

Better value in the NHS

The role of changes in clinical practice

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Foreword

The NHS in England is at the midpoint of a decade of austerity. Having risen to the Nicholson challenge in the last parliament, it now faces the even greater Stevens challenge of delivering an estimated £22 billion of productivity improvements by 2020/21. This report shows that there are significant opportunities for the NHS to get better value from its budget through changes in clinical practice by drawing on past experience and evidence on how better care might be delivered.

The core argument of the report is that the main policy levers used to deliver the Nicholson challenge, in particular national controls over pay and prices, will not be sufficient. A step change in thinking and action is urgently needed if the NHS is to get anywhere near finding £22 billion of productivity improvements by the end of this parliament. This means focusing on improving value and engaging clinicians at all levels in delivering better outcomes at lower cost.

Our review of past experience in the NHS demonstrates conclusively how this has been achieved through increases in generic prescribing and day surgery and reductions in the length of time patients stay in hospitals. Our review of evidence on how better care might be delivered outlines a wide range of opportunities to provide care more appropriately in the future and in so doing to reduce waste and inefficiency.

Realising these opportunities requires action at all levels of the NHS, with a particular emphasis on changes in clinical practice. This is the case both in times of austerity and when budgets are growing in order to maximise the value of every pound spent on patient care.

Although the Conservative government has made a welcome commitment to increase funding by at least £8 billion in real terms by 2020/21, this will not be sufficient to meet the needs of a growing and ageing population and to pay for advances in treatment. It is therefore all the more important that the NHS redoubles its efforts to deliver better value in the ways we describe.



In focusing on clinical practice we do not mean to ignore other opportunities such as smarter procurement, the more effective use of staff or indeed the high costs of agency staff. All areas of expenditure need to be scrutinised and work is in hand through the Carter review and other means to do just that. We are also keenly aware that innovations in care, for example through the use of innovations in digital technologies, have the potential to positively disrupt and improve how NHS resources are used.

We are also aware that clinicians alone will not be able to deliver the Stevens challenge. They will need time and support to improve care and release resources, and their efforts will need to be complemented by system-wide changes in how services are delivered at a city and county level. All of these efforts in turn will need to be supported by political leaders and national bodies, particularly where difficult and unpopular decisions need to be made about where services are provided.

Recognising these truths, we make no apology for placing the emphasis on clinical practice because the opportunities in this area have been relatively neglected in work on the Nicholson challenge and because the experience of high-performing health care systems around the world demonstrates the scope for delivering better outcomes at lower cost by providing safer and more appropriate care. We also make no apology for framing the challenge as being to improve value rather than to make cuts, because only in this way will it be possible to engage clinicians and other staff in the work that needs to be done. Of course resources must be saved before they can be reinvested, but, to borrow John Kay's insights from successful businesses, this is often best done obliquely instead of head on.

Clinicians will need to work in partnership with patients in taking forward this work, and our report outlines how this might be done. Previous work at the Fund with international experts such as Al Mulley and Judy Hibbard and with organisations such as National Voices has made the case for patients to share in decision-making with clinicians to avoid the silent misdiagnosis and to play an active part where appropriate in promoting health and wellbeing. Related initiatives such as 'Choosing wisely' – developed in the United States and Canada and recently launched in the United Kingdom by the Academy of Medical Royal Colleges – are giving practical expression to this thinking.



The biggest challenge in acting on the experience and evidence summarised here is the time needed to bring about improvements in clinical practice and release resources for reinvestment. A recurring message of this report is that it is the accumulation of many small improvements over time that matters, rather than the futile quest for a giant leap forward. While we have no doubt that there is huge scope to use the £116 billion spent on the NHS in England more effectively, we are much less certain that productivity improvements to the value of £22 billion can be delivered by 2020/21. Only a sustained focus on delivering better value in the ways we outline will enable the NHS to get close to this figure.

Chris Ham
Chief Executive
The King's Fund



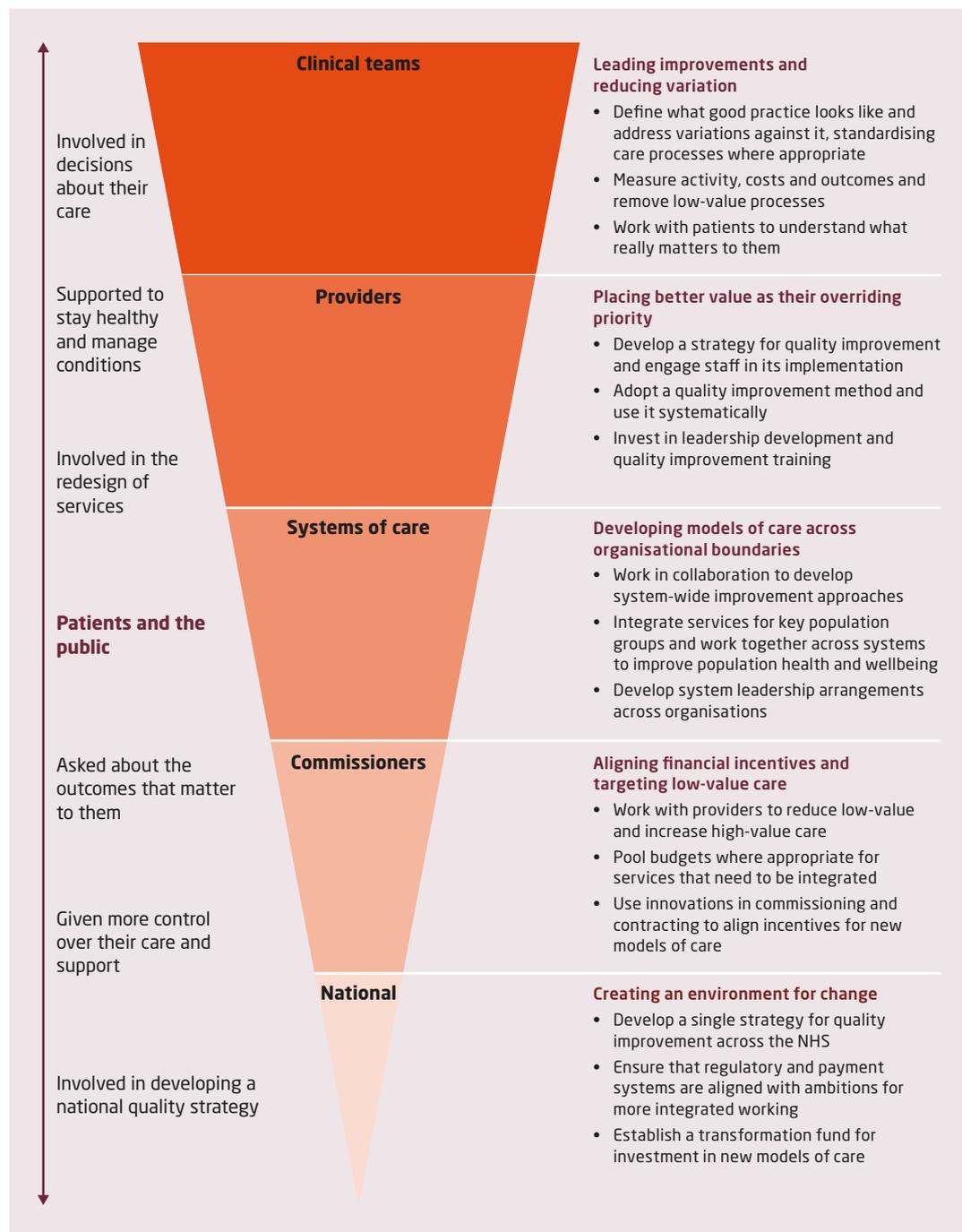
1 Key messages

- Estimates show that productivity in the NHS as a whole improved at a modest rate of around 1 per cent a year over the past 35 years.
- A different and more positive picture emerges when changes in how specific areas of care are provided are analysed:
 - Increases in generic prescribing rates – up from 20 per cent in 1976 to 84 per cent in 2013 – have saved the NHS around £7.1 billion and allowed more than 490 million more items to be prescribed to patients.
 - Reductions between 1998/9 and 2013/14 in the time patients spend in hospital have enabled more patients to be treated and avoided the need to provide 10,000 extra hospital beds.
 - Increases in day surgery rates over the same period have generated savings of around £2 billion and enabled 1.3 million more elective patients to be treated.
- This has provided the NHS and its patients with better value for every pound spent in these areas of care. And there is scope to make further improvements in future.
- It is important to consider how those past improvements have been achieved as a guide for future action, and there are two particular lessons:
 - There is no single solution; improvement has been made by a combination of changes
 - Improvement takes time, and progress is typically made through a line of small jumps rather than one giant leap.
- Evidence from various studies shows many opportunities to deliver better outcomes and lower costs in other areas of care through changes in clinical practice. This is because the NHS, like all other health systems across the world, sometimes fails to deliver high-quality care, leading to poor outcomes for patients and wasted resources for the NHS.



- These opportunities can be illustrated in a number of different ways:
 - There are wide variations in how care is delivered between different areas of England.
 - There are examples of overuse (when unnecessary care is delivered), underuse (when effective care is not delivered) and misuse (when care is poorly delivered leading to preventable complications and harm) of care across the NHS, which, if tackled, could deliver better value and release resources.
 - Improving care for people with long-term conditions, those who are frail and have complex needs, and those who are receiving care at the end of life, offers multiple opportunities to achieve better outcomes, patient experience, and care co-ordination – sometimes for a reduced cost.
 - Clinical teams in some parts of the NHS are already improving care for patients and releasing resources, showing that these opportunities are not simply hypothetical.
- These examples – and they are illustrative not exhaustive – highlight opportunities to improve value by tackling variations in care, reducing waste, and implementing known best practice. As with NHS productivity improvements in the past, they depend on leadership by clinicians who have the time, skills and support needed to provide care more effectively.
- While understanding where the opportunities lie is important, the real challenge facing the NHS is being able to turn these opportunities into tangible improvements in care.
- Making change happen will require a fundamental shift in approach by government and NHS leaders – away from using external pressures to improve NHS performance towards a commitment to supporting reform from within the NHS. It will also require a recognition that the challenge facing the NHS over the coming years is fundamentally about improving value rather than reducing costs.
- Learning lessons from the past, this will require action and alignment at all levels of the system, aimed at supporting clinical teams to make improvements to the way that they deliver services in collaboration with their patients (see Figure 1).

Figure 1 An agenda for action





2 Introduction

Over the past 30 years, the NHS has struggled to improve its productivity. Between 1995 and 2010, for example, although NHS funding more than doubled, its productivity rose by only 0.5 per cent a year ([Office for National Statistics 2015](#); [Appleby et al 2014](#)). In response to the slowdown in NHS funding in 2010, the health service was given the ‘Nicholson challenge’ of making productivity improvements of around £20 billion by 2014/15.

While official estimates suggest that the NHS has coped well with these challenges ([NHS England 2015b, 2014c](#); [Appleby et al 2014](#)), this has largely been as a result of national policy levers like the public sector pay freeze and reductions in prices paid to hospitals for services. While this has reduced NHS costs in the short term, there are limits to how much longer this kind of approach can be effective in the future. The impact on quality of services is also uncertain. As we have argued elsewhere, the NHS now needs to focus on encouraging clinicians and frontline professionals to lead changes to services at a local level to generate more sustainable improvements ([Appleby et al 2014](#)).

In the *NHS five year forward view*, Simon Stevens has called for further productivity improvements of £22 billion by 2020/21, a figure now commonly used to define the challenge facing the NHS. However, there is a risk that putting a monetary value on the gains needed can lead to a reductive view of the challenge – a view too focused on saving money and cutting costs – while missing the real essence of the task. Meeting this challenge is fundamentally about increasing value from the NHS budget – maximising outcomes produced by the activities the NHS carries out, while also minimising the costs of these activities. In this context, productivity (strictly, the ratio of outputs (activities) to inputs) is only one part of the challenge. We should also be concerned with what patients value from health care – which includes not only, for example, the number of hip and knee operations the NHS carries out, but also their experience of care and the quality of health outcomes.

With this more value-focused view of the task facing the NHS in mind, this report describes some of the main opportunities for the NHS to deliver better value in future. We do this in two ways.



- **Lessons from the past:** first, we look back to see what we can learn from historic improvements in NHS productivity. While overall measures of productivity suggest only modest improvements over the lifetime of the NHS, there are a number of areas in which the NHS has made big leaps forward. In particular, we examine rates of generic prescribing, length of stay and day case activity. We try to understand how improvements in these areas came about and were sustained over many years to offer lessons for the future.
- **Opportunities for the future:** second, we summarise evidence of opportunities to: deliver care more appropriately, improve the quality of care for key population groups, and learn from improvements that have already been achieved by teams across the NHS. In each of these areas, we identify opportunities for the NHS to improve quality while also reducing costs of care, focusing in particular on changes in clinical practice.

The final section of the report then looks at how these changes can be achieved in the NHS. This chapter recognises that while knowing what the opportunities are is important, the main challenge facing the NHS is being able to put this knowledge into practice. We set out the actions needed across different levels of the system – starting with patients, the public and clinical teams, and ending with actions at a national level – and how these actions can be aligned as part of a single strategy for improving quality in the NHS.



PART 1 LESSONS FROM THE PAST

3 Productivity in the NHS so far

Key points

- Measures of overall NHS productivity suggest an average increase of around 1 per cent per year over the past 35 years.
- However, in specific areas there have been large improvements in productivity that have enabled the NHS to deliver more and better care to patients.
- Increases in generic prescribing have significantly cut costs; reductions in length of stay have enabled the NHS to treat millions more patients; and the switch to day case surgery has cut costs and allowed more patients to receive care. Further improvements are possible in all these areas.
- Driving and enabling these improvements has been a mix of clinical, managerial and economic factors that demonstrate potential opportunities for productivity improvements in other areas.

Composite measures of productivity

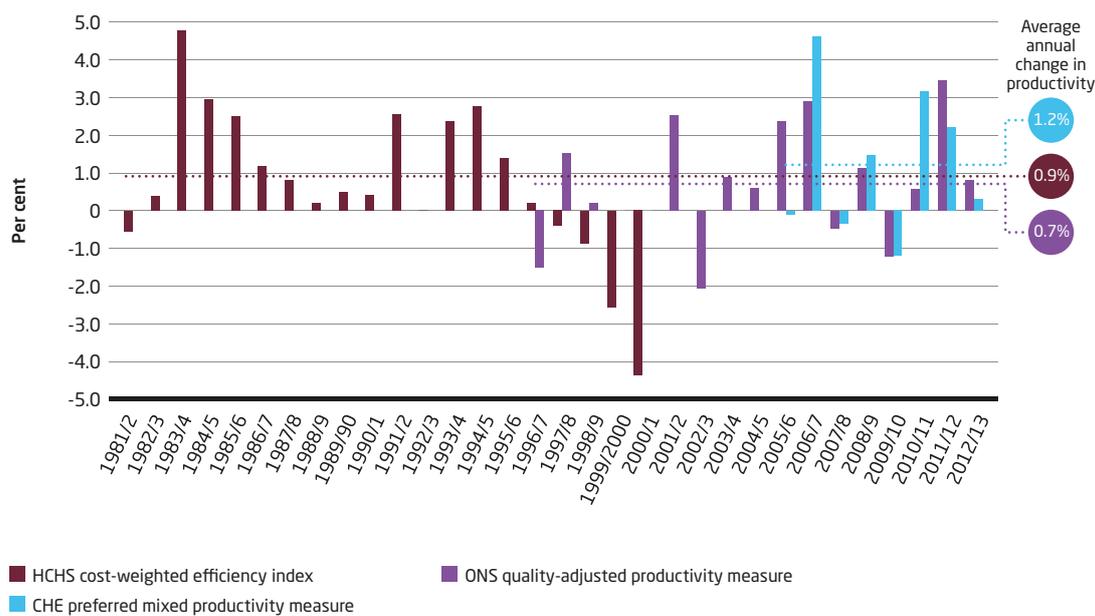
Over the past three or more decades, there have been various attempts to construct an aggregate value for money metric for the NHS. In the early 1980s, the Department of Health produced an aggregate measure of English NHS output using cost weights to add together various types of activity – from inpatient and day case episodes to accident and emergency (A&E) attendances and GP visits ([House of Commons Health Committee 1998](#)). Dividing this output measure by NHS funding gave some idea of the activity the NHS produced per pound of funding. But the measure was crude, and following a review of how to improve the measurement of NHS output, the Office for National Statistics (ONS) started to develop a more sophisticated UK NHS productivity measure in line with recommendations from the 2005 Atkinson Review (Atkinson 2005). Meanwhile, economists at the Centre



for Health Economics at the University of York have in the past few years begun to develop and publish a similar annual aggregate productivity figure for the English NHS. This work has also informed developments by the ONS.

Figure 2 shows annual percentage changes in these three aggregate productivity measures, although these are not comparable due to different data inclusion and methodologies. All measures fluctuate from year to year and it is interesting that over the periods covered by the measures, the average annual changes are not dissimilar. Based on these measures, broadly, it appears that the NHS has, over time, increased its productivity by around 1 per cent a year.

Figure 2 Three aggregate measures of NHS productivity



Sources: **Bojke et al 2015**; **ONS 2015**; **Oliver 2005**

NB: The measure computed by the ONS is for the UK NHS, while the measure for the Hospital and Community Health Service (HCHS) and that developed by researchers at the Centre for Health Economics (CHE) at the University of York are for the English NHS only.

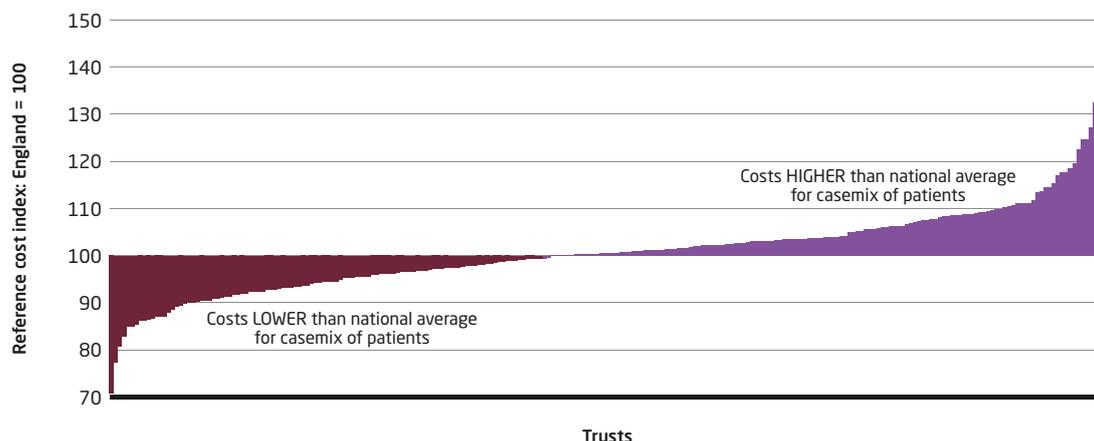


Recent analysis by the Health Foundation has focused on the productivity of the secondary care sector (similar to the scope of the HCHS efficiency index), split between acute and mental health trusts ([Lafond et al 2015](#)). The researchers found that, after controlling for various hospital and patient characteristics, acute provider efficiency rose by an annual average of around 0.4 per cent between 2010/11 and 2013/14.

While these composite measures of productivity have an obvious appeal – they are (superficially at least) simple and straightforward to understand, for example – a considerable amount of information is lost in the aggregation to a single number. For example, NHS-level measures have by definition nothing to say about productivity at different organisational levels, such as hospitals or clinical commissioning groups.

However, it is possible to compile measures similar to the aggregate measures shown in Figure 2 for these organisational units. For example, the purchaser efficiency index was produced in the 1990s based on the same model as the HCHS cost-weighted efficiency index and provided a planning, monitoring and comparative tool for health authorities. It was also used to set targets for improvements in efficiency. A similar index was briefly produced based on labour productivity (Appleby 1996). And since the collection of detailed hospital-level procedure costs has become routine, the reference cost index ([Department of Health 2014](#)) has provided a measure to enable hospitals to compare their casemix-adjusted costs with others and, over time, within their own organisations (*see* Figure 3).

Figure 3 Reference cost index: English hospitals, 2013/14



Source: Department of Health 2014

Castelli and Smith described another cut in the disaggregated productivity measure by constructing cost-weighted output measures for the circulatory diseases programme budget (Castelli and Smith 2006). Comparing their quality-adjusted circulatory output measure with the change in spending in this area, they tentatively concluded that, while output had increased, spending had increased more, suggesting a fall in productivity. And Bojke *et al* (2010) have computed regional-level productivity measures that have shown variations of around +/- 5 per cent about the national average for health services in different strategic health authorities.

These more disaggregated productivity measures start to deliver useful data at a level at which action can be taken in the light of the information they provide. However, they still entail quite a high level of aggregation. From the headline measures alone, it is impossible to be specific about why a particular organisation achieved a particular level of productivity, or what factors lay behind a change in productivity from one year to the next.



Back to the 1980s? Single-aspect productivity measures

One answer to these questions – and in particular to help focus on what specific actions could be taken at different levels in the health system to improve productivity – is to examine even more disaggregated measures of performance and productivity. As Clive Smee, a former chief economic adviser at the Department of Health, has pointed out, single-aspect indicators of performance such as day case rates, average length of stay and bed throughput rates have a direct bearing on productivity, and began to be used systematically as measures of performance across the NHS in the 1980s (Smee 2005). These individual performance indicators revealed large variations across health authorities and hospitals. The hope was that this would prompt organisations to examine the reasons for any outlier performance.

Individual measures of performance are, by definition, clear in terms of where management and clinical action should be directed. And it is changes in such measures that feed through to changes in the aggregate measures of productivity and efficiency, too. In his brief history of the NHS's attempts to improve productivity, Smee notes that a Department of Health study in the mid-1990s suggested that almost all the improvement in the HCHS efficiency index was due to reductions in average length of stay and growth in the number of day cases (in part substituting for inpatients).

A key question arising from this is: what drove the reductions in length of stay and the increases in day cases? Smee suggests, at least for the 1980s and 1990s, that it was '...a particular set of technological advances – notably new anaesthetics and minimally invasive surgery – that were responsible for the great bulk of the efficiency gains over the last twenty years [up to around 2000]' (Smee 2005, p 70). He contrasts this with the contribution of central efficiency initiatives, such as the introduction of the internal market in the 1990s, for which he noted that there was little clear evidence of any substantial long-term impact on efficiency.

Given these observations, it is worth examining trends in some single-aspect productivity indicators, in part to understand the scale of their contribution to improving productivity over time, and in part to estimate any contribution they may make in the future. Moreover, even if the scope for further improvement is limited, it is also of interest to understand how and why improvements have happened historically, and how this may inform approaches to future long-term and systematic gains in productivity. To illustrate these issues, we examine three areas where there have been notable improvements historically: generic prescribing, length of stay and day cases.

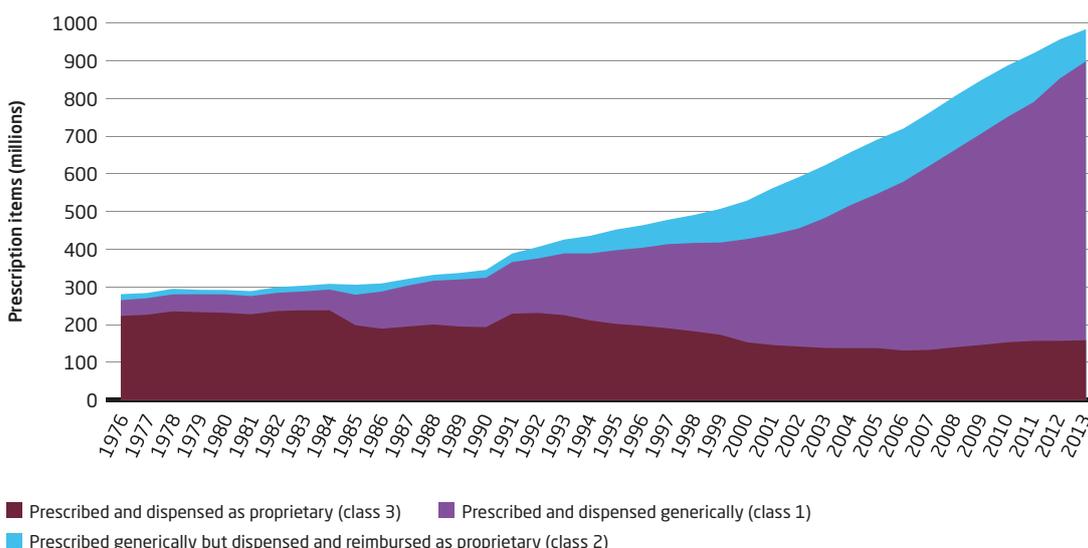


Generic prescribing

In 2013/14 the NHS in England spent £14.4 billion (around 13 per cent of total spending) on prescribed drugs and dressings. Of this, prescribing in primary care accounted for £8.8 billion (**Health and Social Care Information Centre (HSCIC) 2014c**). Over nearly four decades, spending on primary care prescribing has grown four-fold in real terms (*see* Figure 4). This partly reflects the growth in the volume of prescribed items overall – from 285 million in 1976 to just under 1 billion in 2013. But it also reflects a change in the composition of the type of medicines prescribed and dispensed, and changes in their prices. A key change has been the switch away from proprietary (or ‘branded’) drugs still under patent to cheaper (but chemically identical) generic medicines produced once patents end.

Figure 4 shows that an increasing volume of prescriptions are either prescribed by doctors generically but dispensed by pharmacists as proprietary (or branded) – known as ‘class 2’ – or prescribed and dispensed generically (‘class 1’). The number of prescription items prescribed and dispensed as proprietary (‘class 3’) has fallen by nearly a third in absolute terms since 1976.

