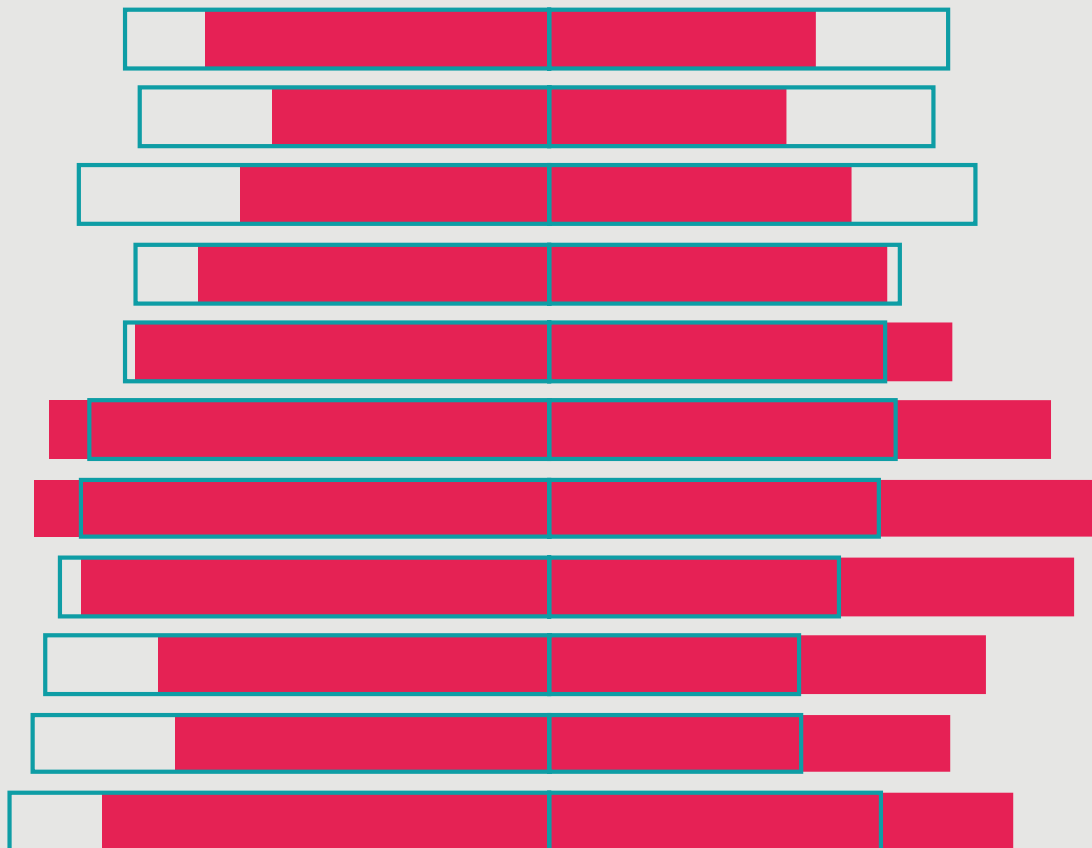# QualityWatch

Focus on:
People with mental ill health and hospital use

Exploring disparities in hospital use for physical healthcare

Research report

Holly Dorning
Alisha Davies
Ian Blunt

October 2015

The Health Foundation | nuffieldtrust

About QualityWatch

QualityWatch is a major research programme providing independent scrutiny into how the quality of health and social care is changing. Developed in partnership by the Nuffield Trust and the Health Foundation, the programme provides in-depth analysis of key topics and tracks an extensive range of quality indicators. It aims to provide an independent picture of the quality of care, and is designed to help those working in health and social care to identify priority areas for improvement. The programme is primarily focused on the NHS and social care in England, but also draws on evidence from other UK and international health systems.

⊕ The QualityWatch website www.qualitywatch.org.uk presents key indicators by area of quality and sector of care, together with analysis of the data. This free online resource also provides research reports, interactive charts and expert commentary.

About this report

QualityWatch Focus On reports are regular, in-depth analyses of key topics; these studies exploit new and innovative methodologies to provide a fresh view of quality in specific aspects of health and social care. This QualityWatch Focus On uses Hospital Episode Statistics data to explore whether differences exist in how people with mental ill health use hospital services compared to those without mental ill health.

Acknowledgements

Contents

List of figures, tables and boxes

Boxes

Glossary

A&E attendance

Any attendance at an accident and emergency (A&E) unit – this includes all major and minor A&E departments. Most people visit A&E at a point of crisis (such as a car accident or fall) for immediate care. They can arrive in person, be sent by a healthcare professional or arrive by ambulance. People can receive care in A&E or, if more serious, can be admitted to another part of the hospital (see inpatient admissions below).

Emergency inpatient admissions

If someone needs immediate care which is more severe or complicated – for example if they have a head injury following a car accident – they will be admitted to hospital for further care and given a bed. Such admissions are not planned in advance and can be day cases – where a patient does not stay overnight – or involve an overnight stay.

Hospital activity

Hospital activity is any recorded encounter with a hospital, which includes those described above: A&E attendance, outpatient appointments, and emergency and planned inpatient admissions.

Hospital activity related to mental ill health

This means the use of hospital services for support with mental ill health. This could include outpatient appointments with a psychologist for support with bereavement or an eating disorder, and inpatient admissions on intensive psychiatric units or crisis wards for those with more severe needs.

Mental ill health

Mental ill health affects the way a person thinks, feels and behaves. It can include diagnosed disorders such as depression, anxiety phobias or eating disorders; and also includes feelings and behaviours such as panic attacks, self-harm or suicidal feelings (Mind, 2013).

Outpatient appointments

These hospital appointments are planned in advance and a patient can see a range of healthcare professionals for treatment or investigation – such as a physiotherapist to recover after a fall, or a maternity unit for an ultrasound scan. For an outpatient appointment a patient only visits the hospital; they are not admitted and do not stay overnight.

Planned inpatient admissions

Similar to outpatient appointments, these hospital admissions are planned in advance and are usually for more serious or longer-term treatments and procedures – for example a hip replacement or kidney transplant. Again, just like emergency inpatient admissions, these can be day cases – where a patient does not stay overnight – or involve an overnight stay.

Preventable admissions

One common marker of the success of health systems is their ability to control rates of emergency admission, especially for those conditions where preventive management is possible in the community. Specific subsets of

these conditions (referred to as ambulatory care sensitive or ACS conditions – such as asthma and congestive heart failure) are used increasingly as markers of changes.

Serious mental illness

There is no standard definition of what conditions are included in serious mental illness (SMI) (Health and Social Care Information Centre, 2014). Therefore, for comparability, we have used a definition from White and others (2014) – that is, individuals who have a diagnosis of schizophrenia, bipolar disorder or psychosis.

Aim of study

Our aim for this work is to improve understanding of how people with mental ill health use hospital services differently from those without. The differences observed should help those planning services so that resources are adequately assigned and influence future policies to continue striving towards parity of esteem. The analyses shown here may also provide a new way of understanding the quality of care for those with mental ill health and provide a way to track whether things get better or worse over time.

Key points

- People with mental ill health use more emergency hospital care than those without mental ill health. In 2013/14, this was 3.2 times the accident and emergency (A&E) attendances and 4.9 times the emergency inpatient admissions.

- Only a small part of this emergency care was explicitly to support mental health needs. In 2013/14, 19 per cent of emergency inpatient admissions for those with mental ill health were to explicitly support their mental health. This means that the majority of care was used to support other health concerns. The difference in emergency care use is not explained by levels of support for mental ill health. In 2013/14, when activity related to mental health was excluded, those with mental ill health used 3.9 times the emergency inpatient care as those without.

- Deprivation is strongly associated with hospital use. Those who are more deprived use more emergency care. In 2013/14, the most deprived people with mental ill health visited A&E 1.8 times more than the least deprived and had 1.5 times more emergency inpatient admissions. In 2013/14, 62 per cent of A&E attendances for those with mental ill health were from people living in the most deprived areas.

- People with mental ill health had 3.6 times more potentially preventable emergency admissions than those without mental ill health in 2013/14.

- People with mental ill health use less planned inpatient care and more outpatient care than those without. In 2013/14, this was 0.9 times the planned inpatient admissions and 1.7 times the outpatient appointments.

- The difference in A&E and emergency inpatient admissions, between those with mental ill health and those without, increased over time. However, the difference in planned inpatient care use was similar over time.

- For common inpatient procedures, those with mental ill health were more likely to have an emergency rather than planned admission, be admitted overnight and stay longer in hospital. This was particularly true for procedures related to the upper digestive tract (21.0 per cent of procedures for people with mental ill health were an emergency compared with 4.9 per cent for those without), cataract operations (82.5 per cent were a day case for people with mental ill health compared with 96.8 per cent for those without) and hip replacements (those with mental ill health stayed on average 6.7 days longer in hospital) in 2013/14.

1

Introduction

Mental ill health will affect us all at some point in our lives; whether personally, in our families, communities or workplaces. At any one time, one in six adults has a mental health problem, and one in a hundred of us has a serious mental illness (SMI) (HM Government, 2011).

Previous studies have shown that those with mental ill health die younger and a greater proportion have poor physical health, compared with the general population. The mortality rate for those aged under 75 (premature mortality) in those with SMI is more than three times higher than that for the general population (QualityWatch, 2015). This means that individuals with SMI die on average 10 to 17 years earlier (Davies, 2013). When it comes to disease-specific mortality, the death rate from respiratory disease and diseases of the digestive system is four times higher in mental health service users compared with the general population and 2.5 times higher for death from circulatory diseases.

Such disparities in mortality have been recognised for at least 25 years (Newman and Bland, 1991) and the cause of which is often linked to poor physical health (Health and Social Care Information Centre, 2013a). Mental ill health does not occur in isolation. It has been estimated that 46 per cent of people with a mental health condition also have a long-term physical health diagnosis (Naylor and others, 2012). In particular, those with mental ill health have high rates of respiratory, circulatory and infectious disease, obesity, abnormal lipids and diabetes (De Hert and others, 2009). A Finnish study estimated that up to 50 per cent of the increased mortality in those with mental ill health was due to underlying physical health conditions (Joukamaa, 2001). Some of the reasons for the prevalence of long-term physical health conditions and poor outcomes among people with mental ill health are:

- a higher occurrence of risk factors for many chronic diseases and some types of cancer (smoking, obesity, lack of physical exercise, harmful alcohol consumption and poor diet) compared with other populations

- the iatrogenic effects of some psychiatric medications, increasing the risk of obesity

- poorer access to physical healthcare than the population as a whole (Thornicroft, 2011).

Drawing on the links between physical and mental health, a recent report from the Chief Medical Officer (Davies, 2013) highlighted that approximately 60 per cent of the excess mortality in those with mental illness is avoidable. Considering physical health alongside mental health is imperative in order to address the disparities in life expectancy between those with and those without mental ill health.

One key area is to improve access to physical healthcare for those with mental ill health. Many studies have highlighted concerns about the quality of physical healthcare among patients with SMI (Druss and others, 2001; Lawrence and Kisely, 2010; Lord and others, 2010; Mitchell and others, 2009). NHS England (2015a) suggests that there is an excess of 40,000

deaths among SMI patients, which could be reduced if those patients received the same healthcare interventions as the general population. For example, NICE (2009) guidance states that everyone with schizophrenia should have an annual physical health check, yet a national audit in 2012 found that only 29 per cent of people with SMI received appropriate physical health checks (Cooper and others, 2012). People with schizophrenia are also half as likely to undergo coronary revascularisation as patients without mental ill health (Davies, 2013).

Recently there has been greater focus at both national and local levels to achieve 'parity of esteem' for physical and mental health – to ensure that people are enabled to maintain both their physical and mental wellbeing. For example:

- In 2010, *Healthy Lives, Healthy People* was the first public health strategy to give equal weight to both physical and mental health (HM Government, 2010).

- In 2011, a cross-government strategy on mental health was published – *No Health Without Mental Health* – which included a key objective that more people with mental health problems will have good physical health (HM Government, 2011).

- NHS England's (2013a) strategic plan to address premature mortality includes a focus on the early identification and prevention of co-morbidities and on reducing mortality for people with SMI.

- In March 2015, the Mental Health Taskforce was formed to develop a five-year national strategy for mental health, covering access, choice of treatments and prevention (NHS England, 2015b).

These initiatives have been accompanied by increased funding for mental health services, and the introduction of waiting time targets and quality standards for mental health services. In addition, a provider incentive payment has been introduced to encourage secondary care mental health services to improve the physical healthcare of patients with mental health conditions – called Commissioning for Quality and Innovation (CQUIN)[*] (NHS England, 2013b; NHS England/Contracting and Incentives Team, 2015).

