

Healthcare Systems and Services Practice

# Addendum: The nine forces changing the world for hospitals

This addendum, a companion to 'The hospital is dead, long live the hospital: Innovations that will shape the next generation of hospitals', provides greater details about the forces reshaping healthcare delivery.

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**In our article**, ‘The hospital is dead, long live the hospital: The innovations that will shape the next generation of hospitals’, we briefly discuss the nine major forces affecting hospitals:

- The patient population is getting older, and their needs are becoming more complex
- Patients have far higher expectations than before
- Recognition is increasing that care is better provided in community settings
- High-quality care requires concentration into specialised, high-volume centres of excellence
- Clinical advances are delivering better quality and outcomes
- Digital technologies have begun to affect how healthcare is delivered and have the potential for disruptive change
- Availability and expectations of the healthcare workforce are changing
- Payers find it increasingly difficult to finance healthcare in line with increasing costs—which puts pressure on hospitals to deliver high-quality care more affordably
- There are more requirements to measure and publish quality metrics and to receive financial bonuses for high-quality care

Here, we explore each of these forces in greater detail. Whilst their relative importance differs from country to country, the forces are currently at play across the globe.

## **The patient population is getting older, and their needs are becoming more complex**

Partly because of the major advances in healthcare that occurred over the past century, the population that hospitals serve today looks fundamentally different than it had in previous decades: patients are far older and have more complex needs. Prognoses following cancer diagnoses,<sup>1</sup> heart attacks,<sup>2</sup> and strokes<sup>3</sup> have improved markedly, but patients often require significant care after discharge. For example, 40 percent of stroke survivors require support with daily activities after being discharged from hospital.<sup>4</sup> The proportion of patients in the United Kingdom with more than one long-term condition increased from 32 percent in 2002 to 43 percent in 2012.<sup>5</sup> The cost of care is up to eight times higher for these patients than for healthy adults.<sup>6</sup> Mental health remains an unresolved challenge, affecting one in four people worldwide at some point in their lives.<sup>7</sup>

The changing population presents new challenges to hospitals, which must develop and expand services to accommodate older, more complex patients.<sup>8</sup> In addition, demand for care in the community is rising—in most European countries, the number of beds in care homes has increased.<sup>9</sup> In the Netherlands, for example, the number of beds providing nursing or residential care rose from 168,847 in 2000 to 222,310 in 2015.<sup>10</sup> Last, managing the growing need for medical care delivered in the community creates new challenges—both increasing age and the total number of medications have been correlated with a rise in the frequency of primary care attendances.<sup>11</sup>

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<sup>1</sup> Siegel RL et al. Cancer statistics, 2018. *CA: A Cancer Journal for Clinicians*. 2018;68(1):7–30.

<sup>2</sup> Schmidt M et al. 25 year trends in first time hospitalisation for acute myocardial infarction, subsequent short and long term mortality, and the prognostic impact of sex and comorbidity: a Danish nationwide cohort study. *BMJ*. 2012;344:e356.

<sup>3</sup> Edwards JD et al. Trends in long-term mortality and morbidity in patients with no early complications after stroke and transient ischaemic attack. *Journal of Stroke and Cerebrovascular Disease*. 2017;26(7):1641–5.

<sup>4</sup> Stroke Alliance for Europe. The Burden of Stroke in Europe Report. May 11, 2017.

<sup>5</sup> Department of Health Long Term Conditions Team. *Long Term Conditions Compendium of Information: Third Edition*. UK Department of Health. 2012.

<sup>6</sup> George J, Martin F. Briefing paper (4): Living with long term conditions. British Medical Association. 2016.

<sup>7</sup> Mental disorders affect one in four people. World Health Organization. October 4, 2001.

<sup>8</sup> Fisher JM et al. New horizons in geriatric medicine education and training: The need for pan-European education and training standards. *European Geriatric Medicine*. 2017;8(5–6):467–73.

<sup>9</sup> World Health Organization. Beds in nursing and residential care facilities, per 100,000. European Health Information Gateway. Updated September 20, 2016.

<sup>10</sup> OECD. Long-term care resources and utilisation. Organisation for Economic Co-operation and Development.