Figure 4 Total primary care prescribing spending by generic and proprietary prescribing/dispensing: England, 1976 to 2013

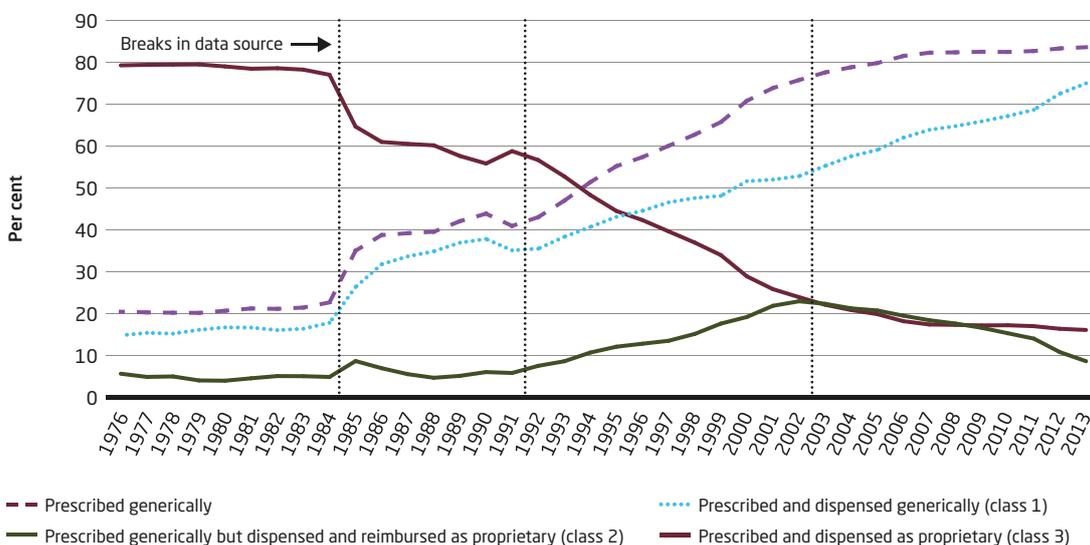


Sources: **HSCIC 2014c**; Department of Health 2003, 1998a, 1995; Department of Health and Social Security (DHSS) 1988



And as Figure 5 shows, the proportion of medicines prescribed and dispensed generically has risen from around 15 per cent in 1976 to over 75 per cent in 2013. The proportion of overall generic prescribing (including generic prescriptions dispensed as proprietary) has risen from 20 per cent to 84 per cent.

Figure 5 Percentage of primary care prescribed items by generic/proprietary prescribing and dispensing: England, 1976 to 2013

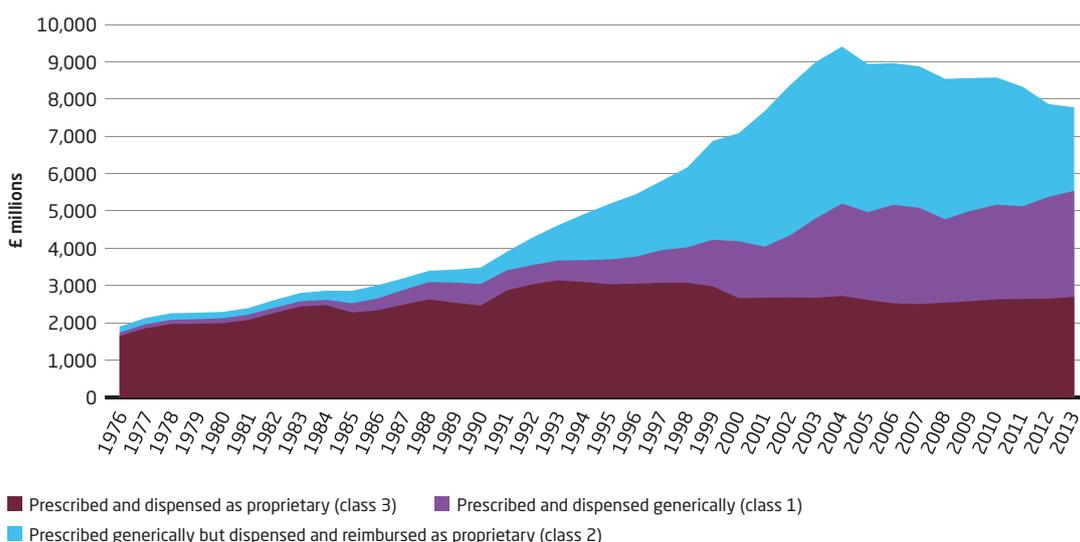


Sources: HSCIC 2014c; Department of Health 2003, 1998a, 1995; 1987-97; Department of Health and Social Security (DHSS) 1988



Coupled with variations in prices (class 3 items cost over four times as much as class 1 items, for example) and differences in the changes in these prices over time, up to 2004 it was growth in class 2 and class 1 prescription items that accounted for the growth in the overall primary care medicines spend (see Figure 6). The change in the composition of the medicines spend since 2004 reflects changes in terms and prices negotiated with the pharmaceutical industry as part of a revised deal under the pharmaceutical price regulation scheme (PPRS) and changes in prices for generic drugs as part of the new pharmacy contract.

Figure 6 Total primary care prescribing spending by generic and proprietary prescribing/dispensing: England, 1976 to 2013 (2013 prices)



Sources: HSCIC 2014c; Department of Health 2003, 1998a, 1995; 1987-97; Department of Health and Social Security (DHSS) 1988

NB: Totals exclude prescriptions for dressings and appliances

One way of estimating the impact of the increase in generic prescribing is to calculate how the real cost (the ‘inputs’) of primary care prescribing would have changed if generic prescribing rates had remained at their 1976 levels, while maintaining actual changes in the total volume (the ‘outputs’) of items prescribed and the unit prices of generic and proprietary medicines.

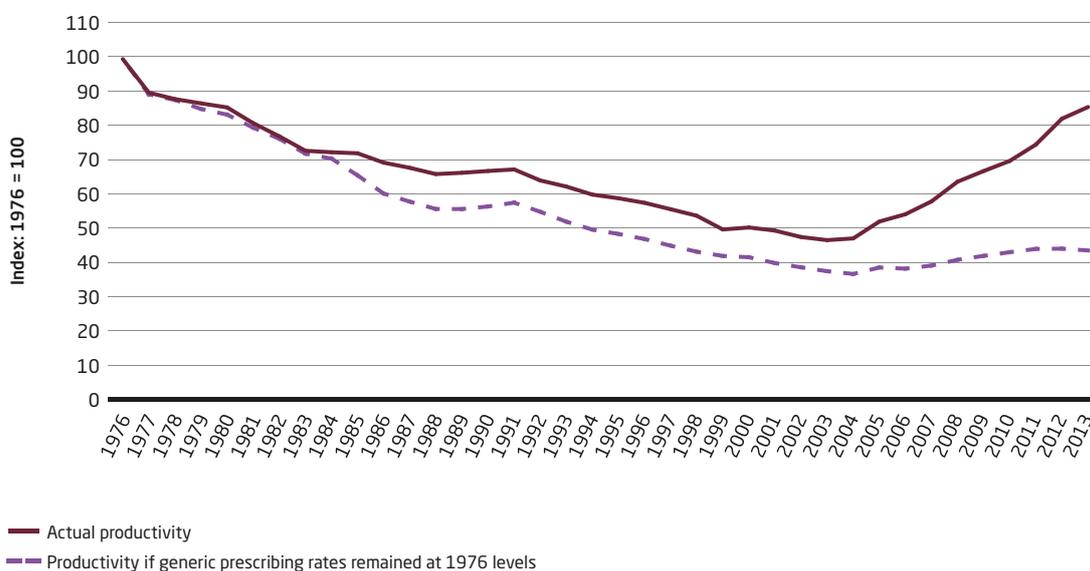


On this basis, spending would have needed to increase eight-fold in real terms (rather than four-fold) to maintain the increase in total prescribing. Productivity (outputs divided by inputs, as measured by real spending) would have fallen by 56 per cent (instead of by 14 per cent) by 2013 (see Figure 7).

The increase in actual productivity from 2005 onwards (more muted in the counterfactual productivity estimate) reflects not only increasing generic prescribing but the effects of a new PPRS that year, and changes in the arrangements and prices for generic drugs.

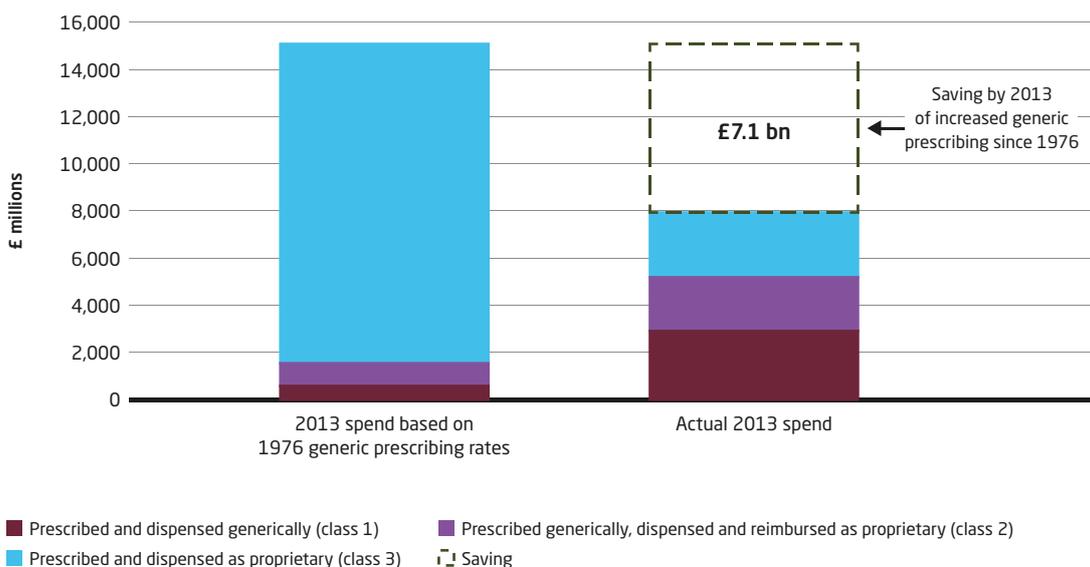
In effect, all other things being equal, increasing generic prescribing has saved the NHS £7.1 billion since 1976 and allowed 490 million more items to be prescribed without an increase in total spending (see Figures 8 and 10).

Figure 7 Primary care prescribing productivity: actual vs counterfactual based on no change in generic prescribing rates since 1976



Source: authors' calculations based on: HSCIC 2014c; Department of Health 2003, 1998a, 1995; DHSS 1988

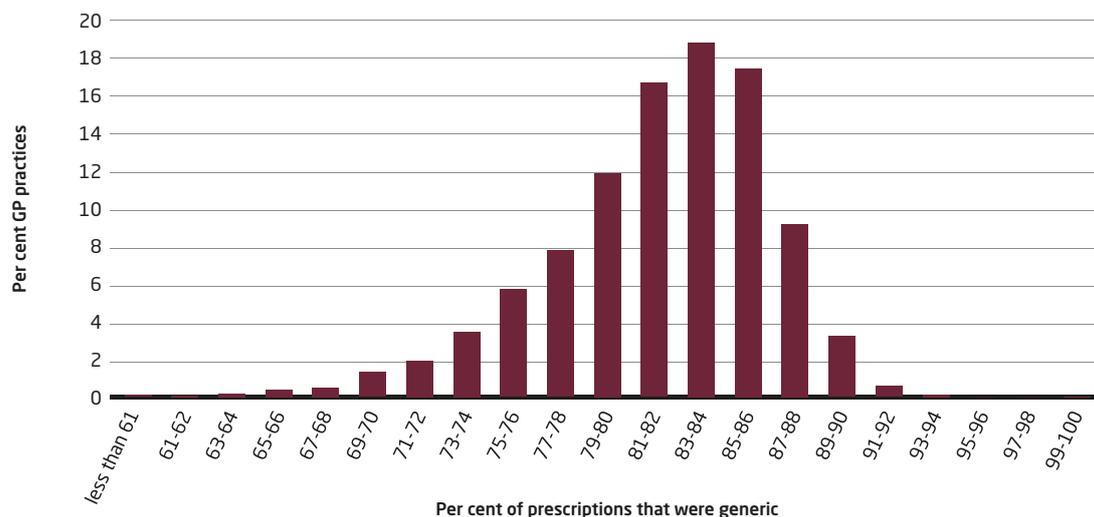
Figure 8 Estimated saving in 2013 total net ingredient cost due to increases in generic prescribing and dispensing between 1976 and 2013



Source: authors' calculations based on HSCIC 2014c; DHSS 1988

With generic prescribing rates averaging around 84 per cent (and a generic prescribing and dispensing rate of 75 per cent), further improvements may be unlikely. However, as Figure 5 shows, a particular source of improvement since 2004 has been the reduction in the proportion of medicines which, although prescribed generically, are dispensed as proprietary; this may allow for further savings (Duerden and Hughes 2010). On average, these medicines cost nearly seven times more than those prescribed and dispensed generically, and now account for around 29 per cent of the total prescribing spend (compared with nearly half in 2004). Moreover, despite high average rates of generic prescribing, there remains variation between general practices (see Figure 9).

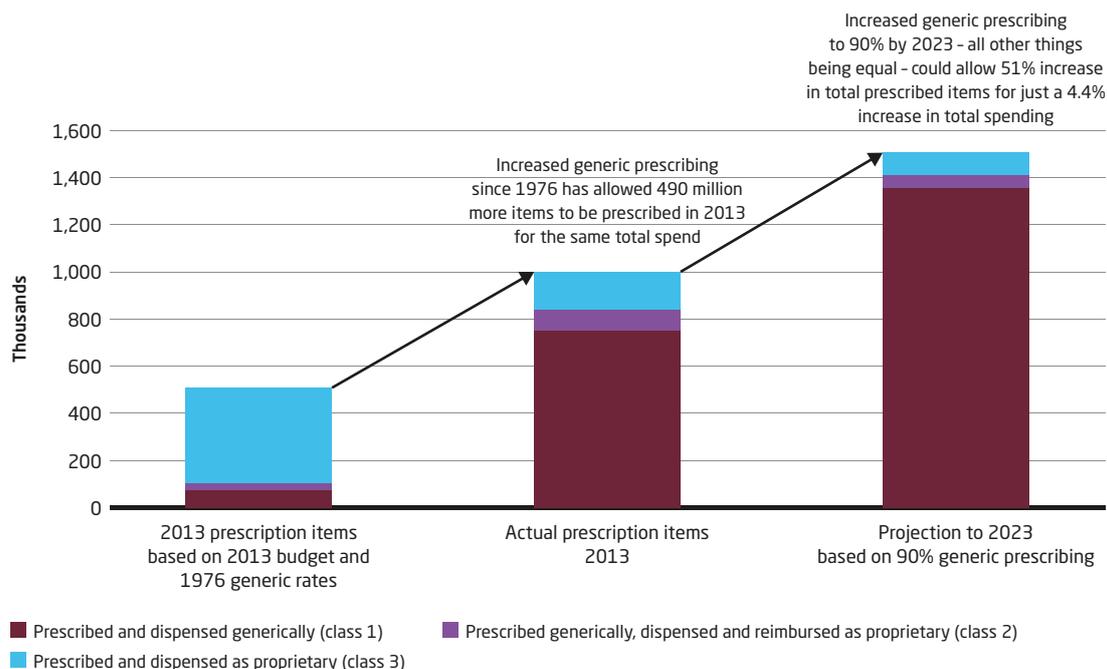
Figure 9 Distribution of generic prescribing rates by general practice



Source: HSCIC 2015

Assuming an overall continuation in the trend growth for prescribing and an increase in generic prescribing and dispensing to 90 per cent, by 2023 (all other things being equal) this would allow a 51 per cent increase in total prescriptions for a 4.4 per cent increase in spending (*see* Figure 10). To achieve this increase in overall prescribing without any change in generic prescribing would require an increase in spending of just under £4 billion by 2023 – a real increase of around 50 per cent over the spend in 2013.

Figure 10 Estimated impact on total prescribed items as a result of increases in generic prescribing and dispensing



Source: authors' calculations based on HSCIC 2014c, DHSS 1988

Policy lessons: generic prescribing

The trend for the NHS over the past four decades towards one of the highest community generic prescribing rates in the world did not happen by accident. As others ([Hassali et al 2014](#); [Kaplan et al 2012](#); [Duerden and Hughes 2010](#)) have noted, while it has taken time to achieve gains in cost savings, it has also taken a range of policies and actions. These include:

- generating and supporting a **clinical culture** that encourages generic prescribing
- **technological support** to make generic prescribing easy (for example, use of the PRODIGY (PRescribing ratiOnally with Decision support In General practice studY) software, which prompts GPs to prescribe generic alternatives)



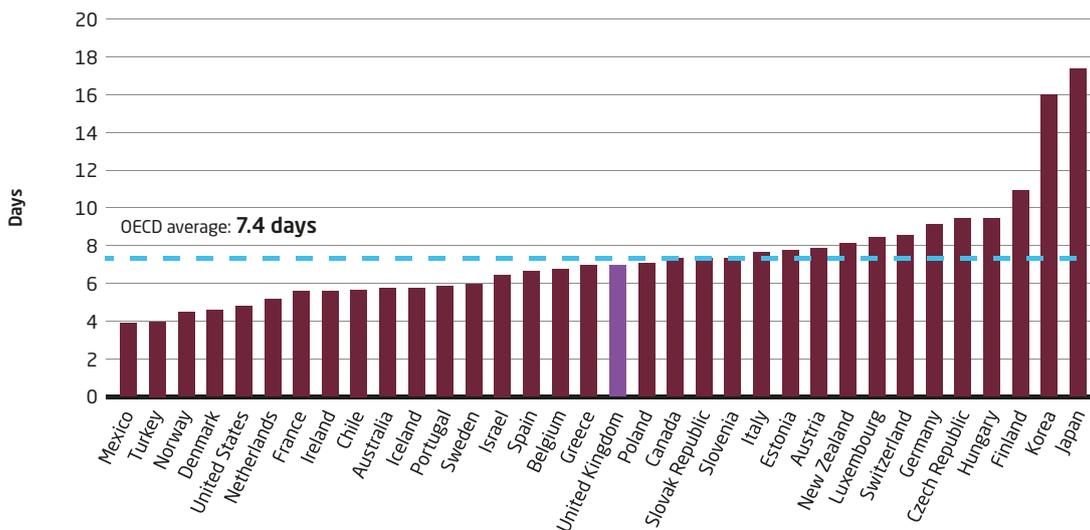
- **peer comparison and advice** through the collection and dissemination of detailed information on GP prescribing and individual advice on prescribing
- the use of **financial incentives** - such as those embodied in the GP fundholding scheme
- direct **market intervention** - such as the 'Category M' scheme introduced in 2005/6 to reduce the price of generic medicines
- **regulation** - such as the use of compulsory generic substitution.

Length of stay

The second example of productivity improvement concerns patients' consumption of hospital resources as reflected by how long they stay in hospital. As a result of shifts in the location of post-operative convalescence, the development of new forms of anaesthetic and surgical techniques and policies to treat and care for certain types of patients in community rather than hospital settings ([Ashby et al 2000](#)), the average length of stay has reduced considerably in most countries. Between 1980 and 2012, for example, average lengths of stay in the Netherlands fell from 13.5 to 5.3 days; in Spain from 15.5 to 6.7 days; and in Canada from 10 to 7.4 days ([Organisation for Economic Co-operation and Development \(OECD\) 2015](#)). Even in countries with comparatively low lengths of stay there have been reductions. In the United States, for example, the average length of stay has reduced by 25 per cent since 1990, from 6.4 to 4.8 days. There have been similar trends in the United Kingdom. In 2012 the average length of stay for all types of patients in hospital in the United Kingdom was 7 days – nearly half a day less than the average across OECD countries (*see* Figure 11) and around 14 per cent less than just a decade ago.



Figure 11 International comparisons of average length of stay in hospital for all types of patient: OECD countries, 2012 (or nearest year)

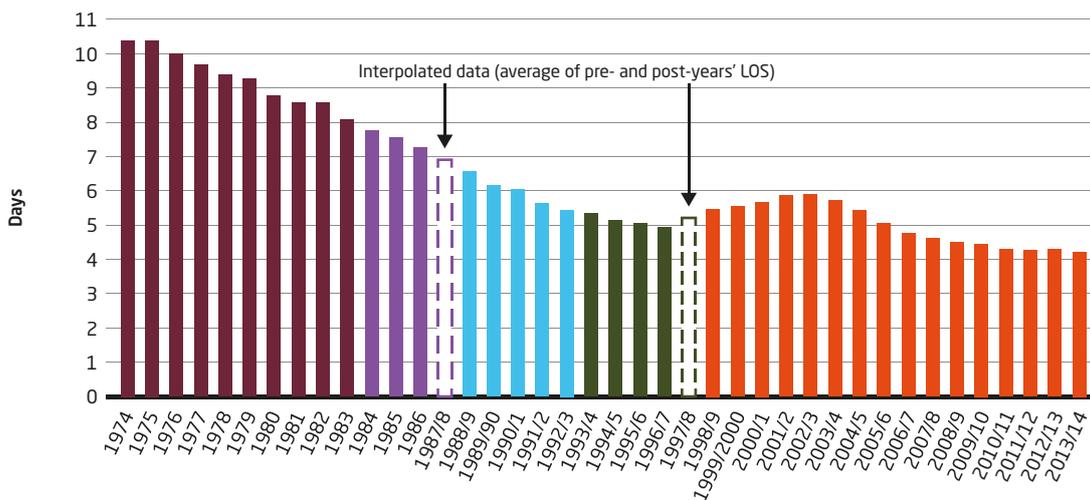


Source: OECD 2015

For medical and surgical acute patients (ie excluding geriatric and maternity patients) and excluding patients treated as day cases, longer run trends in average length of stay (LOS) for the NHS in England show reductions from 10.5 days in 1974 to just over 4 days in 2013/14 (see Figure 12). As can be seen from Figure 12, while there was a fairly smooth decline in lengths of stay from 1974 to 1996/7, they rose from 1997/8 to 2002/3 before once again falling to 2013/14. Given the breaks in data over the whole period, some care needs to be taken in interpreting the trend too closely. The reductions in length of stay over this period took place at a time when the casemix of patients staying in hospital overnight was also changing. As patients with less complex problems were increasingly being treated as day cases (as we show later), the reductions in length of stay for inpatients are perhaps more impressive than they appear at first sight.



Figure 12 Trends in acute medical and surgical average length of stay: English NHS, 1974-2013/14



Source: HSCIC 2000-2015; Department of Health 1998b, 1993a, 1993b; DHSS 1987

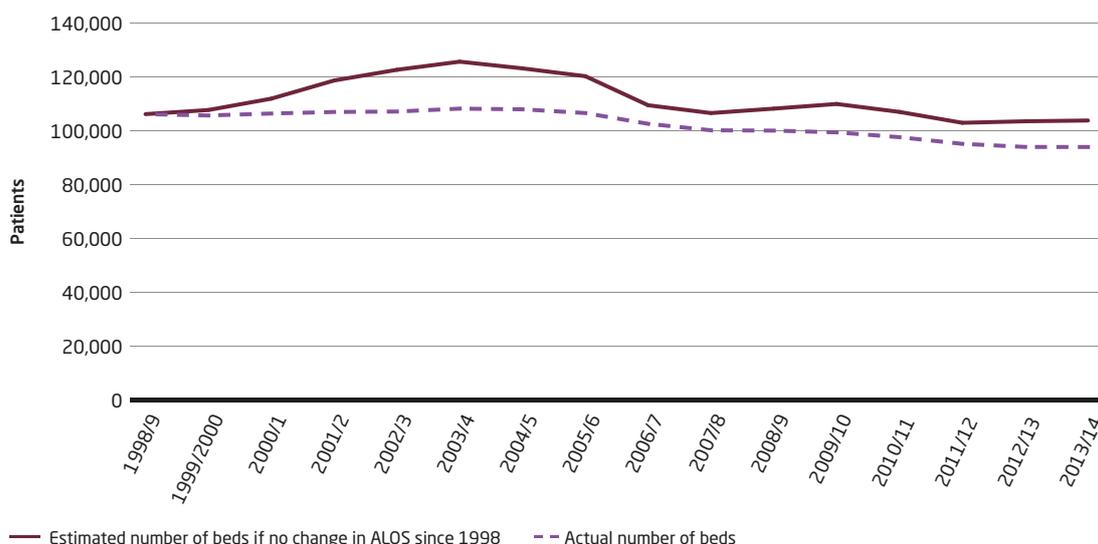
NB: There are a number of breaks in this data series (reflected by changes in the bar colours) as a result of changes in data collection systems and methods since 1974.

While not matching the reductions of the two decades from 1974, over the past decade there has been a steady decline in length of stay. The same caveats apply about taking care when interpreting and comparing years in such a long series, constructed from a number of different sources.

As with the impact of changes in generic prescribing, one way to assess the impact of the reduction in average lengths of stay is to estimate a counterfactual: in this case, the number of beds that would have been needed to treat the 42 per cent growth in patients treated *if there had been no change in their average length of stay* (ALOS) since 1998/9. Figure 13 shows that nearly 10,000 (+10.5 per cent) more beds would have been needed by 2013/14 to treat the 9.8 million acute patients that year.



Figure 13 Estimated impact of length of stay reductions on the number of acute beds in the English NHS, 1998/9-2013/14



Source: authors' calculations based on HSCIC 2000-15

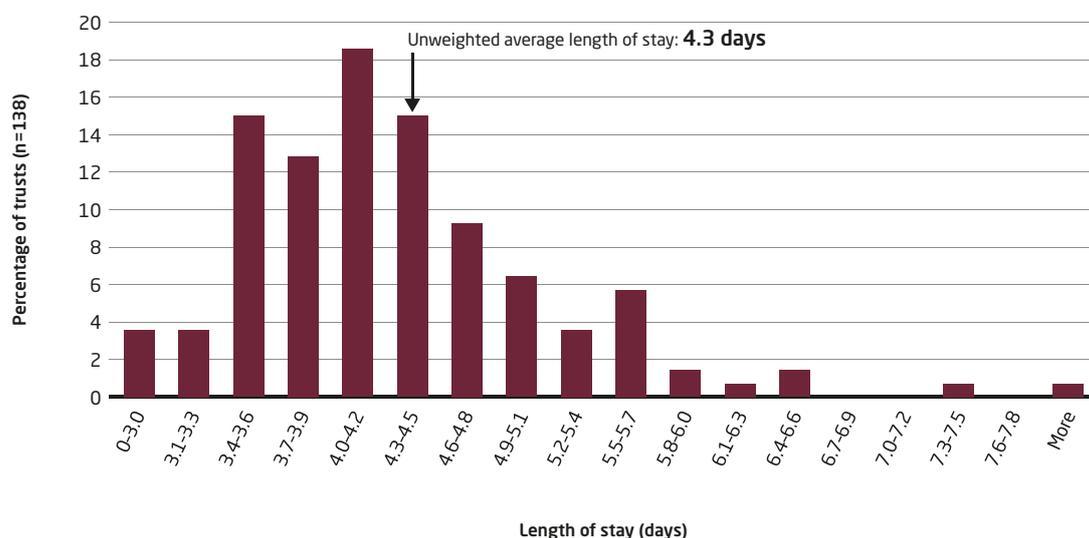
Finally, while reductions in lengths of stay have allowed the NHS to treat more patients with fewer beds, the consequence is that beds have been able to be used more intensively. Over the 15 years to 2013/14, the number of patients treated per bed has increased from 64 to 103 – an increase of 61 per cent, with over half of this broadly attributable to the decline in patients' average length of stay.