For these policy measures to be effective, we must better understand how those with mental ill health are using services and in particular whether they are able to access care for their physical health needs. There have been many studies looking at differences in health outcomes for people with mental ill health but they have mainly focused on those with the most severe mental health needs. A study by the Health and Social Care Information Centre (2013a) found higher rates of access to hospital services for those with mental ill health compared with those without – but no distinction was made to compare hospital use for underlying physical or mental healthcare diagnoses. Additionally, as the care services/pathways for physical and mental health are often not linked, data is captured in different ways, in different systems, making it difficult to explore quality of care for physical health in those with mental ill health.

---

[*] CQUIN introduced in 2014/15 and 2015/16 includes two components: (1) cardio-metabolic assessment for patients with psychoses and (2) communication with general practitioners for 0.1251% (in 2014/15) and 0.25% (in 2015/16) of annual contract value.

In this study we were interested in how a broad group of people with mental health needs, not only those with the most severe needs, used hospital services. We looked at hospital use for both physical and mental health needs. In particular, we sought to answer the following questions:

- Do people who have previously used hospital services for mental ill health go on to use more hospital care than those who have not?

- If so, are there other factors, beyond mental ill health, behind these differences?

- Do people with mental ill health have more potentially preventable hospital admissions than those without?

- Are people with mental ill health more likely to have an emergency rather than planned admission or stay longer in hospital for common physical health procedures than those without?

2

Summary of methods

This analysis was conducted using hospital episode statistics (HES) data from April 2007 to March 2014. The HES datasets include all inpatient admissions, outpatient appointments and A&E visits in NHS hospitals in England. Using all datasets allowed us to view a detailed picture of a patient's hospital use. On average, the datasets include roughly 100 million care events each year.

Our aim was to compare hospital service use in adults under 75 years of age who had mental ill health (identified by attendance at hospital services for mental ill health) with those with no record of mental ill health (see the definitions below). We were particularly interested in exploring differences in hospital care related to physical health conditions.

Cohort definitions

We included all patients aged 18 to 74 years with a known sex. We limited our analysis to those aged under 75 years to reflect the age limit in the definition of premature mortality. Using HES we identified three groups of interest:

- A **mental health cohort (MH cohort)** was classified as those who used hospital services for mental ill health. This was defined as those who had at least one inpatient admission or outpatient appointment with a primary diagnosis of any mental and behavioural disorder (ICD-10, Chapter V, codes F00 to F99) (World Health Organization, 1992), or, where the main specialty (medical specialty under which the hospital consultant is contracted) was mental health (NHS specialty codes 700 to 715) (The Information Centre for Health and Social Care, 2010a) within a given year. This cohort included all those with a serious mental illness (see below).

- A **serious mental illness subgroup (SMI subgroup)** was a subset of the MH cohort who had at least one inpatient admission or outpatient appointment with a primary diagnosis of schizophrenia, bipolar disorder or psychosis (ICD-10 codes F20–29 and F30–31) (White and others, 2014) in a given year.

- A **physical health cohort (PH cohort)** was defined as those who used hospital services in a given year and excluded anyone who had used hospital services to support mental health in that year and the previous two years. This was anyone with an inpatient or outpatient appointment with a primary or secondary mental and behavioural disorder diagnosis or mental health main speciality.

It is important to note that those included in this study are not representative of the general population as they have contact with a hospital service.

The number of people in each cohort in each year is shown in Table 2.1.

Table 2.1: Number of people in each cohort and financial year as identified in hospital episode statistics, 2009/10 to 2013/14

Cohort	2009/10	2010/11	2011/12	2012/13	2013/14
Mental health (MH cohort)	535,739	559,225	551,819	531,723	545,759
Serious mental illness (SMI subgroup)	50,987 (9.5% of MH cohort)	52,453 (9.4% of MH cohort)	58,428 (10.6% of MH cohort)	59,868 (11.3% of MH cohort)	58,576 (10.2% of MH cohort)
Physical health (PH cohort)	13,140,421	13,217,217	12,600,903	12,329,277	12,476,005

Source: Hospital episode statistics (2009/10 to 2013/14)

Analyses conducted

We examined the demographic characteristics of the cohorts (age, sex, deprivation and history of long-term conditions – as recorded in HES). We calculated crude hospital activity rates (including planned and emergency inpatient admissions, admissions for ambulatory case sensitive conditions, outpatient attendances and A&E attendances) and examined five-year trends (from 2009/10 to 2013/14).

To explore potential differences in the provision of care for physical health, we calculated crude hospital activity rates (as above) excluding support for mental health needs, and examined rates of common inpatient procedures for physical health conditions, and characteristics of these admissions, including the proportion of planned versus emergency care, and length of stay.

For a comprehensive description of the methods used, see Appendix 1.

3

Cohort characteristics

To understand why we see differences in hospital use in our cohorts, we need to capture other factors that may influence a person's hospital use beyond their health needs, such as age and deprivation. To provide a simple comparison, here we only describe the differences in the characteristics of the cohorts identified in 2009/10.

Age and sex

In 2009/10, 50.3 per cent of the MH cohort were male, and the mean age was 45 years. Overall, the age and sex distribution of this cohort was comparable to that in the Mental Health and Learning Disabilities Data Set (MHLDDS) in 2009/10 (The NHS Information Centre, Mental Health and Community, 2011). For the cohort, the age pattern was very similar for men and women, with peaks in those aged 18 to 24 years, 35 to 49 years and 70 to 74 years (see Figure 3.1).

Figure 3.1: Age and sex profile of those with mental ill health (MH cohort, *n* = 535,739) and the comparator population (PH cohort, *n* = 13,140,421) in England, 2009/10
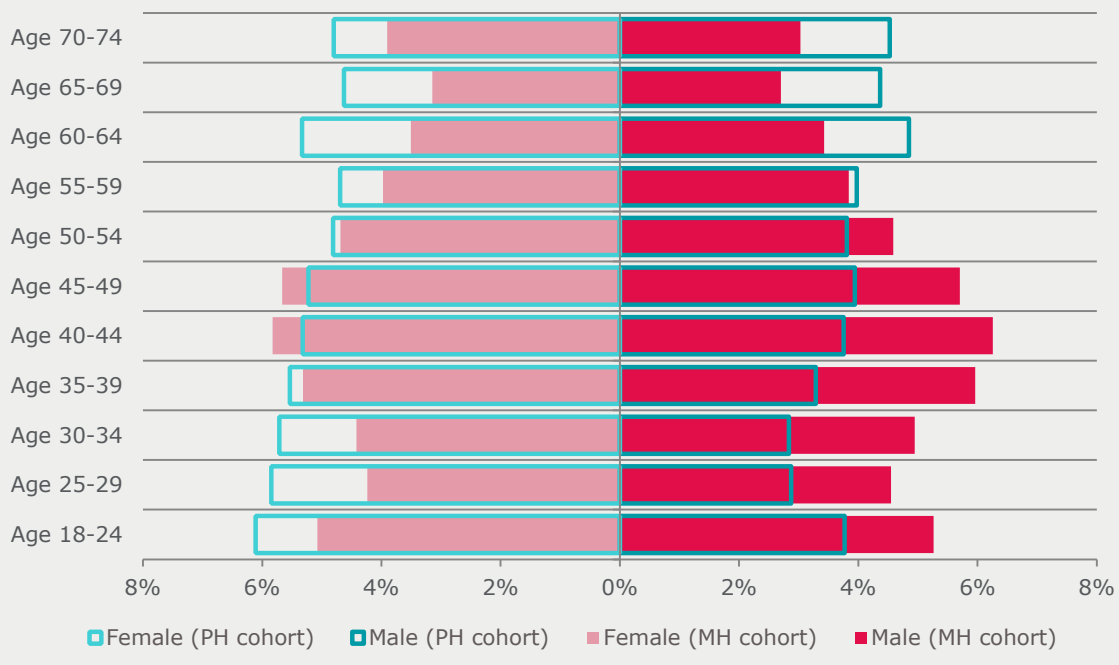
Source: Hospital episode statistics (2009/10)

There were notable differences between the age profile of the MH and PH cohorts. A higher proportion of the MH cohort were male (50.3 per cent

compared with 42.0 per cent) and of younger age (a mean age of 45 years compared with 47 years) (see Table 3.2 at the end of this chapter).

For the SMI subgroup, it is worth noting that there was a particularly high proportion of men in the younger age groups (between 18 and 49) compared with the two main cohorts: 41.0 per cent of the SMI group were men in this age range, which compares with 32.7 per cent of the MH cohort and 20.5 per cent of PH cohort.

Deprivation

Many studies show a link between mental ill health and socioeconomic deprivation. Higher levels of deprivation contribute to poor mental health outcomes, but poor mental health can also impact on a person's socioeconomic status (Goldie and others, 2013). Therefore it is important to understand the profile of deprivation for the cohorts in this study and how this may impact on health and service use.

Figure 3.2 shows the distribution across the Index of Multiple Deprivation (IMD) deciles in the MH and PH cohorts and SMI subgroup in 2009/10. For a cohort reflective of the general population, we would expect a uniform distribution, with 10 per cent of the cohort in each IMD decile. The PH cohort was similar to the general population, with 10.2 per cent of this cohort in the most deprived decile.

The MH cohort was much more deprived, with 18.2 per cent of this cohort in the most deprived decile, compared with 5.6 per cent in the least deprived (p value < 0.05). The difference was even more pronounced in the SMI subgroup, with 20.8 per cent in the most deprived decile, compared with 3.3 per cent in the least deprived (p value < 0.05). This confirms the expected association between mental illness and socioeconomic deprivation, and that it is more acute for people with SMI.

Figure 3.2: Distribution of those with mental ill health (MH cohort), serious mental illness (SMI) and the comparator population (PH cohort), by decile of deprivation in England, 2009/10
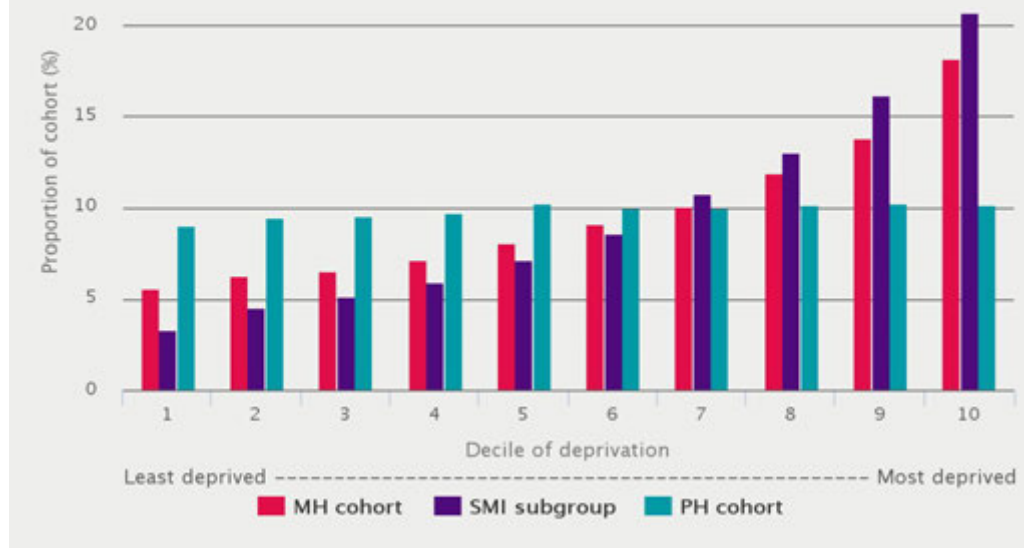
Source: Hospital episode statistics (2009/10), Office for National Statistics (2013), Department for Communities and Local Government (2012)

Long-term conditions

A key part of this study was to understand why the cohorts were using hospital services: whether this was solely to support mental health needs or whether it extended to other health concerns. To do this, we first needed to understand what other long-term conditions the cohorts had. The conditions considered in this study and the methods used to identify them are outlined in Appendix 1. The majority of all the cohorts (78.7 per cent of the MH cohort, 81.5 per cent of the SMI subgroup and 76.3 per cent of the PH cohort) had no history of a long-term physical condition documented in their hospital records (see Table 3.1).

For those with a long-term condition, the most common for the MH cohort and SMI subgroup was hypertension, followed by asthma (see Table 3.1). The most common long-term conditions for the PH cohort were hypertension and cancer (see Table 3.1). It is important to remember that these long-term conditions are in addition to the mental health needs identified in the MH cohort and SMI subgroup and that these two groups will have high health needs overall. As one fifth of the MH cohort had at least one other long-term condition, it is important to understand how they were using hospital services and whether this use related to their mental health or other health concerns.