<sup>11</sup> Hu T et al. Effect of comorbidities and medications on frequency of primary care visits among older patients. *Canadian Family Physician*. 2017;63(1):45–50.

## Patients have far higher expectations than before

Patients—and their families and caregivers—are increasingly acting as consumers, a phenomenon resulting from<sup>12</sup>:

- Easier patient access to information and technology
- Growth in the share of costs paid directly by patients in some countries, including the United States (Exhibit 1) and the BRICS countries (Brazil, Russia, India, China, and South Africa)<sup>13</sup>
- The rise of 'retail' models of healthcare

The trend towards consumerism reflects developments in other industries, where ease of use and price are key differentiating features between suppliers. In addition, price and quality comparison websites have become increasingly critical intermediaries.

Patients expect to receive more information and have greater involvement in decisions surrounding their care, and a growing number of them are demanding higher standards and access to the newest treatments.<sup>14</sup> Providers around the world recognise this trend; in a recent international survey, 82 percent of providers identified patient experience as one their top three priorities for the next three years.<sup>15</sup>

Efforts to improve patient experience have been undertaken in many parts of the world. For example, NephroPlus, India's largest dialysis network, provides a single point of contact for dialysis users to help them arrange holidays (including travel, hotels, and dialysis).<sup>16</sup> In addition, all dialysis centres in the network provide free Wi-Fi and television access during patients' four-hour dialysis sessions.

<sup>12</sup> Pearl R. Are you a patient or a healthcare consumer? *Forbes*. October 15, 2015. 2017;26(7):844–52.

<sup>13</sup> Jakovljevic M et al. Evolving health expenditure landscape of the BRICS nations and projections to 2025. *Health Economics*. 2017;26(7):844–52.

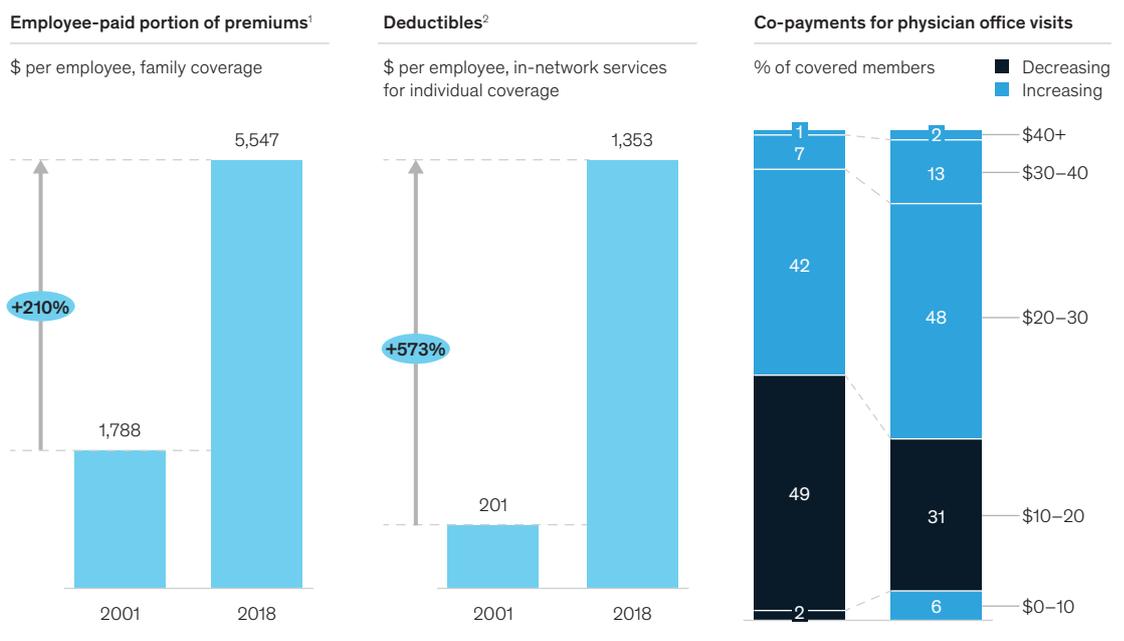
<sup>14</sup> Time to think differently: Public expectations and experience of services. The Kings Fund. 2012.

