosis of physical long-term conditions

Condition	% undiagnosed	Prevalence	Source
COPD	>66	3m in UK	1
Diabetes (men)	14-36	5.6% (diagnosed)	2
Diabetes (women)	5-26	4.2% (diagnosed)	2
HIV	33		3
Asthma	5% of all children in US have possible undiagnosed asthma		4
	19% of cases of adult asthma in Australia go undiagnosed		5

1 Health Survey for England 2010 (Craig & Mindell 2011)
2 Health Survey for England 2006 (Craig & Mindell 2008)
3 Health Protection Agency 2005
4 Magzamen & Tager 2010
5 Adams et al 2003

However, while there are several examples of physical health problems where a (sometimes significant) proportion of those affected go untreated, there are few cases where non-treatment is the rule rather than the exception (COPD being a possible exception) - in the case of most physical health problems the untreated population represents a 'hard-to-reach' minority. The same cannot be said in mental health.

The role of help-seeking clearly plays a role in this - some of those with mental health problems may have an active preference not to receive formal treatment, for a number of reasons. For example, in a US study, only 37% of those screened with mental health or substance abuse problems said they wanted treatment, and 44% of those receiving treatment thought it was unnecessary (Edlund 2006). Desire for treatment is shaped by a number of social factors, including stigma, which plays a pernicious role in deterring people from seeking help. There is evidence that stated desire for treatment is particularly low among certain sub-groups in the population, including minority ethnic groups, children and young people, and older adults (Neighbors et al 2007). The finding of particularly low treatment rates among marginalised groups suggests under-treatment is not simply a matter of empowered individual choice.

There are others who want treatment but still do not receive any. In the Netherlands, 21% of all survey respondents with depression or anxiety expressed a need for care but did not receive any (van Beljouw et al 2010). Even for those who choose not to receive formal interventions, there is still a role for health services (a) in identifying the problem, (b) in helping people understand the treatment options available, and (c) in providing advice/support for self-management for those who would rather do this.

In many cases high rates of non-treatment in mental health may reflect delays in seeking or receiving treatment rather than people who never receive treatment. Survey evidence from the US suggests these delays can be considerable in some cases - for example, with a

median delay of 8 years in the case of depression, 9 years for generalised anxiety disorder, and 20 or more years for some other anxiety disorders (see table 5) (Wang et al 2005).

Table 5 - Proportional Treatment Contact in the Year of Disorder Onset and Median Duration of Delay Among Cases That Subsequently Made Treatment Contact
(Wang et al 2005)