So, what is the potential for future reductions in length of stay? While there has been a reduction of 1.7 days (29 per cent) for acute patients' length of stay in the decade since 2002, recent years have flattened off somewhat. As Figure 11 shows, while the United Kingdom is about midway in the international league table of lengths of stay, this means that a number of other countries already achieve lower figures. For example, Sweden's average lengths of stay (for all types of patient) were 15 per cent lower than the United Kingdom's in 2011, Australia's 18 per cent lower, France's 20 per cent lower and Norway's 36 per cent lower. So, bearing in mind the difficulties in drawing firm comparative conclusions between different countries, given differences in the structure, organisation and economic contexts of health systems (not to say cultural, demographic and other differences), there is some evidence for further potential reductions in lengths of stay in the NHS.



Moreover, there remains a fairly wide variation in average lengths of stay across hospitals. As Figure 14 shows, of 142 acute hospitals in England in 2013/14, around 15 per cent recorded average lengths of stay of 20 per cent or more above the national average. Some of this variation will of course be explained by patient casemix and other factors outside the control of trusts. But there will also be unwarranted variation which will be amenable to change.

Figure 14 Distribution of average length of stay: 142 acute NHS trusts: England, 2013/14



Source: HSCIC 2000-15 (2014 bulletin)

If average lengths of stay fell by 15 per cent by 2023, for example, with no further reductions in beds, and all other things being equal, the NHS could treat around 18 per cent more acute patients than it did in 2013/14 – an average annual increase of around 1.6 per cent.



Policy lessons: length of stay

As Smee has noted and others have also suggested (Smee 2005; [Ashby et al 2000](#)), reductions in length of stay have played a major role in improving productivity in the hospital sector, allowing a combination of more patients to be treated, the number of beds needed to be reduced and, consequently, more intensive use of beds. While there are obvious limits to further reductions in lengths of stay in terms of quality of care and patient safety, it is likely that over time further reductions will be possible. If history is a guide, then in part these will depend on a variety of clinical, economic and management factors, including:

- new **clinical approaches** to treatment and care (for example, switching to less invasive surgical techniques where possible)
- reductions in **clinical variations** (such as the use of particular surgical interventions associated with shorter lengths of stay)
- reductions in **discharge delays** (for example, better co-ordination with community-based agencies (Miani *et al* 2014))
- advances in **health technologies** (such as local anaesthetics)
- better **patient pathway** design (such as the pathways developed for the treatment of cataract patients (NHS Executive 2000))
- **financial incentives** (such as fixed per case payments - balanced by controls on quality).

Day cases

Our third example of a single-aspect productivity/performance measure – day cases – was the subject of the first NHS value for money reports by the Audit Commission (1990). The 1990 review by the Commission identified a number of interventions that clinical opinion (and practice) suggested could be carried out as day cases in greater numbers than was then the case. Their analysis suggested that ‘...if all DHAs [district health authorities, including Wales] performed day surgery consistently at readily achievable levels for each of 20 common procedures, an additional 186,000 patients could be treated each year without increased expenditure’ ([Audit Commission 1990](#), p 5).



Apart from setting out the available statistics on day case activity at the time, an important outcome of the Audit Commission's work was the setting up by the Department of Health of a task force on day surgery and the provision of £15 million of capital funds to expand the provision of dedicated day surgery units. A follow-up review reported that, by 2001, almost all trusts had at least one unit (**Audit Commission 2001**). But the 2001 review also reported that, while there had been considerable progress in the proportion of a basket of interventions carried out as day cases, there remained the potential for further improvements: '...if all trusts could achieve the levels of the best performers (the upper quartile of the distribution of the percentage of day cases), 120,000 existing inpatients in England and Wales could be treated as day cases to the benefit of all concerned' (**Audit Commission 2001**, p 3). The box below provides an example of the impact the growth in day case surgery has had on costs and productivity for one of the Audit Commission's basket of 20 procedures – cataracts.

Day surgery case study: cataracts

One of the Audit Commission's original procedures largely amenable to being provided as a day case was cataracts (**Audit Commission 1990**). The Commission reported in a survey of DHAs in 1990 that, in 1988/89, around 84 per cent of those surveyed carried out between 0 and 10 per cent of cataract procedures as day cases. By 1996/97 the Commission reported that around 62 per cent of all elective cataract procedures were day cases and that, by 1999/2000, this had increased to around 87 per cent. Even from such a high base, by 2013/14 nearly 98 per cent of all elective cataract operations were carried out as day cases.

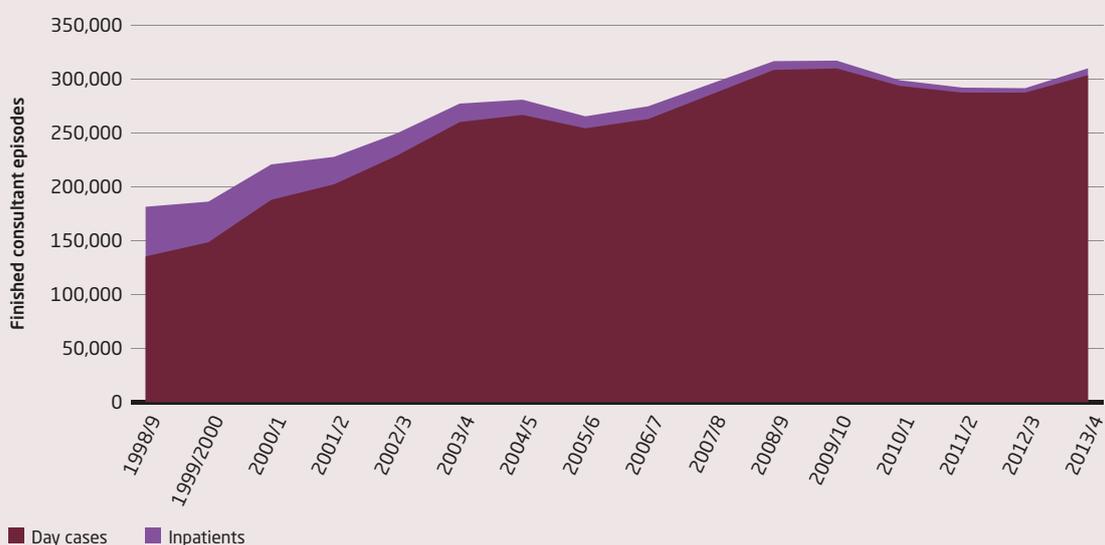
So, what impact has this had on cataract productivity?

Using data from the national reference costs database (Department of Health 2014), it is possible to estimate a counterfactual scenario for total spending on cataracts ('inputs') and, assuming growth in total (day plus inpatient) procedures reached the actual level seen in 2013/14, how productivity might have differed from its actual path.



Figure 15 shows the total number of cataract procedures split by inpatients and day cases. Since 1998/9, total procedures have grown by 71 per cent, but the proportion of inpatients has shrunk by 86 per cent, while day cases have grown by 148 per cent. It is notable that in the period from 2010/11 to 2013/14, when overall NHS funding grew at a much slower rate than between 1998/9 and 2010/11, overall cataract activity fell in all years except 2013/14.

Figure 15 Change in composition of cataract activity: England, 1998/9-2013/14

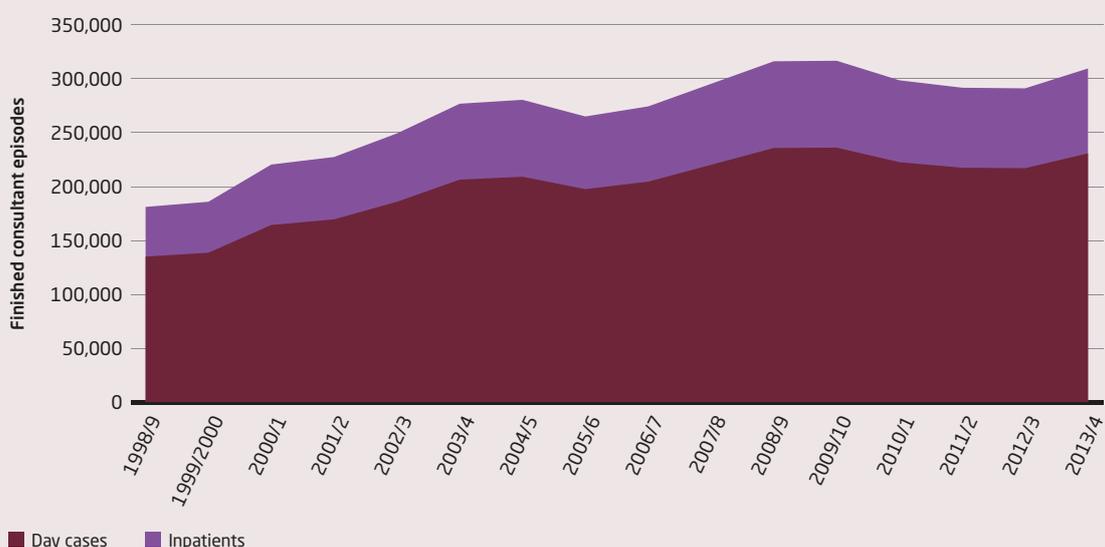


Source: Department of Health 2014



Figure 16 shows how the composition of cataract activity would have changed assuming that day case rates had *not* increased from around 75 per cent in 1998 to 98 per cent in 2013 (while aiming to maintain the overall growth in cataract activity).

Figure 16 Estimated change in composition of cataract activity assuming no change in day case rates from 1998/9 to 2013/14

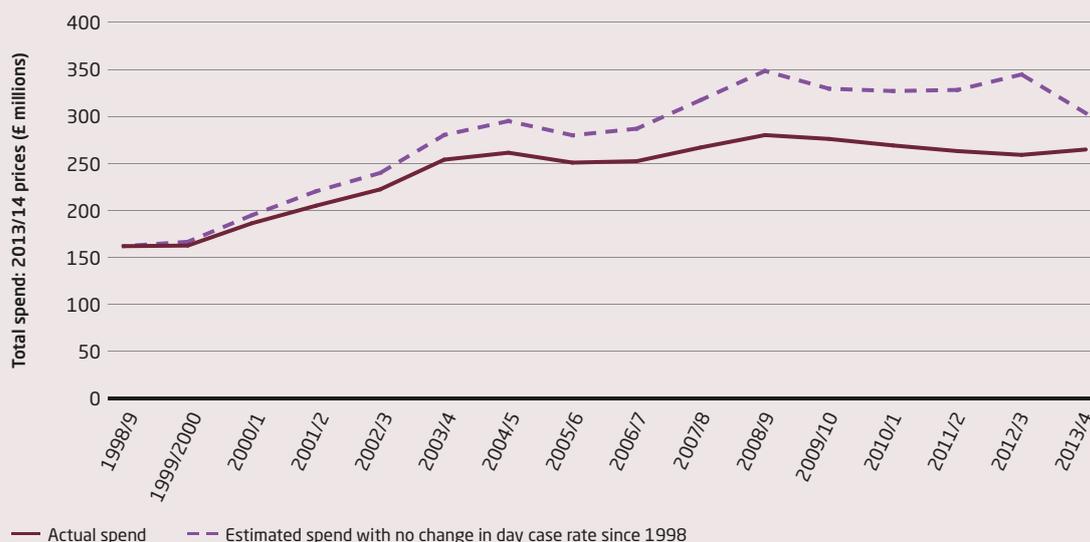


Source: Department of Health 2014

With cataract inpatient costs per patient typically ranging from 50 per cent to over 100 per cent more than day case costs over the period 1998/9 to 2013/14, Figure 17 shows that, without the growth in the use of cheaper day case surgery, the total spend on cataracts would have been around £40 million (15 per cent) higher in 2013/14 than the actual spend that year.



Figure 17 Impact on total costs of changes in the cataract day case rate: England, 1998/9-2013/14

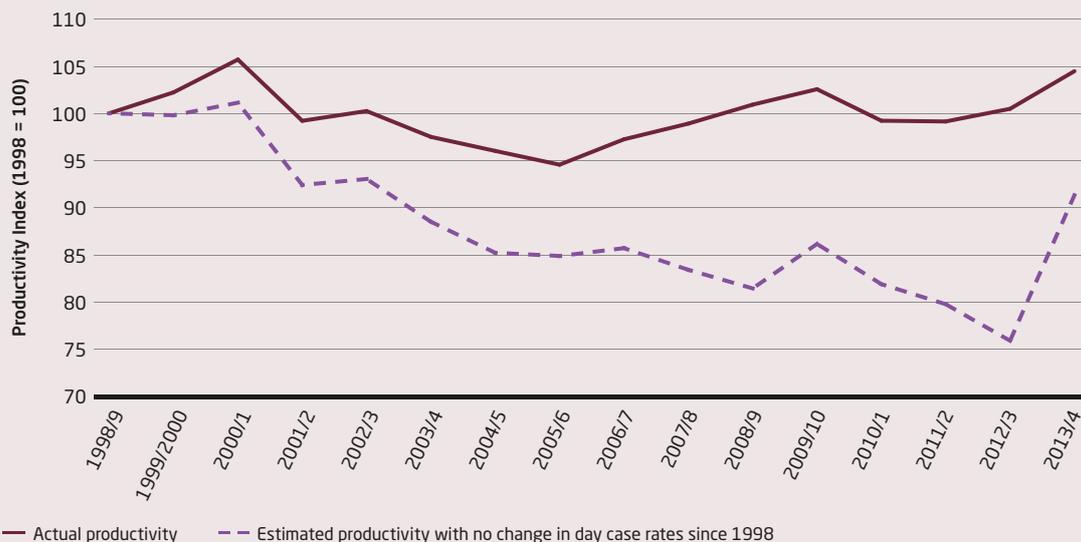


Source: authors' calculations based on [Department of Health 2014](#)

Given changes in total costs and assuming no change in the day case rate, Figure 18 shows the impact this is estimated to have had on cataract productivity (outputs - total cataract activity - divided by inputs - the total inflation-adjusted spend on cataract procedures). Although actual productivity, while fluctuating from year to year, grew by 5 per cent between 1998/9 and 2013/14, if there had been no growth in day case surgery then it would have fallen by around 9 per cent. The jump in productivity in 2013/14 (more marked in the counterfactual) is due to a large reduction in the average costs of inpatient cataracts which, according to the national reference costs data, fell by a third compared with the cost in 2012/13.



Figure 18 Cataract productivity: actual vs counterfactual (assuming no change in day case rates since 1998/9)



Source: authors' calculations based on [Department of Health 2014](#)

Overall, the continued growth in day case activity has in effect saved an average of around £40 million per year since 1998/9 - approximately 14 per cent of the total spend on cataracts each year and equivalent to an improvement in productivity of around 14 per cent over 15 years.

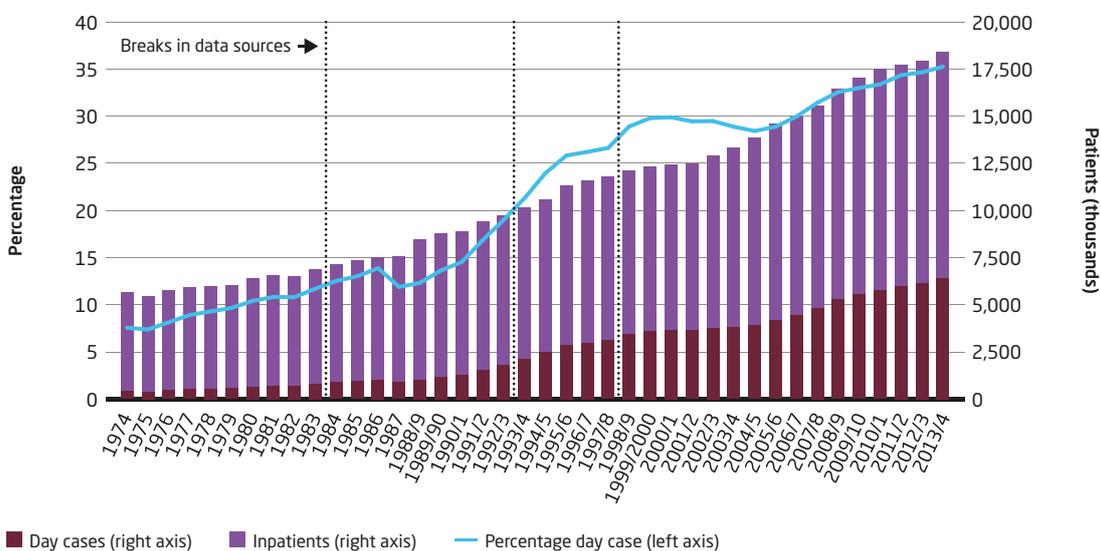
While it has not been possible to estimate this sort of counterfactual further back than 1998/9 due to data limitations, it is clear from these illustrative calculations that the much larger growth in day case surgery from the late 1980s into the 1990s will have had a much larger impact on productivity.



Figure 19 shows trends from 1974 to 2013/14 in the proportion¹ of all inpatient and day case activity carried out as day cases in England. From a low of around 7 per cent in 1974, this proportion increased to nearly 35 per cent by 2013/14 – from around 417,000 to 6.3 million cases. As with the long series for length of stay, this series has been compiled from a variety of data sources; breaks in the series and changing sources partly account for some of the discontinuities in the trend. But a proportion is due to faster growth of inpatients in some periods.

Of note, however, is the coincidence of the rollout of Payment by Results (PbR) in 2005/6 to all trusts for all elective procedures, with a tariff for day cases based on the average of the inpatient and day case cost combined for each procedure – providing an inbuilt financial incentive for trusts to switch to day case work. Following a slight fall in the proportion of day cases from 1999/2000 to 2004/5, numbers and rates increased markedly in subsequent years.

Figure 19 Proportion of all patient activity carried out as day cases: England, 1974-2013/14



Sources: HSCIC 2000-15; Department of Health 1998b, 1993a, 1993b; DHSS 1987

¹ In order to produce the long historical series, the denominator in the day case percentage includes non-elective cases as it has not been possible to separately identify elective cases in earlier years. More usually, day case rates are calculated as a proportion of elective cases (giving a much higher figure).



As day case patients cost less to treat than patients who stay overnight as inpatients (in 2013/14 the average day case cost was £698 and the average inpatient case cost was £1,367), the increasing number and proportion of day cases has helped to reduce overall costs. For example, based on national reference costs reported by English hospitals, the total cost of treating the 6.96 million elective day cases and inpatients in 2013/14 was around £8.9 billion. To treat this number of patients, *but with the proportion of day cases carried out in 1998/9*, would have cost nearly £11 billion (over 22 per cent more). In effect, by treating more patients as day cases, by 2013/14 the NHS had saved around £2 billion – equivalent to an average saving over the 15 years since 1998/9 of around 1.4 per cent per year of the total spend on elective day and inpatient care. This will be an upper estimate, of course, as it is based on the average costs of day cases and elective inpatients. In reality, those patients switched from inpatients to day cases are likely to have had less complicated and less costly conditions.

More startlingly perhaps, if the proportion of patients treated as day cases had remained unchanged at its 1998/9 level (and all other things being equal), the total actual 2013/14 spend of around £8.9 billion would have paid for 5.7 million elective patient episodes in total – equivalent to 1.3 million (or 18 per cent) fewer episodes.

Although there has been enormous progress in switching to day case surgery over the past four decades, as the example of cataract procedures suggests, even at already high rates of day cases, further increases are possible. As with generic prescribing and lengths of stay, there still exists variation across the country in rates of day case surgery, even for procedures where there is clinical agreement about its use ([Appleby et al 2011](#)).

As an illustration, projecting the almost straight line increases in the day case rate over the 15 years since 1998/9 a further decade, to 2023/4 (and all other things being equal), the total spending on elective care in 2013/14 could pay for 22 per cent more patient episodes in 2023/24.



Policy lessons: day cases

Over the past 40 years, increases in the number of patients treated as day cases have clearly had a significant impact on the number of operations hospitals have been able to undertake. They have also reduced the costs of doing so and have almost certainly provided higher quality care to patients. As with our other two examples, this change was due to a combination of factors: clinical, behavioural, managerial and economic. In 1990 the Audit Commission identified a number of barriers to increasing day surgery rates (**Audit Commission 1990**):

- a lack of **information** to assess current performance, estimate potential and monitor change
- a lack of **specialist facilities**
- **inappropriate and insufficient use** of those facilities that exist
- **poor management and organisation** of day case units
- **clinicians' preferences** for more traditional approaches
- **disincentives for managers** to prescribe change.

Improvements in all these areas over the past quarter of a century will have contributed to the much higher rates of day surgery carried out today. For example, the Better Care, Better Value initiative not only provides detailed performance and target data for day case rates, but also some key management and clinical steps for maximising day surgery rates (**NHS Improving Quality 2015**). National initiatives too, such as the Day Surgery strategy in 2002 (**Department of Health 2002**), and guides such as that produced by The Association of Anaesthetists of Great Britain & Ireland and The British Association of Day Surgery (**2011**) have helped provide guidance and disseminate best practice.



But there have also been technological improvements, such as:

- faster acting, more precise **anaesthetic drugs**
- better **analgesics**
- **lasers and fibre-optics**, which have replaced major open surgery with less invasive procedures that can be done as day cases
- the wider adoption of **new techniques and instruments**, such as the use of phacoemulsification in the case of cataract surgery.

And the use of **payment systems and pricing strategies** has also incentivised hospitals to increase day surgery rates. A notable example has been the introduction of specific tariffs under PbR. For example, Street and Miraldo (2007) found that the PbR tariff structure appeared to have increased day case rates compared with procedures not then part of PbR. And more recently, Allen *et al* (2014) found that best practice tariffs set specifically to encourage more day case surgery did just that, with a six percentage point increase in the day case rate for procedures using the tariffs. Importantly, they also found no evidence that readmission or death rates were affected.



Conclusion

Depending on how measures are constructed, over the past 30 years or so the NHS as a whole seems to have managed annual average productivity increases of between 0.7 per cent and 1.2 per cent. But as we have shown with three examples – the use of generic drugs, how long patients stay in hospital and the use of day case surgery – at the level of these single-aspect measures of performance, there have been major improvements – not just in terms of cost saving (usually translated into the provision of higher volumes of care for the same overall budget) but also for the quality of patient care (although less demonstrably so).

In each example there are some specific policy, clinical, economic or managerial factors that are directly or indirectly associated with the improvements in productivity. These factors have worked in combination, highlighting the action needed at a number of different levels in the system to make change happen. A number of common factors driving improvement can be identified across all of these examples:

- **health technology developments** (new surgical techniques, new analgesics and anaesthetics)
- **clinical/managerial culture** (engagement of clinicians with management issues, greater co-operation between managers and clinicians)
- **patient pathway design** (redesigning the patient journey from start to end of treatment to minimise resource use and maximise patient health and experience outcomes)
- **data and information** (more accurate performance metrics, better comparisons and understanding of performance and variation)
- **frontline support to enable change** (central collation/dissemination of best practice, clinical retraining)
- **financial incentives** (performance/activity-related payment systems)
- **financial pressures/financial support** (tough financial times focus productivity efforts... but ‘invest to save’/‘transformation’ funding to facilitate productivity gains).



Apart from the general lesson that, when it comes to improvements in identifiable areas of health service work and activity, there is rarely (if ever) a magic bullet solution, an observation from our three illustrative examples is that change takes time. Dramatic jumps are not the norm. Rather, it appears that steady progress on relatively small incremental changes eventually accumulates to large gains – but over the long, not short, term.



PART 2 OPPORTUNITIES FOR THE FUTURE

In the previous section, we showed that despite the relatively modest improvements in aggregate measures of NHS productivity, there are areas within this overall picture where significant improvements have been made. In this chapter, we turn our attention to a wider range of opportunities for the NHS to improve value in the future.

Our analysis starts from the premise that we set out at the start of this report – namely that there is great potential for the NHS to improve value for every pound it spends through focusing on changes in clinical practice. This is because evidence tells us that poor quality services are costly to health systems, patients and the public (Øvretveit 2009). In the United States, for example, it has been estimated that poor quality care and wasteful spending make up as much as 21–34 per cent of national spending on health care – with a large proportion coming directly from poor co-ordination of services, failures in the delivery of care and overtreatment (Berwick and Hackbarth 2012). A key task therefore lies in identifying where these opportunities lie in the NHS today.

We do this by summarising evidence of opportunities using three different ‘lenses’.

- First, we describe evidence of **inappropriate care** delivered in the NHS, and where possible, its cost. We summarise examples of overuse of low-value care, underuse of high-value care, and preventable harm in different parts of the NHS (using the framework of overuse, underuse and misuse of services to describe these quality problems (Chassin *et al* 1998)). We begin this section by drawing on various analyses of variations in the NHS to highlight the scale of the opportunities that we are describing.
- Second, we examine three major **service areas** in the NHS where evidence suggests that there are significant opportunities to improve quality of services and value for money. We focus in particular on care for people with long-term conditions (in the community), services for older people with frailty and complex needs (in particular on their journeys from home to hospital and back again) and services for people at the end of life. As well as identifying evidence of poor quality in each of these areas, we use this section to provide evidence of cost-effective interventions that can be used to tackle the issues that we highlight.



- Third, we draw on the **experience of leaders and teams in the NHS** who have taken these opportunities to improve value in the services they provide. We highlight their stories and evidence of impact. These examples show that much of the work to improve value in the NHS is already being done, but now needs to be replicated and spread across the NHS.

While there are clearly other opportunities to improve value through non-clinical changes, we focus explicitly on evidence from the NHS about changes to the way that care is delivered to improve value from its budget. We don't examine the potential impacts of new innovations, like digital technologies, which will also undoubtedly support the NHS to deliver better value care in the future. Nor do we look in detail at opportunities for health promotion or interventions that address the wider determinants of health that will have a big impact on population health in the future.

Across each of the areas that we examine, the resources that can be released from the opportunities that we identify are difficult to estimate. For this reason, the savings cited from the literature should be regarded as indicative only and mainly describe the opportunity to release resources from one area of care to be invested somewhere else to provide better value. It should also be recognised that some of the estimates of savings that we cite fail to take into account the costs of implementing improvement approaches as part of their analysis. These issues are described in detail elsewhere ([Øvretveit 2009](#)).

As we have not tried to conduct a systematic review of the evidence, there are also undoubtedly additional opportunities that have not been identified by our analysis. On the flipside, we also sometimes identify common problems through different lenses of analysis, which means that aggregating the savings from the opportunities identified will certainly result in some double-counting and should be avoided.

