

The future of hospitals: a consultancy viewpoint

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ABSTRACT

The NHS, like other healthcare systems, is facing challenges arising from shifts in patient needs, new technologies and the need to control costs. To address these challenges, hospitals will need to innovate in their models for service delivery; standardisation and process management, co-production of care, skill-mix changes, more efficient use of assets, and rapid adoption of IT will all be key. To deliver these changes, all hospitals will need to learn from the practices of the current best performers and new financial and operational models, together with different approaches to workforce planning, will be necessary.

KEYWORDS: NHS, delivery models, innovation, co-production of care, process management, integration.

Context and drivers of change

Around the world, healthcare systems are facing a common set of challenges: first, and most important, how to redesign services away from a model of reactive acute care towards a more proactive model which enables high quality of life over 80, 90 or 100 years of life; second, how to address the increasingly recognised variation in quality of care; third, how to ensure that new technologies are effectively adopted and deployed when effective; and fourth, how to do all of the above while controlling expenditure.

The way in which hospitals react to these challenges has far-reaching implications, both for their patients and for their staff. This article explores the trends that are reshaping healthcare systems, the ways in which hospitals can respond to these challenges, the new types of hospitals that will populate a changed hospital landscape, and how we get there from here.

First, the challenges.

All healthcare systems are recognising the need to shift away from reactive hospital-based care to a more proactive approach based around people's day-to-day lives. Inevitably and by design, this proactive model of care should result in fewer hospital admissions and shorter lengths of stay. But while there are some leading-edge innovators in this space – for example Geisinger¹ or Chen Med (www.chenmed.com) in the US and Torbay² in the UK – the adoption of best practice primary and community care remains highly variable. For example, among similar clinical commissioning groups (CCGs) in England, hospital episode

statistics show elective admissions per 1,000 weighted population vary from 14 to 24 with a median of 19, and non-elective admissions show an even greater variation. Even if each health economy in the UK were to simply adopt the country's top-quartile best practices in referral and admission practices, there would be around a 20% reduction in acute hospital admissions.

The second challenge is posed by the increasing recognition of the variation in the quality of care given by different providers. There are startling variations in adoption of best practice and in patient satisfaction, minimisation of adverse events and mortality rates. And these exist between hospitals, between teams caring for similar groups of patients, and even between days of the week. With growing transparency and public awareness, these differences have become unacceptable and can no longer be ignored.

The third challenge is posed by new technologies. These can bring significant changes to healthcare – witness the shift from thrombolysis to stenting (Fig 1) or the widespread adoption of interventional radiology. These shifts all have implications for how hospitals organise themselves. For one thing, they drive reductions in length of stay. At the same time they may require centralisation of services to enable investment in new equipment and concentration of expertise, and this will result in growing differences in quality between smaller and larger centres (and public dissent at the prospect of losing local services).

Finally, perhaps the most important trend facing hospitals globally is the need to control costs. Most developed economies, the UK included, are coming under increasing budgetary pressure. Some cost control can be achieved through allocative

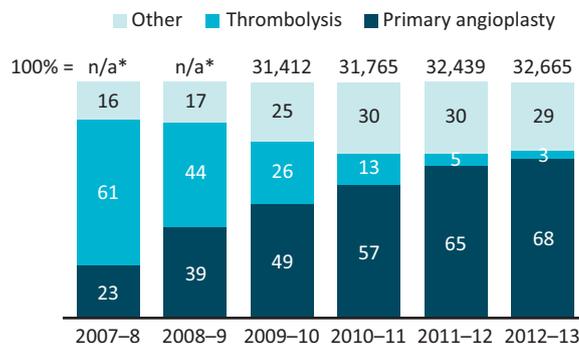


Fig 1. Treatment of ST-elevated myocardial infarction in England and Wales. % of patients. Taken from MINAP public reports 2008–2013. *Volumes not reported (audit coverage incomplete).