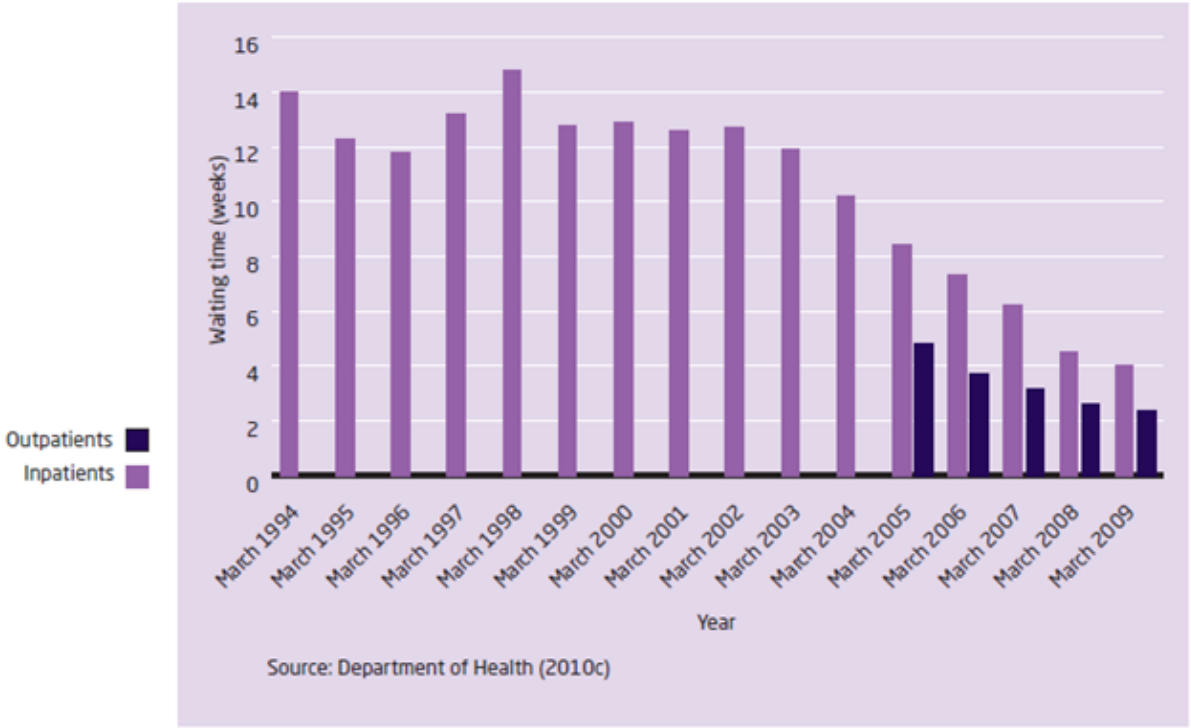
	Treatment Contact Made in Year of Onset, %	Median Duration of Delay, y*	No.†
Anxiety disorders			
Panic disorder	33.6	10	269
Agoraphobia	15.1	12	137
pecific phobia	1.6	20	720
Social phobia	3.4	16	694
Generalized anxiety disorder	33.3	9	444
Posttraumatic stress disorder	7.1	12	389
Separation anxiety disorder	1.0	23	234
Mood disorders			
Major depressive episode	37.4	8	1092
Dysthymia	41.6	7	229
Bipolar disorder I and II	39.1	6	224
Impulse control disorders			
Attention-deficit/hyperactivity disorder	7.0	13	253
Oppositional defiant disorder	6.6	4	324
Intermittent explosive disorder	6.8	13	447
Substance disorders			
Alcohol abuse	12.4	9	751
Alcohol dependence	20.7	6	307
Drug abuse	12.5	6	450
Drug dependence	26.5	5	174

Quality of treatment

Waiting times

Waiting times for treatment of physical illnesses have plummeted over the last ten years (see figure 3). Across the NHS, median waits are currently around 2 weeks for diagnostics, 4 weeks for outpatient appointments and 8.5 weeks for inpatients. The proportion of patients waiting over 18 weeks is approximately 13% for inpatients, 9% for outpatients and 2% for diagnostics (King's Fund 2011).

Figure 3 - Median waiting times (weeks) for inpatients and outpatients in England



Some progress has been made at tackling waiting times within mental health. Waiting times for psychological therapies have historically been high, but have been reduced significantly through the IAPT programme. However, the majority of people with depression or anxiety (around two thirds) still wait over six months, and 1 in 5 wait over a year (Mind 2010). Long waits have a significant detrimental effect of treatment effectiveness - those waiting less than 3 months are more likely to report that therapy helped them to get back to work.

There is a particular need for improvement in the case of children and people with severe mental illnesses - despite the progress made through the IAPT programme, access to psychological therapies for these groups is still highly limited (Mind 2010).

<u>Provision of evidence-based interventions</u>

For those who do receive mental health treatment, the interventions provided are not always in-line with the evidence base. For example, despite NICE guidance recommending the use of psychological therapies for people with mild to moderate depression and/or anxiety, the majority (58%) of those receiving treatment for common mental health problems still receive medication only (McManus et al 2009). Comparable failure to comply with evidence-based practice guidelines has been found in other countries, for example for people with depression (Starkes et al 2005) or schizophrenia (Mojtabai et al 2009). Research suggests resource constraints, limited staff skills and a variety of other factors can hinder implementation of NICE guidelines e.g. for depression (Rhodes et al 2010), schizophrenia (Berry & Haddock 2008) or bipolar disorder (Morriss 2008).