Table 3.1: Most common long-term conditions among those with mental ill health (MH cohort), those with serious mental illness (SMI subgroup) and the comparator population (PH cohort) in England, 2009/10

		MH cohort	SMI subgroup	PH cohort
Number of patients		535,739	50,987	13,140,421
Long-term condition	None	78.7%	81.5%	76.3%
	At least one*	21.3%	18.5%	23.7%
	Hypertension	6.4%	5.2%	8.2%
	Asthma	5.7%	4.2%	4.3%
	Injury from fall	4.5%	3.6%	2.1%
	Cancer	4.1%	3.4%	8.2%
	Diabetes	3.5%	4.1%	3.4%
	Peripheral vascular disease	2.8%	2.1%	1.8%
	Anaemia	2.3%	1.9%	1.9%
	Ischaemic heart disease	2.0%	1.4%	2.7%
	Cerebrovascular disease	1.9%	1.2%	1.0%
	Angina	1.6%	1.1%	1.9%

*Please note people can have more than one long-term condition.

Source: Hospital episode statistics (2009/10)

Summary

Table 3.2 shows how the cohorts compared to the general population of England in 2009. In general, the MH cohort and SMI subgroup had a similar proportion of males to the general population but a higher proportion than the PH cohort. The MH cohort and SMI subgroup were also younger and much more deprived than the PH cohort and the general population.

The presence of long-term conditions was harder to compare. The MH and PH cohorts had similar proportions of people with at least one long-term physical condition (21.3 per cent and 23.7 per cent respectively), with the SMI subgroup having a much lower proportion at 18.5 per cent. However, for the MH cohort, this was in addition to mental ill health. The general population figure is given in the table as context but does not exclude mental ill health and it includes people of all ages.

Table 3.2: Characteristics of those with mental ill health (MH cohort), serious mental illness (SMI subgroup) and the comparator population (PH cohort) compared with the general population in England, 2009/10

	Number of people	Sex (proportion of males)	Age proportion of cohort	Distribution of deprivation (proportion of cohort in least and most deprived deciles)	Proportion of cohort with at least one long-term physical condition
MH cohort	535,739	50.3%	Under 40: 39.8% Over 65: 12.8%	Least deprived (IMD = 1): 5.6% Most deprived (IMD = 10): 18.2%	21.3%
SMI subgroup	50,987	56.3%	Under 40: 41.2% Over 65: 8.8%	Least deprived (IMD = 1): 3.3% Most deprived (IMD = 10): 20.8%	18.5%
PH cohort	13,140,421	42.0%	Under 40: 36.0% Over 65: 18.3%	Least deprived (IMD = 1): 9.0% Most deprived (IMD = 10): 10.2%	23.7%
General population of England (aged 19–75)*	36,056,600	49.7%	Under 40: 40.7% Over 65: 12.1%	Least deprived (IMD = 1): 10% Most deprived (IMD = 10): 10%	30%**

IMD = Index of Multiple Deprivation

* Mid-2009 Office for National Statistics estimates, using the most similar age categories available.

** This figure does not explicitly exclude mental health problems and includes people of all ages (Department of Health, 2013).

Source: Hospital episode statistics (2009/10), Office for National Statistics (2013), Department for Communities and Local Government (2012)

4

Findings

Do people who have previously used hospital services for mental ill health go on to use more hospital care than those who have not?

Hospital activity data can tell us a lot about a person's care use. It tells us the services they used and potentially how effective the services were (by looking, for example, at readmissions and the length of time spent in hospital) and in some cases we can use it to understand more about a person's care beyond the hospital.

Hospital use in 2013/14

In 2013/14, the MH cohort had a 4.9 times higher rate of emergency inpatient admissions than the PH cohort. The difference was even higher between the SMI subgroup and the PH cohort (see Table 4.1). Both the MH cohort and the SMI subgroup had more than three times the rate of A&E attendances compared with the PH cohort. Despite similar A&E use to the MH cohort overall, those with SMI had a higher rate of emergency inpatient admissions. The difference in emergency care use is not explained by levels of support for mental health. When activity related to mental health was excluded, those with mental ill health used 3.9 times the level of emergency inpatient care than those without (see below).

In contrast to emergency care (emergency inpatient admissions and A&E), the MH cohort and SMI subgroup had a higher rate of outpatient use compared with the PH cohort; however, both groups had a slightly lower rate of planned inpatient admissions (see Table 4.1). This suggests that those with mental ill health have higher emergency care and somewhat less planned inpatient care than the comparator population.

Table 4.1: Crude hospital activity rates per 1,000 population among those with mental ill health (MH cohort), serious mental illness (SMI subgroup) and the comparator population (PH cohort), 2013/14

	Number of people	Emergency inpatient admissions		A&E attendances		Planned inpatient admissions		Outpatient appointments	
		Rate per 1,000	Rate ratio	Rate per 1,000	Rate ratio	Rate per 1,000	Rate ratio	Rate per 1,000	Rate ratio
MH cohort	545,759	627.8	4.9	1349.1	3.2	353.9	0.9	5934.5	1.7
SMI subgroup	58,576	859.5	6.7	1367.7	3.3	351.3	0.9	9296.2	2.6
PH cohort	12,476,005	128.9	Ref	420.7	Ref	404.6	Ref	3592.5	Ref

Source: Hospital episode statistics (2013/14)

To try to understand the reason for inpatient care, we examined the Healthcare Resource Group information recorded in the patient's inpatient activity (see Appendix 1, Table A2).

Where recorded, the most common reasons for inpatient admission in the MH cohort were related to:

- mental health (9.3 per cent)

- poisoning (6.4 per cent).

For the PH cohort, the most common reasons for admission were:

- same day chemotherapy (5.3 per cent)

- chronic kidney disease (3.5 per cent).

Trends over time

So far in this chapter, we have observed the activity rates for the cohorts identified in 2013/14. We now use the same criteria to look at the cohorts of people in the previous years, from 2009/10 to 2013/14, to see whether the disparities we have observed had got better or worse. The number of people identified in each year is shown in Table 2.1.

Figure 4.1 shows trends in activity for the MH and PH cohorts and SMI subgroup from 2009/10 to 2013/14.

Rates of emergency care (emergency inpatient admissions and A&E visits) increased over time for MH cohort, most noticeably in A&E visits (from 1,100 per 1,000 population in 2009/10 to 1,350 per 1,000 population in 2013/14). The difference between the MH and PH cohorts also increased for A&E (the rate ratio in 2009/10 of 2.7 increased to 3.2 in 2013/14) but this was attributed to increasing A&E attendance rates among the MH cohort over this time. Emergency inpatient admissions for the PH cohort decreased between 2009/10 and 2013/14, whilst they remained similar for MH cohort. Meaning the difference between the MH cohort and PH cohort increased (the rate ratio in 2009/10 of 3.6 increased to 4.9 in 2013/14).

For planned care, planned inpatient admissions did not increase much over time for the MH cohort and were fewer than the PH cohort in all years. However, the level of planned care for the PH cohort increased in 2010/11 but decreased again and was similar in 2013/14 to 2009/10. The rate of outpatient appointments increased greatly (by 20 per cent) over time for the MH cohort, from 4,900 per 1,000 population in 2009/10 to 5,900 per population in 2013/14. The number of outpatient appointments for the PH cohort remained similar over time, meaning that the gap between the two groups grew slightly, from 1.5 times in 2009/10 to 1.7 times in 2013/14.

The SMI subgroup had the highest rate of care use in nearly all categories, in all years. The rate was particularly high for emergency inpatient admissions and outpatient appointments.

Figure 4.1: Crude hospital activity rates per 1,000 population among those with mental ill health (MH cohort), serious mental illness (SMI subgroup) and the comparator population (PH cohort), 2009/10 to 2013/14
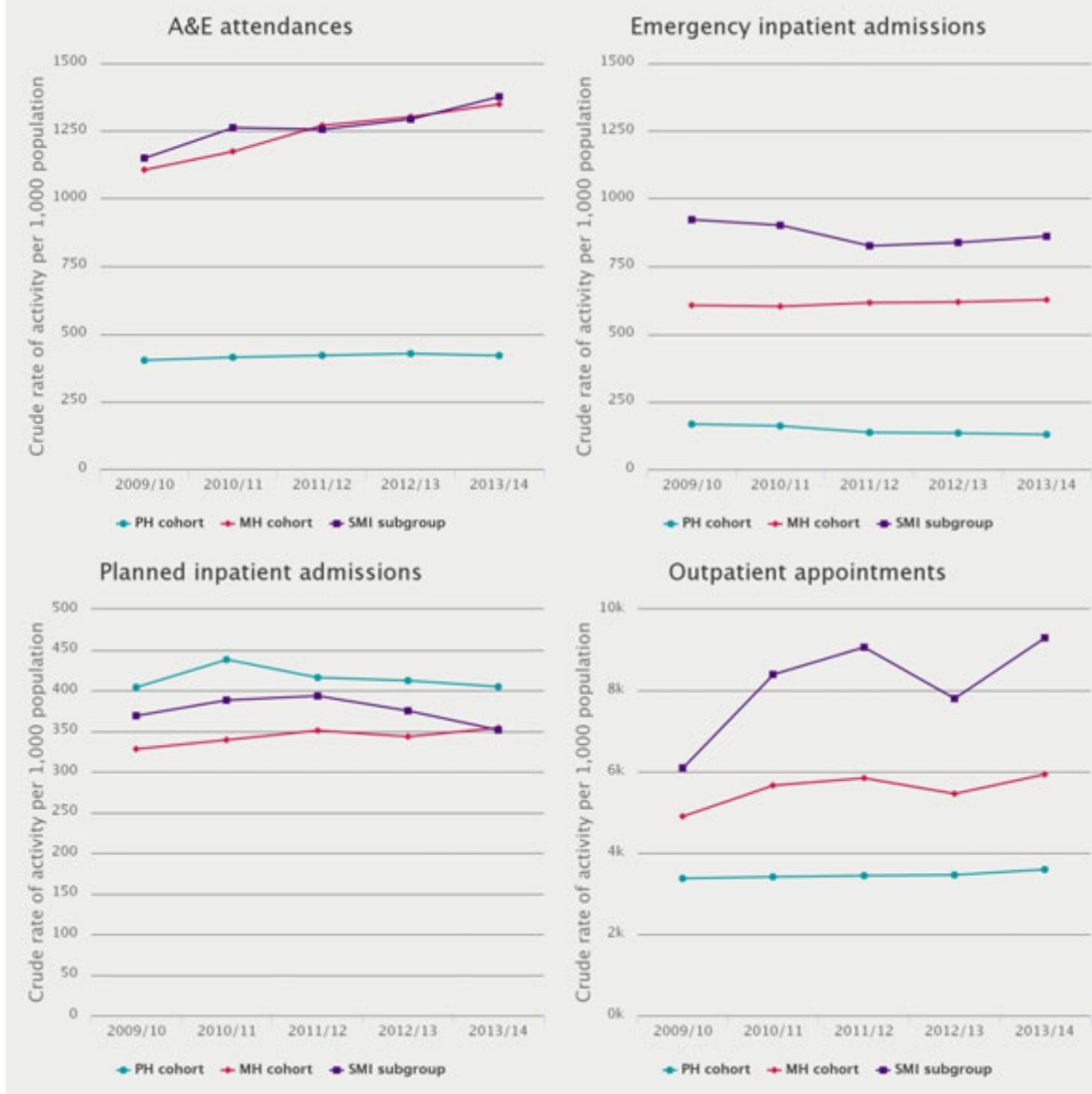
Source: Hospital episode statistics (2009/10 to 2013/14)

Summary

- Overall, those with mental ill health used more emergency hospital care and less planned inpatient care than the comparator PH cohort. The difference in A&E and emergency inpatient admissions, between those with mental ill health and those without, increased over time. However, the difference in planned inpatient care use was similar over time.

In 2013/14:

- attendance rates at A&E were three times higher among those with mental ill health when compared with the PH cohort

- emergency admissions rates were almost five times higher among those with any mental ill health, increasing to nearly seven times higher among those with SMI

- planned inpatient admissions rates were slightly lower among those with mental ill health, but rates for outpatient appointments were higher.

Are other factors, beyond mental ill health, behind differences in emergency and planned hospital use?

Physical healthcare or mental healthcare

In Table 3.1, we showed that roughly a fifth (21.3 per cent) of the MH cohort in 2009/10 had at least one other long-term condition and it is so far unclear whether the hospital services being used by this group were to support their mental ill health or some of these other health concerns. In order to understand the primary reason for using emergency or planned care among the MH cohort, we defined whether hospital activity related to mental or not (based on the main speciality of appointments).

Table 4.2 shows the proportion of care related to mental health and physical health for the cohorts in 2013/14. The majority of emergency and planned inpatient admissions were related to physical health needs (80.9 per cent and 82.6 per cent respectively) meaning that the majority of the care used was not to support mental health needs. This shows that if activity related to mental ill health is excluded, the MH cohort still accounted for 3.9 times the emergency inpatient admissions compared with the PH cohort. The proportion of care related to physical health was similar over time for MH cohort.