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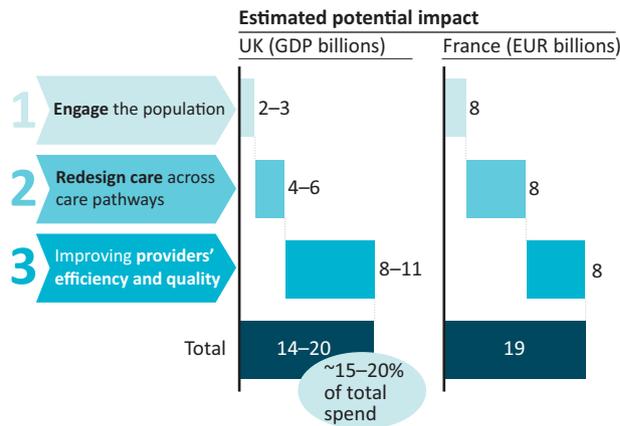


Fig 2. Impact of measures on overall healthcare expenditure. Reducing unit cost of production has the biggest potential impact.

efficiencies – such as controlling activity through more proactive/preventative care or by agreeing thresholds for treatment based on cost effectiveness. But ultimately, the biggest potential driver of healthcare cost reduction across a healthcare system is to focus on the unit costs of care delivery, the costs per episode (Fig 2).³ In England and Wales, the government is seeking to drive improved productivity by reducing the amount paid for hospital care – the tariff. This is a blunt instrument, and already some hospitals are struggling to adopt more productive working, resulting in a gross deficit of £448m forecast in 2013–14 for 33 trusts.⁴

How can hospitals respond to these challenges?

Responding to these challenges will require fundamental changes to the ways in which services are provided. Although this may seem daunting, there is sufficient insight from examples of change around the world to suggest that it is possible.

Healthcare has lagged behind other industries in terms of improving productivity (Fig 3).⁵ While some of this can be explained by increases in input costs and a focus on quality of care, there remains considerable scope to improve the efficiency of service delivery in hospitals. We estimate that most hospitals could reduce costs by up to 20% over the next three or four

years simply by adopting the most productive practices seen in the best performing English hospitals; Table 1 shows that there could potential savings in costs of over £1 billion in London alone if best practice were to be adopted. Similarly, bringing average length of stay (ALOS) in line with OECD averages would result in just over one fewer bed day per spell, meaning that the NHS could cope with around 16,000 fewer beds (Fig 4). However, this is likely not to be enough. Hospitals will need to change their model of care delivery more radically.

We see five core areas where hospitals can innovate in their delivery model to reduce costs and improve quality of care significantly: rigorous standardisation and process management, co-production of care, skill-mix changes, increased utilisation of assets, and rapid adoption of IT. Examining each of these in detail exposes the potential for cost control and improvement in quality.

Rigorous standardisation and process management

Healthcare has been slow to adopt the process management and standardisation of working practices seen in other industries. This has been due to both a lack of management focus and the argument that no two patients are alike and so care needs to be adapted to the specific needs of individuals.

However, the scope to improve efficiency remains enormous. From late starts in theatre, to unexplained differences in operating times or length of stay, to patients waiting for someone to discharge them, time and again the opportunities are highlighted. But historically little has happened. Over the last 5–10 years, however, a number of organisations have bitten the bullet and adopted the principles of lean and standardisation found in other industries and have seen considerable improvements in both clinical quality and costs of care. One example is Aravind, a healthcare organisation based in India (Fig 5) – but there are plenty of other well-documented examples including Narayana Hrudayalaya Heart Hospital,⁶ Intermountain Healthcare⁷ and Kaiser Permanente.⁸

Co-production of care

Historically, healthcare has been based on the concept that a care worker, a doctor, nurse or physiotherapist ‘delivers’ or ‘gives’ care to individual patients. Increasingly this concept is being challenged by the observation that patients who are



Fig 3. Growth rates in different sectors (% compound annual growth rate) in the US 1990–2010.⁵ In the US, healthcare labour productivity is decreasing; this illustrates the trend in many developed countries.

Table 1. Modelling the impact on costs of all hospitals in London adopting the practices of the best-performing hospitals.