Finally, we recognise that while understanding what the opportunities are is important, the biggest challenge facing the NHS will be putting this knowledge into practice. This is reflected in the literature on quality improvement efforts in health care, which highlights the difficulties that organisations and teams have had in acting on the opportunities they have found to improve quality and reduce costs ([White 2011](#); [Øvretveit 2009](#)).



This reflects the fact that the relationship between quality and cost in health care is neither singular nor simple (Hussey *et al* 2013). Both quality and cost can be measured in a number of different ways, and the impact of their relationship is often spread widely across a health system and over time. One improvement in quality may take years to save money, while others may never save money at all. Another improvement may save money for one provider but shift costs elsewhere, while others may expose a new cost that was previously being met outside the health system. This ‘displacement of rewards’ means that providers investing in service improvements may see their return on investment fall to another part of the system – in turn making it harder to measure – or their income fall if they have reduced activity which they were previously paid for (Leatherman *et al* 2003).

It is these issues that we turn to in the final section of the report, where we ask how the NHS can put knowledge of these opportunities into practice and what needs to happen at different levels of the system to make it happen.



4 Inappropriate care

Variations in clinical practice

Key points

- Unwarranted variations in clinical practice and health outcomes are widespread across the country - in common with other health care systems across the world.
- These variations highlight the scale of inappropriate care in the NHS - and in many cases this scale is staggering.
- The evidence is clear that tackling unwarranted variations would allow resources to be used more effectively across the NHS to improve value.

One of the most powerful ways of illustrating the potential to deliver better value care in the NHS is through mapping the extent of unwarranted variations in clinical practice. These variations are widespread both across and within different parts of the country, and are not explained by differences in population need or the preferences of patients. In other words, they are unnecessary and avoidable. We have argued elsewhere that addressing this unwarranted variation provides one of the most significant opportunities for the NHS to improve productivity and deliver better value care ([Appleby et al 2010](#)).

Of course, not all variation is bad variation, as patients may receive different services because of their medical needs or their personal preferences ([Mulley et al 2012](#)). The challenge lies in retaining this good variation in the NHS by involving patients in decisions about their treatment, while identifying and removing the unwarranted variation that results from the provision of inappropriate care ([Appleby et al 2011](#)).

The first step in that process is to map health system performance to understand variation in practice and identify areas for action. For more than 20 years, the study of unwarranted variation has been pioneered by academics at Dartmouth College in the United States, who have published a series of reports called the Dartmouth



Atlas of Health Care that use data from the Medicare programme to document wide disparities in the use of health care resources across the United States (see www.dartmouthatlas.org/). The first NHS Atlas of Variation for England was launched in 2010, and a series of reports is now available that focuses on variations in practice for specific conditions and population groups in the NHS.

These analyses show wide variations in clinical practice and outcomes across the country at every stage of the patient pathway, even after adjusting for demographic factors. These include variations between clinical commissioning group (CCG) (or primary care trust (PCT)) performance in the following areas.

- **The diagnosis of chronic disease.** For example, the number of people identified by GPs as having coronary heart disease as a proportion of estimated prevalence ranges from 52 per cent to 89 per cent (2012/13)* ([NHS England 2015a](#)).
- **The use of diagnostic tests.** For example, there is a more than 1,000-fold difference (from 0.08 to 179.1 per 1,000 population) in the rate at which GPs order fasting blood glucose tests used to assess the risk of diabetes, monitor diabetic control and as part of cardiovascular screening (2012)* ([Right Care 2013](#)).
- **Prescribing practice.** For example, there is a 25-fold difference in the number of anti-dementia drug prescriptions, from 0.1 to 1.3 per 100,000 weighted population (2009/10)* ([Right Care 2011](#)).
- **The management of chronic disease.** For example, the percentage of patients with chronic obstructive pulmonary disease (COPD) who have had a review in the past 15 months, as required by the Quality and Outcomes Framework, ranges from 77 per cent to 87 per cent (2012/13)* ([NHS England 2015a](#)).
- **Rates of clinical procedures.** For example, the rate of elective tonsillectomy in children, a procedure that has historically been overused in the NHS, ranges from 145 to 424 per 100,000 population aged 0–17, a 2.9-fold variation* (2007/8 to 2009/10) ([Right Care 2012a](#)).
- **Length of stay in hospital.** For example, there is an 11-fold difference in the length of stay for elective breast surgery, ranging from 0.4 days to 4.3 days (2009/10)* ([Right Care 2011](#)).



- **Emergency readmissions to hospital.** For example, the percentage of COPD patients readmitted to hospital as an emergency within 30 days of discharge varies two-fold, from 9 per cent to 18 per cent (2010/11)* (**Right Care 2012b**).
- **A range of health outcomes.** For example, the rate of mortality from pneumonia in people aged under 75 ranges from 4 to 11 per 100,000 population (2007–10)* (**Right Care 2012b**).
- **Spending on specific service areas.** For example, programme budgeting data shows that spending on musculoskeletal services ranges from £57 per head of population to £117 (2009/10)* (**Right Care 2011**).

** The five highest and five lowest values have been excluded from this range, to eliminate outliers that could be the result of data errors.*

While some of this variation can be explained by the difficulty of accounting for all relevant factors when weighting the data, the extent of variation across the NHS points to differences in clinical practice that go far beyond problems of interpretation. Instead, these variations occur because care is being delivered inappropriately. Addressing the underlying causes of these differences and taking action to address them has the potential to improve quality, release capacity and generate cost savings in the NHS.

In many cases, large improvements can be made through changes in relatively narrow clinical areas. For example, it has been estimated that savings of more than £300 million a year could be achieved if all hospitals reduced their infection rate in hip and knee arthroplasty to the level seen in specialist orthopaedic units (**Briggs 2012**).

One route to reducing unwarranted variation is the implementation of recommended best practice. The National Institute for Health and Care Excellence (NICE) estimates that full implementation of its guidelines across a range of clinical areas could generate millions of pounds of savings or free up the equivalent hospital capacity (*see* Table 1 for a list). Another example of the savings that can be made from relatively small changes in clinical practice is the use of a cardioQ oesophageal doppler monitor to guide intravenous fluid management in surgery or critical care, which could save £808,000 per 100,000 population by reducing hospital length of stay and post-operative complications.



In the following sections, we outline opportunities for the NHS to improve value by addressing these causes of inappropriate care – first looking at the overuse, underuse and misuse of services and then looking at opportunities to improve quality for little or no extra cost in three specific service areas. In each of these areas, we include a table showing the variation that exists across the NHS for some of the indicators that we use in each section.

Resources

NHS England CCG outcomes tool ([NHS England 2014b](#))

NHS England Commissioning for value tool and 2014/15 data packs ([NHS England 2015a](#))

NHS England Long-term conditions dashboard ([NHS England 2014e](#))

Public Health England Outcomes framework tool ([Public Health England 2015](#))

Right Care atlases and tools ([Right Care 2015](#))

Right Care NHS atlas of variation in health care ([Right Care 2011](#))



Table 1 Estimated cost savings from implementing NICE guidelines

Guideline	How does the guidance improve value?	Estimated saving per 100,000 population
CardioQ oesophageal doppler monitor to guide intravenous fluid management in surgery or critical care (MTG3)	<ul style="list-style-type: none"> - Better fluid management during surgery - Less invasive monitoring method - Reduces hospital length of stay and post-operative complications 	£808,000
Hypertension (CG34)	<ul style="list-style-type: none"> - Better hypertension control reduces predicted number of cardiovascular events 	£446,627
Long-acting reversible contraception (CG30)	<ul style="list-style-type: none"> - More reliable than the oral contraceptive pill so fewer unplanned pregnancies (reduces terminations and births) 	£214,681
Vascular disease - clopidogrel and dipyridamole (TA210)	<ul style="list-style-type: none"> - Clopidogrel is now recommended for more people, which brings savings as it is off patent so has a reduced price - Reduces risk and number of vascular events 	£129,000
Constipation (women) - prucalopride (TA211)	<ul style="list-style-type: none"> - Reduces referrals to secondary care - Fewer patients requiring invasive interventions 	£74,734
Nutrition support in adults (QS24)	<ul style="list-style-type: none"> - Fewer complications due to improved screening, assessment and treatment of malnourished patients - Savings from reduced admissions, length of stay and demand for GP and outpatient appointments 	£74,734
Inditherm mattress for prevention of inadvertent perioperative hypothermia (MTG7)	<ul style="list-style-type: none"> - Fewer surgical site infections 	£30,768
Hypertension (CG127)	<ul style="list-style-type: none"> - Ambulatory blood pressure monitoring reveals those not truly hypertensive - Savings from more appropriate prescribing and reduced treatment costs 	£20,464
Chronic heart failure (CG108)	<ul style="list-style-type: none"> - Earlier diagnosis and monitoring reduces acute admissions 	£19,000



Table 1 Estimated cost savings from implementing NICE guidelines *continued...*

Guideline	How does the guidance improve value?	Estimated saving per 100,000 population
Alcohol dependence and harmful alcohol use (CG115)	<ul style="list-style-type: none"> - Psychological interventions offered when alcohol dependence is mild; medication to prevent relapse in moderate and severe dependence - Intensive community programme, rather than residential rehabilitation - Fewer people alcohol dependent, and reduced relapses 	£18,600
Hypertensive disorders during pregnancy (CG107)	<ul style="list-style-type: none"> - Greater use of aspirin and proteinuria monitoring reduces adverse outcomes (such as pre-eclampsia, pre-term deliveries and babies needing special care) 	£15,300
MoorLDI2 Burns Imager (MTG2)	<ul style="list-style-type: none"> - Better diagnosis of burn depth and healing potential leads to better decisions regarding skin grafting 	£12,296
Ischaemic heart disease - coronary artery stents (TA152)	<ul style="list-style-type: none"> - Savings made by following criteria for use of drug-eluting stents over bare-metal stents 	£10,294
Breast cancer (CG81)	<ul style="list-style-type: none"> - Discontinuing treatment with trastuzumab if disease progresses outside the central nervous system - Fewer hospital admissions expected through improved treatment of bone metastases 	£9,690
Metastatic spinal cord compression (CG75)	<ul style="list-style-type: none"> - Increased surgery for prevention and treatment reduces care costs - The difference per patient per day between those able to walk and those who are immobile is £180, some of which is social care costs. This translates to an estimated national saving of £17.5 million based on those patients expected to be discharged home and cared for in the community 	£8,974
Respiratory tract infection in primary care (CG69)	<ul style="list-style-type: none"> - Use of no prescribing or delayed prescribing policy is anticipated to lead to a reduction in antibiotic prescribing of £3.7 million nationally - Additional qualitative benefits: possibly reduced antibiotic resistance and adverse events 	£7,299

Source: NICE 2014



Overuse

Key points

- Examples of overuse can be found right across the NHS - from overdiagnosis and overprescribing in general practice to the overuse of low-value interventions in acute hospitals.
- Overuse can lead to unnecessary harm for patients and wasted NHS resources.
- Tackling overuse will improve quality of care and could also result in financial savings for the NHS if unnecessary care is no longer commissioned and delivered.

What is it?

Overuse is a term used to describe services where the potential for harm outweighs the potential benefits (Chassin *et al* 1998). In simple terms, overuse is the problem of ‘too much medicine’ (Moynihan and Smith 2002), including unnecessary, ineffective or unwanted care. Common examples in the NHS include overprescribing of antibiotics, overdiagnosis of some conditions, leading to unnecessary tests and treatment, and overutilisation of low-value clinical interventions.

Overuse is a common problem faced by health systems across the developed world. For patients, it can lead to unnecessary harm, discomfort and stress; for health systems, it means wasted resources and rising costs. In the United States, it was estimated that overtreatment cost as much as \$226 billion in 2011 (Berwick and Hackbarth 2012).

The reasons why overuse happens are complex. They include failures to follow professional guidelines, lowering thresholds for treatment, lack of access to alternative treatment and supply-induced demand for services. Overuse can also be driven by ‘silent misdiagnosis’: the gap between what patients want and what doctors think they want. In fact, what patients often want when they are involved in decision-making is less treatment (Mulley *et al* 2012). This is explored in more detail in the section on care for people with long-term conditions, p 76–8.



Where is it happening in the NHS?

Overuse is common across the NHS. This section outlines evidence to illustrate the problem of overuse in the NHS in a small number of areas, including overutilisation of hospital services, overdiagnosis and overprescribing. Table 2 outlines the scale of variation across the NHS for some of the examples that we use.

Table 2 Variation in procedures/treatments that are sometimes overused in the NHS

Indicator	Lowest*	Highest*
Proportion of cough/cold episodes for which antibiotics were prescribed (10th-90th percentile range, for 537 UK general practices) - 2011**	32	65
Estimated annual rate of use for the urine albumin to creatine ratio test ordered by GPs per 1,000 practice population, by PCT - 2012†	2	75
Primary hip replacements per 100,000 population by CCG - 2013/14***	54	181

* The five highest and five lowest values have been omitted from these ranges to eliminate outliers that could be the result of data errors, unless otherwise stated

** Hawker *et al* 2014

*** NHS England 2015a

† Right Care 2013

Overtreatment in hospitals

There are many examples of people receiving treatment in hospitals that is unnecessary or of low clinical value. In some cases, unnecessary use of hospital services is driven by a lack of access to (or underuse of) alternative services in out-of-hospital settings. In these cases, tackling the problem of overuse is likely to require investment in alternative services and interventions, as well as double running costs while new services are established. Examples in the NHS include the following.



- Overuse of acute hospital services at the end of people's lives. Poor access to community-based end-of-life care can often lead to unnecessary admissions to hospital, despite many people expressing a preference to die at home (**National Audit Office 2008**). Examination of patient records in one PCT in 2007 found that 40 per cent of patients who died in hospital in the course of one month had no medical need to be there, and nearly a quarter had been in hospital for more than a month (**National Audit Office 2008**). End-of-life services delivered in the community can be cheaper than hospital care (**Chitnis et al 2012**). This is explored further in the section on end-of-life care, p 95–6.
- Elective procedures with low clinical value (*see box below*). Monitor estimated that between £0.2 billion and £0.6 billion could be saved every year by stopping elective procedures of low clinical value, like tonsillectomies or knee washouts (**Monitor 2013**). However, given that these procedures are of low rather than no clinical value, the actual savings that could be achieved are likely to be lower (**Edwards et al 2015**). Smaller but still significant savings were also estimated to be possible by the Audit Commission, based on reducing rates of low-value clinical procedures on the 'Croydon list' (**Audit Commission 2011**).

Low-value elective procedures

There is little national agreement on which NHS services are of 'low value' – and even when there is, it is difficult to secure disinvestment (Garner *et al* 2013). As a result, various lists of potentially low-value procedures have been drawn up by local commissioners across the country as part of their Quality, Innovation, Productivity and Prevention (QIPP) plans (**Audit Commission 2011**).

One example is the 'Croydon list' of 34 low-priority procedures initially developed by Croydon PCT in 2005 (**Audit Commission 2011**). The procedures on the list are classed as being:

- relatively ineffective (including grommets and myringotomy, and certain spinal procedures for back pain)
- potentially cosmetic (including inguinal hernia repairs)
- effective, but where the balance between benefit and risk is close in mild cases (including cataract surgery and primary hip replacement)



- effective, but where other, cost-effective alternatives should be tried first (including hysterectomy for heavy menstrual bleeding)
- cancelled procedures, where patients are admitted but procedures are not delivered.

The Audit Commission estimated that £1.9 billion was spent in the NHS on these procedures in 2009/10 ([Audit Commission 2011](#)). It argued that reductions in spending of around £180 million could be made if 'expected' levels of activity were achieved for each PCT area; savings of around £500 million were estimated if all PCTs achieved the performance of the top quartile (including actual and planned spending reductions for each area).

This builds on the analysis in the NHS Atlas of Variation, which found that many patients are receiving elective treatments considered to be of low or no clinical value, and highlighted the opportunity cost of low-value treatments ([Right Care 2010](#)).

More recently, Coronini-Cronberg *et al* (2015) looked at rates of six procedures on the Croydon list in the NHS in 2011, and compared these with rates of two other benchmark procedures (which are high volume but not subject to restriction guidelines). They found that the first year of the QIPP programme (2011) was associated with reductions in rates of three of these procedures compared with the benchmarks, but that rates of the other procedures stayed the same, or even increased.

Overdiagnosis and use of diagnostic services

Patients are sometimes diagnosed with conditions that would not have otherwise led to symptoms or death (because progression of the condition slows, stops or regresses). This is the problem of overdiagnosis (Carter *et al* 2015), where people can be 'turned into patients unnecessarily', often leading to unnecessary diagnostic tests, procedures and treatments, as well as having knock-on effects for people's quality of life and psychological wellbeing (Marmot *et al* 2013). Examples in the NHS include the following.

- Overdiagnosis of depression in primary care. While some cases of depression go undiagnosed and untreated, evidence suggests that overdiagnosis is also an increasing problem, particularly among people with milder symptoms (Dowrick and Frances 2013). This may in part be a consequence of widening diagnostic classifications. As well as causing potential harm to patients, overdiagnosis of depression can lead to unnecessary costs from overprescribing of antidepressants, with the number of antidepressants prescribed in the United Kingdom doubling between 1998 and 2010 (Dowrick and Frances 2013).



- Unnecessary requesting of pathology testing for a range of conditions (**Department of Health 2008**). There have been considerable increases in the number of pathology tests being requested and carried out in the NHS for a number of years, and it has been estimated that eliminating inappropriate testing could save the NHS as much as £1 billion every year (Fryer and Hanna 2009). Overuse is also likely to occur across a range of other diagnostic services in the NHS (**Right Care 2013**).

Overprescribing

Patients are often prescribed drugs when these are not needed, or are prescribed drugs which are likely to be ineffective. This is the problem of overprescribing, which creates unnecessary risks for patients while wasting NHS resources (**Duerden et al 2013**). While some overprescribing happens by accident, in some cases doctors prescribe drugs even when they know that they will not help their patients (**Press Association 2014**). Examples in the NHS include the following.

- Overprescribing of antibiotics in primary care for patients with respiratory tract infections, such as coughs, colds and sore throats (*see box below*). While antibiotics offer little benefit for patients with respiratory tract infections, they are commonly prescribed by GPs (**Gulliford et al 2014**; **Spinks et al 2013**; **Petersen et al 2007**). This has significant costs for the NHS (*see box below*).
- Overprescribing of antibiotics in hospitals for patients after surgery. One study assessing the use of antibiotics in elective laparoscopic cholecystectomy (removal of the gallbladder) estimated that more than 20,000 doses of antibiotics – equivalent to more than £100,000 – could be saved every year if surgeons followed professional guidelines (Graham *et al* 2014).
- Overprescribing of inhaled drugs used to treat COPD. A large study of COPD management in 41 general practices in England found that overtreatment of COPD with inhaled corticosteroids – drugs to reduce inflammation – was common, carrying large risks to patients (**White et al 2013**). The study, which assessed treatment according to national guidelines at the time of prescribing, estimated potential costs of around £102 million across England if similar levels of overtreatment existed in all general practices.



Overprescribing of antibiotics for respiratory tract infections

Patients are often prescribed antibiotics after visiting their GP with coughs, colds and sore throats, despite guidelines and evidence that the modest benefits do not justify their use for these conditions ([Gulliford et al 2014](#); [Spinks et al 2013](#); [Petersen et al 2007](#)). One study found that it takes more than 4,000 courses of antibiotics to prevent one serious complication of a respiratory tract infection ([Petersen et al 2007](#)).

NICE estimates that national use of its 'no prescribing' or 'delayed prescribing' policy for a number of respiratory tract infections in primary care would lead to a £3.7 million reduction in antibiotic prescribing (see Table 1).

Despite these guidelines, a recent study reported that prescribing of antibiotics for coughs and colds increased by 40 per cent between 1999 and 2011 ([Hawker et al 2014](#)). In a 2014 survey, 28 per cent of GPs reported having prescribed antibiotics several times a week, even when they were unsure whether this was medically necessary. And 45 per cent said that they did so knowing that it would not help ([Press Association 2014](#)).

As well as being a waste of NHS resources, overprescribing of antibiotics for respiratory tract infections exposes patients to the potential for adverse drug reactions, and may also encourage them to increase their use of health services in the future (Little and Williamson 1997). Overprescribing for respiratory tract infections has also been linked to growing levels of antibiotic resistance ([Costelloe et al 2010](#); [NICE 2008](#)).

Resources

BMJ's [Too much medicine](#) campaign and resources

'Choosing wisely in the UK: the Academy of Medical Royal Colleges' initiative to reduce the harms of too much medicine.' ([Malhotra et al 2015](#))

'Overkill. An avalanche of unnecessary medical care is harming patients physically and financially. What can we do about it?' ([Gawande 2015](#))

Patients' preferences matter ([Mulley et al 2012](#))

Reducing spending on low clinical value treatments ([Audit Commission 2011](#))



Underuse

Key points

- While overuse is often thought to be a bigger problem than underuse in the NHS, evidence suggests that underuse is also common and often exists alongside overuse in the care of certain conditions.
- A significant cause of underuse is the failure to deliver effective preventive treatment in line with evidence-based guidelines.
- While tackling underuse will sometimes increase care costs (particularly in the short term), in other cases it can result in significant savings for the NHS through reducing the use of more complex, costly services (particularly in the long term). In either case it will improve care quality.

What is the issue?

Underuse describes the failure to provide proven, effective health care when it would have been likely to lead to a better outcome for a patient (Chassin *et al* 1998). Examples of underuse include failure to follow professional guidelines when delivering care, missed opportunities to diagnose conditions early and failures to deliver effective treatments and drugs.

In some cases, underuse of effective care can lead to the avoidable use of more complex services as people's conditions get worse and they need more serious treatment. This means that tackling underuse can sometimes result in financial savings for the NHS over the longer term – for example, by reducing the risk of hospital admissions through improving access to preventive services. In other cases – particularly in the short term – correcting problems of underuse is likely to increase costs (Chassin *et al* 1998) as a result of investment in new services or improvements in access to care. In either case, it is important to remember that improving value in the NHS is not simply about reducing care costs, but achieving the best health outcomes for every pound spent.



Where is it happening in the NHS?

Examples of underuse can be found right across the NHS. This section outlines evidence to illustrate the problem of underuse in a small number of areas, including examples of underdiagnosis, care that fails to meet clinical guidelines, and medicines not being taken properly (or at all). Table 3 outlines the scale of variation across the NHS for some of the examples that we use.

Table 3 Variation in indicators of underuse

Indicator	Lowest*	Highest*
Percentage of breast cancers detected at an early stage (1 or 2) by CCG - 2012**	34	84
Reported to expected COPD prevalence as a percentage by CCG - 2012/13**	30	90
Percentage of diabetes patients meeting all three treatment targets (cholesterol, blood pressure and HbA1c) by CCG - 2012/13**	30	43

* The five highest and five lowest values have been omitted from these ranges to eliminate outliers that could be the result of data errors

** NHS England 2015a

Underuse of effective interventions

Underuse often occurs when clinical guidelines are not implemented properly (*see box below*), resulting in missed opportunities to deliver effective care. In many cases, underuse of effective care also exists alongside overuse of ineffective care, leading to wide variations in clinical practice. In other cases, highly effective interventions like promoting exercise are forgotten by GPs and other professional groups (*see box on p 58*). Examples in the NHS include the following.

- Widespread underuse of effective diabetes care. In 2012/13, only 60 per cent of people with diabetes received all eight recommended care processes that can reduce diabetes-related complications, and even fewer people (36 per cent) achieved all three recommended NICE treatment targets ([HSCIC 2014b](#)) (*see box on p 58*).



- Underuse (and overuse) of recommended drugs to reduce the risk of stroke. A large study examining the use of warfarin – an anticoagulant drug which reduces the risk of stroke in patients with atrial fibrillation (AF) – in 430 general practices found that, while guidelines suggest that all high-risk AF patients should be prescribed warfarin, it was given to just over half (**Mohammed et al 2013**). At the same time, while guidelines suggest that no low-risk AF patients should be prescribed warfarin, over one-third were given the drug. In 2008, it was estimated that the cost of maintaining one patient on warfarin for one year (including patient monitoring) was around £380, while the cost per stroke due to AF was nearly £12,000 in the first year (**NHS Improvement 2009**).
- Failures to meet statin prescribing guidelines. Statins are used to help reduce the risk of cardiovascular disease (CVD) – a major cause of mortality and morbidity in England. A recent study analysing primary care records in the United Kingdom found substantial underuse of statins in patients at high risk of CVD, alongside high levels of overuse in low-risk patients (**van Staa et al 2013**). This results in significant variation in prescribing patterns between general practices: the proportion of high-risk patients prescribed statins ranged from 8.2 per cent to 61.5 per cent, and the proportion of low-risk patients ranged from 2.1 per cent to 29.1 per cent. Other studies have also found significant variations in statin prescribing patterns both within and across geographical areas (**Ward et al 2007**).
- Underuse of early intervention in psychosis (EIP) services. These services help young people experiencing a first episode of psychosis, enabling recovery, enhancing quality of life, and reducing the likelihood of relapse and readmission. Savings associated with these services are estimated to be £5,777 per person in year one, including wider societal benefits through, for example, improved employment prospects (**McCrone et al 2011**). Following the National Service Framework for Mental Health (1999), there was a drive to introduce EIP across England. However, recent reports suggest that funding for this community service may have fallen by around 26 per cent (£16 million) between 2010/11 and 2014/15 (**McNicol 2015**).



Underuse of effective diabetes care

Around 24,000 people in England die from avoidable diabetes-related causes every year (**National Audit Office 2012**).

While there are clear standards and guidelines for providing good diabetes care in the NHS (**NICE 2011a**), national clinical audit data (2012/13) shows that only around 60 per cent of people with diabetes receive eight of the nine recommended care processes that could reduce complications related to their condition (one care process - eye screening - was not included in the audit) (**HSCIC 2014b**).

Success in providing all of these care processes differs across the NHS, ranging from 55 per cent in the worst performing quartile to 67 per cent in the top performing quartile (unrelated to social deprivation). Across the NHS as a whole, recorded rates of completion of all eight of these care processes in 2012/13 were significantly lower for people with type 1 diabetes (41 per cent) than type 2 diabetes (62 per cent).

Alongside these eight care processes, early detection and management of three indicators - high blood glucose, blood pressure and serum cholesterol - can also reduce the risk of developing diabetes-related complications. Yet only 36 per cent of people with diabetes achieved all three of these NICE treatment targets, with a marked difference between those with type 1 diabetes (16 per cent) and type 2 diabetes (37 per cent) and a variation in performance across the country (see Table 3, p 56).