<sup>15</sup> Wolf J. The state of patient experience 2017: A return to purpose. The Beryl Institute. 2017.

<sup>16</sup> NephroPlus. Holiday dialysis. Nephroplus.com. Accessed May 15, 2018.

Exhibit 1

## Consumers' share of healthcare costs have risen dramatically



<sup>1</sup> All plans and company sizes, for family coverage.

<sup>2</sup> For preferred provider organization plans; other types of plans have seen similar increases. Figures may not sum to 100%, because of rounding.

Source: Kaiser Family Foundation, 2001 and 2018 Employer Health Benefits Surveys

## Recognition is increasing that care is better provided in community settings

Current evidence suggests that it is beneficial for patients if their care is managed outside of hospitals whenever possible. Better primary preventive care for patients with long-term conditions reduces complications and the need for hospital care.<sup>17</sup> Early discharge following surgery can often be achieved without increasing the risk of complications and may improve patient satisfaction.<sup>18</sup> Furthermore, longer stays in hospital lead to a significant loss of muscle strength<sup>19</sup> and, as such, may increase dependency—especially for older patients. One study found that older people can lose up to 5 percent of muscle strength per day of hospitalization.<sup>20</sup> Kaiser Permanente's affiliated medical groups, such as The Permanente Medical Group in Northern California, consider any excess length of hospital stay to be a safety issue and monitor this metric closely.

At the same time, clinical advances permit more to be done in outpatient settings, a trend that is highly likely to continue. In a McKinsey survey, practicing US physicians predicted that 28 percent of total knee replacement surgeries will be performed in outpatient settings within 10 years (about 2 percent of those procedures are currently done on an outpatient basis in the United States).<sup>21</sup> The total value of US Medicare payments for outpatient cardiology treatments exceeded those for inpatient care for the first time in 2014. A further 15 percent shift in activity is expected over the next ten years.<sup>22</sup>

In China, online healthcare platforms are emerging, steering patient volumes away from hospitals. One investment-holding conglomerate has invested in an online care delivery system called WeDoctor (formerly known as Guahao). WeDoctor

has more than 27 million active users monthly, which it serves via 2,700 hospitals, 220,000 doctors, and 15,000 pharmacies.<sup>23</sup> In addition, the major Chinese insurer Ping An owns a system called Good Doctor. Both platforms have the intention of moving volumes away from inpatient care towards online and outpatient settings.

In many countries, publicly funded healthcare systems are also encouraging providers to reduce dependence on hospital settings. Israel, for example, the bed count (excluding psychiatric beds) per 1,000 population is currently only 1.8, amongst the lowest in the developed world, but it is projected to fall to 1.6 over the next few years. Although the country's population is expected to grow by 2 percent during that time, the ministry of health has made it challenging for hospitals to increase bed capacity, based on the beliefs that hospitals will always fill the capacity they have, and that, at the system level, it is better to invest in community healthcare than larger hospital capacity.<sup>24</sup>

The trend towards increasing outpatient care is reflected in the growth of free-standing retail clinics or urgent care centres in the Australia, the United Kingdom, and the United States (Exhibit 2). However, growth has been slower in Australia than in the other countries.

Traditional inpatient healthcare providers—that is, hospitals—must respond to these trends towards shorter hospital stays, or they may be left with substantial underutilization of their large fixed-cost bases.

<sup>17</sup> Jonkman NH et al. Do self-management interventions in COPD patients work and which patients benefit most? An individual patient data meta-analysis. *International Journal of Chronic Obstructive Pulmonary Disease*. 2016;11:2063–74.

<sup>18</sup> Gonçalves-Bradley DC et al. Early discharge hospital at home. *Cochrane Database of Systematic Reviews*. 2017;6:CD000356.

<sup>19</sup> Department of Health Comptroller and Auditor General. Discharging older patients from hospital. National Audit Office. May 2016.

<sup>20</sup> Department of Health Comptroller and Auditor General. Discharging older patients from hospital. National Audit Office. May 2016.

<sup>21</sup> Unpublished McKinsey survey of practicing US clinicians.