Figure 4.1 showed that in that year the SMI subgroup had particularly high levels of emergency inpatient and outpatient use. We see in Table 4.2 that over half of that was for support relating to mental health and this could suggest that those in the subgroup are getting a higher level of support for their mental health needs. This is consistent with what we would expect for this group: as their mental health needs are more severe, it follows that they would require higher levels of planned inpatient care under a mental health specialty.

All activity for the PH cohort related to physical healthcare. However, although the primary reason for hospital use was related to physical healthcare, it is important to remember that mental ill health can be a contributory factor in a physical health need.

Table 4.2: Proportion of hospital use related to mental or physical health among those with mental ill health (MH cohort), serious mental illness (SMI subgroup) and the comparator population (PH cohort), 2013/14

	Proportion of emergency inpatient admissions		Proportion of planned inpatient admissions		Proportion of outpatient appointments	
	Related to mental health	Related to physical health	Related to mental health	Related to physical health	Related to mental health	Related to physical health
MH cohort	19.1%	80.9%	17.4%	82.6%	51.4%	48.6%
SMI subgroup	54.0%	46.0%	49.2%	50.8%	63.4%	36.6%
PH cohort	0.0%	100.0%	0.0%	100.0%	0.0%	100.0%

Source: Hospital episode statistics (2013/14)

Deprivation

In 2009/10, increasing levels of deprivation were associated with higher emergency hospital activity (inpatient admissions and A&E attendances) for both the MH and PH cohorts (see Figure 4.2) (all activity types in both cohorts had R-squared values above 0.9 – see Box 4.1 for an explanation of these values). Those in the most deprived category (score 10) used the most emergency hospital care (for the MH cohort: 1,408 per 1,000 A&E visits and 711.4 per 1,000 emergency inpatient admissions), and those in the least deprived (score 1) used the least hospital activity (for the MH cohort: 686.7 per 1,000 A&E visits and 429.2 per 1,000 emergency inpatient admissions). In 2009/10, 60 per cent of all emergency inpatient activity in the MH cohort involved the most deprived people (deprivation score between 7 and 10).

Figure 4.2: Relationship between crude emergency hospital activity rates per 1,000 population and decile of deprivation in England among those with mental ill health, 2009/10
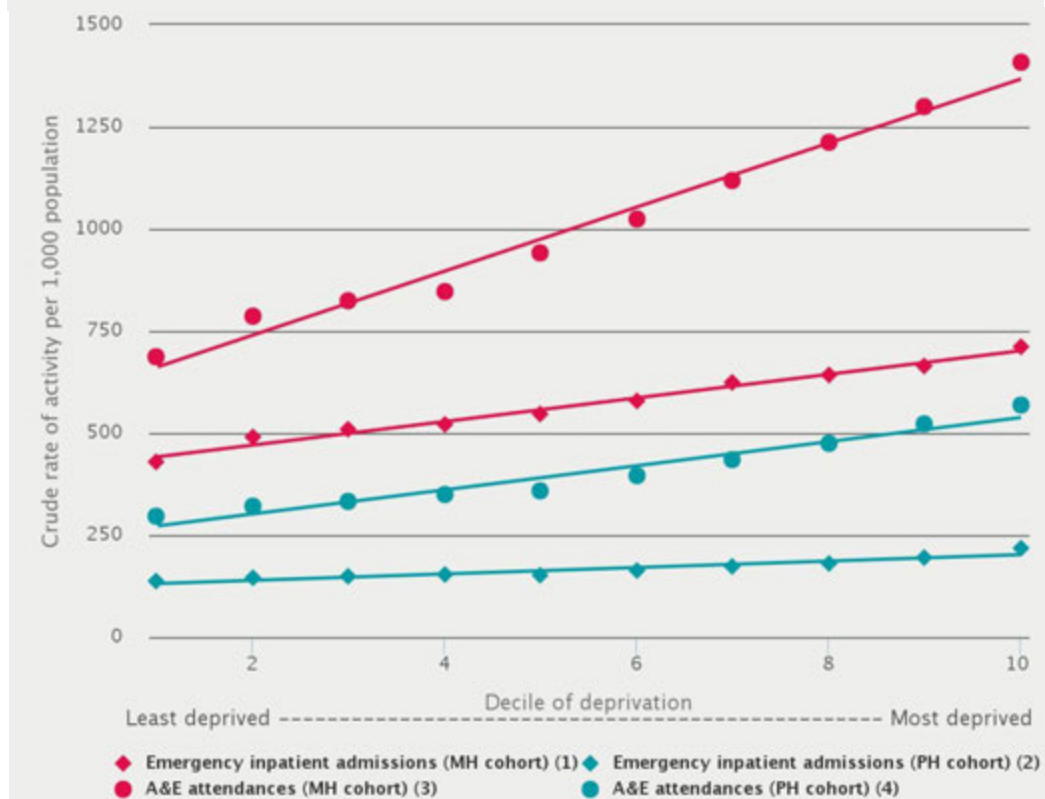
$R^2 = 0.98$ (2) $R^2 = 0.90$ (3) $R^2 = 0.98$ (4) $R^2 = 0.95$

Source: Hospital episode statistics (2009/10), Office for National Statistics (2013), Department for Communities and Local Government (2012)

Box 4.1: 'R-squared' (R^2)

R-squared is a statistical tool which measures how well a linear model – fitting a straight line through your data points – fits the observed data. An R^2 value close to 1 indicates that your data fits the model well and you are observing a linear relationship. An R^2 value close to 0 means that your data does not fit the model and you are unlikely to be observing a clear linear relationship between the variables.

To see whether the inequality within the MH cohort had got better or worse over time, we looked at how emergency hospital use related to deprivation in a similar cohort in 2013/14. Figure 4.3 shows the correlation between emergency hospital activity (emergency inpatient admissions and A&E visits) and deprivation score in the MH cohort in 2009/10 and 2013/14. Similar to 2009/10, the association between amount of care and deprivation was strong in 2013/14 – the more deprived the person with mental ill health was, the more emergency care they used (R-squared values above 0.9 – see Box 4.1). The slope of this relationship was similar in 2009/10 and 2013/14, and there appeared to be no reduction in this inequality.

Figure 4.3: Relationship between crude emergency hospital activity rates per 1,000 population and decile of deprivation in England for those with mental ill health (MH cohort), 2009/10 and 2013/14
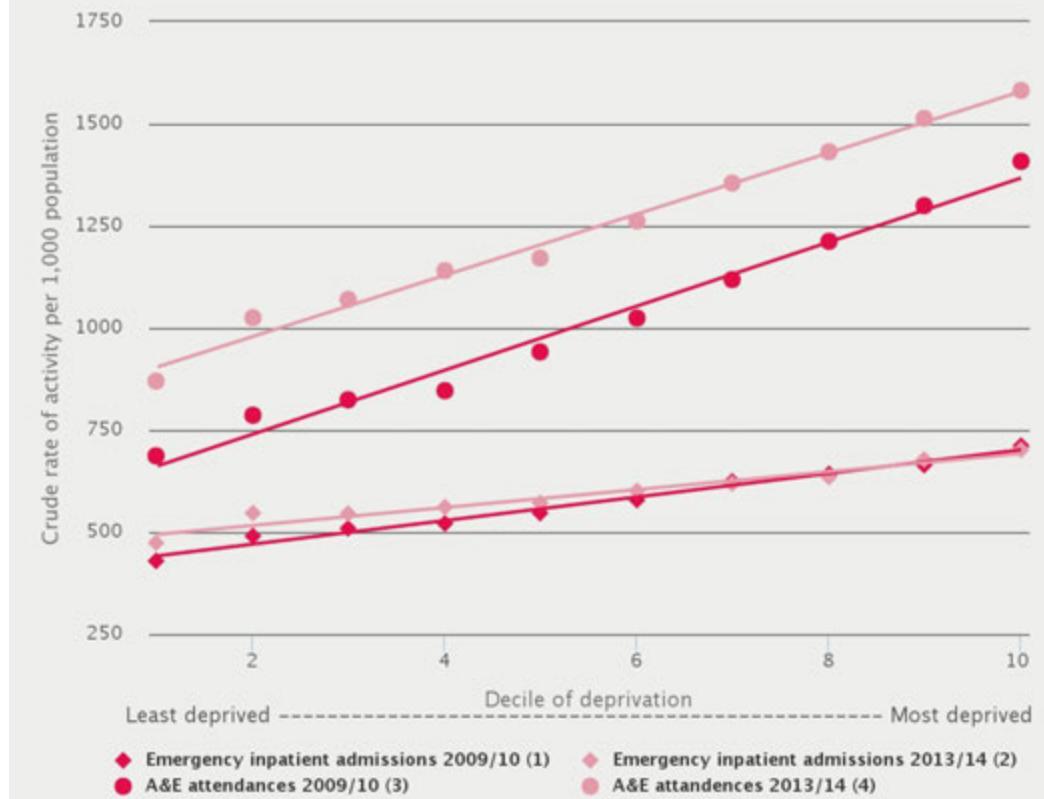
$R^2 = 0.98$ (2) $R^2 = 0.95$ (3) $R^2 = 0.98$ (4) $R^2 = 0.95$

Source: Hospital episode statistics (2013/14); Office for National Statistics (2013), Department for Communities and Local Government (2012)

Age

The MH cohort had three to four times more emergency inpatient admissions in all age groups compared with the PH cohort (except for those in the 70–74 age group) (see Table 4.3). The greatest difference was in the age groups spanning 30 to 54 years (highlighted) where the emergency inpatient admission rate was four times higher in the MH cohort compared with the PH cohort.

The rate of A&E attendance in the MH cohort was two to three times higher than that for the PH cohort in all age groups. There was no particular age group where the MH cohort used much more or less A&E care than the PH cohort.

Table 4.3: Crude emergency hospital activity rates per 1,000 population by age group among those with mental ill health (MH cohort), serious mental illness (SMI subgroup) and the comparator population (PH cohort), 2009/10

Emergency inpatient admissions	MH cohort	PH cohort	Rate ratio		A&E visits	MH cohort	PH cohort	Rate ratio
Age 18–24	595.0	196.0	3.0		Age 18–24	1,375.1	673.5	2.0
Age 25–29	568.6	157.3	3.6		Age 25–29	1,218.9	502.0	2.4
Age 30–34	580.8	141.6	4.1		Age 30–34	1,195.5	424.8	2.8
Age 35–39	584.6	140.3	4.2		Age 35–39	1,145.9	405.7	2.8
Age 40–44	609.4	140.3	4.3		Age 40–44	1,158.6	393.1	2.9
Age 45–49	614.7	139.7	4.4		Age 45–49	1,137.8	366.9	3.1
Age 50–54	600.1	146.7	4.1		Age 50–54	1,030.5	348.9	3.0
Age 55–59	582.7	154.2	3.8		Age 55–59	944.4	326.2	2.9
Age 60–64	621.5	166.6	3.7		Age 60–64	925.8	308.0	3.0
Age 65–69	671.0	194.8	3.4		Age 65–69	891.8	317.5	2.8
Age 70–74	714.9	252.5	2.8		Age 70–74	874.4	364.6	2.4

Source: Hospital episode statistics (2009/10)

Summary

- Among the MH cohort, the majority of inpatient admissions (both planned and emergency) were for physical healthcare but approximately half their outpatient appointments were for physical healthcare.

- Deprivation was strongly associated with emergency care use in both the MH and PH cohorts, with the more deprived people using the most emergency hospital care.

- The A&E attendance rate in the MH cohort was two to three times higher than that for the PH cohort, and this was similar across all age groups.

- For emergency inpatient admissions, the magnitude of the difference varied by age group, with the highest differences being found in the MH cohort age groups spanning 30 to 54 years.

Was the impact of mental ill health sustained over time?

We followed the 2009/10 MH cohort over time to examine whether the impact of mental ill health on hospital use was sustained over time. Figure 4.4 shows how the number of emergency inpatient admissions, A&E visits, planned inpatient admissions and outpatient appointments per 1,000 people changed over time for 2009/10 cohorts.

For nearly all cohorts, the rate of activity dropped markedly after 2009/10. This is not unexpected given that the cohorts were identified using activity in 2009/10 and is likely to be a simple case of regression to the mean.

Rates of emergency care (A&E and emergency inpatient admissions) for the MH cohort and SMI subgroup were consistently higher than those for the PH cohort. However, the relative difference did reduce over time. For the MH cohort, the difference in emergency inpatient admissions declined from 3.6 times higher than the PH cohort in 2009/10, to 2.9 times higher in 2013/14. An even bigger relative reduction was observed in the SMI group. Similarly, for A&E use, in 2009/10 the MH cohort made 2.7 times more visits to A&E compared with the PH cohort, and this had decreased slightly to 2.5 times by 2013/14.