The cost of failing to provide effective diabetes care is high. Diabetes was estimated to cost the United Kingdom £9.8 billion in direct costs in 2010/11, with around 80 per cent of these costs thought to be a result of treating complications with people's conditions (with even higher indirect costs falling outside of the health system) (**Hex et al 2012**). In 2012, the National Audit Office estimated that the NHS could save around £170 million a year through earlier detection and better management of diabetes patients in primary care, reducing the need for costly hospital treatment (**National Audit Office 2012**).



Underuse of exercise as an intervention

There is good evidence to show that increased physical activity can prevent illness, improve people's health once they are already ill, and save the NHS and other public services money.

A recent review found overwhelming evidence that exercise can prevent the risk of developing many common and serious diseases - such as dementia, type 2 diabetes, some types of cancer, depression and heart disease - by between 20 and 50 per cent ([Academy of Medical Royal Colleges 2015](#)).

The report estimated that increased physical activity (a minimum of 30 minutes of moderate exercise, five times a week) could save the NHS up to £18 billion every year. It argues that doctors need to do more to promote exercise as a treatment for their patients and offers a range of tips on how this can be done.

Underdiagnosis

In some cases people become ill but their conditions are not diagnosed – the problem of underdiagnosis – resulting in missed opportunities to intervene early and prevent people's conditions getting worse. As well as being bad for patients, underdiagnosis can be costly for the NHS by increasing the need for more complex services. Examples in the NHS include the following.

- Underdiagnosis of cancer. There is almost a five-fold variation between the lowest and highest performing CCG areas in rates of early stage diagnosis of ovarian cancer ([Incisive Health and Cancer Research UK 2014](#)). Potential savings of more than £16 million (benefiting over 1,400 patients) could be achieved if all CCG areas were able to achieve the level of early diagnosis of the highest performing areas. Similar savings were also estimated for earlier diagnosis of colon and rectal cancer – estimated to be more than £24 million (benefiting over 4,500 patients) and nearly £10 million (benefiting over 1,700 patients) respectively.



- Underdiagnosis of diabetes in primary care. It has been estimated that around 500,000 people in England are living with type 2 diabetes but have not been diagnosed, often leading to preventable and costly treatment ([Diabetes UK 2015](#)). As described in the box on p 58, earlier detection and better management of diabetes in primary care could generate significant savings for the NHS.
- Underdiagnosis of COPD. Around one in eight people over the age of 35 has COPD but remains undiagnosed, with more than 15 per cent of people only diagnosed after presenting at hospital as an emergency ([Department of Health 2012a](#)). While there are often opportunities to spot COPD in GP consultations, these opportunities are frequently missed (Jones *et al* 2014). It has been estimated that around £1 billion could be saved over 10 years through better management and treatment of COPD – including through better diagnosis and prevention of COPD’s progression (Jones *et al* 2010).
- Underdiagnosis of mental health conditions in children and young people. For example, while most parents with children meeting the diagnostic threshold for conduct disorder seek help and advice from professionals, only around a quarter of these children get the help they need ([Green *et al* 2005](#)). This can lead to poor outcomes for these individuals throughout their lives, as well as increased costs for a range of public services ([Parsonage *et al* 2014b](#)). Another example is social anxiety disorder in children, young people and adults, which is often under-recognised in primary care and left untreated for many years ([NICE 2013d](#)).

Medicines not being taken, or not taken properly

Many medicines prescribed in the NHS are not taken as recommended or not taken at all, resulting in missed opportunities to improve people’s health, wasted drugs and resources, and (often) increased demand for health services. This could be described as a problem of underuse (effective care not being delivered), misuse (effective care being offered but not delivered efficiently) or overuse (drugs being prescribed unnecessarily). Evidence suggests the following.

- Between 33 per cent and 50 per cent of drugs prescribed for long-term conditions are not taken as recommended (NICE 2009), often leading to deterioration in people’s conditions and increased demand for services ([Trueman *et al* 2010](#); Ho *et al* 2009; [Nunes *et al* 2009](#); Vestbo *et al* 2009).



- For some conditions (such as schizophrenia), the treatment costs associated with poor medicines compliance could be more than £100 million every year ([Trueman et al 2010](#)). The opportunity to improve value in medicines compliance was highlighted by the findings of a review of the literature on adherence to prescribed medication, which reported a consistent, positive relationship between medicines adherence and treatment outcomes for a number of conditions, including hypercholesterolemia and type 2 diabetes, as well as reduced health care costs (through decreasing use of services by those previously ‘non-adherent’) ([Langley et al 2012](#)).
- The direct cost to the NHS of wasted medicines is substantial. In 2007, the National Audit Office estimated the cost of unused or unwanted medicines to be at least £100 million a year ([National Audit Office 2007](#)). Another study in 2009 estimated medicines waste (defined as dispensed drugs that are physically discarded) from NHS primary and community care prescriptions to be more like £300 million every year – including £90 million unused in people’s homes, £110 million returned to pharmacies and £50 million disposed of unused by care homes ([Trueman et al 2010](#)). Around 30 to 50 per cent of this waste was thought to be cost-effectively avoidable.

Resources

‘Exercise – the miracle cure.’ ([Academy of Medical Royal Colleges 2015](#))

National diabetes audit 2012–2013 ([Health and Social Care Information Centre 2014b](#))

‘Building a better future: the lifetime costs of childhood behavioural problems and the benefits of early intervention.’ ([Parsonage et al 2014b](#))

NHS England [Medicines optimisation dashboard](#)

The management of adult diabetes services in the NHS ([National Audit Office 2012](#))



Misuse (preventable harm)

Key points

- Like overuse and underuse, preventable harm is common and costly to the NHS and its patients.
- Although preventable harm occurs across the NHS, most of the evidence about patient safety comes from acute hospitals, where examples of preventable harm include falls, venous thromboembolism (VTE) and medication errors.
- The direct and indirect costs of preventable harm to the NHS can be significant, so reducing harm can save the NHS money as well as improving quality of care.

What is it?

Misuse describes care which is poorly delivered and results in preventable complications or harm to patients (Chassin *et al* 1998). So, while examples of overuse and underuse relate to how effective care is (doing the right things), misuse is one way of describing how efficiently (or not) care is delivered (doing things right). In practice, however, the distinction between effective and efficient care is not that straightforward, as many patient safety incidents in the NHS actually occur as a result of errors of omission rather than commission – that is, because the right things to prevent harm do not happen. Common examples in the NHS include preventable falls and VTE, both described in more detail below. Whichever way errors and harm are defined, delivering safer care will be an important way to cut waste while improving the quality of NHS services.

Evidence from other countries tells us that preventable harm in health services is common and costly (Berwick and Hackbarth 2012; Yong *et al* 2010; New England Healthcare Institute 2008; Gray 2003; Institute of Medicine 1999). However, it is important to recognise that these errors are largely caused by working conditions that lead people to make mistakes or fail to prevent them from happening, rather than ‘bad apples’ working in the system (Institute of Medicine 1999). This means that reducing errors and harm in the NHS will require systemic solutions, not a culture of blame.



Where is it happening in the NHS?

Misuse happens across the NHS and comes in a variety of forms (see Figure 20). This section outlines evidence to illustrate the problem of misuse in the NHS in two ways. First, it summarises findings from studies that have looked at overall rates of adverse events in different parts of the NHS. Second, it outlines three examples of common and largely preventable sources of harm. Table 4 outlines the scale of variation across the NHS for some of the examples that we use, and the box that follows it describes some of the terminology used to help understand the evidence.

Table 4 Variation in indicators of preventable harm

Indicator	Lowest*	Highest*
Rate of patient safety incidents occurring per 1,000 bed days in non-specialist acute trusts, England and Wales, submitted to the National Reporting and Learning System (NRLS) - April to September 2014**	23	56
Per cent of patient safety incidents in non-specialist acute trusts that resulted in severe harm or death, England and Wales, submitted to the NRLS - April to September 2014**	0	1.5

* The five highest and five lowest values have been omitted from these ranges to eliminate outliers that could be the result of data errors

** NRLS 2015a



Understanding the evidence on the scale of preventable harm

A range of terms and definitions are used to describe patient safety incidents and harm in health services, and different studies often use different definitions, making comparisons difficult. Three key terms often used are:

- patient safety incidents, including all unintended incidents in the delivery of care that could or do lead to harm
- adverse events, including incidents that cause harm as a result of medical care rather than the underlying condition of the patient (iatrogenic harm)
- preventable adverse events, which make up the proportion of adverse events that could have been avoided through better care.

In reality, the distinctions between these overlapping concepts are blurred. While some adverse events are clearly preventable, others are much more difficult to avoid (such as diagnostic errors in the case of rare conditions). In addition, not all patient safety incidents or errors result in harm ('near misses'), although many will still result in wasted resources.

How often do adverse events happen in the NHS?

A small number of studies have tried to assess the scale of adverse events in the NHS. These studies have mainly focused on hospitals, where there is the highest levels of incident reporting, as well as some of the sickest patients and most complicated ways of delivering services.

Adverse events in hospitals

International evidence suggests that the rate of adverse events in acute care is somewhere between around 3 per cent and 17 per cent, with around a third to half of these events thought to be preventable (**House of Commons Health Committee 2009**). Evidence in the NHS includes the following.

- A large study in 1999 reviewed case records across a number of hospitals and found that around 10 per cent of patients experienced an adverse event, with just over 5 per cent of these thought to be preventable (Vincent *et al* 2001). By extrapolating the costs of additional days in hospital as a result of these incidents in the NHS in England and Wales, the authors estimated additional costs of around £1 billion each year.



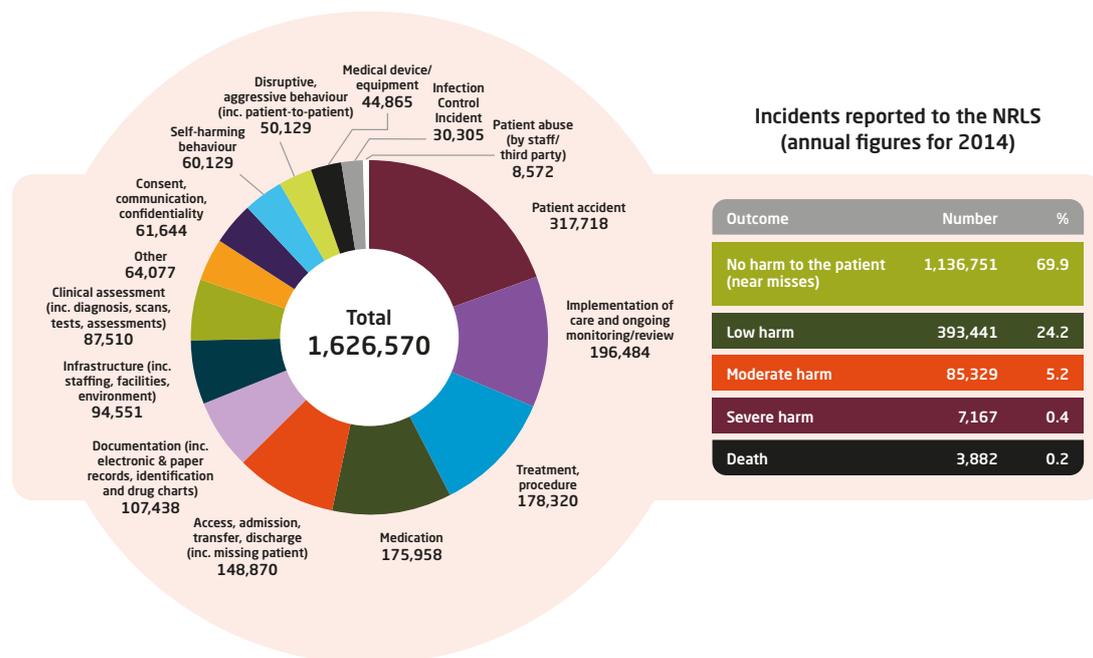
- A more recent study looked at the case records of 1,000 adults who died in 10 acute hospitals in the NHS in England in 2009, and found that around 5 per cent of deaths had a greater than 50 per cent chance of being preventable ([Hogan et al 2012](#)). The patients with potentially preventable deaths had a median age of 80 years, and had usually been affected by the cumulative effect of multiple errors (of either omission or commission) rather than by a single incident.
- A study in a single hospital in the NHS which found that around 20 per cent of hospital admissions resulted in harm (adverse events) for patients ([Sari et al 2007](#)).

Adverse events outside of hospitals

Less is known about adverse events in out-of-hospital services in the NHS, and there is very little published evidence to draw on ([Health Foundation 2011](#); [House of Commons Health Committee 2009](#)). A review of international studies suggested that harm might be evident in around 9 per cent of primary care records or 2 per cent of consultations (although this might include some harms in secondary care), and at a rate of around 15 per cent in community hospitals ([Health Foundation 2011](#)). Evidence in the NHS includes:

- a pilot study in 2002 in 10 general practices that found an error rate of 75.6 per 1,000 appointments (around 7 per cent) ([Rubin et al 2003](#))
- analysis of data from clinical information management systems from 25 general practices that detected patient injuries as a result of surgical and medical care at a rate of 0.72 per 1,000 appointments, and adverse drug reactions at a rate of 1.26 per 1,000 appointments (less than 1 per cent combined) ([Tsang et al 2010](#)).

Figure 20 Patient safety incidents in England



Source: National Reporting and Learning System 2015b

NB: data reports are continually updated so these figures are subject to change

Figure 20 shows the main causes of patient safety incidents in the NHS reported to the National Reporting and Learning System (NRLS) in 2014. It includes incident reporting data from acute, community, mental health and ambulance trusts in England. While patient safety incident reporting is inevitably incomplete compared with systematic studies, it can give an indication of ‘at least’ figures on the scale of the problem.

More than 1.5 million patient safety incidents were recorded in 2014, around 30 per cent of which resulted in harm to patients.

Of the small proportion of incidents that resulted in severe harm or death, the three major causes were suicide or self-harm, falls and pressure ulcers (Durkin 2014). Most patients harmed were older people – particularly those who were frail and living with multiple health and care needs.



In some cases, patient safety incidents like these can result in clinical negligence claims being made against hospitals and other health services. In 2013/14, the NHS Litigation Authority – which covers clinical claims for NHS trusts – spent more than £1 billion on claims in the NHS (**NHS Litigation Authority 2014**). Maternity claims represent the highest value of total clinical claims, followed by orthopaedic surgery and incidents in A&E.

Falls

Falls are the most commonly reported patient safety incident in hospitals in England (National Patient Safety Agency 2007b). They can result in physical injuries, anxiety, loss of confidence and slowed rehabilitation, as well as increased length of stay in hospital and greater likelihood of being discharged to social care settings (rather than home) (Healey *et al* 2008). Many patients also fall in other care settings and at home, as discussed in the section on care of older people living with frailty and complex needs, p 87. While some falls are inevitable, it is accepted that many could be prevented (*see* box below). Examples in the NHS include the following.

- Hospitals are not consistently providing patients with the falls prevention interventions that they need (**Royal College of Physicians 2012**). Identifying potentially treatable conditions and risk factors is a critical part of falls prevention. However, a national audit in 2011 found that the majority of patients admitted to hospital because of a fall, or who had already fallen while in hospital, did not receive a range of assessments that could have helped prevent further falls (**Royal College of Physicians 2012**).
- In 2007, it was estimated that the direct cost of falls in hospitals was around £15 million a year, equivalent to approximately £92,000 for an 800-bed acute hospital trust (National Patient Safety Agency 2007b). The actual costs are likely to be much higher as a result of the extra health, social and residential care that is often needed after these patients are discharged from hospital – although these costs are harder to quantify and more difficult to attribute directly to falls. For example, it has been estimated that the total health care costs associated with fragility fractures are £2 billion a year (**Royal College of Physicians 2011**).
- As in hospitals, national guidelines on falls prevention are often poorly implemented in out-of-hospital care settings, leading to greater risk for patients of falling and experiencing harm (**Royal College of Physicians 2011**). The national



falls audit in 2010 showed that the majority of primary care organisations did not have the correct preventive services available for the majority of patients at the highest risk of falling ([Royal College of Physicians 2011](#)). Preventing falls like these that occur outside of hospitals can also reduce care costs, as discussed in more detail in the section on care of older people living with frailty and complex needs, p 87. For example, avoiding a hip fracture could save hospital admission costs of around £5,744 per patient ([NICE 2013a](#)).

Preventing falls in the NHS

While some falls are inevitable, it is generally accepted that many could be prevented. Reviews have suggested that falls prevention programmes that target multiple individual risk factors (multifactorial assessment and intervention) can reduce the number of falls by around 20 to 30 per cent ([NICE 2013b](#); Cameron *et al* 2012; Oliver *et al* 2010; Oliver *et al* 2008).

A small number of studies have highlighted the potential to achieve these improvements in the NHS. One randomised controlled trial found that the introduction of a care plan for older people at risk of falling in hospitals and community units led to a significant reduction in falls risk (Healey *et al* 2004). Staff in the intervention group used care plans to assess risk factors and introduce measures to address them, and doctors and pharmacists were prompted to review causes of falls and patients' medication. This resulted in a 30 per cent reduction in the relative risk of falling.

More recently, a quality improvement project called FallSafe supported the implementation of multifactorial assessment and intervention in 16 inpatient care facilities in the south of England. This resulted in significant reductions in falls rates, which were largely sustained after active project support was withdrawn ([Healey *et al* 2013](#)).

Useful resources to support local falls prevention approaches include:

- NICE guidelines for preventing falls in hospitals and community settings ([NICE 2013b](#))
- Reviews of the evidence on falls prevention (Cameron *et al* 2012; Oliver *et al* 2010; Oliver *et al* 2008)
- [Patient Safety First 2009](#)
- [Royal College of Physicians 2014](#)



Medication errors and adverse drug reactions

People can experience medication errors and adverse reactions to medicines in different parts of the NHS. In broad terms, medication errors happen at any stage in the medication process, while adverse drug reactions refer specifically to the unintended effects of a medicine (like constipation or dizziness). While almost all medications have some unintended as well as intended effects, many adverse drug reactions are preventable and are particularly common in older people, who are often prescribed large numbers of drugs (*see* the section on care of older people living with frailty and complex needs, p 88). These errors can cause harm to patients and lead to unnecessary treatment and costs. Examples in the NHS include the following.

- There are a large number of medication errors across different parts of the NHS. Estimates suggest around 50 million prescribing errors in the community, 45,000 prescribing errors in an average acute hospital (**NHS England 2015c**), and around 2,500 potentially preventable deaths in hospitals in England related to medication in its widest sense (including intravenous fluids and oxygen) each year (**NHS England 2015c; Hogan et al 2012**).
- In 2007, it was estimated that the cost of preventable harm from medicines during inpatient stays in the NHS was around £411 million (National Patient Safety Agency 2007a). These incidents happen as a result of medicine being given in the wrong dose, taken in the wrong way (or not at all) or given to the wrong patient – or as a result of the wrong medicine being given. Based on reported incidents, the main groups that are vulnerable to medication errors in hospitals are people with known allergies to medicines and young children aged between 0 and 4 years (in comparison to the proportion of hospital activity they constitute).
- A large study of admissions to two hospitals in the NHS found that around 7 per cent of admissions were related to adverse drug reactions (**Pirmohamed et al 2004**). The study suggested that over 70 per cent of these adverse drug reactions were either possibly or definitely avoidable. Based on these data, the study suggested that the cost of admissions from adverse drug reactions could be £466 million a year across the NHS.



- A study of medication errors and harm in care homes found that care home patients were taking an average of 7.2 medications each and that around 70 per cent had experienced at least one medication error ([Alldred et al 2009](#)). Problems associated with inappropriate polypharmacy are discussed in more detail in the section on care of older people living with frailty and complex needs, p 88.

Venous thromboembolism

VTE – a collective term used to describe blood clots in the legs and lungs – is a common cause of death during and after hospital admission in the NHS and is associated with significant costs ([NICE 2010](#)). VTE in hospitalised patients is thought to be largely preventable through appropriate care ([House of Commons Health Committee 2005](#)). While there have been some significant improvements in VTE prevention and treatment in hospitals since 2010 (*see box below*), VTE remains an important patient safety priority in the NHS. Examples include the following.

- In 2005, the House of Commons Health Select Committee estimated the potential number of avoidable deaths from VTE acquired in hospitals to be around 25,000 every year ([House of Commons Health Committee 2005](#)). It found that most patients at risk of VTE were not receiving the necessary preventive interventions, and estimated the direct and indirect costs of managing VTE to be £640 million a year. While this figure is likely to be an overestimate, the burden of avoidable deaths from VTE is significant.
- While the national VTE prevention programme has dramatically improved risk assessment rates for VTE in hospitals since 2010 (*see box below*), a recent study suggested that low levels of knowledge about VTE may remain in many hospitals, and highlighted concerns about whether all appropriate preventive actions based on VTE risk assessments take place ([McFarland et al 2014](#)).



National VTE prevention programme

In 2009, the Department of Health launched a national VTE prevention programme to try to reduce avoidable death, disability and chronic illness resulting from hospital-acquired VTE. As well as clinical recommendations from NICE, a mandatory risk assessment was introduced for patients at risk of VTE, linked to financial incentives (Catterick and Hunt 2014).

Since the introduction of the new risk assessment tool, evidence suggests that reductions have been achieved in VTE-related secondary diagnoses in hospital, hospital readmissions and VTE-related mortality (Catterick and Hunt 2014; [Lester et al 2013](#)). At King's College Hospital NHS Foundation Trust in London, VTE risk assessment improved from less than 40 per cent to more than 90 per cent, with a significant reduction in the incidence of hospital-associated thrombosis ([Roberts et al 2012](#)). Similar improvements in risk assessment rates have been achieved nationally, with almost all organisations consistently reporting that 95 per cent or more of their patients have had risk assessments completed ([NHS England 2013](#)).

However, risk assessment alone does not protect individuals from developing VTE. A recent study highlighted the importance of continuous training for staff to ensure that these risk assessments do not become a 'tick box' exercise ([McFarland et al 2014](#)). It highlighted concerns about treatment and management of VTE in hospitals in the NHS and whether all appropriate actions take place after assessments have been carried out.

A range of resources to support local improvement can be found on the national VTE prevention website: www.vteprevention-nhsengland.org.uk/

Resources

[NHS England Medicines optimisation dashboard](#)

[NHS England National VTE prevention programme](#)

[NHS Safety thermometer](#)

The checklist manifesto: how to get things right. (Gawande 2011)

[Health Foundation patient safety resource centre](#)

The 'How to' guide for reducing harm from falls. ([Patient Safety First 2009](#))



Conclusion

This chapter has drawn on a range of evidence to illustrate opportunities for the NHS to get better value from its budget through tackling inappropriate care. The scale of these opportunities is powerfully demonstrated by the widespread and unwarranted variations in clinical practice that exist across the country – in some cases, variations of staggering size. Within this picture, examples of overuse, underuse and misuse can be found in all parts of the NHS – from inappropriate prescribing in general practice to low-value care delivered in acute hospitals – resulting in poor quality care for patients and wasted resources for the health system. In many cases, evidence suggests that tackling these examples of inappropriate care has the potential to release significant resources for the NHS, to be invested in better value services.

It is also important to recognise that many of the opportunities that we have described in this part of the report do not require new solutions or clinical innovations. Instead, they can be achieved by delivering care closer to best practice guidelines. One example is the overprescribing of antibiotics in primary care: while millions of pounds are spent every year on prescribing antibiotics for people with coughs, colds and sore throats, evidence suggests that the modest benefits do not justify their use for these conditions. Another example is the underuse of effective care for people with diabetes. While there are clear guidelines outlining what good diabetes care looks like, many people do not end up receiving care that meets these standards, resulting in missed opportunities to keep people healthy and prevent costly hospital admissions. Engaging frontline professionals in changing the way that they deliver care to meet these guidelines will therefore be a significant part of delivering better value care in the NHS in the future.



5 Service areas

Care of long-term conditions

Key points

- The majority of the NHS's resources are spent treating patients with long-term conditions - an increasing proportion of whom have multi-morbidities and complex care needs.
- Involving these patients in decisions about their treatment and supporting them to better manage their own health has the potential to improve health outcomes and reduce health service use.
- A more co-ordinated service that addresses patients' mental, physical and social needs would deliver benefits that accrue beyond the NHS to other parts of the public sector and society more widely. Measuring the impact of these initiatives requires a broader view of value than one concerned only with NHS spending.

What is the issue?

Around a quarter of the English population is estimated to have at least one long-term condition ([Department of Health 2012b](#)). These are people with enduring mental and physical health problems such as hypertension, depression or asthma, whose care accounts for 70 per cent of all health and care spending in England ([Department of Health 2012b](#)).

While the number of people with a single long-term condition is predicted to remain relatively stable over the next few years, the number of people living with multiple conditions is expected to rise, reaching 2.9 million by 2018 ([Department of Health 2012b](#)). These people have more complex self-care needs, worse health outcomes and longer hospital stays (Fortin *et al* 2007). They also make greater use of primary health care (Salisbury *et al* 2011) and consequently are more costly to the health service than patients without multi-morbidities.



These figures underline the necessity of focusing on the quality and cost of care for people with long-term conditions when searching for ways to generate more value from NHS resources. In this section of the report we consider how the ongoing care of these patients in community settings can be improved to avoid exacerbations that result in poor health outcomes and costly hospital admissions.

Where are the opportunities to improve value?

Many long-term conditions and the health problems associated with them can be delayed or prevented – and when conditions do develop, they can be better managed to avoid exacerbation. The potential for improvement in the care of people with long-term conditions is highlighted in Table 5, p 75, which shows the wide variation in diagnosis, treatment and outcomes across England. Underlying these disparities are deep social inequalities. People living in the most deprived areas develop multiple long-term conditions 10 to 15 years earlier than those living in the most affluent areas (Barnett *et al* 2012). This highlights the importance of combining health care interventions with broader approaches that address the social, economic and environmental determinants of health.

One route to addressing these wide variations is implementation of best practice guidance in care for this group of people, which can also generate savings for the NHS. For hypertension, for example, the NHS could save around £446,627 for every 100,000 patients if care was delivered in line with NICE guidelines (*see* Table 1, p 47, for a list of potential savings from implementing NICE guidelines).