Across all forms of health problems - mental and physical - the implementation of NICE guidelines is highly variable. A national audit using interrupted time-series analysis suggested that while guidance led to significant changes in some clinical areas, in others they were slow to have an effect, or appear to have none at all (Sheldon et al 2004). Compliance with NICE guidelines is not assessed centrally – but evidence is available e.g. from individual service audits. There are many examples from both mental and physical health of NICE guidelines not being widely adhered to, for example:

- Collaborative care for depression in people with physical long-term conditions is not widely provided
- Pulmonary rehabilitation (Yohannes et al 2011)
- Screening for depression post stroke (Haq et al 2010)
- CBT for schizophrenia (Prytys et al 2011)
- Depression in physical illness (Kendrick & Peveler 2010)
- Lithium monitoring for people with bipolar (Collins et al 2010)
- Inappropriate use of grommets (Al-Hussaini et al 2011)
- Statins (Shakur et al 2011)
- NICE guidelines for venous thromboprophylaxis (Sharif et al 2009)

Patient satisfaction

Although the majority of patients describe their overall experience of mental health services positively, mental health services on average receive lower patient satisfaction than services for physical health problems (see table 6). This is particularly the case with mental health inpatient services, but also applies to community services.

Table 6 - Patient satisfaction with physical and mental health services

Overall care standards	Acute inpatient services (%)	Acute outpatient services (%)	MH community services (%)	MH inpatient services* (%)
Excellent	43	40	29	21
Very good	35	41	30	28
Good	14	14	20	24
Fair	6	4	13	16
Poor	2	1	5	12
Very poor	0	0	4	
SOURCE	CQC 2010	CQC 2009b	CQC 2011	CQC 2009a

(* Note – 44% of respondents were detained involuntarily – this similar to national average = 39%)

Patient surveys suggest that within mental health services, there are particular weaknesses in involving people in planning their own care, and providing support with day-to-day living e.g. by providing support with finding a job or remaining in employment (CQC 2011). The Care Quality Commission's 2009 survey of mental health inpatients found that only 34% felt they were as involved in their care as they wanted to be (CQC 2009a).

16% of mental health inpatients say they do not feel at all safe on wards (CQC 2009a) - higher than in inpatient units for those with physical illnesses, where 4% say they felt threatened by staff or other patients (CQC 2011). A recent independent inquiry by Mind into the quality of acute and crisis mental health care stressed the need for humanity, and giving people choice and control (Mind 2011).

Cost-effectiveness of interventions

Cost per QALY of different mental health interventions

There is a limited evidence-base to draw on in assessing the cost-effectiveness of different mental health interventions. Some interventions - such as CBT for depression and anxiety, or parenting interventions for childhood conduct disorder - have been the subject of considerable research, and have been found to be highly cost-effective. Collaborative care models for people with mental health problems alongside physical illnesses have also be shown to deliver a good health and financial return on investment.

Table 7 shows the cost per QALY of a number of mental health interventions. This can be compared against table 8, which shows equivalent data for a range of physical health interventions. There is a wide range in cost-effectiveness values for both mental and physical health interventions. One important to point to note is that the cost-effectiveness of any intervention is highly dependent on the patient groups in which it is used - for example, the cost per QALY of coronary artery bypass grafting (CABG) varies from £1040 to £12,600 depending on the nature of the heart problem present.

Table 7 - Cost-effectiveness of a range of mental health interventions

Intervention	Cost per QALY	Year	Source
Suicide awareness training (over 1 yr)	1573		13
CBT for depression/anxiety	2111		14
CBT for medically unexplained symptoms	3402		13
Collaborative care for depression in people with diabetes	3614		13
Health visiting as an intervention to reduce post-natal depression	4500		13
Ritalin for children aged 6-12 with hyperkinetic disorders	10600	2001	6
Amisulpride (Vs olanzapine) for schizophrenia	28313		10
ECT for depression / schizophrenia	21597 - 35589		11
Risperidone (Vs olanzapine) for schizophrenia	32243		10
Zotepine (Vx olanzapine) for schizophrenia	54022		10
Quetapine (Vs olanzapine) for schizophrenia	468822		10