The picture for planned care is slightly more complex. The rate of outpatient use in the MH and PH cohorts decreased over time. In all years, the PH cohort had lower levels of outpatient use compared with the MH cohort and SMI subgroup. The rates of planned inpatient care were lower in all years for both the MH cohort and the SMI subgroup compared with the PH cohort but this difference was much less than those seen in A&E use and emergency inpatient admissions.

For the 2009/10 MH cohort, the vast majority of inpatient activity related to support for physical healthcare and just under half of outpatient appointments were for physical health. This reflects a similar picture to that seen in 2013/14 (see Table 4.2).

These trends suggest that even though this MH cohort were identified by a mental health need in 2009/10 the disparities in care use were still sustained in 2013/14 and that the level of care used were still vastly different to PH cohort in that year.

Figure 4.4: Crude hospital activity rates per 1,000 population from 2009/10 to 2013/14 for those with mental ill health (MH cohort), serious mental illness (SMI subgroup) and the comparator population (PH cohort) identified in 2009/1
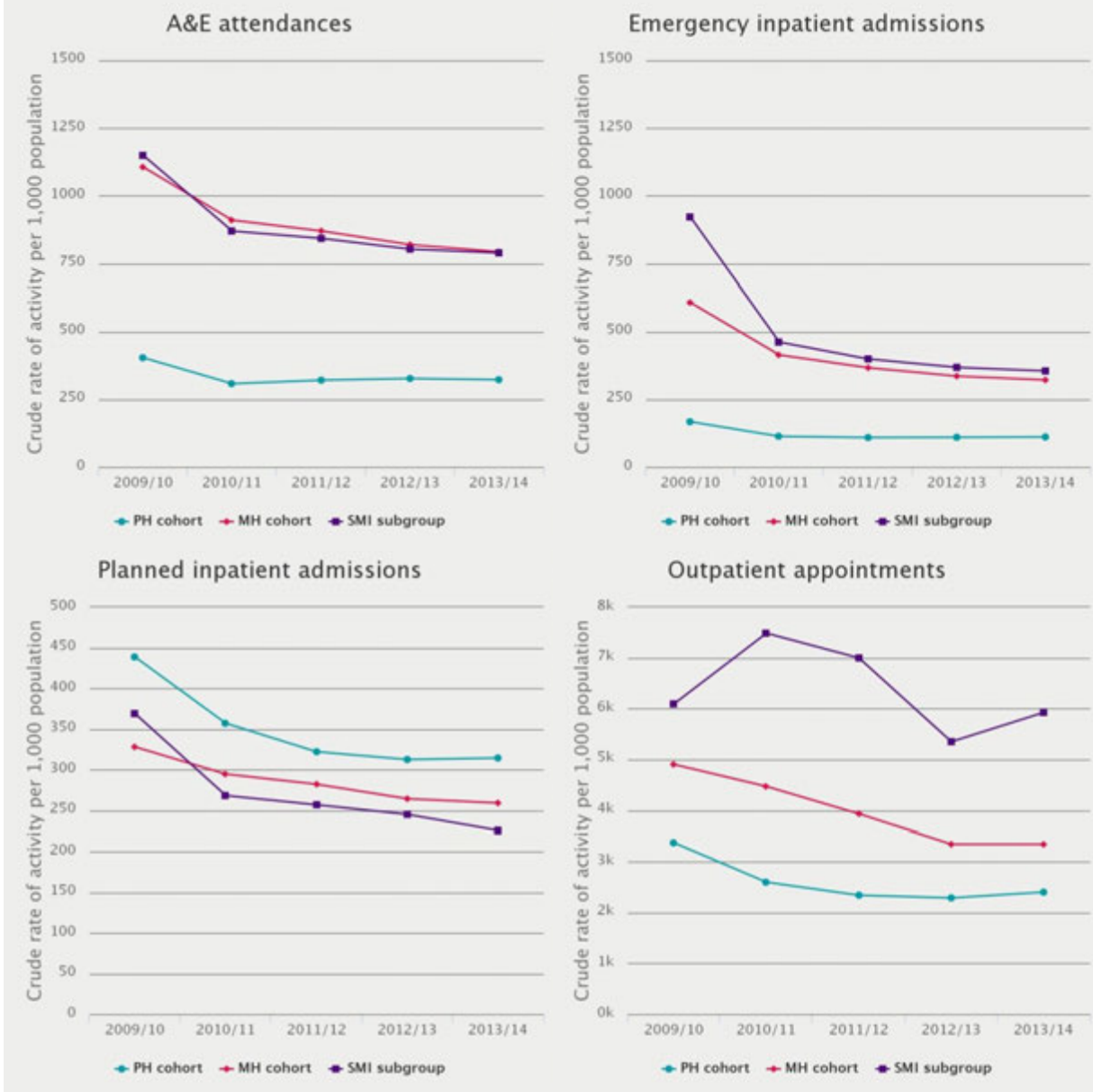
Source: Hospital episode statistics (2009/10 to 2013/14)

Summary

For our 2009/10 cohorts, the pattern of service use suggests that the impact of using a hospital service for mental ill health had a sustained impact on care use, and that by 2013/14 there were still vast differences in the amount of care used by these groups.

Do people with mental ill health have more potentially preventable hospital admissions than those without?

Research has shown that, for many conditions, hospital admissions can be avoided if a patient gets timely and effective planned care (such as self-care, primary care or community care) (Sanderson and Dixon, 2000). Also, these conditions can be used as potential indicators of how well primary and preventive care services are managing care so as to avoid unnecessary emergency admissions. A list of these so-called ambulatory care sensitive (ACS) conditions is provided in Appendix 1.

In this report we have observed that emergency inpatient admissions for the MH cohort were not usually related to mental health needs. To find out whether any of these acute (physical) hospital admissions were potentially avoidable, we examined the pattern of ACS admissions over time. This is particularly important as some of the ACS conditions are common in this group – namely hypertension, asthma and conditions relating to the heart.

In 2009/10, 13.5 per cent of emergency inpatient admissions (excluding activity related to mental health) for the MH cohort were for an ACS condition compared with 15.0 per cent for the PH cohort. However, as the MH cohort had much higher emergency inpatient admissions per person, the rate of ACS admissions was much higher compared with the PH cohort. In 2009/10 this was 64.2 per 1,000 population for the MH cohort and 25.1 per 1,000 population for the PH cohort (see Figure 4.5).

For MH cohort, the total rate of emergency admissions increased over time as did the rate of admissions for an ACS condition. This means in 2013/14, 14.6 per cent of emergency admissions (excluding activity related to mental health) were for an ACS condition. The rate ratio between the two cohorts also increased. In 2009/10, the MH cohort had 2.6 times the ACS admissions and this increased to 3.6 times by 2013/14 (in 2013/14: 74.2 per 1,000 population and 20.6 per 1,000 population, respectively).

Despite this, the rate of ACS admissions was not as high as we might expect for a group where we have seen lower levels of planned support and high urgent care use. Other studies have shown that this is around 20 per cent of all emergency admissions in England (Blunt, 2013). This is perhaps due to the relative youth of the cohorts in the present study, with many ACS admissions involving those aged over 75. Putting this national rate to one side, it is key to note that 14.6 per cent of MH cohort emergency admissions in 2013/14 could have potentially been prevented. For a group who already have high hospital use, avoiding these episodes could have a huge impact.

Figure 4.5: Crude rate of emergency inpatient admissions for ambulatory care sensitive (ACS) conditions per 1,000 population for those with mental ill health (MH cohort) and the comparator population (PH cohort), 2009/10 to 2013/14
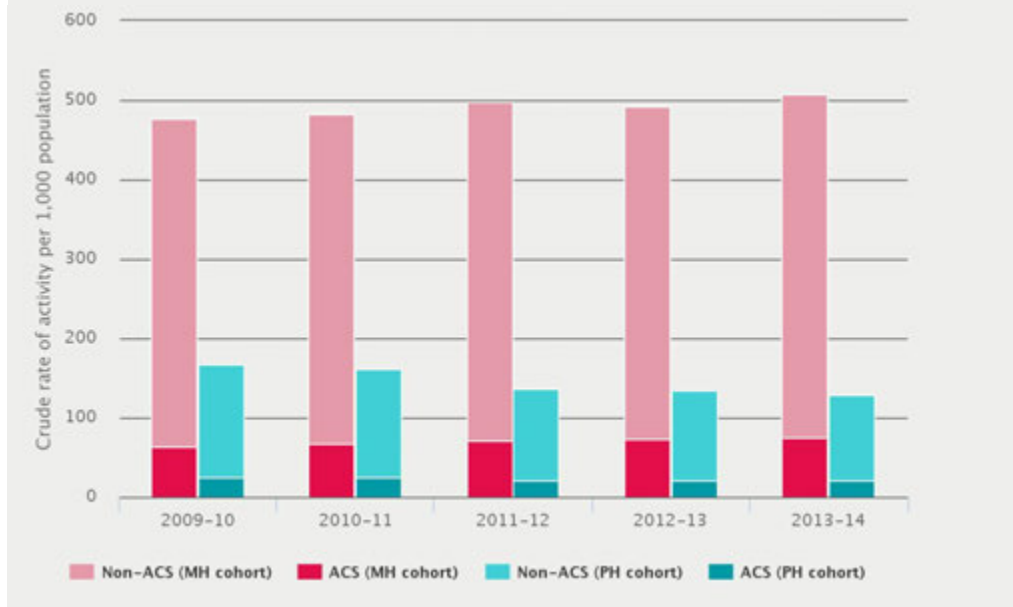
Source: Hospital episode statistics (2009/10 to 2013/14)

There are different types of emergency ACS admission: acute, chronic and other vaccine preventable (OVP) (see Appendix 1, Table A3). Figure 4.6 shows the proportion of different types of ACS admissions for MH cohort in 2013/14. Chronic ACS admissions – which includes conditions such as asthma and hypertension – were the largest group and represented 56.7 per cent of all ACS admissions for the MH cohort in 2013/14.

Figure 4.6: Proportion of emergency inpatient admissions for ambulatory care sensitive (ACS) conditions for each type of ACS condition for those with mental ill health (MH cohort), 2013/14
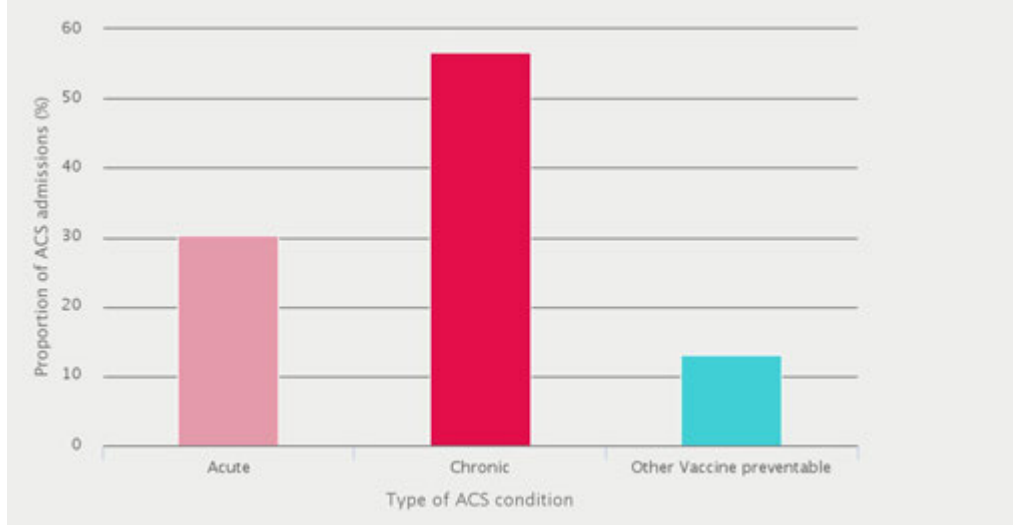
Source: Hospital episode statistics (2013/14)

Summary

- The MH cohort had higher rates of emergency ACS admissions compared with the PH cohort (in 2013/14: 74.2 per 1,000 population and 20.6 per 1,000 population, respectively).

- The total number of emergency inpatient admissions for ACS conditions increased over time for the MH cohort meaning the difference between the cohorts also increased (in 2009/10 MH cohort had 2.6 times the ACS admissions and in 2013/14 this increased to 3.6 times).

Are people with mental ill health more likely to have an emergency rather than planned admission or stay longer in hospital for common physical health procedures than those without?

As well as looking at the amount of care the cohorts received for their health needs, we also examined characteristics for common procedures – such as whether the patient's care was planned or an emergency and how long they stayed in hospital. Spending longer than is necessary in hospital:

- can be distressing to patients

- is an inefficient use of hospital services

- in some instances can increase a patient's risk of incurring more illness

- in some instances is associated with a decrease in the quality of care (Chunliu and Miller, 2003; Kossovsky and others, 2002; Lafont and others, 2011).