Table 5 Variation in the prevalence of and support for long-term conditions in England

Indicator	Lowest*	Highest*
Proportion of people with one long-term condition by CCG - 2013/14**	27	34
Proportion of people with three or more long-term conditions by CCG - 2013/14**	7	15
Proportion of people with long-term conditions who report having a care plan by CCG - 2014/15**	4	8
Proportion of people with long-term conditions who use their written care plan to manage their day-to-day health by CCG - 2014/15**	52	79
Reported prevalence of people with hypertension on GP registers as a percentage of estimated prevalence by CCG - 2012/13***	45	63
Percentage of people aged 18+ with a long-term condition who report having had enough support from local services in the past six months to manage their condition(s) by CCG - 2014***	55	69

* The five highest and five lowest values have been omitted from these ranges to eliminate outliers that could be the result of data errors

** GP Patient Survey, cited in [NHS England 2014e](#)

*** [NHS England 2015a](#)

In the rest of this section we outline five key areas where there are gaps in care for people with long-term conditions and describe interventions that have been shown to be effective in addressing them. In line with our focus on value, many of these primarily aim to improve the quality of care patients receive through engaging patients in decisions about their health while, taking a more co-ordinated approach to diagnosis and treatment.

Earlier detection and diagnosis

Millions of people have undiagnosed long-term illnesses which, if they remain untreated, can cause health problems and lead to unnecessary costs. It is estimated that half a million people with type 2 diabetes and 2.1 million people with COPD do not know that they have the conditions ([Diabetes UK 2015](#); [Department of Health 2012a](#)) (see the section on underuse, pp 59–60, for more detail on underdiagnosis). Even when patients become aware of their symptoms, it can take some time before



they are referred for appropriate treatment. For example, almost one-third of patients diagnosed with neurological conditions reported that they had had to see their GP five times or more before they were referred on to a specialist ([The Neurological Alliance 2015](#)).

What works?

- There is very little data on the quality of diagnosis in primary care, although evidence suggests that it varies across the country ([Foot et al 2014](#)). Improving diagnosis skills among primary care staff is an important part of ensuring patients can receive early intervention from a specialist ([Goodwin et al 2010](#)). One approach is for specialists to provide advice and support through telephone helplines, jointly run clinics and education sessions. There are examples of this type of service improving patient experience and reducing hospital use, although robust data on the cost implications remains scarce ([Robertson et al 2014](#)).
- Many patients with undiagnosed long-term conditions do not realise they have symptoms and consequently do not go to their GP surgery for diagnosis. There is no strong evidence on what works to identify undiagnosed patients in the community and much debate as to the best approach (O'Dowd 2015; McCartney 2013). An analysis of GP practices involved in the NHS annual health check programme found that the change in reported diagnoses of long-term conditions was not significantly different from that of practices that did not take part (Caley et al 2014), while a systematic review of the effectiveness of general health checks found that they increased new diagnoses but had no significant effect on morbidity or mortality ([Krogsbøll et al 2012](#)).

Involving patients in decisions about their care

Evidence shows that shared decision-making can increase people's confidence in managing their health conditions and lead to treatments being more aligned with individual preferences ([De Silva 2012](#); [Mulley et al 2012](#)). However, many patients with long-term conditions report that they are not as involved as they would like in decisions about their own care. For example, 23 per cent of people with neurological conditions ([The Neurological Alliance 2015](#)) and 27 per cent of people with dementia ([Alzheimer's Society 2014](#)) reported not being fully involved in making choices about their treatment.



What works?

- Discussions between clinicians and patients through which they jointly agree a personalised care plan have been shown to benefit patients' mental and physical health and improve their ability to manage their own conditions (**Coulter *et al* 2015**). However, more than one in four patients (28 per cent) who reported that they had a care plan said they were not involved in developing it (**Ipsos MORI Social Research Institute 2015**).
- When patients are helped to make choices that better align with their preferences, they may actually choose to have less treatment. For example, a systematic review of evidence found that patients who used decision aids were less likely to opt for elective surgery (**Stacey *et al* 2014**).
- Although not suitable for everyone, one way to facilitate the development of personalised care plans is to give patients with complex needs a set budget for their care and allow them to work with health care professionals to decide how that money is spent. A national evaluation of personal health budgets found them to be cost effective, particularly for patients with high levels of need and those who use mental health services or continuing healthcare (**Forder *et al* 2012**). The changes to services associated with the personal budgets were cost neutral, had no impact on an individual's health status, but improved their ability to carry out daily activities and improved their psychological wellbeing (**Forder *et al* 2012**).

Supporting patients to manage their own health

Many patients lack the skills and confidence to manage their own health conditions, and often only the most capable with the least to gain enrol on self-management courses (Cauch-Dudek *et al* 2013). For example, just 16 per cent of newly diagnosed diabetes patients were offered structured education programmes in 2012/13, and even fewer (3 per cent) actually attended the courses (**HSCIC 2014b**).

This is despite evidence that patients who have the requisite knowledge, skills and confidence to manage their long-term conditions report higher levels of satisfaction, are more likely to make positive lifestyle choices, adhere to treatment plans and take medication as recommended, and have improved clinical outcomes (**Hibbard and Gilbert 2014**). These more 'activated' patients have been found to use the health service less and consequently cost the health service less (**Hibbard and Gilbert 2014; Purdy 2010**).



Overall, it has been estimated that an average CCG could save around £21 million a year by fully implementing self-management and patient education programmes for people with long-term conditions, translating to £4.4 billion a year across the NHS ([Nesta et al 2013](#)). A more conservative analysis using different assumptions estimated NHS savings of £1.9 billion by 2020/21 through greater patient engagement in managing their health ([Corrie and Finch 2015](#)).

What works?

- The Expert Patients Programme is a national self-management programme designed to increase attendees' confidence and competence in managing their health conditions and therefore improve their quality of life ([Self Management UK 2015](#)). A large national randomised controlled trial found that the programme increased self-efficacy and energy levels among patients with long-term conditions and was likely to be cost effective ([Rogers et al 2008](#)). Patients who undertook the programme had better health outcomes (an extra week of perfect health per year) at a lower cost (£27 less per patient) than the control group who received usual care ([Richardson et al 2008](#)).
- The effectiveness of self-management programmes varies for different long-term conditions. For COPD there is evidence that they improve health-related quality of life measures and reduce hospital admissions ([Zwerink et al 2014](#)), and for adults with asthma they can improve health outcomes and reduce health service use (when accompanied by regular medical reviews and care planning) ([Gibson et al 2002](#)). However, there is less evidence of them having a positive impact on patients with osteoarthritis ([Kroon et al 2014](#)). Importantly, these reviews do not consider cost-effectiveness or the effect of multi-morbidity.
- Tailoring interventions according to an individual's level of skill and motivation to self-care can maximise their impact and lead to a more efficient use of resources. While a highly activated patient might respond well to electronic resources and approaches that take into account their existing capabilities, more intensive input from a highly skilled team can be reserved for those who are less activated ([Hibbard and Gilbert 2014](#)).



Care co-ordination

England performs better than many other developed countries on measures of care co-ordination, such as patients having a regular doctor who co-ordinates their care (Davis *et al* 2014). However, patients still often feel that care is fragmented. For example, nearly half of stroke survivors and their carers report problems because of a lack of co-ordination between health and social care providers (Stroke Association 2012), and only around half of stroke services provide patients with a single point of contact to co-ordinate the care they receive from health and care services (Care Quality Commission 2011). Although causality is difficult to prove, there is an increasing amount of evidence that links a lack of care co-ordination with patient harm and problems with care quality (Øvretveit 2011).

Patients with long-term conditions often have multiple co-morbidities that require treatment and support from a range of professionals from across organisational boundaries. For these patients in particular, integrated working between different health and care services is key to ensuring that their needs are identified and properly supported. This is most likely to be successful when part of a whole-system approach – such as that outlined in the House of Care model – that orients information, professional collaboration, organisational processes and commissioners around the needs of the individual (Coulter *et al* 2013).

What works?

- Integration at a clinical and service level can improve health outcomes and patient experience (Curry and Ham 2010; Powell Davies *et al* 2008). The common features of more integrated models of care in England and other countries are described in detail elsewhere (Goodwin *et al* 2013; Thistlethwaite 2011; Curry and Ham 2010). Common interventions include a personalised care plan developed with the patient and case management by a multidisciplinary team for patients with particularly complex needs (often with a care co-ordinator who acts as a single point of contact for the patient). Interventions like these that co-ordinate care have been shown to have more impact when implemented as a group, rather than individually (Powell Davies *et al* 2008).
- There is evidence that in some cases a more co-ordinated approach to care is associated with lower rates of hospital admissions, emergency readmissions and hospital bed use (Imison *et al* 2012; Thistlethwaite 2011; Purdy 2010). However, many evaluations show no impact on admissions (Bardsley *et al* 2013; Purdy *et al* 2012), and the effects differ for different interventions and different



population groups. In the NHS, the best-known example of integrated care resulting in reduced hospital use is Torbay, where the focus has been on co-ordinating care for older people ([Thistlethwaite 2011](#)). Another example can be found in Northumbria, where a more integrated approach to delivering care for older people led to reductions in non-elective admissions for high-risk patients ([Naylor et al 2015](#)).

- There is a lack of robust economic evaluation data on care co-ordination programmes, making the economic benefits uncertain ([Nolte and Pitchforth 2014](#); [Goodwin et al 2013](#)). Generating cash-releasing savings from this type of approach can be challenging, because it requires hospitals to reduce their capacity in response to a reduction in admissions, and case-finding initiatives may uncover previously unmet demand. Drawing broad conclusions about cost-effectiveness is also complicated by the range of interventions included in care co-ordination programmes and their focus on populations with complex needs, which makes their effect highly context-specific and the process of implementation crucial to their impact. These factors make evaluating integrated care programmes notoriously challenging ([Bardsley et al 2013](#)).

Integrated approaches to mental and physical health needs

It is estimated that at least 30 per cent of people with long-term physical health conditions also have a mental health problem such as depression, anxiety or dementia ([Cimpean and Drake 2011](#)). Because of their mental health problems, these patients make significantly greater use of the health system for their physical needs and the cost of their care is higher. Overall, it is estimated that the average health care costs of treating patients with long-term conditions increases from £3,910 to £5,670 a year when the patient has poor mental health ([Naylor et al 2012](#)).

Despite their co-dependency, the separation of mental and physical health services is entrenched throughout the NHS. This means that integrated approaches that support the mental health needs of patients with long-term conditions (or vice versa) are rare.

What works?

- The effectiveness of self-care programmes could be improved by adding psychological components to their curriculum. For example, adding a psychological component to a COPD self-care programme at Hillingdon Hospital in London led to 1.93 fewer hospital bed days per person in the six



months following the programme and generated savings of £837 per patient (around four times the intervention's cost) (Howard *et al* 2010). Patients with mental health issues gain most from self-care programmes and so should be targets for referral (Harrison *et al* 2012).

- There are also opportunities to better manage the mental health needs of patients who are in hospital for their physical health problems. An economic evaluation of a psychiatric liaison service that provides mental health care for patients at City Hospital in Birmingham found that it reduced bed use by older patients and generated £3.55 million of benefits at a cost of £0.8 million a year (Parsonage and Fossey 2011).
- Supporting GPs to better identify and manage mental health issues – particularly among the large group of patients whose needs are below the level requiring referral to a specialist – has the potential to improve outcomes and generate savings for the NHS. For example, a service delivered by Tavistock and Portman NHS Foundation Trust provides GPs in the City of London and Hackney with training and support in the management of people with chronic mental health problems and/or medically unexplained physical symptoms. An evaluation of the service found that it was successful in improving outcomes for patients and reducing service use in both primary and secondary care (Parsonage *et al* 2014a).
- Interventions that support the mental and physical health needs of patients with long-term conditions have benefits that accrue across the public sector and society more widely. These wider returns on investment (*see* Table 6, p 82) underline the importance of taking a broader view of value when assessing the costs and benefits of a particular approach. For example, while every £1 invested in the early diagnosis and treatment of depression at work generates £0.51 of net benefit for the NHS, an additional £4.52 worth of benefits accrue beyond the public sector (Knapp *et al* 2011).
- Similarly, some of the most effective ways to improve the population's health lie outside the health service, and the most effective combination of interventions for a particular patient is likely to include things that address the wider determinants of their health. For example, people coping with unmanageable levels of debt are 33 per cent more likely to develop depression, making investment in debt advice cost effective for the NHS (*see* Table 6) (Knapp *et al* 2011; Skapinakis *et al* 2006).



Table 6 Total return on investment of mental health interventions: gross economic pay-offs per £1 expenditure

	NHS	Other public sector	Non-public sector	Total
Early intervention in psychosis	9.68	0.27	8.02	17.97
Early intervention for depression in diabetes patients	0.19	0	0.14	0.33
Early diagnosis and treatment of depression at work	0.51	-	4.52	5.03
Prevention of conduct disorder through social and emotional learning programmes	9.42	17.02	57.29	83.73
Debt advice services	0.34	0.58	2.63	3.55

Source: [Knapp et al 2011](#)

Resources

Long-term conditions compendium of information ([Department of Health 2012b](#))

Managing people with long-term conditions ([Goodwin et al 2010](#))

NHS England Long-term conditions dashboard ([NHS England 2014e](#))

Supporting people to manage their health ([Hibbard and Gilbert 2014](#))

Vital signs: taking the temperature of health and care services for people living with long-term conditions ([The Richmond Group of Charities 2015](#))

What is the evidence on the economic impacts of integrated care? ([Nolte and Pitchforth 2014](#))



Care of older people living with frailty and complex needs

Key points

- There is great potential to improve care for the growing population of older people who live with complex multiple co-morbidities, including frailty.
- Some of the leading causes of emergency hospital admissions for this group are preventable, but there is only limited evidence on what works to reduce them.
- Although attention has often been focused on admission avoidance, some of the most successful approaches to improving value are locally driven efforts by clinical teams who examine the flow of patients through their service, identify quality issues and systematically address them.

What is the issue?

There are 11 million people aged 65 and older in the United Kingdom ([Office for National Statistics 2014a](#)). By 2032, this figure is projected to increase by nearly 50 per cent ([Age UK 2015](#)).

As people get older they are increasingly likely to live with complex co-morbidities, including dementia and frailty, which are associated with reduced ability to perform daily activities, higher rates of mortality and increased use of health services (Barnett *et al* 2012). This means that health and social care costs increase significantly in older age: it is estimated that the average NHS spend for retired households is nearly double that for non-retired households ([Cracknell 2010](#)), while people over 65 account for around half of adult social care spend ([HSCIC 2014a](#)).

Many people aged over 65 living with co-morbidity and frailty have a range of different or additional needs compared with younger people living with long-term conditions. For example, people with frailty have poor functional reserve, which can lead to rapid deteriorations in their health and mean they are at increased risk of falling, becoming immobile and entering long-term care ([NHS England South 2014](#); Clegg *et al* 2013). There is also evidence to suggest that older people receive poorer levels of care than those of younger ages ([Melzer *et al* 2012](#); [Clark 2009](#); [Lievesley 2009a](#); [Lievesley 2009b](#)).



Given the high personal and financial costs of people having to go into hospital, in this section we focus primarily on opportunities to improve value in acute care for this cohort of patients, by looking at their journey from home to hospital and back again. Although we frame our analysis around older people with complex needs, many of the opportunities we identify apply to patients of all ages as they move in and out of hospital settings.

Where are the opportunities to improve value?

Despite the impressive reductions in the average length of stay and the number of acute beds in the NHS over the past 25 years (*see* the section on Productivity in the NHS so far, p 23), wide variations remain in the rates of emergency admissions, readmissions and length of stay in hospital for older people (*see* Table 7, p 85). Addressing these variations would result in significant improvements in care for older people, as well as potentially releasing resources: for example, if all trusts in England improved their emergency bed use to match that of the top performing quartile, the NHS would need 7,000 fewer hospital beds ([Imison et al 2012](#)).

Savings released by reducing hospital activity offer opportunities to reinvest resources in care for patients outside hospitals to provide better value for money; at the same time, extra investment will sometimes be needed in out-of-hospital services (first) to help reduce hospital activity and release resources. Taking both sides of this coin, this section outlines opportunities to reduce hospital admissions and get patients out of hospital more quickly, as well as opportunities to improve discharge and reablement through investment in services in the community.

**Table 7** Variation in the care of older people in England

Indicator	Lowest*	Highest*
Permanent admissions of people aged 65 and over to residential and nursing care homes per 100,000 population aged 65+ by CCG - 2013/14**	324	938
Emergency hospital admissions for people aged 85 and over per 1,000 population aged 85+ by CCG - 2013/14***	398	749
Bed days per emergency hospital admission for people aged 85 and over by CCG - 2013/14***	8	15
Percentage of people aged 65 and over who received reablement/rehabilitation services after discharge from hospital by CCG - 2013/14**	1	9

* The five highest and five lowest values have been omitted from these ranges to eliminate outliers that could be the result of data errors

** NHS England 2015a

*** Hospital Episode Statistics, cited in NHS England 2014e

Avoiding preventable and inappropriate hospital admissions

People aged 65 and over are more likely to be admitted or readmitted to hospital as an emergency and more likely to attend A&E than younger patients – and these rates are increasing (HSCIC 2014a; Dr Foster Intelligence 2012; Blunt 2014; Comptroller and Auditor General, National Audit Office 2013). Between 2001/2 and 2012/13, for example, the number of emergency admissions for this age group increased by almost 50 per cent (Wittenberg *et al* 2014).

These admissions are costly and, while many are medically necessary, a significant proportion are preventable. An analysis of more than 80 million medical records estimated that almost a third (30 per cent) of emergency 30-day readmissions were potentially avoidable (Blunt *et al* 2015a). Emergency admissions for all age groups cost the NHS £12.5 billion in 2012/13 (Comptroller and Auditor General, National Audit Office 2013).



What works?

The evidence on how to reduce unplanned hospital admissions is limited, making it difficult to draw definitive conclusions on what works ([Imison *et al* 2014](#); [Comptroller and Auditor General, National Audit Office 2013](#); [Woodhams *et al* 2012](#)), and there is limited economic data to examine which interventions are cost effective ([Purdy *et al* 2012](#)). A summary of the findings from two major systematic reviews of what works is set out in the box below ([Philp *et al* 2013](#); [Purdy *et al* 2012](#)).

Evidence on interventions to reduce unplanned hospital admissions

There is evidence that the following interventions can help reduce unplanned admissions in the following selected patient populations:

- transition case management for patients with heart failure
- specialist clinics - including clinic appointments and monitoring over a 12-month period - for heart failure patients
- education with self-management for adults with asthma and COPD patients
- exercise and rehabilitation for patients with recent exacerbations of COPD and those with heart disease
- care co-ordination for frail older people when embedded within integrated health and social care teams
- care home liaison
- targeted preventive health checks for frail older people
- telemedicine (although there is more recent conflicting evidence, see [Bardsley *et al* 2013](#)).



Insufficient evidence (lack of studies) available to make conclusions:

- community interventions based on home visits
- care pathways and guidelines
- financial management schemes
- emergency department interventions (eg GPs within A&E)
- continuity of care.

Little/no evidence of impact:

- influenza vaccine programmes for vulnerable patients
- hospital at home services
- medication reviews conducted by pharmacists
- multifactorial falls prevention
- day hospital services.

This list of evidence focuses on the effectiveness of interventions in reducing unplanned admissions, and does not consider other positive impacts that they may have for patients.

Sources: Philp *et al* 2013; Purdy *et al* 2012

Despite this mixed evidence, it is possible to pick out some key areas that should be a focus for improvement efforts. These include the following.

- **Preventing falls in the community.** Falling is the leading cause of injury-related admission to hospital for people aged 65 and over, which NICE estimates to cost the NHS around £2.3 billion per year (NICE 2015). As discussed on page 67, NICE recommendations on the prevention of falls in the community are often poorly implemented (Royal College of Physicians 2011). It is estimated that if all older people in England at risk of falling were referred to physiotherapy, 187,462 falls could be prevented, saving the NHS £275 million a year (Chartered Society of Physiotherapy 2014).
- **Reducing admissions for ambulatory care-sensitive conditions.** These are conditions such as COPD, urinary tract infections and pneumonia, for which effective management and treatment should prevent admission to hospital. They are most common among people aged 65 and over and account for one in every five emergency admissions (Blunt 2013), costing the NHS an estimated £1.4 billion a year (Tian *et al* 2012). If all local authorities performed as well as those in the top quintile in managing and treating these conditions, ambulatory care-sensitive emergency admissions could be reduced by 18 per cent, saving the NHS around £238 million a year (Tian *et al* 2012).



- **Tackling problematic polypharmacy.** The prescription of multiple medications is becoming increasingly common – particularly among older people and care home residents (Guthrie *et al* 2015; Duerden *et al* 2013). This increases the risk of drug interactions and adverse drug reactions (Guthrie *et al* 2015), thought to cause around 6.5 per cent of hospital admissions (around half of which are preventable), with associated costs to the NHS of £466 million (Howard *et al* 2007; Pirmohamed *et al* 2004). There is some evidence that medication reviews for patients in hospital can reduce future A&E contacts, although the effect on readmissions and mortality is uncertain, as is cost-effectiveness (Christensen and Lundh 2013). Similarly, multifaceted pharmaceutical care interventions and computerised decision support may reduce inappropriate prescribing and medication-related problems, but their impact on clinical outcomes is unclear (Patterson *et al* 2014). Adverse drug reactions and medication errors are discussed in more detail in the misuse section, pp 69–70.
- **Reducing admissions from care homes.** Care home residents have 40 to 50 per cent more A&E attendances and emergency admissions than the general population aged 75 and over, many of which occur close to the end of life (Smith *et al* 2015). A review examining interventions to reduce admissions from care homes found little high-quality comparative evidence, but closer working between health care and care home staff, training for care home staff and implementing processes for end-of-life care preferences were described as ‘promising’ (Centre for Reviews and Dissemination 2014). Improving care for patients at the end of their lives is discussed in more detail in the end-of-life care section, p 92.

Improving patient flow within hospitals

Patients often stay in hospital longer than is medically necessary because of problems with managing the flow of patients within the hospital or between hospital and community-based services. This has become increasingly challenging as bed numbers have decreased while occupancy rates have risen, leaving the system with less flexibility to cope with the high demand for beds (Comptroller and Auditor General, National Audit Office 2013).

These problems are most acute for older patients. People aged over 65 account for more than half of inpatient bed days in the NHS (HSCIC 2014a). The older a patient is, the more likely they are to remain in hospital for longer and to be moved while they are there (Cornwell *et al* 2012; Poteliakhoff and Thompson 2011).



Longer hospital stays can have a negative impact on older patients' strength (Alley *et al* 2010; Kortebein *et al* 2008), expose them to potentially preventable harms such as delirium, and increase their risk of experiencing adverse events such as falls or pressure ulcers (*see* page 62) (NHS England South 2014; Health Foundation 2011). If older patients are moved to hospital wards outside of geriatric medicine, it can be more difficult for them to access standard evidence-based care processes such as comprehensive geriatric assessment (*see* box, p 90) (NHS Benchmarking Network 2015). It can also increase their risk of infection, falls, delirium and longer lengths of stay (McMurdo and Witham 2013).

Improving the flow of patients through these services can result in better continuity of care, better hospital throughput and reduced waiting times and length of stay, as well as improvements in patient satisfaction and reduced costs (de Silva 2013; Health Foundation 2013a). If hospitals in England moved 25 per cent closer to the national average length of stay, it is estimated that the NHS could save more than £1 billion a year (Poteliakhoff and Thompson 2011).

What works?

There are a number of methods that can help to identify co-ordination issues and improve patient flow. These include the following.

- Methods used in manufacturing such as Lean, adapted for use in health services (Boaden *et al* 2008). A good example is the approach used in Sheffield Teaching Hospitals NHS Foundation Trust, which combines process-mapping to identify flow issues and Plan Do Study Act (PDSA) cycles to test new approaches and monitor impact. This approach speeded up discharge and reduced mortality rates and bed occupancy, leading to estimated savings of around £3.2 million in the first year (this work is described in more detail in the section on clinical teams delivering better care, pp 104–6).
- Time-driven activity-based costing as a way of understanding care processes and reducing low-value activities (Kaplan and Porter 2011). This method involves plotting the steps and resources used to treat patients as they pass through services, and estimating time and activity inputs for each step of the pathway. By analysing activities and their cost, teams can work together to eliminate unnecessary steps that fail to add value and improve quality at each step in the care pathway.



- An approach called patient and family centred care (PFCC) (The PFCC Innovation Center of UPMC) which involves a six-step improvement method in which staff shadow patients to understand their care experience, then map out an ideal patient experience to identify actions for improvement. PFCC was developed in the United States but has since been adapted for the NHS (*see Resources below*). Alder Hey Children's Hospital's experience of using this approach to improve care for patients in their A&E department is outlined on pages 106–7.

Comprehensive geriatric assessment is a diagnostic process conducted in both community and hospital settings that assesses a patient's mental, physical and social capabilities in order to develop an integrated plan for their treatment and longer term rehabilitation (**British Geriatrics Society 2010**). It is particularly important for frail older people whose needs are often determined by the interaction of multiple co-morbidities and social factors, rather than a single diagnosis.

Evidence on its impact is mixed, and the quality of evidence is often poor (Conroy *et al* 2011). However, the Royal College of Physicians recommends that comprehensive geriatric assessment is conducted on arrival in hospital (**Future Hospital Commission 2013**). Its use has been shown to increase the likelihood that patients have a good outcome from their hospital visit (defined as being alive and at home at the end of scheduled follow-up) and is associated with potential cost reductions, especially when used on designated wards (Ellis *et al* 2011). In A&E it has been linked to lower admission and readmission rates, although it is also associated with a slight increase in inpatient bed day use and length of stay (Conroy *et al* 2014; **The King's Fund 2014**).

Better discharge and reablement

Patients who are medically fit to leave hospital can sometimes find their discharge delayed and their stay in hospital extended for non-medical reasons. This can result in poor outcomes for patients and increased care costs. The number of delayed transfers for inpatients in England increased by 43 per cent between 2010/11 and 2014/15. The majority of delays (65–70 per cent) are attributable to the NHS rather than social care (**Blunt *et al* 2015b; NHS England 2014d**), with the most common causes being patients waiting for a residential or nursing home placement, for further non-acute NHS care (eg intermediate care) or completion of an assessment (**NHS England 2014d**). Minimising delays is particularly important for those admitted from home but requiring discharge to a care home, as they often experience excessive lengths of stay (**Foundation Trust Network 2012; Imison *et al* 2012**).



What works?