Table 8 - Cost-effectiveness of a range of physical health interventions

Intervention	Cost per QALY	Year	Source
GP advice to stop smoking	270	1990	3
Pacemaker for atrioventricular heart block	700	2000	1
Hip replacement	750	2000	1
	1180	1990	3
Cholesterol testing and treatment (all adults aged 40–69)	1480	1990	3
Valve replacement for aortic stenosis	900	2000	1
CABG (severe angina; left main disease)	1040	2000	1
Kidney transplant	3000	2000	1
	4710	1990	3
Heart transplant	5000	2000	1
Gastric bypass for obesity	6638		4
Continuous subcutaneous insulin infusion (Vs multiple-dose insulin)	8866		12
Paediatric cochlear implants for children aged 4 with profound & severe deafness	11400	2001	7
Statins for angina	10215	1998	5
Docetaxel for metastatic breast cancer	10640	2001?	3
Haemodialysis at home	11000	2000	1
	17260	1990	3
CABG (mild angina; double vessel disease)	12600	2000	1
Haemodialysis in hospital	14000	2000	1
	21970	1990	3
Antiretrovirals for HIV (HAART)	20916	2001	8
Liver transplant for alcoholic liver disease	59574	2003	9
Erythropoietin treatment for anaemia in dialysis patients (assuming 10% reduction in mortality)	54380	1990	3
Neurosurgery for malignant intracranial tumour	197780	1990	3

1 Briggs & Gray 2000
2 Niemietz 2008
3 Malek 2001
4 NICE 46
5 Cleland 1998
6 Gilmore 2001
7 O Neill 2001
8 Miners 2001
9 Longworth 2003
10 NICE 43
11 NICE 59
12 NICE 57
13 Knapp, McDaid, Parsonage 2011
14 NICE 51

The evidence base is not complete enough to demonstrate any systematic disparity between the cost-effectiveness of interventions in mental versus physical health. It does however show that cost-effective interventions exist in mental health. Indeed, in addition to the treatments given in table XX, there are also examples of mental health interventions which are likely to have a *negative* cost per QALY. These are interventions which, by preventing disorders from arising or worsening, deliver a financial return to the NHS. Probably the strongest example of this is early intervention for psychosis, which can deliver a five-fold financial return to the NHS within one year (Knapp et al 2011). These findings cannot be converted to a cost per QALY value since existing evaluations have not measured QALY gains (McCrone et al 2011).

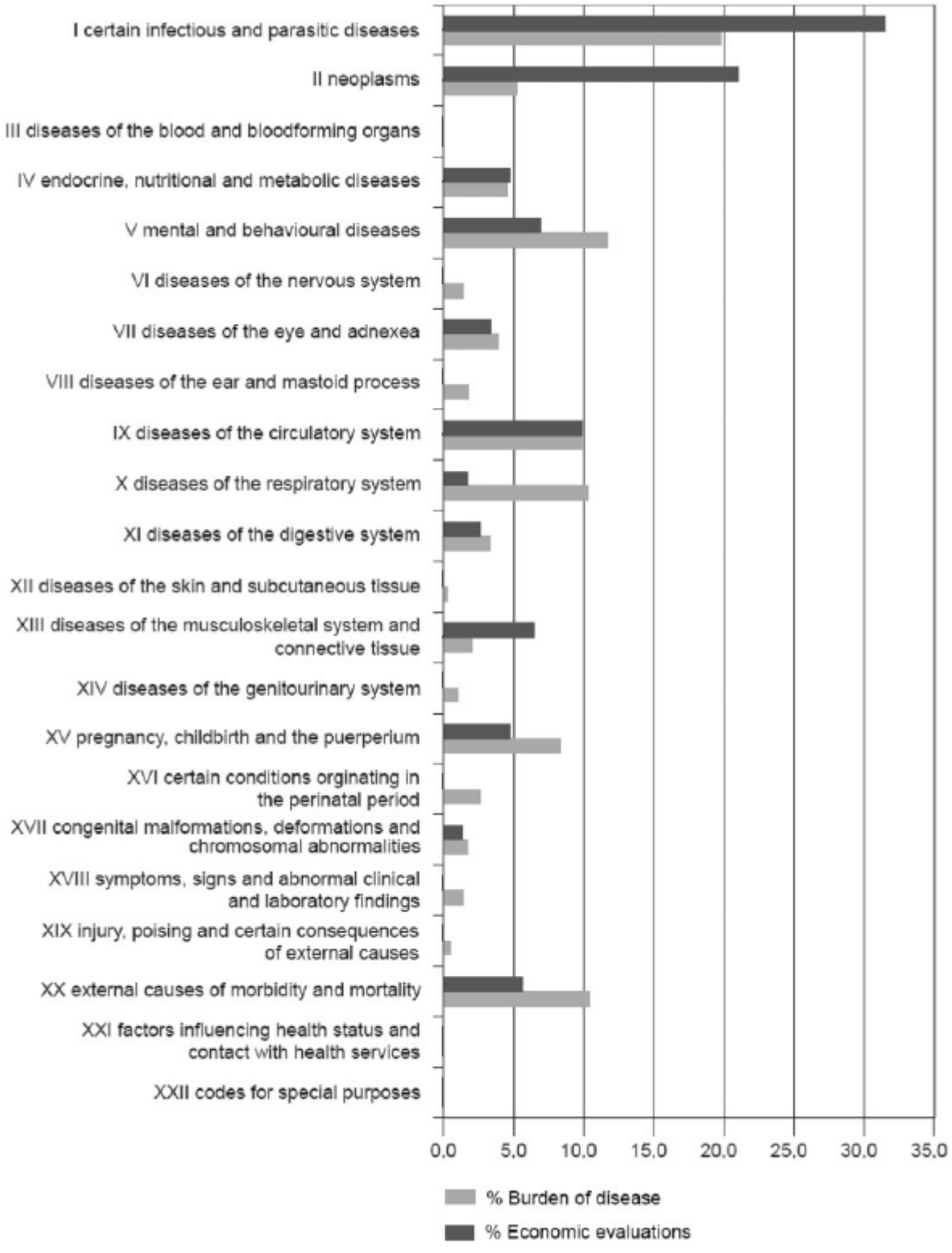
Limitations of cost per QALY as a guide to resource allocation