<sup>22</sup> Truven Health. Fact file: Shifts in cardiology treatment. Health Leaders Media. May 2016.

<sup>23</sup> Jourdan A. Tencent's WeDoctor raises \$500 million, values firm at \$5.5 billion pre-IPO. Reuters. May 8, 2018.

<sup>24</sup> McKinsey interviews with Israel healthcare officials.

## High-quality care requires concentration into specialised, high-volume centres of excellence

A substantial body of evidence shows that the volume of activity is positively correlated with patient outcomes. This relationship has been established in many areas of planned care—including joint replacement surgery,<sup>25</sup> cataract surgery,<sup>26</sup> paediatric surgery,<sup>27</sup> and cancer surgery<sup>28</sup>—as well as in acute care (e.g., for major trauma,<sup>29</sup> strokes,<sup>30</sup> and heart attacks<sup>31</sup>). Many hospitals must now show that they can maintain sufficient volumes or risk losing more complex cases,

or even whole service lines, to more specialised centres (Exhibit 3).

In some cases, a result of this understanding (that the volume of procedures performed in the same location and/or by the same clinician can deliver better quality and better efficiency) is the disintermediation of general hospitals altogether. Especially in Asia, providers which focus on only one specialty are emerging. In India, these providers include Aravind, a specialist eye centre, and Apollo Hospitals, which focuses solely on treatment for coronary heart disease.

- <sup>25</sup> Ravi B et al. Relation between surgeon volume and risk of complications after total hip arthroplasty: Propensity score matched cohort study. *BMJ*. 2014;348:g3284.
- <sup>26</sup> Bell CM et al. Surgeon volumes and selected patient outcomes in cataract surgery: A population-based analysis. *Ophthalmology*. 2007;114(3):405–10.
- <sup>27</sup> McAteer JP et al. Influence of surgeon experience, hospital volume, and specialty designation on outcomes in pediatric surgery: a systematic review. *JAMA Pediatrics*. 2013;167(5):468–75.
- <sup>28</sup> Huo YR et al. Systematic review and a meta-analysis of hospital and surgeon volume/outcome relationships in colorectal cancer surgery. *Journal of Gastrointestinal Oncology*. 2017;8(3):534–46.
- <sup>29</sup> Zacher MT et al. Association between volume of severely injured patients and mortality in German trauma hospitals. *British Journal of Surgery*. 2015;102(10):1213–9.
- <sup>30</sup> Saposnik G et al. Hospital volume and stroke outcome: does it matter? *Neurology*. 2007;69(11):1142–51.
- <sup>31</sup> Fanaroff AC et al. Outcomes of PCI in relation to procedural characteristics and operator volumes in the United States. *Journal of the American College of Cardiology*. 2017;69(24):2913–24.

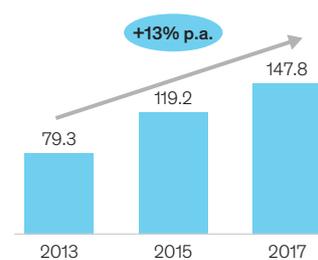
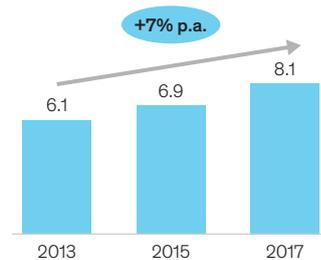
### Exhibit 2

## Rise of new ambulatory options has shifted care from inpatient to outpatient settings

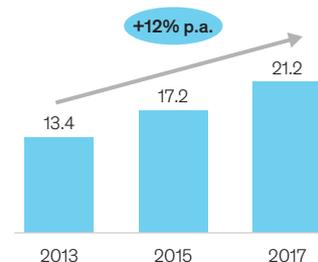
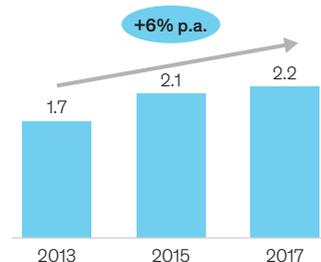
Approximate number of US centres, thousands

Approximate number of visits,<sup>1</sup> millions

### Urgent care



### Retail clinics



- The United States has seen growth in convenient care options
  - **Urgent care clinics** are walk-in centres that treat a wide range of acute illnesses that require immediate but not emergency care
  - **Retail clinics** are walk-in health centres that provide immediate but limited-scope care
- **Lower staffing and fixed costs** than traditional care (e.g., emergency room treatment) have shown **per-visit cost savings**

p.a., per annum.