Category	Underlying baseline costs (2010/2011)	Impact of net change in activity (2010/2011 – 2014/2015)	Different productivity gain scenarios utilised		Impact of new quality standards (2010/2011 – 2014/2015)
			Matching peer at top quartile threshold (2010/2011 – 2014/2015)	Matching average of top three peers (2010/2011 – 2014/2015)	
Medical pay	1,227	42 (3.4%)	-184 (-15.0%)	-270 (-22.0%)	69 (5.6%)
Nurse pay	1,456	44 (3.0%)	-421 (-28.9%)	-401 (-27.6%)	N/A
ST&T pay	585	20 (3.3%)	-187 (-32.0)	-159 (-27.2%)	N/A
Non-clinical pay	708	22 (3.0%)	-177 (-25.0)	-133 (-18.7%)	N/A
Clinical supplies	1,121	51 (4.5%)	-155 (-13.9%)	-264 (-23.6%)	N/A
Other variable costs	137	2 (1.5%)	-45 (-32.6%)	-45 (-32.6)	N/A
Fixed costs	1,191	N/A	N/A	N/A	N/A
Total (% of total costs)	6,425	180 (2.8%)	-1,169 (-18.2%)	-1,272 (-19.8%)	69 (1.1%)
4-year compound annual growth rate		0.7%	-4.9%	-5.4%	0.3%

Units are £ million. SS&T = scientific, therapeutic and technical staff. Data from FIMS 2009–2010, annual reports 2009–2010, HES 2009–2010, and trust operating plans 2011–2012.

more involved in their own care delivery get better results.⁹ Taking this idea further, some organisations have explored the potential to deliver care to groups of patients in settings where they can support each other and learn from each other. Not only does this result in better outcomes, it also reduces cost.

To date, expert patient programmes and group consultations have focused on people with chronic disease, particularly people with diabetes. But the concept could be applied more widely. For example, in antenatal care, women are already encouraged to carry their own notes, to learn actively about pregnancy and childbirth and to attend antenatal classes. Why not extend this to support women to take their own blood pressure, to dipstick their own urine, to measure their own abdomen, or to enter their own health data into their own health record? This could be supported by joint antenatal

appointments for groups of 5–10 women at a time so that they can discuss and share challenges and solutions. (This is essentially the NCT model – for which mutual support women and families are prepared to pay.) This could save considerable midwife time at booking in and at each antenatal visit.

The same principles could apply to outpatients, where enormous amounts of doctor and nurse time are spent collecting data on past medical history, drug history and so on from the patient – all of which could, in many cases, be entered by the patient in advance of the appointment.

Skill-mix changes

There has already been a significant shift in care responsibility away from doctors and towards other health professionals,

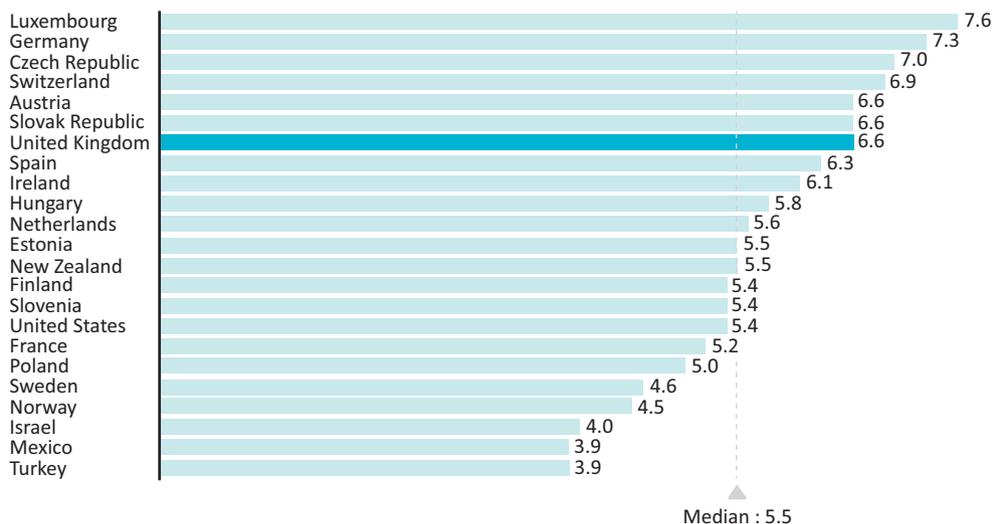


Fig 4. Average length of hospital stay – inpatient and acute care.
Data source, OECD 2012.