There are a number of limitations to using cost per QALY as a guide to resource allocation, and in practice, commissioners use a number of other tools and processes to make decisions about where to invest resources (see next section). Limitations include the narrow range of costs and benefits considered (health sector costs, and health-related benefits only), the limited evidence base on which QALY league tables are based, and the potential lack of transferability of cost-effectiveness evidence between settings and patient groups (Gerard & Mooney 1993; Bevan & Hollinghurst 2003; Briggs & Gray 2000).

There are particular limitations of using cost per QALY in the case of mental health (Chisholm et al 1997). A growing body of evidence indicates that the tools on which QALY measurement is based (e.g. EQ-5D or SF-6D) provide an insensitive measure of mental health outcomes. This research suggests that in valuing health states, we may underestimate the impact of mental health problems relative to physical functioning - with the former having a greater effect on quality of life than we expect it to (Bockerman et al 2011; Dolan et al, in press). There is therefore a danger that allocating resources on the basis of these measures would create a systematic bias, with mental health services being underfunded relative to the value they create for patients.

A further significant issue is the limited evidence base on the cost-effectiveness of mental health interventions. An international literature review of economic evaluations of preventative interventions published in 2008 found that mental health was an area (alongside respiratory conditions and pregnancy/childbirth) where there was a significant mismatch between the size of the disease burden and the number of economic evaluations published (Van Gils et al 2010). In contrast, a large number of economic evaluations were published on prevention of cancer, beyond that which would have been predicted on the basis of disease burden data alone (see figure 4). This raises the question of whether sufficient priority is given to mental health in cost-effectiveness research.

Figure 4 - Comparison of disease burden to number of published research studies



As an aside, it is important to note that NICE do not base their guidance on cost per QALY data alone, but also on the nature and strength of the evidence-base (see figure 5). Similarly, commissioners do not base their prioritisation decisions on purely economic data. This issue is explored in the next section.

Figure 5 - Decision-making criteria used by NICE (source: Malek 2001)

Evidence quality	Cost per QALY gained (£)		
	<£3K	£3–20K	>£20K
I. At least one randomised controlled trial	Strongly recommended	Strongly recommended	Limited support
II. Well designed controlled trial	Strongly recommended	Supported	Limited support
III. Expert consensus or opinion	Supported	Limited support	Limited support
IV. Conflicting or inadequate evidence	Not proven	Not proven	Not proven

How is priority setting done in practice?

It is important to understand how priority setting is done in practice within the NHS. Importantly, it is not done on the basis of a simple examination of disease burden or cost-effectiveness data - multiple other considerations are also taken into account (see multi-criteria decision analysis, box 1), and the process may be more or less systematised in different cases. Attempts to base funding decisions purely on economic data (e.g. the Oregon priority setting exercise - see box 2) have been controversial, and it is now widely accepted that decisions should be based on multiple criteria. Appendix 2 describes the criteria used in one framework applied by Wilson et al (2006).