We looked at differences across the MH and PH cohorts in the type of admission and outcomes for some of the most common procedures identified in inpatient data in 2009/10 (The Information Centre for Health and Social Care, 2010b). Details of how we identified these can be found in Appendix 1. We do not present figures for the SMI subgroup as the numbers were too low to make meaningful comparisons.

For most procedures, the MH cohort had higher proportions of emergency spells compared with planned ones (see Table 4.4). This difference was particularly evident with procedures related to:

- the upper digestive tract (25.3 per cent emergency admissions in the MH cohort compared with 6.8 per cent in the PH cohort)

- the heart (coronary artery bypass grafting – CABG) (19.8 per cent emergency admissions in the MH cohort compared with 11.1 per cent in the PH cohort)

- hip replacements (45.3 per cent emergency admissions in the MH cohort compared with 11.2 per cent in the PH cohort).

When one considers the confidence intervals, these are all likely to be genuine differences.

Table 4.4: Differences in spell characteristics for common inpatient procedures among those with mental ill health (MH cohort) and the comparator population (PH cohort), 2009/10

	Cohort	No. of finished consultant episodes[1]	% emergency admissions	95% CI	Length of stay[2] (mean)	95% CI	Length of stay[2] (median)	% day cases
Cataract	MH cohort	2,680	0.4%	(0.2%, 0.7%)	1.9	(1.3%, 2.5%)	1.0	93.4%
	PH cohort	140,692	0.3%	(0.3%, 0.3%)	1.7	(1.6%, 1.9%)	1.0	97.4%
Upper digestive tract	MH cohort	15,978	25.3%	(24.7%, 26.0%)	11.4	(10.8%, 11.9%)	6.0	68.0%
	PH cohort	391,783	6.8%	(6.7%, 6.9%)	8.7	(8.4%, 9.1%)	4.0	86.7%
Heart (coronary artery bypass grafting)	MH cohort	182	19.8%	(14.0%, 25.6%)	15.2	(13.0%, 17.4%)	9.0	0.0%
	PH cohort	13,132	11.1%	(10.6%, 11.7%)	11.0	(10.9%, 11.2%)	8.0	0.1%
Hip replacement	MH cohort	962	45.3%	(42.2%, 48.5%)	14.1	(12.9%, 15.3%)	8.0	0.1%
	PH cohort	46,620	11.2%	(10.9%, 11.4%)	6.3	(6.3%, 6.4%)	5.0	0.1%
Kidney transplant	MH cohort	42	40.5%	(25.6%, 55.3%)	17.7	(10.8%, 24.6%)	11.0	0.0%
	PH cohort	1,670	49.0%	(46.6%, 51.4%)	12.3	(11.8%, 12.9%)	9.0	0.0%

Note: CI = confidence interval.

[1] A finished consultant episode is an inpatient or day case admission where a patient has completed a period of care under a consultant and is transferred to another consultant or discharged from hospital.

[2] These values exclude any admission that was a day case.

Source: Hospital episode statistics (2009/10)

The MH cohort were also more likely to stay longer in hospital – the mean length of stay was 2.6 days longer following upper digestive tract procedures and 7.8 days longer for hip replacements. It is not always appropriate for patients to have a procedure without an overnight stay in hospital (a day case) but for some procedures, such as cataract, this is common.

For procedures that can happen as a day case, the MH cohort were much less likely to be a day case. For cataracts, this was 93.4 per cent among the MH cohort compared with 97.4 per cent among the PH cohort. There were even bigger differences for upper digestive tract procedures: 68 per cent of spells were day cases for the MH cohort compared with 86.7 per cent for the PH cohort. Using the data available it is hard to know whether a longer

length of stay necessarily means poorer care for these patients. As they have complex care needs, it may be appropriate for them to stay in hospital for longer – more work is needed to fully understand this.

Were these differences sustained over time?

Table 4.5 shows the same characteristics for the same procedures in 2013/14.

Those in the MH cohort were still more likely to have emergency procedures rather than planned; and the differences still remained. For upper digestive tract procedures, 21 per cent of the MH cohort had emergency admissions compared with 4.9 per cent for the PH cohort, and for hip replacements the figures were 40.1 per cent and 8.2 per cent respectively.

The mean length of stay was also still higher in the MH cohort for many procedures; however the differences between the cohorts had reduced somewhat. Those in the MH cohort were likely to stay 3.1 days longer for upper digestive tract procedures and 6.7 days longer for a hip replacement.

The other noticeable difference was in the proportion of admissions being day cases. This was still lower in the MH cohort and in particular in 2013/14, only 82.5 per cent of cataract operations were day cases in the MH cohort, compared with 96.8 per cent in the PH cohort.

Table 4.5: Differences in spell characteristics for common inpatient procedures among those with mental ill health (MH cohort) and the comparator population (PH cohort), 2013/14

	Cohort	Number of finished consultant episodes[1]	% emergency admissions	95% CI	Length of stay[2] (mean)	95% CI	Length of stay[2] (median)	% day cases
Cataract	MH cohort	3,033	0.2%	(0.0%, 0.4%)	1.3	(1.1%, 1.4%)	1.0	82.5%
	PH cohort	126,850	0.2%	(0.2%, 0.2%)	1.6	(1.5%, 1.8%)	1.0	96.8%
Upper digestive tract	MH cohort	18,716	21.0%	(20.4%, 21.5%)	10.9	(10.3%, 11.4%)	5.0	68.0%
	PH cohort	378,567	4.9%	(4.8%, 4.9%)	7.8	(7.6%, 8.1%)	4.0	89.7%
Heart (coronary artery bypass grafting)	MH cohort	192	19.8%	(14.2%, 25.4%)	15.9	(13.8%, 18.1%)	10.0	0.0%
	PH cohort	9,040	15.1%	(14.3%, 15.8%)	10.9	(10.8%, 11.1%)	8.0	0.2%
Hip replace-ment	MH cohort	991	40.1%	(37.0%, 43.1%)	11.4	(10.5%, 12.3%)	6.0	0.1%
	PH cohort	44,409	8.2%	(8.0%, 8.5%)	4.7	(4.6%, 4.7%)	4.0	0.1%
Kidney transplant	MH cohort	37	56.8%	(40.8%, 72.7%)	13.1	(9.1%, 17.0%)	9.0	0.0%
	PH cohort	1,693	56.8%	(54.4%, 59.1%)	10.5	(10.2%, 11.0%)	8.0	0.0%

Note: CI = confidence interval.

[1] A finished consultant episode is an inpatient or day case admission where a patient has completed a period of care under a consultant and is transferred to another consultant or discharged from hospital.

[2] These values exclude any admission that was a day case.

Source: Hospital episode statistics (2013/14)

Summary

For the most common physical health procedures, the MH cohort were:

- much more likely to have an emergency rather than planned admission

- more likely to stay longer in hospital

- less likely to be a day case.

These characteristics were similar in 2013/14 compared to 2009/10.

5

Discussion

Getting appropriate support for physical healthcare for people with mental ill health is essential. Those with mental ill health die earlier and reasons for this are often linked to physical health needs, with many of the contributory factors being potentially avoidable. These factors, coupled with mental ill health, mean that this group have very complex care needs. These issues have been recognised in recent policies with a clear drive to improve the physical healthcare of those with mental ill health.

Understanding the quality of physical healthcare for those with mental ill health is difficult, but imperative to delivering good care. Mental health and physical health are often treated in isolation, in different organisations and patient information is not routinely linked. Attempts have been made to use population-level data to explore patterns of care for this group, but have focused on those with serious mental illness (Health and Social Care Information Centre, 2013b), which only accounts for one in ten of those with a mental health condition.

In this study, using hospital data, we calculated the emergency and planned hospital activity rates for people with mental ill health, and examined how this changed over a five-year period (2009/10 to 2013/14) compared with a reference population. We then looked at what other factors, beyond mental ill health, were contributing to the differences that were found. We examined whether people with mental ill health had more potentially preventable hospital admissions than those without mental ill health. And we explored whether people with mental ill health were more likely to have an emergency rather than a planned admission or stay longer in hospital for common physical healthcare procedures than those without mental ill health.

Do people with mental ill health use more hospital care than those without?

Our analysis showed that people with mental ill health use more emergency care than those without: they went to A&E 3.2 times more and had 4.9 times as many emergency inpatient admissions than those without mental ill health in 2013/14. Over time, the difference in A&E attendance rates among people with mental ill health and those without increased due to upward trends in A&E attendance by those with mental ill health. The difference in emergency admission rates also increased, but this was largely due to downward trends in emergency admissions among those without mental ill health.

For elective care, people with mental ill health use slightly less planned inpatient care and more outpatient care than those without. In 2013/14, they had fewer (0.9 times) planned inpatient admissions than those without mental ill health but 1.7 times more outpatient appointments. There was a noticeable increase in outpatient appointment use over time – for people with mental ill health this rose by 20 per cent from 2009/10 to 2013/14.

High levels of emergency hospital care are often used as an indicator for the overall quality of care. Visiting A&E or being admitted to hospital in an

emergency can be distressing for patients and carers, it is associated with a greater risk of mortality and longer-term morbidity, and it is expensive to the healthcare system (Blunt, 2014). Therefore, our findings on emergency care are particularly concerning given that the poor healthcare outcomes among people with mental ill health have been known for some time.

Coupled with the lower rate of planned inpatient admissions among the MH cohort, our analysis suggests that people with mental ill health are more likely to use hospital services in an unplanned way. This suggests that greater support could be given to help this group of people so that they are able to manage their mental and physical health better.

Did other factors, beyond mental ill health, contribute to differences in emergency hospital use?

Physical healthcare

We found that only a small proportion of emergency care among the MH cohort was explicitly for mental health needs. In 2013/14, 80 per cent of emergency inpatient admissions for those with mental ill health was primarily for support for physical health. When activity related to mental health was excluded, those with mental ill health still used 3.9 times emergency inpatient care compared with those without.

Higher levels of activity for physical health within this complex population are not unexpected. Indeed, it has been known for some time that a greater proportion of people with mental ill health have poor physical health compared with the general population and that these physical health needs are a contributory factor to increased premature mortality for those with mental ill health.

However, the patterns of hospital use we have observed are concerning. When you look solely at support for physical healthcare, the patterns of service use suggest that those with mental ill health are not having their physical health well managed, resulting in high emergency care use. This is despite a number of recent national care guidelines and policies targeting the improvement of physical healthcare in those with mental ill health.

Research suggests that reasons for these disparities are a combination of:

- overshadowing diagnosis – mental health needs taking precedence over physical health conditions (Thornicroft, 2011)

- poor lifestyle behaviours in people with mental ill health – such as higher rates of smoking and poor diet (Leucht and others, 2007) – and a subsequent increased risk of poor physical health

- an inherently siloed system, which tends to treat mental health needs in isolation from other health concerns.

All of these factors contribute to the differences we see here and addressing each of these is essential to removing the disparities in care use.

Deprivation

As well as the need for support for mental and physical health needs, there are many other factors that will contribute to the differences we have observed in care use. It is not possible to explore all of the factors that would contribute using routine data alone, but it is important to be mindful of them when planning policy and services. One factor that had a clear link to care use in the study was deprivation.

We found that deprivation was strongly associated with emergency care use, with those who were more deprived using more healthcare than those who were less deprived; in 2013/14 for people with mental ill health, the most deprived had 1.8 times the A&E visits compared with the least deprived and 1.5 times the number of emergency inpatient admissions. Roughly 60 per cent of emergency inpatient care is used by people with mental ill health in the three most deprived groups.

The link between deprivation and care use suggests one area where a more directed focus could be beneficial. Planning care provision for a more deprived population will come with the expectation of high levels of emergency care use. Targeted interventions – in community and primary care – to address the physical health needs of the most deprived groups could result in decreased emergency care use overall. This would lead to patient benefits and potential cost savings.

Do people with mental ill health have more potentially preventable hospital admissions than those without?

We found that people with mental ill health had a higher rate of potentially preventable emergency admissions than those without: in 2013/14, this was 3.6 times more. In 2013/14, 14.6 per cent of emergency admissions were potentially preventable for people with mental ill health. The largest group of these admissions were for chronic ACS conditions and represented 56.7 per cent of all potentially preventable admissions in those with mental ill health in 2013/14.

We have shown that people with mental ill health are relatively high users of hospital care, in particular emergency care. As discussed, we know that support for mental ill health only accounts for a small proportion of this, and that 14.6 per cent of emergency admissions are potentially preventable through providing good quality preventative and primary care.

It is therefore of concern that, despite a national commitment to reducing the premature mortality of these groups, the Quality Outcomes Framework indicators on cardiovascular and diabetes checks for patients with SMI were removed in April 2014 (NHS Employers, 2014). The focus on chronic disease prevention and management in the community for these groups needs to be readdressed. Preventing these admissions has the potential to:

- have a significant positive impact on the quality of care

- reduce the amount of distressing unplanned care for the patient

- represent potential cost savings.