- Structured discharge plans, developed before patients leave hospital, can lead to reductions in hospital length of stay and readmission rates for older people admitted with a medical condition (Shepperd *et al* 2013; **Foundation Trust Network 2012**). This process should involve patients and carers, start on admission to hospital and remain a focus throughout stays (**Oliver *et al* 2014**).
- Intermediate care services are provided in community settings or in a patient's home to help them rehabilitate after time in hospital and prevent hospital admissions or admission to long-term care facilities. Only around half of the intermediate care that is needed is currently available in England, and there is wide variation in the level of funding and performance of services where they do exist (**National Audit of Intermediate Care 2014**). The resulting waits for services have knock-on effects on acute hospital bed use and patient flow, described by auditors as 'a lost opportunity for efficiency gains in secondary care as well as creating a poor care experience for service users that may impact on the effectiveness of their rehabilitation' (**NAIC 2014** p 7).
- There are significant opportunities to improve discharge from hospital at the end of life, which are discussed in the next section of the report.

Resources

Improving patient flow (**Health Foundation 2013a**)

Making our health and care systems fit for an ageing population (**Oliver *et al* 2014**).

Making best use of the Better Care Fund (**Bennett and Humphries 2014**)

Patient and family-centred care toolkit (**The King's Fund and Health Foundation 2014**)

Polypharmacy and medicines optimisation: making it safe and sound (**Duerden *et al* 2013**)

Quality care for older people with urgent and emergency care needs (Silver book) (**British Geriatrics Society *et al* 2012**)

Quest for quality: an inquiry into the quality of healthcare support for older people in care Homes (**British Geriatrics Society 2011**)

And for more information on PFCC in the NHS, see **The Point of Care Foundation website**



End-of-life care

Key points

- A significant proportion of lifetime health care costs occur in the final year of life.
- Investment in community-based palliative care services reduces time spent in hospital at the end of life and is likely to be cost effective.
- Patients can be better supported to live well during their final months if their preferences are discussed, recorded and shared between organisations by staff who are trained to deal with palliative care needs.

What is the issue?

End-of-life care is support provided to patients with terminal illnesses and their families during what is expected to be the final year of their life. This includes treatment to manage their symptoms, spiritual and practical support, and help making choices about their preferences for treatment and death.

Close to half a million people die in England and Wales each year ([Office for National Statistics 2014c](#)), and by 2030 that figure is predicted to rise to around 590,000 (Gomes and Higginson 2008). Advances in medicine and lifestyle changes mean that people are living for longer and are increasingly frail during their final months. Calculating the cost of their care is complicated by a lack of reliable data and different definitions of when 'end of life' begins. One recent study, which included health and social care funded by the NHS, local authorities and hospice charities, estimated the cost of palliative care at the end of life in England to be at least £4.5 billion a year ([Taylor 2014](#)).

There are significant gaps in health and social care provision at the end of life that are likely to widen as the population continues to age ([Addington-Hall et al 2013](#); [Dixon et al 2015](#); [Georghiou et al 2012](#)). For example, an estimated 92,000 people have unmet palliative care needs and the problem is particularly acute for those with terminal conditions other than cancer ([Dixon et al 2015](#); [Hughes-Hallett et al 2011](#)). There are also concerns that palliative care in hospital is rarely available for the recommended seven days a week ([Royal College of Physicians and Marie Curie Palliative Care Institute Liverpool 2014](#)).



Where are the opportunities to improve value?

Although the United Kingdom was ranked first among 40 countries for the quality of its end-of-life care in 2010 (The Economist Intelligence Unit 2010), it is widely acknowledged that there are significant quality problems in end-of-life care services and a wide variation in the experience of death across the country (*see* Table 8) (NHS England 2014a). Recent attention has focused on patients whose wishes about where they die are not honoured, and problems with implementation of the Liverpool Care Pathway (an approach to caring for people at the end of their lives). Concerns about the second of these issues have resulted in the development of a new approach to caring for the dying (*see* box, p 94).

Table 8 Variation in end-of-life care indicators

Indicator	Lowest*	Highest*
Percentage of deaths in hospital (all ages) by CCG - annual average 2010-12**	43	61
Percentage of deaths at home (all ages) by CCG - annual average 2010-12**	18	25
Percentage of deaths in a care home (nursing or residential, all ages) by CCG - annual average 2010-12**	10	28
Proportion of carers reporting outstanding/excellent care for people at the end of their lives by CCG - 2013/14***	29	53
Percentage of the population with palliative care need identified by CCG - 2012/13†	18	73

* The five highest and five lowest values have been omitted from these ranges to eliminate outliers that could be the result of data errors

** Office for National Statistics, cited in [Public Health England 2013](#)

*** National Bereavement Survey (VOICES), provided by the Office for National Statistics, cited on [NHS England 2014e](#)

† [Marie Curie Cancer Care 2013](#)



Five priorities for care of a dying person

Following concerns about the implementation of the Liverpool Care Pathway - an approach to caring for people at the end of life - an independent review recommended that its use be phased out ([Independent Review of the Liverpool Care Pathway 2013](#)). Although good care was being delivered in some places using the approach, in others it was being used as a generic list of processes to be carried out irrespective of the needs of the person who was dying, and was causing harm and upset to patients and their families.

In response to this, a new approach to caring for dying people has been agreed by a coalition of 21 national organisations involved in the delivery and oversight of end-of-life care (Leadership Alliance for the Care of Dying People 2014). The approach is based on five priorities for care, and applies in all settings where a person is dying.

When it is thought that a person may die within the next few hours or days, the following actions need to take place:

1. The possibility is recognised and communicated clearly. Decisions about care are made in accordance with the person's needs and wishes, and these are reviewed and revised regularly by doctors and nurses.
2. Sensitive communication takes place between staff and the person who is dying and those important to them.
3. The dying person, and those identified as important to them, are involved in decisions about treatment and care.
4. The people important to the dying person are listened to and their needs are respected.
5. Care is tailored to the individual and delivered with compassion - with an individual care plan in place.

In response to this new framework, NHS England published an action plan for end-of-life care at the end of 2014, and the NICE quality standard for end-of-life care is currently being revised to reflect recent policy developments ([NHS England 2014a](#); [NICE 2011b](#)).

Below we outline three of the key opportunities to improve care for dying people, each of which is underpinned by the need to involve patients in decisions about their care and for staff to work together across organisational boundaries to meet those preferences.



Reducing time spent in hospital at the end of life

More than half of people are reported to have a preference to die at home (Higginson and Sen-Gupta 2000), but only around one in five manages this (Gomes and Higginson 2008; Higginson and Sen-Gupta 2000). This is despite bereaved friends and relatives being around twice as likely to rate care as poor if their loved one died in hospital (14 per cent) than if they died at home (8 per cent) or in a care home (5 per cent) ([Office for National Statistics 2014b](#)). However, there are some important caveats to these data that mean the extent to which patients want to die at home can be overstated: data on preferred place of death comes from surveys of healthy people; two-thirds of families report that their loved ones did not express a preference ([Office for National Statistics 2014b](#)); and one in five patients changes their view as their disease progresses (Gomes *et al* 2013b).

Wherever their preferred place of death, better supporting patients to live well during their final months has the potential to improve how they experience the end of their lives, without incurring significant extra costs for the NHS, as well as potentially releasing resources that can be reinvested elsewhere. For instance, the National Audit Office estimated the annual cost to the NHS and social care services of caring for cancer patients in the last year of their lives to be £1.8 billion, and that £104 million of this could be released for investment elsewhere if emergency admissions were reduced by 10 per cent and the average length of stay following admission was reduced by three days ([National Audit Office 2008](#)).

What works?

- A systematic review of evidence on the use of home-based palliative care found that it can more than double the chance of a patient dying at home and leads to symptoms being better managed ([Gomes *et al* 2013a](#)). Specialist palliative care teams have also been shown to reduce hospital bed use, and although cost-effectiveness analyses are hampered by difficulties with the data, evidence suggests they are likely to be cost effective (*see box below*).
- Social care is a key part of the package of services required to support death outside hospital ([Hughes-Hallett *et al* 2011](#)). An analysis in seven local authorities suggests that the use of social care in the final months of life may prevent the need for hospital care ([Georghiou *et al* 2012](#)). Because of this, the Health Select Committee and a group of leading charities, including The King's Fund, have called for social care to be provided free at the end of life ([House of Commons Health Committee 2015](#); [Commission on the Future of Health and Social Care in England 2014](#); [Macmillan Cancer Support 2013](#)).



- Initiating discussions about preferences for treatment during the final six months to a year of life can help minimise unnecessary time spent in hospital and ensure patients are cared for in their preferred place – be that hospital, a care home or their own home. For some people, for example those with dementia, it is recommended that these discussions start earlier to ensure patients are able to participate fully (NICE 2011b). Hospice patients who had advance care planning discussions have been shown to spend eight days fewer in hospital in the last year of their life compared with those who had not, and had lower hospital costs (Abel *et al* 2013).

Is it cost effective to provide palliative care to support patients to die outside hospital?

Despite a lack of data to draw on, a number of studies have attempted to quantify the relative costs of dying in hospital or in the community with palliative care support. These include the following.

- A Nuffield Trust analysis of health and social care costs in the last 90 days of life. The study found that the provision of a palliative care nursing service to help support someone to die at home was very likely to lead to lower overall care costs (on the scale of around £500 per person), even allowing for the costs of the nursing service itself and indicative costs for GP care, social care and district nursing services. This was driven by significantly lower hospital costs from the time the patient first had contact with the palliative care service until death of around £1,140 per person (Georghiou and Bardsley 2014; Chitnis *et al* 2012).
- A London School of Economics estimate that extending palliative care services to all those who would benefit in England could generate a net saving of around £36 million a year through 60,000 fewer deaths taking place in hospital (Dixon *et al* 2015; Hughes-Hallett *et al* 2011). An earlier study by Marie Curie Cancer Care came up with a similar estimate of potential savings (Marie Curie Cancer Care 2012).

Better care co-ordination

During their final months, an individual may receive care from a range of different organisations. As people spend an average of 90 per cent of their last year of life at home, much of their care will also be delivered by family members, who play a key role in co-ordinating these multiple agencies (Hinton 1994). Figure 21 shows a

narrative developed by National Voices for what co-ordinated care at the end of life means from a patient’s perspective. Underlying this model is the need for clear and sensitive communication between health and social care professionals, the patient and their loved ones.

Figure 21 What does person-centred co-ordinated care mean at the end of life?



Source: Every moment counts: a narrative for person centred coordinated care for people near the end of life, produced by National Voices and the National Council for Palliative Care, in partnership with NHS England National Voices and the National Council for Palliative Care 2015

Unfortunately, the reality often falls short of this vision (**Parliamentary and Health Service Ombudsman 2015**; **Mason et al 2013**; **NCEPOD 2009**). One-third of bereaved people reported that hospital, GP and other community services did not work well together during the last three months of their loved one’s life (**Office for National Statistics 2014b**), and clinical leaders identified a lack of co-ordination between teams delivering care as one of the major barriers to meeting the needs of terminally ill people (**Marie Curie Cancer Care 2015**). Co-ordination issues, such as a lack of communication and information-sharing, are particularly acute when patients move between hospital and the community, and during evenings and weekends when out of hours doctors often do not have access to patient records (O’Brien and Jack 2010).



What works?

- The Electronic Palliative Care Co-ordination System (EPaCCS) improves care co-ordination by enabling all of the professionals involved in delivering a person's care to record and share key pieces of information on an individual's treatment and preferences for the end of life. To be effective, the system relies on health care professionals having the skills and confidence to initiate discussions with patients about their preferences (*see below*). An economic evaluation of four early adopters of the system found that more people died in their usual place of residence when the EPaCCS was in place, and the cost of hospital admissions at the end of life decreased (although causality could not be proved) (**NHS Improving Quality 2013**). It was also found to improve care co-ordination, although there was some evidence that staff were less satisfied with their jobs when using the system. Overall, it is estimated that an area covering a population of 200,000 people could save £270,000 over four years by implementing the EPaCCS.
- A care co-ordinator who acts as a single point of contact for an individual's care can facilitate a more integrated approach. For example, the Partnership for Excellence in Palliative Support (PEPS) programme co-ordinates the work of 15 organisations that provide health and social care support across Bedfordshire. As part of the PEPS programme, patients can call a specialist palliative care nurse at a central co-ordination centre 24 hours a day to act as a point of contact for their care. Evaluation of a pilot of the model found that, after referral to PEPS, individuals had 30 per cent fewer admissions to hospital, 30 per cent shorter hospital stays and reductions in the costs of care of around £300 per admission (**Sue Ryder 2013**).

Training generalist staff and others in end-of-life care

Much of the health and social care that patients receive at the end of their lives is provided by generalists who may have little or no training in palliative care. They can find it difficult to identify patients nearing the end of life and can be uncomfortable initiating discussions about their wishes (**Dixon *et al* 2015**; Munday *et al* 2009).



NICE recommends training in end-of-life care for all health and social care workers who come into contact with people who are dying. However, a national audit found that only one in five trusts requires doctors to do this, and just over one in four requires it for nurses ([Royal College of Physicians and Marie Curie Palliative Care Institute Liverpool 2014](#)). Only a third of doctors reported that they had attended any learning event on end-of-life care in the past five years ([Royal College of Physicians et al 2012](#)), and just one in 10 nurses said that they were always able to deliver the right level of care to patients at the end of life ([Royal College of Nursing 2014](#)).

What works?

There are a number of programmes that provide training for generalist staff in care of the dying, but no robust evaluation data showing their cost-effectiveness. However, evaluations do show that end-of-life care training results in care that is closer to agreed best practice. Programmes include the following.

- The Gold Standards Framework (GSF), which is a clinically led model of best practice that is used to train generalists to deliver better end-of-life care in primary, acute and care settings ([GSF Centre 2015](#)). In general practice, for example, training using the framework has been shown to increase the number of patients whose needs and wishes for end-of-life care are identified and recorded. The number of patients who died in their preferred place increased by between 38 per cent and 50 per cent in practices that were GSF accredited ([Thomas and Paynton 2013](#)).
- End of Life Care for All (e-ELCA), which is a free online set of learning resources, commissioned by the Department of Health, that covers advance care planning, assessment, communication skills and symptoms management (*see Resources below*).
- The Quality End of Life Care for All training programme, developed by St Christopher's Hospice, which has been shown to empower nurses to change their practice through increasing their reported levels of confidence in delivering end-of-life care and communicating with patients about their preferences (Gillett and Bryan 2015; [Bryan et al 2013](#)).



In addition to training health and social care staff, it is important to consider the needs of the family members and informal carers who look after relatives and friends at the end of life. Carers UK estimates that unpaid carers provide care (not just end-of-life care) worth £119 billion each year ([Buckner and Yeandle 2011](#)), and evidence shows that their presence is critical to facilitating death at home ([Murtagh et al 2012](#); [National Audit Office 2008](#)). However, many carers report not receiving enough support during the last three months of their relative's life ([Office for National Statistics 2014b](#)), and systematic reviews highlight the lack of support for informal carers to develop practical skills to care for their dying relative ([Candy et al 2011](#); [Bee et al 2009](#)).

Resources

[National end-of-life care intelligence network](#)

[The Gold Standards Framework](#)

[e-ELCA e-learning resource](#)

[ELCQuA end-of-life care quality assessment tool](#)

[EPaCCs simulation tool](#) to estimate economic benefit from EPaCCS implementation

[Coordinate My Care electronic personalised care plans](#)

The [Conversation project](#) at Royal United Hospital Bath



Conclusion

This section has brought together a range of evidence to illustrate the potential to increase value from the NHS budget in three key service areas. Rather than finding new ways of cutting costs, these opportunities focus on improving the quality of services and patient outcomes to provide a better use of NHS resources.

While some of these opportunities can be achieved in the short term, others are longer term improvements that are likely to require some investment while new services are established. In part, this is because some of the interventions we have highlighted require changes to clinical practice within a single team or organisation, while others are more complex and will require collaboration across organisations, as well as significant cultural change among professionals and in some cases a shift of power from professionals to patients. It is also in part because we have drawn on a combination of opportunities to improve existing services, as well as opportunities to invest in new services and ways of working. This means that extra resources will need to be made available for local areas to carry out the difficult task of developing new models of care while also keeping existing services running at a time of growing demand. Whether these opportunities can be achieved in practice will be highly dependent on the local and national context, as well as the process of implementation of new approaches. We turn to these issues in the final section of the report.

It is also worth acknowledging that we have focused only on three key areas where most of the NHS's resources are used. This is for the obvious reason that focusing on how and where the majority of the NHS budget is spent is the most likely way to find opportunities to improve value for money. However, the limitation of this kind of approach is that it excludes the range of other interventions focusing on the broader social, economic and environmental determinants of health that can be implemented throughout the life course to improve people's health. These wider determinants of health – the conditions where people are born, live and work – have a bigger impact on population health than access to formal health and care services ([Canadian Institute for Advanced Research et al, cited in Kuznetsova 2012](#); [Booske et al 2010](#); [Marmot et al 2010](#); [McGinnis et al 2002](#); [Bunker et al 1995](#)). This means that, however productive or efficient NHS services are in the future, they must be combined with a broader approach to promoting health and reducing inequalities across society.



6 Case studies of clinical teams delivering better value

The previous sections of the report highlight a range of opportunities for the NHS to increase the value it gets from its limited resources through changes in clinical practice. In this section of the report, we show that these opportunities are not simply hypothetical: there are a range of examples from right across the NHS where organisations and teams are already taking these opportunities to improve value in the services that they provide.

We highlight four examples in particular where there have been demonstrable improvements in the quality of care delivered as a result of changes made by clinical teams, as well as reductions in cost. These are:

- the redesign of stroke pathways in Plymouth
- work in Sheffield to improve the flow of older patients through hospitals
- improvements in the care of children with abdominal pain at Alder Hey Children's Hospital in Liverpool
- innovations to improve the management of repeat prescriptions in Walsall.

As well as showing that work to improve value in the NHS is already being carried out, these examples highlight some of the methods being used to improve services at the front line of the NHS. At the end of the section, we include a table with a small number of examples of other teams from across the country working together to improve the quality of their service while also reducing costs. These examples are drawn from the NICE local practice database, a collection of case studies that allows teams and organisations to share their improvement ideas and inspire others to do the same.



Redesigning the stroke pathway at Plymouth Hospitals NHS Trust

In 2008, an external review of the stroke pathway in Plymouth found care to be poorly co-ordinated and of low quality. The trust was bottom of the regional mortality table for in-hospital stroke deaths, with a mortality rate 18 per cent higher than the national average. The patient and family experience of care was poor, and the stroke unit was running at an average loss of £2,000 per patient – equating to £1.1 million every year.

Analysing patterns of activity in the acute stroke unit, the team found demand to be relatively stable and predictable, but there was a wide variation in length of stay – particularly for patients who were in hospital for eight days or more.

Frontline staff were asked to analyse case notes from this group of patients and score the quality of a number of aspects of care provided at each step in their pathway (diagnosis, treatment, complications and stability). The aim was to identify the subgroup, stage and step of care driving the variation in performance.

They found that a small number of already frail people who had had severe new strokes had the highest consumption of resources on the unit and the highest variability in bed occupancy and length of stay, as well as experiencing the greatest mismatch between the care delivered and patient need. Reports from families confirmed that these patients were poorly served by the current system of care.

As a result, frontline teams redesigned the pathway for this key segment of patients. The end-to-end pathway was mapped out and the team agreed a set of value-adding activities and decisions to be made in conjunction with patients and their families. They agreed that patients would now be identified in daily reviews and offered a range of different treatment options. A locally tailored dashboard of metrics was developed and reviewed weekly to help understand how the service was performing, while areas where goals were not being met were examined in more detail and proposed solutions trialled and monitored. Improvements extending beyond the unit were managed at 'Pathway Provider' meetings – a leadership group providing oversight for each of the local teams and facilitating change between groups – allowing both discrete and co-ordinated developments to take place.



Within a year, transfers to the stroke unit were happening 12 per cent quicker, the average length of stay had fallen by 6 per cent, and 7 per cent more patients were spending at least 90 per cent of their time in the unit (a National Audit Office measure of the appropriateness of stroke care). As a result of these improvements a total of 13 acute and 4 rehabilitation beds were permanently closed, with an estimated average saving of around £1,000 per patient.

A critical factor in the success of the programme was leadership development. Individuals who showed aptitude and enthusiasm for championing change were encouraged to take on small projects in their area, and invited to leadership development days.

More information: ‘Can we deliver the same high-quality care with our current resources?’ [Dr Steve Alder’s presentation](#) at The King’s Fund, April 2015

Improving patient flow for older people in Sheffield

Sheffield Teaching Hospitals NHS Foundation Trust realised that there were significant problems with the way that their older patients moved through hospital and other care settings. Analysis of hospital data suggested that only half of the older patients on their geriatric medicine wards were receiving acute services; the other half were waiting to be discharged and transferred to other services outside of the hospital. While most of these older patients were discharged within a week, a small number of patients ended up staying in hospital for months.

A team of frontline professionals got together to understand the problems with the current service and how it could be improved. This team included staff from different services involved in older people’s care, including GPs, hospital consultants, nurses, physiotherapists, occupational therapists, pharmacists and professionals who co-ordinate patients’ discharge.

The team carried out:

- process-mapping of the patient pathway in, through and out of hospital
- analysis of patterns in length of stay
- analysis of the notes of the longest staying patients to understand the differences between when they could have been discharged and when they were discharged.



As a result, the team gained a better grasp of patterns of flow through the hospital and constraints and bottlenecks within the existing system. They found that, for the 23 longest staying patients whose notes they analysed, there were a number of missed opportunities for patients to be discharged throughout their stay in hospital – sometimes resulting in people’s health getting worse and patients being moved to other parts of the hospital.

Delays were identified at different stages in the service. For example, many frail older patients were reaching the medical assessment unit after 6pm when only junior staff were available to assess them, meaning that they had to stay overnight (often unnecessarily) to see the geriatric consultant in the morning. There were also significant delays from GP referral to outpatient appointment, which sometimes led to emergency admissions as a result of patients’ conditions getting worse in the gap before their appointment.

The team estimated that for the 23 longest staying patients in hospital, nearly £500,000 worth of hospital care was delivered which could have potentially been better spent on care outside of the hospital or in people’s own homes.

Based on this analysis, the team worked together to identify, test and implement a range of changes to improve the service. This included:

- matching up the availability of specialist medical staff with patterns in patient activity – for example, by pooling junior doctors, altering consultant working patterns and seeing patients in real time by placing geriatric consultants ‘at the front door’
- establishing a frail older people-focused medical assessment unit and multidisciplinary assessment teams, and taking steps to merge elements of inpatient and outpatient care
- adopting a ‘discharge to assess’ model to speed up the discharge process, which is now being rolled out to other units in the hospital.



These changes resulted in significant improvements to the care for older people in hospital. In under a year, over a third more patients were being discharged on the day or the day after admission, with no rise in the readmission rate. The mortality rate for the service fell by around 15 per cent, and the number of occupied beds for elderly patients needing emergency care also fell, leading to the closure of two wards. The estimated full-year cost savings were £3.2 million.

More information: See Health Foundation ([2013b](#))

Improving the care of children with abdominal pain at Alder Hey Children's Hospital

Patients with acute abdominal pain form a large part of the workload in the Alder Hey Children's Hospital A&E department. In 2013, patient experience was not always good: there were long waits for treatment, care was inconsistent, diagnosis was often delayed and many children were admitted to hospital unnecessarily. The lack of clarity within the hospital about the care pathway meant that staff were dealing with parents and children who were anxious and distressed, and this sometimes led to formal complaints being made.

Using a patient and family centred care approach to improvement (see www.kingsfund.org.uk/projects/pfcc), the team at Alder Hey established a working group, led by hospital consultants, which involved staff from across the organisation. This included nurses, health care assistants, a play therapist, receptionists and radiologists. A guiding council, with representatives from the hospital's clinical leadership and quality improvement specialists from the trust, oversaw their work. This group worked to understand the true current state of the service, create a shared vision of the ideal experience, and close the gaps between the two.

To better understand how children and their families experienced their service, members of the working group shadowed patients, observing and recording everything they went through and asking for feedback at each stage. They also collected feedback from a wider group of patients, families and staff who had attended the unit with their own children. The picture of the service that emerged was not as smooth or proactive as the team had expected, with clear opportunities for improvement. They found that the care pathway took longer than anticipated,



with children spending very little time in contact with care professionals compared with the time they were waiting. Children were also often waiting longer than necessary for pain relief, and some admissions could have been avoided if assessments and investigations had been organised more quickly.

To start identifying actions for improvement, they collected baseline data and developed a diagram that isolated the key factors underlying good patient experience in their service. This mapping process allowed staff to agree actions at different levels across the service, which they began to implement through their working group. These included a new process that speeded up the provision of pain relief at first contact with A&E triage, development of an acute abdominal pain pathway, and the creation of a new surgical decision unit led by an advanced paediatric nurse practitioner that provided rapid surgical opinions to speed up the time taken for patients to be seen.

There was also a fundamental cultural shift among staff, in part motivated by the process of analysing the service from their patients' perspective, who became more aware of the need to listen to patients and their families.

These relatively simple changes to the care pathway had rapid and impressive results in less than six months. Quicker access to surgical opinion meant that the rate of admission from the A&E department onto the hospital's wards was cut from 2.38 to 1.33 for patients who did not undergo surgical procedures, and from 6.99 to 4.66 for those who did. Patients also now arrived on the wards earlier in the day, allowing them to have their operations sooner and spend less time in the hospital. As a result, the average length of stay reduced from around five days to less than three. Children, their families and staff gave positive feedback about the improved service: there was a change from 50 to 100 per cent of families reporting that their pain was well managed, and the overwhelming majority said that they waited less time than expected and felt well informed during their hospital stay.

More information: The King's Fund PFCC toolkit, case study 2: [Improving the care of children with acute abdominal pain](#)



Improving the management of repeat prescriptions in Walsall

GPs spend a significant amount of time each week authorising prescriptions ensuring they are safe, appropriate and clinically sound. In Walsall CCG, it was estimated that GPs were authorising around 200 repeat prescriptions each week, and opportunities to improve prescribing practice were potentially being missed as they sought to fit this into their heavy workload.

To improve the quality of prescribing, Walsall CCG implemented a pharmacist-led service in general practice to manage repeat prescriptions. By reducing medicines wastage, minimising possible harm from medicines and improving the quality of repeat prescribing, the initiative was designed to bring clinical, safety and financial benefits for patients, GP practices and commissioners. The service began as a pilot in two practices in 2010/11 and, following evaluation and refinement of the approach, was rolled out to 93 per cent of the practices across the CCG, providing a total of 586 hours of pharmacist support each week.

Before the intervention was introduced, practice staff would typically generate prescription requests and pass them on to GPs for approval. Under the new system, pharmacists – including some working as independent prescribers – generate repeat prescriptions, authorise those that are within their level of training and medical competence and pass the remainder on to GPs for authorisation.