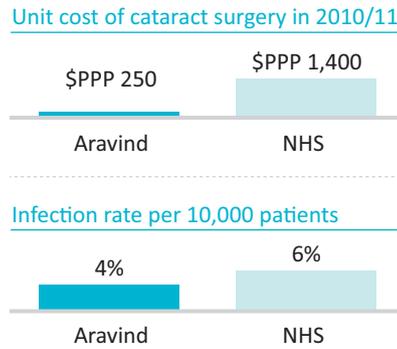


Fig 5. Unit cost and infection rates of cataract surgery under a system employing rigorous standardisation of processes, Avarind, versus the NHS. PPP = purchasing power parity. Data sources: Rockefeller Foundation; interviews; 2011/2012 National Schedule of Reference Costs; 2010/2011 Avarind Activity Report.

including nurses, pharmacists and physiotherapists. However, the movement remains patchy, with further opportunities for skill-mix change, including a further shift from nurses to healthcare assistants – or from healthcare professionals to a technology solution.

The rapid evolution of technology offers the prospect of automated solutions to tasks previously undertaken by healthcare professionals. Technology can now support remote monitoring of patients or real-time vital sign/drug adherence through products such as Proteus, a digital healthcare system (www.proteus.com), or self-assessment of skin lesions.¹⁰

Increased utilisation of assets

While standardisation, co-production and skill-mix changes can all reduce the costs of supplies (about 20% of hospital costs) and clinical staff (about 60% of costs), they do not address the final 20%, which is spent on buildings and equipment.

Today many hospital facilities – outpatient suites, operating theatres, CT scanners and cardiac catheter labs – are only used from Monday to Friday and then only between 9am and 5pm. The same is true for primary, community and social care facilities, some of which are only used for 25 hours a week. Moving to 12-hour days, 7 days a week would halve the number of theatres, outpatients, scanners needed, offering a considerable saving.

Rapid adoption of IT

IT has transformed our lives in multiple ways and changed the whole operating model of many industries – witness online banking, travel and home shopping. Not only have services

become more convenient for the user, they have dramatically reduced the costs of delivery.

The same could happen in healthcare – online booking for appointments and access to test results would reduce the number of receptionists and clerks required; as above, self-entering of data – or sharing of patient information already collected by another healthcare professional – would free up significant amount of front line staff time, not to mention the time spent by ward clerks chasing notes and results; automated algorithmic flows of information would improve quality; and drop-down screens would transform the clunky processes of dictation and medical secretaries – as well as allowing for far more audit and research. A technological revolution that puts power in the hands of patients and reduces wasted time for staff is long overdue.

What does this mean for the future hospital landscape?

Taken collectively, all these innovations in healthcare delivery will significantly change the hospital landscape. There have already been significant reductions in the numbers of hospital beds over the last 25 years (Figs 6 and 7) and, as length of stay continues to be reduced, along with improved primary and community care services finally coming into place, this trend is set to continue. We estimate that, combined, these two trends could lead to a reduction of about a quarter of hospital beds. But as demand reduces, bed numbers fall and utilisation increases, hospitals will find themselves with a new challenge of outdated models of care and stranded fixed costs. They will find the costs of running buildings and equipment become a growing proportion of their cost base, hampering their ability to invest in providing high-quality care. At the same time, trends towards sub-specialisation, consultant-delivered care and seven-days-a-week working are also increasing the semi-fixed costs associated with highly trained medical staff and their teams providing acute and specialist services. Combined, these factors are leading to a rapid drive towards consolidation of hospital services (horizontal integration), and vertical integration with primary and community care.

As this plays out, we see the emergence of four archetypes of hospitals (Box 1). The model that is currently attracting the most interest in the UK is the concept of the local hospital, which has the potential to provide a viable model of a District General Hospital for the future.

Urgent care, or an A&E, could be sustained in the overwhelming majority of situations if all urgent/same-day primary care was co-located. This would provide scale to ensure efficient use of staff and facilities. Step up/step down beds could be provided to care for the large numbers of people currently being admitted and staying in acute hospitals who do not necessarily need the facilities

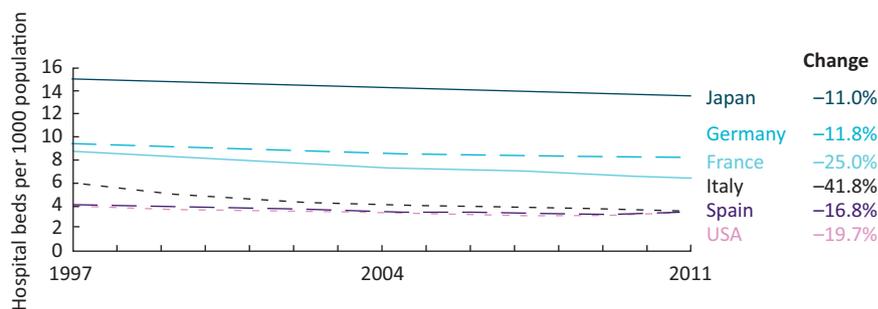


Fig 6. Hospital beds per 1000 population, 1997–2011. OECD Health Data 2013; NHS England, Bed Availability and Occupancy Statistics, 2014.