Are people with mental ill health more likely to have an emergency admission or stay longer in hospital for common physical health procedures than those without?

Our analysis showed that for some common inpatient procedures people with mental ill health were more likely to have an emergency admission rather than a planned one, be admitted overnight and stay longer in hospital. This was particularly true for procedures related to:

- the upper digestive tract (in 2013/14, 21.0 per cent of procedures were an emergency compared with 4.9 per cent for those without mental ill health)

- cataracts (in 2013/14, 82.5 per cent were a day case compared with 96.8 per cent for those without)

- hip replacements (in 2013/14, those with mental ill health stayed 6.7 days longer in hospital).

Many other studies have demonstrated inequalities of access to support for physical health needs in those with mental ill health. In addition to our own findings on hospital use, other studies have shown that this group are less likely to receive cancer screenings, or access diagnostic and treatment services. Many of these studies also show an association between these restrictions and increased mortality (Goldie and others, 2013; Howard and others, 2010; Mitchell and Lawrence, 2011).

The reasons for longer length of stay are not straightforward. Some of this may be reasonable – the MH cohort have complex health needs and staying in hospital for longer may be the best thing for their care, but it may also reflect poor chronic disease management and restricted access to preventative and primary care. The fact that those with mental ill health are more likely to experience an emergency rather than planned admission is concerning because this suggests that they have unidentified health needs. This is despite being in contact with the health system for their mental ill health, which would provide opportunities to identify these other health needs. It follows that if someone has an emergency admission, this will result in a longer stay in hospital (Smith and others, 2014). The underlying reasons for higher unplanned care for physical health procedures are complex, and the solutions even more so. Identifying and managing physical health needs and providing appropriate care tailored to those with mental ill health will be key to addressing these disparities.

We suggest that delayed transfers of care would also have contributed to the increased length of stay we observed for people with mental ill health. It is likely that people with mental ill health will wait longer for medications and transfers or care packages outside of hospital as they have more complex needs. However, there are limitations in the data captured about delayed transfers of care to understand this more.

Focusing in on the longer length of stay, the higher prevalence of emergency admissions and the larger number of overnight stays experienced by people with mental ill health for the same procedures as those without mental ill health is vital for a number of reasons:

- As discussed above, extended stays in hospital can be distressing for patients.

- Hospital use is expensive, so improving how people move through the system could release much-needed savings for the NHS.

- Achieving genuine parity of esteem will not happen unless these discrepancies can be addressed.

Strengths and limitations

This is the first study to try to look at hospital use in a group of people with a wide range of mental health needs compared with a reference population and to consider what might be contributing to different patterns of care – in particular, considering the interplay between activity related to the provision of physical and mental healthcare.

Interpretation of the data is challenging, and the solutions multifactorial, but our results raise key questions about the quality of physical healthcare for those with mental ill health. We have been able to understand more about how those with mental ill health use hospital care, and some of this may help to inform the development of new indicators of quality of care for physical health in those with mental ill health, at a national level.

Although we have been able to understand more about how those with mental ill health use acute hospital services, there are some limitations.

First, we have not been able to validate the presence of mental ill health in our identified groups. Ideally, this study would be repeated using a specific mental health dataset such as the Mental Health and Learning Disabilities Data Set (MHLDDS), linked to hospital data, as this would give us more reliable and accurate information about a person's mental health needs.

Second, this study looked solely at hospital use and tells us very little about care beyond the acute sector. We know that a lot of care happens in other settings, such as at home and in primary or community care, and so we are restricted in the conclusions we can draw.

Finally, our comparator group is drawn from the same dataset, meaning that they are also selected as they have used a hospital service and are therefore not necessarily representative of the wider population.

Implications for policy-makers

Many of the findings in this study are not new. Indeed, the presence of poor physical health in those with mental ill health and the link between this and premature mortality is well known. However, we have been able to add to this evidence by looking at patterns of hospital use for all care in those with a wide range of mental health needs.

Recent policies have placed increased emphasis on achieving 'genuine parity of esteem' for physical and mental health and indeed the creation of the Mental Health Taskforce in March 2015 represented the first strategic approach to improving mental health outcomes for people of all ages. The authors hope that the findings in this report will strengthen the focus on this upcoming strategy and show potential areas where targeted attention could

return the best outcomes and improvements for patients and the wider health and care system.

Our study has shown that physical health needs are the biggest contributor to high emergency care use in those with mental ill health. Furthermore, looking at potentially preventable admissions, 56.7 per cent of preventable admissions in this group were for chronic physical health conditions. Higher emergency presentations rather than planned admissions for common physical health procedures could indicate that these physical health needs are not being identified.

All of these represent opportunities for improvement but much of this will require support outside of the hospital setting – in particular community and primary care. Tackling physical health needs alongside mental health needs is obviously key and there is potential to address this in part through adopting new and innovative models of care. For example, extended and scaled-up models of primary care can give people access to both mental and physical health support and break down traditional barriers.

However, the fact that out-of-hospital mental health services have been subject to deep cuts in recent years is particularly concerning (McNicholl, 2015). Coupled with this, there are clear local variations in the help, care and support that people with mental ill health receive (Care Quality Commission, 2015). Despite the potential for new models of care, improvements in this area are unlikely without continued and sustained investment across the country. Cuts represent a false economy.

As mentioned, the findings suggest that physical health needs are not being identified and/or there is a lack of engagement with primary care, which leads to common physical health needs being missed. It is worth remembering, however, that people with mental ill health were identified in this study as they had contact with a hospital service for mental ill health. Such contacts represent opportunities to identify and support their physical health needs and making the most of these opportunities will be key. The potential to address this could be in providing more training in physical health checks for mental healthcare professionals.

As always, underlying all of these findings are the constant limitations that come from treating mental health in isolation from physical health and until these barriers are broken down and patients are treated as a whole with genuine integrated care, we are unlikely to see significant improvements.

Conclusions

Recently, there has been a strong policy drive to improve healthcare and outcomes of those with mental ill health to "achieve a genuine parity of esteem between mental and physical health by 2020" (NHS England, 2014). Yet we observed consistently high levels of emergency care use by people with mental ill health and lower levels of planned care for physical health procedures. These findings suggest there are opportunities to better identify and manage physical and mental health needs in a more planned way, across primary and secondary care.

Despite recognition of the need to address physical health behaviours and needs in people with mental ill health, information about a person's mental health care is also often collected in isolation of their physical health care.

In addition, implementation of health promotion, education and support for healthy lifestyle behaviours is not uniform and may add to the confusion about who (both professionally and organisationally) is responsible for the physical health of people with mental ill health.

It remains to be seen whether the aspirations of the Five Year Forward View to break down the barriers between mental and physical health will be realised to improve the quality of care for this population. But if the gap between the physical and mental health cohorts we have identified in this study continues to widen, the goal of parity of esteem by 2020 is unlikely to be realised.

References

Blunt I (2013) Focus on Preventable Admissions: Trends in emergency admissions for ambulatory care sensitive conditions, 2001 to 2013. The Health Foundation and Nuffield Trust. www.nuffieldtrust.org.uk/sites/files/nuffield/publication/131010_qualitywatch_focus_ preventable_admissions_0.pdf . Accessed 2 October 2015.

Blunt I (2014) *Focus On: A & E attendances*. The Health Foundation and Nuffield Trust. www.nuffieldtrust.org.uk/sites/files/nuffield/publication/140724_focus_on_ae_attend ances.pdf . Accessed 2 October 2015.

Care Quality Commission (2015) Right Here Right Now: People's experiences of help, care and support during a mental health crisis. Care Quality Commission. doi:10.1016/j.ogrm.2012.05.002.

Chunliu Z and Miller MR (2003) 'Excess Length of Stay, Charges, and Mortality Attributable to Medical Injuries During Hospitalization', *Journal of the American Medical Association*, 290(14), 1868–74. http://jama.jamanetwork.com/article.aspx?articleid=197442 . Accessed 2 October 2015.

Cooper S, Crawford M, Etherington A, Jayakumar S, Lemmey S, Marsh R, Maynard E, Shiers D and Zalewska K (2012) *Report of the National Audit of Schizophrenia (NAS) 2012*. Royal College of Psychiatrists. www.rcpsych.ac.uk/pdf/NAS National report FINAL.pdf . Accessed 2 October 2015.

Davies SC (2013) Annual Report of the Chief Medical Officer 2013: Public mental health priorities: Investing in the evidence. Department of Health.

De Hert M, Dekker JM, Wood D, Kahl KG, Holt RIG and Möller H-J (2009) 'Cardiovascular disease and diabetes in people with severe mental illness position statement from the European Psychiatric Association (EPA), supported by the European Association for the Study of Diabetes (EASD) and the European Society of Cardiology (ESC), *European Psychiatry* 24(6), 412–24. doi:10.1016/j.eurpsy.2009.01.005.

Department for Communities and Local Government (2012) Indices of Multiple Deprivation 2010.

Department of Health (2013) 'Ten things you need to know about long term conditions'. http://webarchive.nationalarchives.gov.uk/20130107105354/http:/www.dh.gov.uk/e n/Healthcare/Longtermconditions/tenthingsyouneedtoknow/index.htm . Accessed 2 October 2015.

Department of Health Payment by Results Team (2012) 'A simple guide to Payment by Results'. www.gov.uk/government/uploads/system/uploads/attachment_data/file/213150/PbR -Simple-Guide-FINAL.pdf. Accessed 13 October 2015.

Druss BG, Bradford WD, Rosenheck RA, Radford MJ and Krumholz HM (2001) 'Quality of medical care and excess mortality in older patients with mental disorders', *Archives of General Psychiatry* 58 (6), 565–72.

Goldie I, Dowds J, O'Sullivan C and Mental Health Foundation (2013) 'Mental health and inequalities'. www.mentalhealth.org.uk/content/assets/pdf/publications/starting-today-background-paper-3.pdf . Accessed 2 October 2015.

Health and Social Care Information Centre (2013a) Mental Health Bulletin: Annual report from MHMDS returns – England 2011–12, initial national figures. Health and Social Care Information Centre.

Health and Social Care Information Centre (2013b) *HES-MHMDS Data Linkage Report.* Health and Social Care Information Centre.

Health and Social Care Information Centre (2014) Indicator Quality Statement: NHS Outcomes Framework 1.5.i (formerly indicator 1.5) – excess under 75 mortality rate in adults with serious mental illness (vol. 3). Health and Social Care Information Centre.

HM Government (2010) Healthy Lives, Healthy People: Our strategy for public health in England. HM Government.

HM Government (2011) No Health Without Mental Health: A cross-government mental health outcomes strategy for people of all ages. HM Government.

Howard LM, Barley EA, Davies E, Rigg A, Lempp H, Rose D, Taylor D and Thornicroft G (2010) 'Cancer diagnosis in people with severe mental illness: practical and ethical issues', *The Lancet Oncology* 11(8), 797–804. doi:10.1016/S1470-2045(10)70085-1.

Joukamaa M (2001) 'Mental disorders and cause-specific mortality', *The British Journal of Psychiatry* 179(6), 498–502. doi:10.1192/bjp.179.6.498.

Kossovsky MP, Sarasin FP, Chopard P, Louis-Simonet M, Sigaud P, Perneger, TV and Gaspoz JM (2002) 'Relationship between hospital length of stay and quality of care in patients with congestive heart failure', *Quality & Safety in Health Care* 11(3), 219–23.

Lafont C, Gérard S, Voisin T, Pahor M, Vellas B and members of I.A.G.G./A.M.P.A. Task Force (2011) 'Reducing "iatrogenic disability" in the hospitalized frail elderly', *The Journal of Nutrition, Health & Aging*, 15(8), 645–50. www.ncbi.nlm.nih.gov/pubmed/21968859 . Accessed 2 October 2015.

Lawrence D and Kisely S (2010) 'Inequalities in healthcare provision for people with severe mental illness', *Journal of Psychopharmacology* (Oxford, England), 24(4 suppl), 61–8. doi:10.1177/1359786810382058.

Leucht S, Burkard T, Henderson J, Maj M and Sartorius N (2007) 'Physical illness and schizophrenia: a review of the literature', *Acta Psychiatrica Scandinavica* 116(5), 317–33. doi:10.1111/j.1600-0447.2007.01095.x.

Lord O, Malone D and Mitchell AJ (2010) 'Receipt of preventive medical care and medical screening for patients with mental illness: a comparative analysis', *General Hospital Psychiatry* 32(5), 519–43. doi:10.1016/j.genhosppsych.2010.04.004.