The pharmacists attend the practice each week, where they can access GP clinical systems to look up relevant information about the patient and their medical history. They are able to extract relevant information from the patient and the GP clinical system to ensure medicines optimisation, assess the appropriateness of a request for waste reduction, improve performance against local and national prescribing indicators and therefore reduce health inequality and enhance medicine safety. In part this has been done by switching patients from branded to generic drugs, removing duplicates and stopping medications that are no longer required. The pharmacists have also reduced over-ordering of medicines, aligned patients' prescription renewals so that they can be dealt with at the same time in a single repeat prescription request, addressed compliance issues and identified clinical monitoring requirements.

This extra pharmacy capacity was created and is managed by the CCG, but pharmacist costs are top-sliced from each practice's prescribing budget on an invest-to-save basis. The new approach has generated significant savings across the CCG.



During 2014/15, it delivered a net saving of £807,203 after taking into account the cost of the pharmacist input, which translates to a £3.54 return on every £1 invested in the service.

The initiative is likely to have had a positive effect on patient outcomes, as more patients receive the right medicines at the right time. It is also likely to have reduced prescribing errors, but these benefits are yet to be measured. An important knock-on effect is that GPs in Walsall now spend less time authorising prescriptions, reducing workload pressures and improving patient access.

More information: [NICE quality and productivity case study](#)

Table 9 Delivering higher quality care at lower cost: examples from the NICE local practice collection

Initiative	Outline	Savings	Patient outcomes
Crisis response falls team (CRFT) East Midlands Ambulance Service NHS Trust Time to implement: 13-36 months More detail	The CRFT consists of specialist ambulance crews and a social care support team. The CRFT ambulance team's enhanced training in falls diagnosis and lifting techniques and their specialist equipment allow patients who have fallen to be moved more quickly and admitted to hospital less often. People who have fallen are referred to the social care team (SCT) by ambulance crews as well as other clinicians and the local authority. The SCT assesses people in their own home, identifies risk factors, removes hazards and installs aids. It also attends A&E to assess patients and facilitate discharge, undertakes home visits and supports patients afterwards. Patients may also be referred to consultant geriatricians for further assessment and support if required.	Net saving: £91,000 per 100,000 population through reduced hospital admissions (it is estimated that at least 1,000 admissions were avoided in 2012) and fewer A&E attendances. Some upfront costs are not included in this estimate, eg two bariatric-capable ambulances and lifting equipment.	Fewer patients hospitalised following a fall Faster discharge and fewer hospitalisations, leading to lower risk of hospital-related harm and infection Fewer repeat falls due to SCT support - cannot be quantified but number of falls-related calls stabilised after implementation Positive patient feedback



Initiative	Outline	Savings	Patient outcomes
<p>Stroke REACH Early Discharge Scheme (REDS) CNWL NHS Camden Provider Services Time to implement: 6-12 months More detail</p>	<p>REDS is a specialist interdisciplinary team that includes speech and language and occupational therapists, a physiotherapist, a social worker, a rehabilitation assistant, a nurse, a dietician, a psychologist and a co-ordinator. It can assess, facilitate and complete early supported discharge of patients post-stroke within 24 hours and also provide intensive rehabilitative support for up to 6 weeks post-discharge. This provides patients in their homes with the same intensity of therapy that a patient would receive on a stroke unit. The service was developed from a fully functional community rehabilitation team, and this was key to its implementation. The service is jointly commissioned by the CCG and the local council.</p>	<p>Net saving: £118,069 per 100,000 population through reduced demand for non-elective bed days, reduced length of stay and reduced demand for ongoing social care (which dropped by an average of 17 hours per week after rehabilitation with REDS).</p>	<p>Average discharge from REDS is 10 days earlier than from acute or inpatient units Maintained or improved quality and reduced length of stay in hospital Improvements in patient-reported outcome measures Patient safety improvements through, eg, visits to ensure all home equipment is in place, weekly team meetings with therapists and carers Positive feedback from patients</p>
<p>Electronic blood transfusion Oxford University Hospitals Time to implement: 13-24 months More detail</p>	<p>Hospital blood transfusion services were re-engineered using new technology that incorporates barcode identification on patient wrist bands, blood samples and blood units, and bedside handheld computers that prompt staff through each step of the process and verify that the correct blood is transfused. An automated system for collecting blood from fridges enables blood tracking and creates an audit trail. The transfusion lab is linked with other IT systems, meaning that data is collected at each stage of the process. Additional modules are in development.</p>	<p>Net saving: £86,000 per 100,000 population delivered through a 10% decrease in blood expenditure and waste as access to blood is quicker, and improved productivity due to reduced nursing and laboratory time.</p>	<p>Safety improvements - fewer errors Quality improvements - rates of 'wrong blood in tube', unfated units, blood wastage and blood use all reduced Rate of samples being rejected by lab due to labelling errors reduced from 3.1 to 1.2 per cent, so fewer patients had to have a second sample taken Positive patient and nurse feedback</p>



Initiative	Outline	Savings	Patient outcomes
<p>Early identification of patients at risk of developing end-stage kidney disease</p> <p>Heart of England NHS Foundation Trust</p> <p>Time to implement: 7-12 months</p> <p>More detail</p>	<p>A disease management system was introduced with the aim of reducing the rate of loss of kidney function in people with diabetes and chronic kidney disease. A nephrologist established a database, and software was developed in-house to collate results, monitor graphs and identify those with worsening kidney function. Patients are classified according to risk and referred on where necessary. The same system has now been extended to cover all those with chronic kidney disease.</p>	<p>Net saving: £160,000 per 100,000 population through fewer patients receiving dialysis - a small dialysis unit has been closed as a result.</p>	<p>Early identification and intervention helps slow or prevent degeneration and reduces need for dialysis or transplant (and also improves preparation for these if they are required)</p> <p>Fewer outpatient appointments needed so new patients are seen more quickly (new patient waiting times reduced from 10 to 2 weeks after implementation)</p> <p>Improved patient and carer experience</p>

These examples are taken from the **NICE QIPP local practice collection**.



Conclusion

This chapter has told the story of four local teams of clinicians, managers and commissioners who have successfully worked together to improve the quality of care patients receive from their service, improve the experience of staff working within it and reduce costs. In most of these cases, significant improvements were achieved within a single year, demonstrating the opportunity for the NHS to improve quality and reduce costs within a relatively short time frame. Importantly, these initiatives are all built on the knowledge of those working within a service about where the opportunities to improve value lie, as well as the experiences of patients and their families of the services that they receive.

While each of these examples is impressive on its own, we are left with the question of why these innovations are only happening in pockets of the NHS, and the resulting challenge of how to embed a culture of continuous quality improvement across the health service. There is no clear answer about what works to spread innovation, but we do know that effective strategies incorporate a variety of approaches at team, organisational and national level (de Silva 2014). In the next section, we address these questions in more detail by considering what actions need to be taken at each level of the system – from clinical teams through to national bodies – to create an environment that supports and stimulates change made at the front line of the NHS.

Resources

NICE QIPP case studies

Health Foundation [Shine 2014](#) programme

Health Foundation [Shine 2012](#) programme

Quality improvement: theory and practice in healthcare (Boaden *et al* 2008)



7 Creating an environment for change

We argued in the introduction to this report that the £20 billion Nicholson challenge was delivered primarily through national controls on pay and prices within the NHS and cuts in management costs. We showed in our report on NHS productivity in 2014 ([Appleby et al 2014](#)) that these central policy levers had reached their limits and that further improvements in productivity would have to be delivered differently. Specifically, we argued that there needed to be a renewed effort to engage clinicians in leading work to improve outcomes and deliver better value for the £116 billion currently spent on health services in England.

Much of the Fund's thinking on how to do this was outlined in our review of approaches to health care reform in England and other countries ([Ham 2014](#)). The review argued that successive governments have relied too much on using external pressures like targets, inspection and competition to improve NHS performance. Far less attention has been given to reforming the NHS 'from within' by strengthening leadership at all levels and building skills and capabilities in quality improvement – the approach adopted by high-performing health care organisations both in the NHS and other systems.

Our review demonstrated that these high-performing organisations not only invest in leadership and quality improvement but also bring about change through 'the aggregation of marginal gains', to borrow the phrase used by David Brailsford to explain the success of the British cycling team he coached at the London Olympics in 2012. These organisations move from average to good and from good to great not by making a giant leap forward but by accumulating the benefits of many small changes, recognising that this takes time and requires engagement by many people. This is the same conclusion that can be drawn from our assessment of productivity improvements in the NHS to date in the section on p 11, where improvements have been made by incremental changes accumulating to something larger over time. An important but unanswered question is whether improvement can be accelerated when time is short, as is undoubtedly the case in the NHS today.



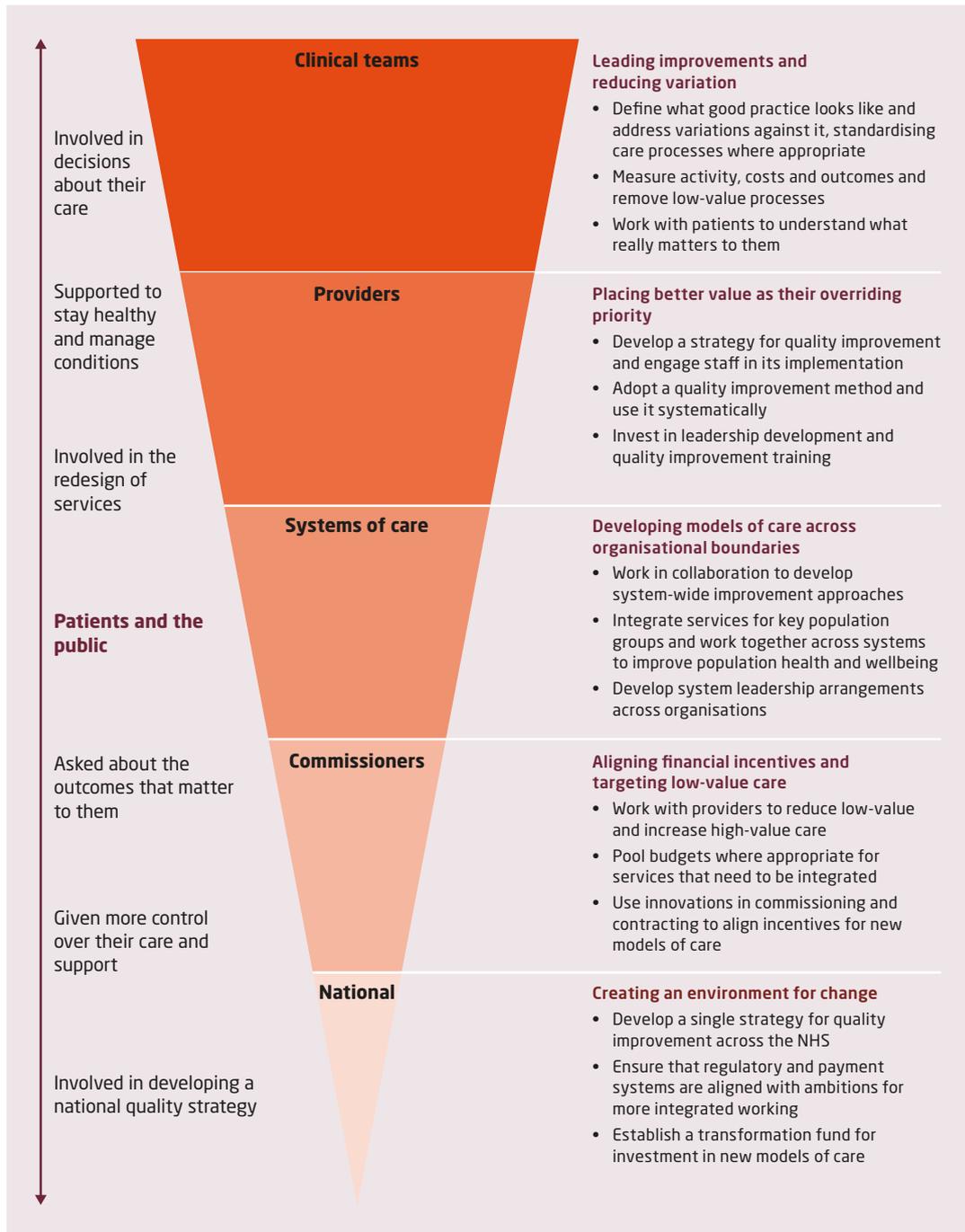
The evidence brought together in this report has pointed to many opportunities to improve outcomes and deliver better value as the NHS seeks to deliver the Stevens challenge of £22 billion. All of these opportunities require changes in clinical practice to provide care more appropriately and in more co-ordinated ways, and to build on the work of the medical leaders whose experience we have summarised. Most importantly, they are all opportunities that have the potential to improve the lives of patients – sometimes significantly – as well as those of staff working in the NHS. This either happens directly – by improving the care patients receive – or indirectly, by freeing up resources to be spent elsewhere.

This is not to argue that improvements cannot also be made in non-clinical areas such as procurement, the use of information technology and back office functions, but it is to underline that there is no possibility of delivering the Stevens challenge without changes in clinical practice at all levels. Our review of the NHS's own record of doing this in the past is a persuasive reminder of what has already been achieved through increased rates of generic prescribing, the shift to day surgery for many procedures, and reductions in length of stay of inpatients. In each of these areas there is scope for the NHS to keep improving. Likewise, our summary of evidence in the NHS today shows the opportunity to improve outcomes and in so doing to release resources for investment in other areas of care. The experience of high-performing health care organisations such as Intermountain Healthcare and Virginia Mason Medical Centre in the United States illustrates that these arguments are not hypothetical, but are grounded in real experience of organisations with a track record of doing just this (*see Ham 2014; Plsek 2013; Cosgrove et al 2012, James and Savitz 2011*).

In earlier work on productivity (*Appleby et al 2010*) we argued that, while knowing what the opportunities are is important, the biggest challenge facing the NHS at a time of sustained and unprecedented financial pressure was being able to put this knowledge into practice. We outlined what needed to be done throughout the NHS, starting with clinical teams and ending with action at the national level. Our analysis in the section on Productivity in the NHS so far (*see p 11*) also emphasises the multiple actions needed at different levels of the NHS to make change happen – whether that is introducing new payment systems at a national level to align incentives with policy objectives, engaging clinical teams or offering support and training to frontline staff.

We have adapted the framework we used in 2010 (*see Figure 22*), with the important addition of patients, whose role in ensuring that care is delivered appropriately is increasingly recognised (*Malhotra et al 2015; Mulley et al 2012*).

Figure 22 An agenda for action





Rather than seeking to be comprehensive or to repeat ideas we have discussed elsewhere (Appleby *et al* 2014; Ham 2014), we focus our recommendations on the most important actions needed at each level. We have intentionally inverted the pyramid to illustrate what now needs to be done to emphasise that the most promising possibilities rest in the work of clinical teams. Not only is this where the key decisions that commit NHS resources are taken, but it is also where high-performing health care organisations focus their efforts.

Another point to emphasise about our characterisation of what needs to be done is that actions at all levels must be aligned behind the common purpose of delivering better value throughout the NHS. By this we mean that there needs to be a national strategy with an emphasis on improving outcomes and containing clear and well-understood objectives. This strategy needs to be reflected in the work of providers and commissioners as well as in clinical teams delivering care. Previous efforts to develop such a strategy, such as the one led by Lord Darzi, have proved short-lived.

Finally, if this work is to gain traction then great care is needed in the language that is used. Clinicians are unlikely to be engaged if the talk is of improving efficiency and productivity and reducing waste. It is for this reason that our own work has focused on improving outcomes of care and delivering better value.

By focusing on outcomes and value, we are not seeking to sidestep difficult questions but are simply acknowledging the experience of high-performing organisations – namely that when outcomes are improved then waste and inefficiency are reduced. We are also reflecting our experience of working with clinical leaders and teams for whom the language of outcomes and value is much more motivating than that of productivity and efficiency. Delivering the Stevens challenge is in part a technical issue – calling for the right incentives, data, etc – but above all it is a hearts and minds issue that will only be realised by appealing to the intrinsic motivation of people working in the NHS to deliver the best possible care within available resources.



An agenda for action

Patients

- Patients should be involved at all levels of the system, starting with involvement in decisions about their own care – including involvement in service redesign with clinical teams – and extending to participation in the development of a national strategy with national bodies (*see below*).
- The work of Mulley et al (2012) on shared decision-making emphasises in particular the need to understand patients' own treatment preferences through shared decision-making to avoid the 'silent misdiagnosis' of preferences. The CollaboRATE measure (www.collaboratescore.org/) is a tool that can support these efforts.
- Integrated personal commissioning is one way of giving patients more control over their own care alongside further development of supported self-management programmes for people with long-term conditions. Care planning can be used to enable self-management of conditions both by individuals and by groups of people with the same conditions. Models such as the House of Care provide guidance on how this can be done (Coulter et al 2013).
- People should also be supported to keep in good health through lifestyle and behaviour change. This can be done in many ways, including brief interventions from GPs, nurses and other professionals, as well as lay and peer support. Third sector organisations often offer some of the most innovative approaches (for example, *see* www.kingsfund.org.uk/projects/gsk-impact-awards#2015-winners).
- People should be encouraged to think about the health outcomes that matter to them and share these with health and care professionals. They should ask questions to help them understand the risks of overtreatment and their various treatment options (Malhotra et al 2015).

Clinical teams

- Teams need time and skills to review how they provide care and how it can be improved. Team members should have access to leadership development and quality improvement training, as well as data to compare their performance with others and over time. The microsystem coaching academy at Sheffield is an example of how this can be done (*see* www.sheffieldmca.org.uk/).



- Teams should measure their work, focusing on activity, costs and outcomes, as well as the relationship between them. They should define what good practice in their service looks like and address variations against this. Where appropriate, they should aim to standardise how care is delivered by reducing unwarranted variation within and across teams.
- Teams should involve patients in work to improve care and should seek to walk in the shoes of patients when they redesign services. They should also take time to understand the experience of patients and how they can respond to patient feedback. The Point of Care Foundation's Schwartz Rounds and patient and family centred care programmes are examples of how this can be done (*see www.pointofcarefoundation.org.uk/What-We-Do/*).
- As well as involving patients in quality improvement, teams and the professionals working within them should embed shared decision-making with patients as a core part of the way that they provide services. This means understanding what really matters to patients and giving them information that they can understand to help them make decisions about their care (*Mulley et al 2012; Coulter and Collins 2011*).

Providers

- Every NHS provider should see improving outcomes and achieving better value as overriding priorities and develop a strategy for quality improvement. Boards should devote time to this at their meetings and should review benchmarking data to compare their performance with others and over time. Staff engagement should be a key part of these efforts, so that all staff see quality improvement as part of their day-to-day job. Salford Royal NHS Foundation Trust offers an example of how this can be done (*Ham 2014*).
- Providers should invest time and resources in leadership development and quality improvement training for their staff, recognising that this is usually most effective when done 'in place'. They should adopt a quality improvement method and ensure that it is used systematically throughout their organisations. They should also learn from the habits of high-performing organisations by designing the membership of teams and their working practices and environments in relation to the care they deliver (*Bohmer 2011*).



- Providers should identify and remove obstacles to teams improving outcomes and value, for example by investing in information technology and systems that support routine measurement of performance. The University Hospitals Birmingham NHS Foundation Trust's work on performance dashboards is an example of how this can be done: see www.uhb.nhs.uk/quality.htm

Systems of care

- Providers will need to work together and with other organisations across systems to realise many of the opportunities identified in this report. One way that this can be done is through academic health science centres and networks, as well as through collaboration between clinicians to improve care in specific areas. Improvements in stroke care in London are an example of how this can be done (see [Farrar et al 2013](#)).
- An important part of this will involve working across health and care providers to co-ordinate services, particularly for older people and those with complex needs. Going beyond this, providers will also need to work with other organisations across their local systems to improve the broader health and wellbeing of the populations they serve ([Alderwick et al 2015](#)). This means working with organisations outside the health and care system – such as local government services, the voluntary sector, housing providers and employers – to pay attention to prevention and the wider determinants of health. It also means thinking about improving value in broader terms than simply within the NHS.
- Providers should agree with their partners how their work as systems of care should be governed and supported, and how system leadership should be developed. Part of this might involve developing new mechanisms to align financial incentives for quality between organisations and sharing risks and rewards. They should ensure that this work is adequately resourced to make a reality of new care models. Early plans being developed in Greater Manchester are an example of how this might be done in the future: see www.agma.gov.uk/gmca/gmca-devolution-agreement1/caring-for-gm-together/index.html



Commissioners

- Commissioners should focus on making use of benchmarking data and evidence from NICE, NHS Right Care and other sources to illustrate the opportunities for improvement available to CCGs in different areas of England. This includes targeting low-value interventions and examining variations in performance as outlined in the NHS Atlas of Variation (www.rightcare.nhs.uk/index.php/nhs-atlas/).
- NHS commissioners should work with local authority commissioners to support the development of integrated care for people with long-term conditions and for end-of-life care. They should pool their budgets for services that need to be integrated and seek to use their combined resources where these will deliver the most value. Over time, these arrangements might be extended to pool budgets for other local authority services that have an impact on population health. Our recent report on integrated commissioning outlines three options for implementing joint commissioning arrangements by 2020 ([Humphries and Wenzel 2015](#)).
- Commissioners should use these budgets to align incentives for providers to deliver new models of integrated care. They could do this by letting capitated budgets for the care of defined population groups, with payments linked to outcomes for providers to collectively deliver. These outcomes should be developed with patients and the public to ensure that providers are being asked to deliver services which matter to the people using them.
- Innovations in contracting, such as prime contracts or alliance contracts, can be used to support this kind of approach. The new approach to commissioning and contracting for older people and adult community services in Cambridgeshire is an example of how this could be done (see www.kingsfund.org.uk/publications/commissioning-contracting-integrated-care).

National bodies

- National bodies should develop a strategy for quality improvement containing clear and well-understood objectives. They should also agree an NHS-wide set of quality indicators and report annually on progress. Leatherman and Sutherland (2008) have outlined how this can be done (see www.nuffieldtrust.org.uk/publications/quest-quality-nhs-refining-nhs-reforms).



- National bodies should provide guidance, expertise and advice to providers and commissioners through NICE and other organisations in support of local strategies. This should include realigning the work of NHS Improving Quality and the NHS Leadership Academy with the national quality improvement strategy. The Smith Review will be setting out proposals for how this can be done (www.england.nhs.uk/ourwork/qual-clin-lead/smithreview/).
- National bodies should ensure that regulatory and payment systems are aligned with the quality improvement strategy and the ambition of providers working together across systems of care. They should support providers and commissioners to develop incentives to reward improvements in outcomes. They should also support learning and sharing about what works as the strategy is implemented.
- National bodies should establish a transformation fund to pay for the costs involved in setting up new care models before resources can be released from existing services. A report to be published this summer by the Health Foundation and The King's Fund will outline what this might look like.

Where next?

Few if any of these recommendations are new, which begs the question: why have they not been acted on? Part of the answer is that they require a sea change in approach by government and national bodies, away from using external pressures to improve NHS performance to a sustained commitment to supporting reform from within. Another part of the answer is that they also require a sea change in the behaviour of leaders within the NHS, away from looking up to regulators and performance managers to looking towards their staff and the patients they serve.

The central challenge in making a difference this time round is whether ministers and national bodies are willing to change their approach to reform and allow the NHS sufficient time to take the actions that are needed to bring about improvements from within. If they are not willing to do this, the alternative is to revert to centralised direction of the NHS in response to growing evidence of financial and operational pressures. On the other hand, if they are willing to do so then it puts the onus back on the NHS and its leaders to develop a credible plan to demonstrate what can be achieved under a radically different approach.



In reality, ministers and national bodies may only be willing to allow the NHS sufficient time if leaders in the NHS put forward a credible plan showing that they can deliver substantial improvements in outcomes and value. The priority should therefore be for NHS organisations to focus on identifying opportunities to improve the value of the services they provide for patients in order to demonstrate what they can contribute in working towards the Stevens challenge.



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Hugh Alderwick joined The King's Fund in 2014 as senior policy assistant to Chris Ham and programme manager for our integrated care work. Before he joined The King's Fund, Hugh worked as a consultant in PwC's health team. At PwC, Hugh provided research, analysis and support to a range of local and national organisations on projects focusing on strategy and policy.

Hugh was also seconded from PwC to work on Sir John Oldham's Independent Commission on Whole-Person Care. The commission looked at how health and care services can be more closely aligned to deliver integrated services meeting the whole of people's needs.

Ruth Robertson returned to The King's Fund in September 2013 after three years spent researching health insurance coverage issues at the Commonwealth Fund in New York. Her current work includes a national evaluation of clinical commissioning groups, undertaken jointly with the Nuffield Trust.

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Phoebe Dunn joined The King's Fund as a research assistant in the policy directorate in July 2014, and provides support on a range of health and care research projects within the team.

Before joining the Fund, Phoebe worked for a marketing and strategy agency called ZPB, and was involved in projects for small and large organisations from across the health care sector. These projects included contributing to the launch report for The Point of Care Foundation, digital strategy for a large health charity, and a myth-busting campaign around outcomes-based approaches to health care. Phoebe completed a Masters in demography and health at the London School of Hygiene & Tropical Medicine, and also holds a BSc in biology from University College London.

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The NHS is facing years of financial uncertainty coupled with the challenge of achieving productivity savings of around £22 billion by 2020/21. However, focusing on efficiency and costs risks missing the real essence of the task facing the NHS, which is about getting better value from the NHS budget. How can the NHS minimise costs but also continue to deliver high-quality, compassionate care for patients?

Better value in the NHS: the role of changes in clinical practice looks back at past trends in NHS productivity to help us to understand how this has been done in the past and also identifies a number of opportunities for the future. The authors consider three areas – generic prescribing, length of stay and day case surgery – in which the NHS has made significant and sustained gains in productivity over a number of years, allowing more (and often better) care to be delivered within the same budget.

They then outline a number of areas where the NHS has opportunities to improve value in the future, focusing in particular on changes in clinical practice. The opportunities identified are:

- tackling inappropriate care – overuse, underuse and misuse
- identifying and removing unwarranted variations in clinical practice
- using evidence of better ways of delivering care and support services for specific patient groups – such as people with long-term conditions, older people living with frailty and complex needs and people at the end of their lives – to drive service improvement.

The report draws on the real-life experience of teams and organisations to show what can be achieved through changes in clinical practice led from the front line of the NHS. It concludes that making change happen will require a fundamental shift in approach by government and NHS leaders – away from using external pressures to improve performance towards a sustained commitment to supporting reform from within.

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