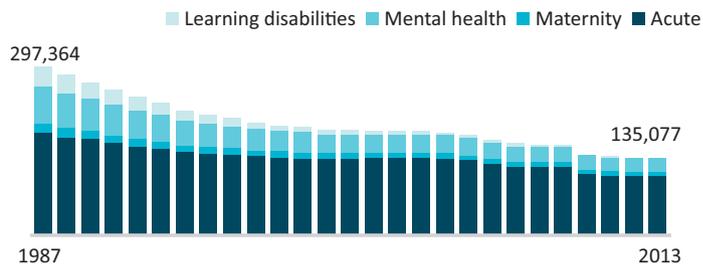


Fig 7. Hospital beds in the NHS, England, 1987–2013. Compound annual growth rates are –3.0% overall, –10.9% for learning disabilities, –4.2% for mental health, –2.8% for maternity and –2.1% for acute beds. Data from NHS England bed availability and occupancy statistics, 2014.

of a major centre; outpatient services could be provided efficiently and effectively by specialists spending time across different hospitals; diagnostics would be open seven days a week to support other services and telemedicine, remote monitoring and e-support could be adopted to enable rapid access to the specialist services of a major hospital centre. And other primary, community and social care services could be co-located to enable far greater coordination and responsiveness, and enable the rationalisation of fragmented services.

The Future Hospital Commission was established by the Royal College of Physicians to set out a way forward to respond to the challenges facing hospitals outlined above. Its recent report on the future of acute medical care¹¹ sets out a number of key proposals – not least the need to innovate current models of care. At its heart is a recommendation to consider a renaissance of the general physician. The general physician could be the life blood of a local hospital. Able to competently assess, manage and provide continuity of care for the overwhelming majority of patients needing urgent care, while at the same time accessing specialist input when required. This would provide a crucial link to community/hospital care of the elderly services and ensure appropriate access to specialist input where required.

Perhaps most importantly, this would put the hospital at the centre of the community. The majority of people in England live within a few miles of a hospital – why not build on this to provide a base for high-quality, coordinated and integrated care?

How to get there

None of the above is going to happen easily or by itself. Hospitals have been slow to change, primary and community care services even slower. Accelerating the pace of change will require (at least) three things to happen.

New ownership models

There are a range of ownership models which could be explored. Hospitals could be operated by successful groups of GPs, such as the Hurley Group, a chain of GP surgeries and clinics based in London, or The Practice, a national chain. Mutual organisations such as Circle could provide a way to develop the concept of staff ownership in healthcare – a ‘John Lewis model’. The ownership and management of facilities could be separated from the provision of services, with groups of hospital consultants (or chambers) being contracted to provide outpatient and/or inpatient care. Or chains of hospitals could emerge.

In other countries, there is a rapid trend towards consolidation, with groups of hospitals emerging. Examples

Box 1. Diversification of hospital models.

Local hospital

Smaller hospitals struggle to maintain consultant-led acute care services and address interdependencies and move towards a less intensive model of acute care, potentially also vertically integrating to build scale.

Major hospital

Larger hospitals are able to achieve scale to provide 24 × 7 emergency care and bring together interdependent services.

Elective hospital

Selection of less complex patients (ASA level 1/2) means they don’t need critical care level 3; similar to a private hospital.

Specialist hospital

Specialist elective centres can build sufficient scale to be able to invest in their own critical care facilities.