The majority of PCTs have a priority-setting board, which tend to focus on new developments rather than core spending, and give less attention to disinvestment (Robinson et al 2011). These use a range of data sources and tools to support decision-making (see figure 6) and draw heavily on public health and clinical expertise. They often use economic and cost-effectiveness data but rarely have access to a health economist.

Box 1: Examples of priority-setting tools used by PCTs

<u>Programme budgeting and marginal analysis (PBMA)</u>

- Nearest to the NICE method - a health maximising approach with an emphasis on using cost-effectiveness data, although ethical and other criteria can also be considered relating to equity, fairness etc.
- Starts by mapping out existing spending under various programme headings (e.g. mental health) and then considers gains and losses that could be made by marginal changes in allocation
- Many PCTs are beginning to use PBMA to some extent, but most say it is not as influential as other tools e.g. examination of epidemiological data

Multi-criteria decision analysis (MCDA)

- Rather than being driven by technocratic, health maximising aspirations, these types of approaches are based more on subjective judgements
- Funding proposals are scored against a number of criteria e.g. strength of evidence, magnitude of benefit, patient acceptability, whether it will address health inequalities, whether it is a national target, and strength of local feeling. See below for a full list of criteria used in one MCDA approach
- A widely used example of this if the Modified Portsmouth Scorecard

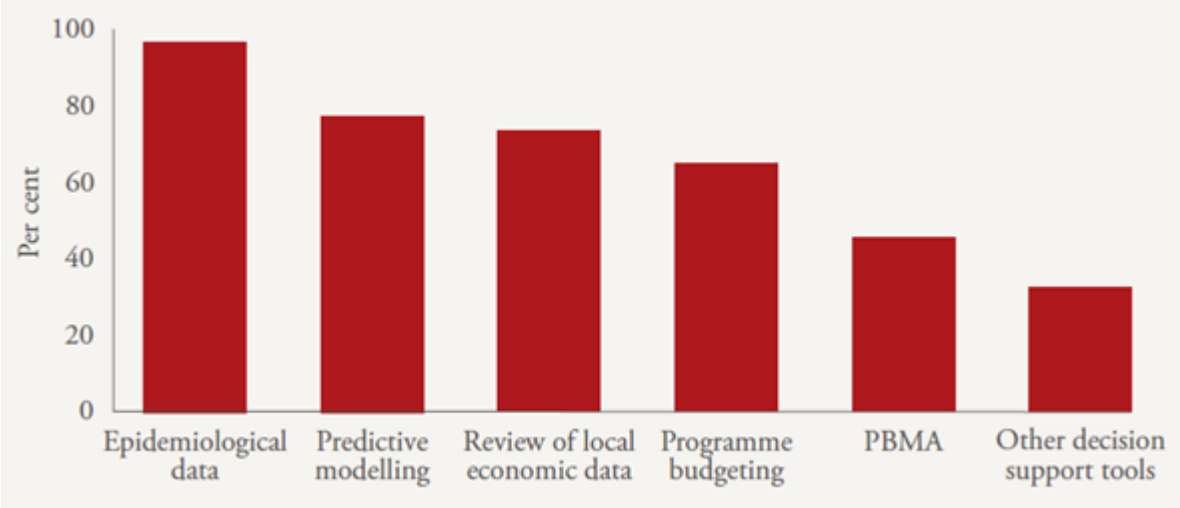
Source: Klein & Maybin (in press)

Box 2: The Oregon priority setting exercise

In 1989 the Oregon Health Services Commission embarked upon an attempt to expand Medicaid coverage to a greater proportion of the uninsured population by restricting the benefits package to include only those interventions which provided most value to patients. The initial approach taken to this involved a strict economistic interpretation of the task, based on cost-effectiveness data only. An analysis of 1600 services created a list of priority services which was generally regarded as counter-intuitive and unacceptable to the population - for example, several life-saving surgeries were rated low because of their higher costs, while interventions for minor and sometimes self-limiting conditions scored highly. This led the OHSC to abandon this prioritisation method in favour of more subjective criteria, including participative methods involving citizens in the prioritisation process. The Oregon Health Plan was eventually implemented in 1994 with 565 services out of 696 being funded (Ham 1997).