<sup>1</sup> Based on average visits per day, number of clinics, and days in the year.

Source: Kalorama Information, *Retail Clinics 2017: The Game-Changer in Healthcare*; Kalorama Information, *Retail Clinics: Customer Survey 2018*; UCA Benchmarking Reports (2013–17), Urgent Care Association of America, ucaoa.org

## Clinical advances are delivering better quality and outcomes

Advances in clinical knowledge have led to some truly astonishing achievements. For example, UK deaths from cardiovascular disease fell by 68 percent from 1980 to 2013, even though the prevalence of the disease consistently hovered around 3.5 percent.<sup>32</sup> Similar reductions have been observed in other developed countries.<sup>33</sup> The decrease is attributable to both clinical advances (e.g., surgical interventions that decrease case fatalities, the increased use of statins, the advent of thrombolysis and stenting), as well as reduced smoking rates.<sup>34</sup>

Decreases in mortality and case fatalities from breast cancer are also striking—in the United States, for example, mortality declined by 34 percent from 1975 to 2010.<sup>35</sup> The decreases are attributable not to improved screening but to the introduction of new therapies, such as cyclophosphamide/methotrexate/5-fluorouracil (CMF) and tamoxifen in the 1970s and adjuvant therapy in the 1990s.

For many patients, antiretroviral therapy has converted HIV/AIDS from a deadly disease to a chronic condition.<sup>36</sup> The development of sofosbuvir and other new direct-acting antiviral medications transformed the lives and prognoses of thousands of hepatitis C patients.<sup>37</sup>

<sup>32</sup> Bhatnagar P et al. Trends in the epidemiology of cardiovascular disease in the UK. *Heart*. 2016;102:1945–52.

<sup>33</sup> Global Burden of Cardiovascular Diseases Collaboration. The Burden of Cardiovascular Diseases Among US States, 1990–2016. *JAMA Cardiol*. 2018;3(5):375–89.

<sup>34</sup> Bhatnagar P et al. Trends in the epidemiology of cardiovascular disease in the UK. *Heart*. 2016;102:1945–52.

<sup>35</sup> Naroda SA et al. Why have breast cancer mortality rates declined? *Journal of Cancer Policy*. 2015;5:8–17.

<sup>36</sup> Quinn TC. HIV epidemiology and the effects of antiviral therapy on long-term consequences. *AIDS*. 2008;22(Suppl 3):S7–12.

<sup>37</sup> Varadarajan T. The business of saving lives. *WSJ Opinion*. October 20, 2017.

### Exhibit 3

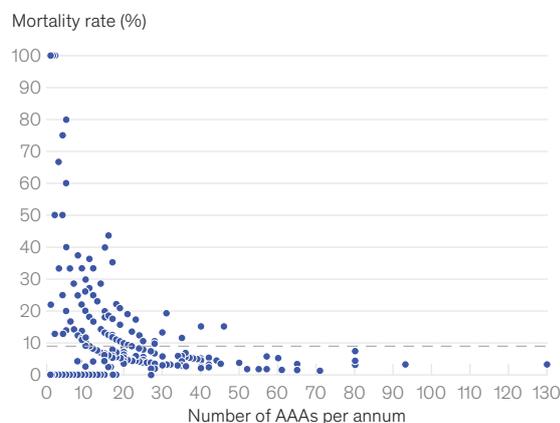
## Higher hospital and surgeon volumes are associated with lower mortality for many conditions, including abdominal aortic aneurysm (AAA) repair

**The significant relationship between operating volumes (for both hospitals and surgeons) and outcomes was proved in an analysis of more than 460,000 patients in 51 studies**