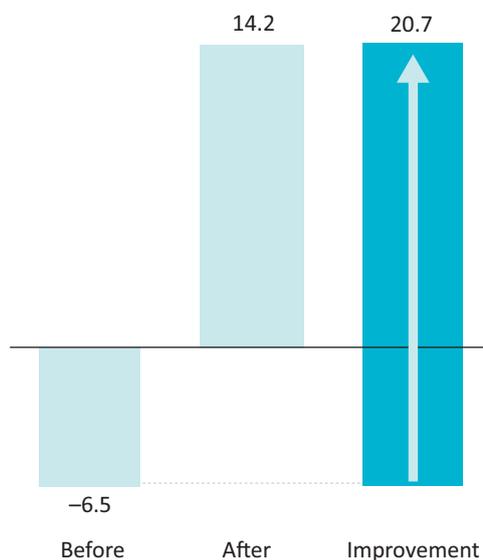


Fig 8. Average EBITDA (earnings before interest, taxes, depreciation and amortisation) margin before and after acquisition by a German hospital chain. The chain, Helios Kliniken Gruppe, owns 62 facilities and has annual revenues of €2.1 billion. The improvement splits broadly into >10–15% core clinical processes, >0–5% building redesign, >0–5% new income.

		INTENSITY				
		Light			Heavy	
Examples	Buddying/ cooperation	Branding	Service provider	Joint venture	Partial acquisition	Full acquisition
		<ul style="list-style-type: none"> > Referring patients for specialised care, convenience, or trials > Joint conferences/ CME/ research > Jointly purchasing supplies 	<ul style="list-style-type: none"> > 'Licensing' brand and providing consultants to ensure quality in exchange for equity and/or referrals 	<p>Clinical</p> <ul style="list-style-type: none"> > Specialists delivering consults (eg remote) <p>Research</p> <ul style="list-style-type: none"> > Trial access > Licensing IP <p>Support Services</p> <ul style="list-style-type: none"> > Provide services (eg IT, lab, eRad) 	<p>Clinical</p> <ul style="list-style-type: none"> > Range of models for mutual gain <p>Research</p> <ul style="list-style-type: none"> > Research JV for entire group or specific SL <p>Support Services</p> <ul style="list-style-type: none"> > Consolidate support services (eg RCM, IT) 	<ul style="list-style-type: none"> > Capital structure agreements (eg sale/ lease-back) > Acquiring a partner's clinicals practice in specific areas

Fig 9. A range of potential options of stronger relationships between trusts, from lighter to heavier intensity. CME, continuing medical education; IP, intellectual property; JV = joint venture.

include HCA and Catholic Healthcare in the US, Helios in Germany and Fortis in India. Chains like this are able rapidly to replicate successful working practices from one hospital to another, can ensure quality control across multiple sites by adopting common approaches and can drive down the costs of management and supplies through economies of scale. Fig 8 shows the scale of improvement made by Helios in Germany, where there was a marked rise in EBITDA (earnings before interest, tax, depreciation and amortisation) a hospital joined their group. That said, the history of hospital mergers in the UK is not overwhelmingly positive¹² and there are alternatives to a full merger that still confer benefits through greater collaboration between hospitals (Fig 9).

Freedom to innovate around new workforce models

Current workforce regulations present an impediment to change. Input ratios such as numbers of nurses per bed or numbers of midwives per birth embed inefficient and outmoded working practices and fail to recognise the potential impact of new working practices and/or technological enhancement. Similarly, professional regulation, while helping to ensure quality, can prevent the adoption of new roles and skill-mix changes. So, carving out areas of freedom to innovate – while at the same time monitoring quality of care – will be essential in ensuring more efficient and effective models of care.

Improved financial incentives to enable vertical integration, to encourage adoption of new delivery models, such as virtual consultations

Current payment mechanisms tend to embed existing working practices. Tariffs set at average costs result in average practice being adopted; tariffs for face-to-face consultations encourage more of those and mitigate against technology adoption; activity-based funding models encourage more hospital activity; marginal tariffs in theory provide a disincentive for hospitals to admit more patients but provide no incentive for primary/community care providers (or their commissioners) to improve out-of-hospital care.

The UK needs to look at examples of payment innovation in place in other countries to consider what approaches could be applied here. The overall impact of incentives needs to drive hospitals to work more effectively with other providers to ensure appropriate care for populations – and to reward innovation and adoption of best practice services.

Conclusion

Hospitals hold a central place in healthcare services but will need to revolutionise their model of care delivery in the future. This will require new ways of working, changes in the hospital landscape across the country and more sophisticated funding mechanisms to incentivise and reward high-quality, productive care. Getting this right will result in better care for patients, more rewarding work for staff and a cost-base that is sustainable in the long run. ■

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