McNicholl A (2015) 'Mental health trust funding down 8% from 2010 despite coalition's drive for parity of esteem', *Community Care*, 20 March. www.communitycare.co.uk/2015/03/20/mental-health-trust-funding-8-since-2010-despite-coalitions-drive-parity-esteem/ . Accessed 2 October 2015.

Mind (2013) 'Mental health problems'. http://www.mind.org.uk/information-support/types-of-mental-health-problems/mental-health-problems-general/#.Vfp2Qd9VhBc. Accessed September 2015.

Mitchell AJ and Lawrence D (2011) 'Revascularisation and mortality rates following acute coronary syndromes in people with severe mental illness: comparative meta-analysis', *The British Journal of Psychiatry* 198(6), 434–41. doi:10.1192/bjp.bp.109.076950.

Mitchell AJ, Malone D and Doebbeling CC (2009) 'Quality of medical care for people with and without comorbid mental illness and substance misuse: systematic review of comparative studies', *British Journal of Psychiatry* 194(6), 491–9. doi:10.1192/bjp.bp.107.045732.

Naylor C, Parsonage M, McDaid D, Knapp M, Fossey M and Galea A (2012) *Long-term Conditions and Mental Health: The cost of co-morbidities*. The King's Fund and Centre for Mental Health.

Newman SC and Bland RC (1991) 'Mortality in a cohort of patients with schizophrenia: a record linkage study', *Can J Psychiatry* 36(4), 239–245.

NHS Employers (2014). Summary of QOF Changes (2014/15). www.nhsemployers.org/~/media/Employers/Documents/Primary%20care%20contracts/QOF/2014-15/Summary%20of%20changes%20to%20QOF%202014%2015%20England%20only.pdf

NHS England (2013a) *Our Ambition to Reduce Premature Mortality: A resource to support commissioners in setting a level of ambition.* http://www.england.nhs.uk/wp-content/uploads/2014/03/mort-res-22-5.pdf. Accessed 2 October 2015.

NHS England (2013b) *Commissioning for Quality and Innovation (CQUIN): 2013/14 guidance*. www.england.nhs.uk/wp-content/uploads/2013/02/cquin-guidance.pdf . Accessed 2 October 2015.

NHS England (2014) Five Year Forward View. https://www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf.

NHS England (2015a) 'Reducing mortality for people with serious mental illness (SMI)', www.england.nhs.uk/ourwork/forward-view/sop/red-prem-mort/smi/ . Accessed 2 October 2015.

NHS England (2015b) 'Mental Health Taskforce'. www.england.nhs.uk/mentalhealth/taskforce/ . Accessed 2 October 2015.

NHS England/Contracting and Incentives Team (2015) *Commissioning for Quality and Innovation (CQUIN): Guidance for 2015/16*. www.england.nhs.uk/wp-content/uploads/2015/03/9-cquin-guid-2015-16.pdf . Accessed 2 October 2015.

NICE (2009). Schizophrenia: Core Interventions in the Treatment and Management of Schizophrenia in Primary and Secondary Care. Clinical Guideline 82. London: NICE.

Office for National Statistics (2013) 'Mid-year population estimates'. www.ons.gov.uk/ons/search/index.html?newquery=1.%09Mid-year+population+estimates+ . Accessed 30 August 2013.

QualityWatch (2015) 'Under-75 mortality in adults with serious mental illness'. http://www.qualitywatch.org.uk/indicator/under-75-mortality-adults-serious-mental-illness. Accessed September 2015.

Sanderson C and Dixon J (2000) 'Conditions for which onset or hospital admission is potentially preventable by timely and effective ambulatory care', *Journal of Health Services Research & Policy* 5(4), 222–30. doi:10.1177/135581960000500407.

Smith P, McKeon A, Blunt I and Edwards E (2014) *NHS Hospitals under Pressure: Trends in acute activity up to 2022*. Nuffield Trust. www.nuffieldtrust.org.uk/sites/files/nuffield/publication/financial_times_web.pdf . Accessed 2 October 2015.

The Information Centre for Health and Social Care (2010a) Data dictionary: inpatients. www.hscic.gov.uk/media/1358/HES-Hospital-Episode-Statistics-HES-Admitted-Patient-Data-Dictionary/pdf/HES_Inpatients_DD_Sept10.pdf. Accessed 13 October 2015.

The Information Centre for Health and Social Care (2010b) Headline figures, 2009-10. www.hscic.gov.uk/catalogue/PUB02567/hosp-epis-stat-admi-head-figs-09-10-rep.pdf. Accessed 13 October 2015.

The NHS Information Centre, Mental Health and Community (2011) *Mental Health Bulletin: Fourth report from Mental Health Minimum Dataset (MHMDS) annual returns, 2010.* www.hscic.gov.uk/catalogue/PUB02179/ment-heal-bull-four-repo-m-h-m-d-2010-rep.pdf . Accessed 2 October 2015.

Thornicroft G (2011) 'Physical health disparities and mental illness: the scandal of premature mortality', *The British Journal of Psychiatry* 199(6), 441–2. doi:10.1192/bjp.bp.111.092718.

White J, Gutacker N, Jacobs R and Mason A (2014) 'Hospital admissions for severe mental illness in England: changes in equity of utilisation at the small area level between 2006 and 2010', *Social Science & Medicine* 120, 243–51. doi:10.1016/j.socscimed.2014.09.036.

World Health Organization (1992) *The ICD-10 Classification of Mental and Behavioural Disorders.* www.who.int/classifications/icd/en/bluebook.pdf . Accessed 2 October 2015.

Appendix 1: Methodology

Patient characteristics

Patient characteristics (age, sex and deprivation) were taken from a patient's identifying event – this is the appointment in 2009/10 which assigned them into a cohort. To understand patient deprivation we used Indices of Multiple Deprivation (IMD) 2010 scores available at Lower layer Super Output Area [ref ONS]. Patients were assigned the deprivation decile of the Lower layer Super Output Area (LSOA) of residence, as recorded on their identifying appointment.

Long-term conditions

Information on physical long-term conditions were drawn from all diagnosis fields of all inpatient HES data for each individual from April 2001 to March 2010, using the list of common long-term conditions listed in Table A1. This essentially looks at each patient's prior hospital use for any indication of any of these long-term conditions. Some mental health problems can also be considered to be long-term conditions but these are excluded here as they are the area of health under scrutiny. By looking at previous inpatient activity we were able to estimate who in our cohort had some of the most common long-term conditions. As we were limited to using hospital data, and did not have access to primary care records for the populations of interest, we were only able to ascertain physical comorbidities as documented in the hospital data systems. This approach may underestimate the true prevalence of comorbidities in our cohorts of interest.

Table A1: Long-term conditions in this study

Cancer	Injury from fall	Atrial fibrillation
Diabetes	Non-rheumatic valve disorders	Cerebrovascular disease
Hypertension	Peripheral vascular disease	Congestive heart failure
Angina	Mild liver failure	Chronic obstructive pulmonary disease

Reasons for hospital use

The reasons for hospital use were identified using the Healthcare Resource Groups (HRGs) codes of inpatient admissions. These are a standard way of grouping similar levels of treatments and healthcare use. These are primarily used by organisations to understand the type of care and treatment being delivered and are frequently use to compare organisations and for financial information (Department of Health Payment by Results Team, 2012).

Table A2: Most common reasons for inpatient admission in 2009/10 (proportion of total activity)

MH cohort		PH cohort	
21.3%	No valid code	5.3%	Same-day chemotherapy admission or attendance
9.3%	All patients between 19 and 69 years with a mental health primary diagnosis, treated by a non-specialist mental health service provider	4.7%	No valid code
4.9%	Poisoning, toxic, environmental and unspecified effects with intermediate complication and comorbidity	3.5%	Chronic kidney disease with length of stay one day or less associated with renal dialysis
4.0%	Chronic kidney disease with length of stay one day or less associated with renal dialysis	2.6%	Diagnostic endoscopic procedures on the upper gastrointestinal tract with biopsy, 19 years and over
2.2%	Non-interventional acquired cardiac conditions	2.0%	Ante-natal or post-natal investigation, age between 16 and 40 years with length of stay zero days
1.8%	Muscular, balance, cranial or peripheral nerve disorders; epilepsy; head injury with complication and comorbidity	1.8%	Normal delivery without CC
1.5%	Poisoning, toxic, environmental and unspecified effects without complication and comorbidity	1.7%	Ante-natal or post-natal observation age between 16 and 40 years with length of stay zero days
1.3%	Same-day chemotherapy admission or attendance	1.6%	Non-interventional acquired cardiac conditions
1.2%	Diagnostic endoscopic procedures on the upper gastrointestinal tract with biopsy, 19 years and over	1.5%	Phacoemulsification cataract extraction and lens implant
1.2%	Data invalid for grouping	1.5%	Skin therapies level 3

Emergency ambulatory care sensitive admissions

To understand whether our cohorts were experiencing potentially avoidable hospital admissions we looked at their rates of ambulatory care sensitive (ACS) admissions. These are a group of 22 conditions outlined in Table A3. We identified the proportion of emergency admissions that were for an ACS condition by looking at what proportion of all emergency admissions had an ICD-10 diagnostic code identifying these conditions.

Table A3: ACS conditions analysed in this study

Acute conditions	Chronic conditions	Other and vaccine-preventable conditions
Cellulitis	Angina	Influenza*
Dehydration	Asthma	Pneumonia*
Dental conditions	Chronic obstructive pulmonary disease	Tuberculosis
Ear, nose and throat infections	Congestive heart failure	Other vaccine-preventable*
Gangrene*	Convulsions and epilepsy	
Gastroenteritis	Diabetes complications*	
Nutritional deficiencies	Hypertension	
Pelvic inflammatory disease	Iron deficiency anaemia	
Perforated/bleeding ulcer		
Urinary tract infection/ pyelonephritis.		

*Also included where recorded as secondary diagnoses

Common procedures

We were also keen to compare service characteristics for common procedures. Using inpatient data in 2009/10 we found all inpatient activity for our cohorts relating to the most common interventions and procedures in that year. These are detailed in Table A4. Procedure codes were identified using OPCS-4.4 codes in HES fields 'opernt3_01' outlined in IC publication (The Information Centre for Health and Social Care, 2010b). For our cohorts we compared:

- Number of spells

- Proportion of finished episodes classified as an emergency admission

- Mean length of stay

- Median length of stay

- Proportion of day cases (where a patient did not have an overnight stay in hospital)

Table A4: Common procedures and diagnoses in 2009/10			
Procedure	OPCS codes	Procedure	OPCS codes
Cataract	C71-C75	Upper digestive tract	G01-G82
Heart (CABG)	K40-K46	Heart (PTCA)	-
Hip replacements	W37-W39, W46-W48, W93-W95	Kidney	M01

About the authors

Holly Dorning is a Research Analyst at the Nuffield Trust. She joined the Trust in May 2013 and has a particular interest in measuring changes in the quality of health and social care. Prior to joining the Trust, Holly worked for the Multiple Sclerosis (MS) Society, where she led the analysis of the 'My MS, My Needs' project which explored whether people with MS were getting what they needed from health and social care.

Alisha Davies is a Fellow of the Faculty of Public Health and a Senior Research Analyst at the Nuffield Trust. She joined the Trust in 2014 and has a particular interest in evaluation of innovative models of health and social care, with a focus on prevention and quality improvement. Prior to joining the Nuffield Trust, Alisha worked in public health roles in a primary care trust, local authority and an acute trust supporting service redesign and evaluation in practice.

Ian Blunt is a Senior Research Analyst at the Nuffield Trust. He joined the Trust in 2009 and has led a range of quantitative analyses making use of large administrative datasets. Recent examples include leading our QualityWatch programme (a five-year study on the way in which the quality of health and social care is changing over time), a number of analyses of the urgent care system in England and implementing a predictive risk model for emergency re-admissions within 30 days. Before joining the Trust Ian worked for the Healthcare Commission, developing an automated risk assessment process to target inspections of care providers.

Nuffield Trust

The Nuffield Trust is an independent health charity. We aim to improve the quality of health care in the UK by providing evidence-based research and policy analysis and informing and generating debate.

The Health Foundation

The Health Foundation is an independent charity working to improve the quality of healthcare in the UK. We want the UK to have a healthcare system of the highest possible quality – safe, effective, person-centred, timely, efficient and equitable. We conduct research and evaluation, put ideas into practice through a range of improvement programmes, support and develop leaders, and share evidence to drive wider change.

QualityWatch

QualityWatch, a Nuffield Trust and Health Foundation research programme, is providing independent scrutiny into how the quality of health and social care is changing over time.

Download this publication from our website:

www.qualitywatch.org.uk/mental-physical

Find out more:

www.qualitywatch.org.uk

Subscribe to our newsletter:

www.qualitywatch.org.uk/newsletter

Follow us at:

Twitter.com/Quality_Watch

Tell us your views:

feedback@qualitywatch.org.uk