Source: Fox & Leichter 1993, Ham 1997

Figure 6: Tools used by PCTs to support priority-setting processes and investment decisions (Source: Robinson et al 2011)

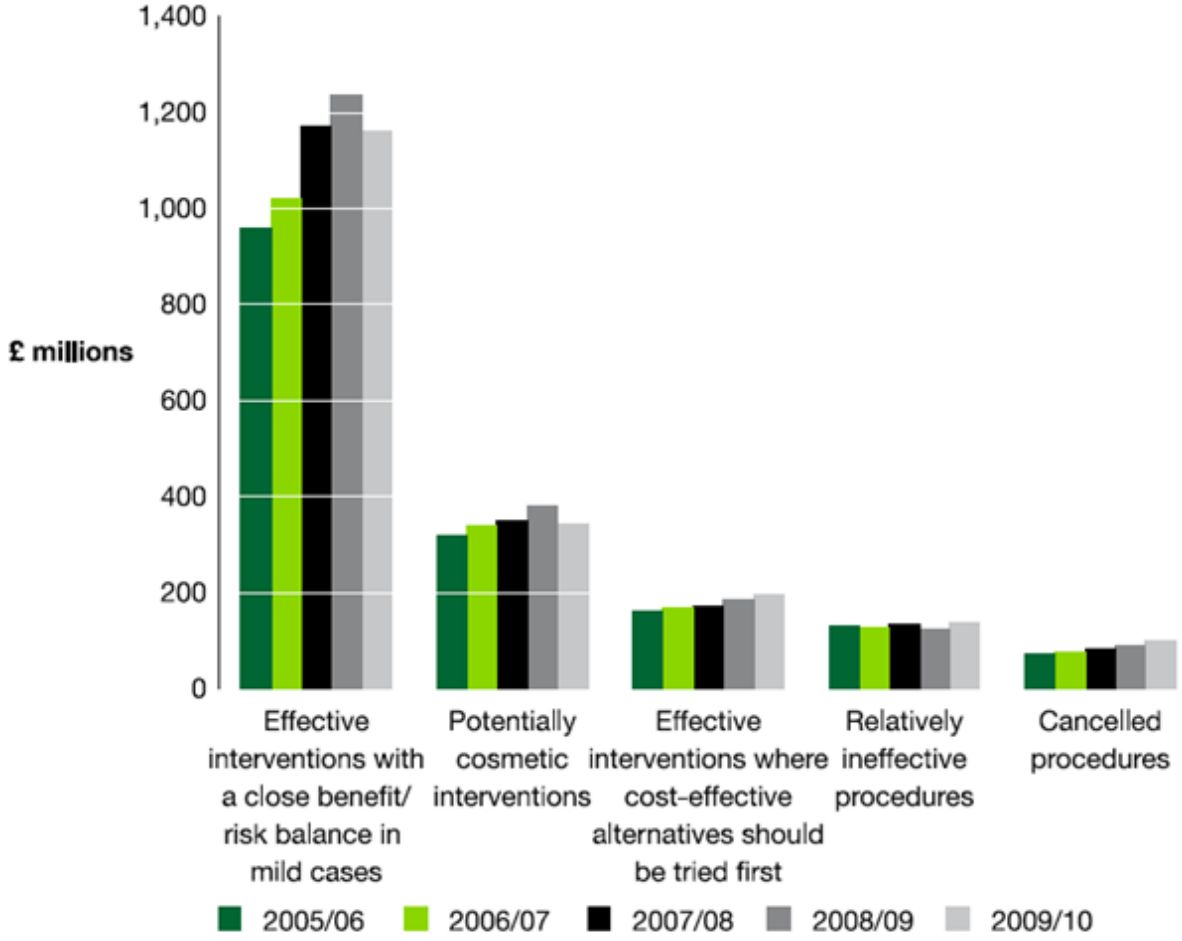


Tighter funding settlements and the drive to improve productivity in the NHS through the Quality, Innovation, Productivity and Prevention (QIPP) programme have led many commissioners to step-up efforts to reduce the use of procedures of limited clinical value. These include:

- Relatively ineffective procedures
- Effective interventions with a close benefit/risk balance in mild cases
- Effective interventions where more cost-effective alternatives should be tried first
- Cosmetic interventions
- Cancelled procedures

The 'Croydon list' identifies 34 procedures which fall into these categories (see Appendix 1). The Audit Commission has estimated that around £1.9 billion is spent on these 34 procedures in the NHS each year (see figure 7) (Audit Commission 2011).

Figure 7: National spending on low clinical value treatments on the Croydon list
(Source: Audit Commission 2011)



What is the relevance of this to mental health?

Work on identification of procedures with limited clinical value demonstrates that there are opportunities to reallocate resources from low value to high value interventions, as part of efforts to improve productivity in the NHS. This raises the question of where resources released should be redirected to, if they are to have the greatest impact.

It is important to understand that cost per QALY is not the main criteria by which commissioners decide how resources should be allocated between different service areas. Influencing how resources are spent will require understanding the tools that are used, and examining whether they adequately capture the benefits from investment in mental health.

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Appendix 1: Croydon list of low priority treatments

Effective procedures where cost-effective alternatives should be tried first

- Anal procedures
- Bilateral hip surgery
- Carpal tunnel surgery
- Elective cardiac ablation
- Hysterectomy for heavy menstrual bleeding

Effective interventions with a close benefit or risk balance in mild cases

- Cataract surgery
- Cochlear implants
- Dupuytren's Contracture (tightening of tendons)
- Non-surgical female genital prolapse/stress incontinence
- Surgical female genital prolapse/stress incontinence
- Hip and knee revisions
- Knee joint surgery
- Other joint prosthetics or replacements
- Primary hip replacement
- Wisdom teeth extraction

Potentially cosmetic interventions

- Aesthetic surgery – breast
- Aesthetic surgery – ear, nose and throat
- Aesthetic surgery – ophthalmology
- Aesthetic surgery – plastics
- Incisional and ventral hernias
- Inguinal, umbilical and femoral hernias
- Minor skin surgery for non-cancerous lesions
- Orthodontics
- Other hernia procedures
- Varicose veins

Relatively ineffective procedures

- Back pain: injections and fusion
- Dilation and curettage for women under 40
- Grommets (surgery for glue ear)
- Jaw replacement
- Knee wash-outs
- Spinal cord stimulation
- Tonsillectomy
- Trigger finger

Source: Audit Commission 2011

Appendix 2: Criteria used in one multi-criteria decision analysis framework
(Source: Wilson 2006)

Table 1: Criteria definitions (alphabetically)

Criterion	Definition
Access & equity	• Does this proposal increase or improve access to services for the target population? • Does this proposal have any impact on access to services for other populations or other NHS agencies (positive or negative)? • Is this a locally based service? • Is this service available to all who need it? • Is this patient-centred healthcare? Do they get a say in the delivery of their care? Is there demonstrable 'patient & public involvement'? • Does the proposal enable treatment in an appropriate environment? • Does the proposal raise the profile of an important but currently low profile disease / condition?
Effectiveness	• Is the proposal proven to work? (what evidence is there for it working?) • What is the quality / grade of the evidence? (e.g. well conducted randomised controlled trial versus expert opinion). • What is the balance of risk and benefit to the patient? • Will the proposal result in enough activity to maintain quality? (clinical governance issues)
Local & National Priorities	• How far towards meeting an explicit national or local target does this proposal go (for example, National Institute for Clinical Excellence, National Service Frameworks, Local Development Plans etc)?
Need	• What is the prevalence / incidence of the disease or condition this proposal is intended to treat? • What is the current mortality or morbidity associated with this disease/condition? (note this should take into account the impact of existing treatments) • Does this proposal meet an identified health need (either local or national)? • Does it meet public expectations / does it meet a local health want?
Prevention	• Does the programme focus or put greater emphasis on prevention of ill health? (For example through health promotion, screening/ immunisation or reduction in future morbidity.)
Process	• Is the proposal achievable within a realistic timescale? • Does the proposal involve multi-agency working / partnership working across different areas of the NHS (and wider bodies)? • Is the proposal acceptable politically?
Quality of life	• What impact does the intervention have on different domains of quality of life (e.g. disability reduction, increase in independence, pain reduction, whether it allows a patient to play active role in society, social relationships, etc)? • What is the potential QALY (Quality Adjusted Life Years) gain from the intervention? • Does the proposal decrease (future) care needs for the patient, carer or family? • What evidence is there for the patient experience / satisfaction?