- Mean mortality rate for elective AAA repair was 9.5%—but the mortality rate fell as annual operating volume increased
- Hospital volume and surgeon volume are independent predictors of mortality (i.e., higher-volume surgeons have lower operative mortality rates than lower-volume surgeons)
- Furthermore, hospital volume and surgeon volume have an additive effect

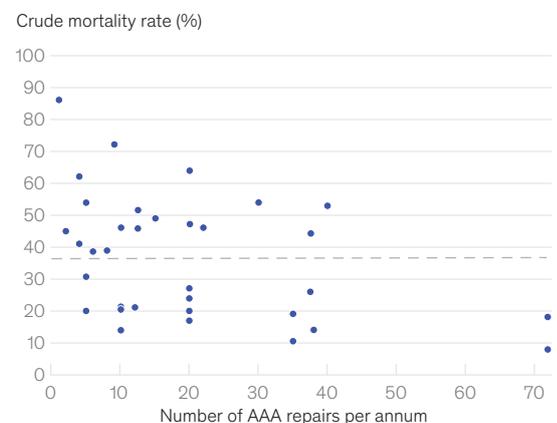
### Weighted mortality odds ratio for elective repair is 0.66 at a threshold of 43 AAAs per annum

Mortality rate plotted against annual volume of elective AAA repairs by hospital. Dashed line represents the group mean (9.5%)



### Weighted mortality odds ratio for ruptured repair is 0.78 at a threshold of 15 AAAs per annum

Mortality rate plotted against annual volume of ruptured AAA repairs by hospital. Dashed line represents the group mean (37.1%)



Source: Holt PJE et al. Meta-analysis and systematic review of the relationship between volume and outcome in abdominal aortic aneurysm surgery. *British Journal of Surgery*. 2007;94(4):395–403.

The potential of drug therapies to cure disease has also risen, in part because of the increasing use of monoclonal antibodies and gene therapy. Precision medicine may eventually help to reduce the cost of care by allowing clinicians to prioritise the therapies that are most likely to be effective in an individual.

However, many of these advances in care are quite expensive, and spending on pharmaceuticals remains a concern for many countries. Drug sales are expected to grow in value by more than 6 percent per annum globally from 2018 to 2022, despite increasing scrutiny on pricing.<sup>38</sup>

### **Digital technologies have begun to affect how healthcare is delivered and have the potential for disruptive change**

Digital technologies are causing multiple disruptions in care delivery, including a shift to self-service, remote access, and greater transparency. The types and volume of data available, which have the potential to enhance clinical decision-making, are exploding.

Digital technology is affecting healthcare delivery in five principal ways:

- **Automating manual tasks** to improve the consistency of performance, as well as to allow clinical staff to be more efficient, freeing up more time for patient care. In England, Hospedia has partnered with Derby Teaching Hospitals NHS Foundation Trust as part of Hospedia's Ready to Go initiative.<sup>39</sup> They developed processes to display a range of icons that allow rapid, real-time tracking of the patient's status and indicate when he or she is ready for discharge. This automation eliminates the need for staff to check the notes or chase other members of the team to confirm outstanding patient needs.

- **Enabling patient and caregivers to play a bigger role** by providing greater access to and interactivity with healthcare providers. It is well established that patients who are more involved in clinical decision-making about their health have a faster recovery.<sup>40</sup> Digital technologies are starting to work in this space—Sensely, launched in 2015, is an app that allows patients to maintain a direct connection with their clinical teams by talking to the app and thereby minimising the need for in-person follow-up.<sup>41</sup>
- **Allowing real-time management of assets and flows**, which can improve throughput in emergency departments. Jackson Health System, based in Miami, Florida, uses Teletracking's radiofrequency identification tagging to track the utilisation of beds—and hence the movement of patients—in real time, making it easy for the staff to follow changes. With the improved management of flow and staff utilisation, turn time has been reduced by 70 percent, and the average length of hospital stays has been reduced by more than one day.<sup>42</sup>
- **Reducing variation in the type and timeliness of care received**, which can be aided by applications for real-time decision support. Clinical decision support can increase reliability and robustness as well as improve accessibility. The Mayo Clinic, in Rochester, Minnesota, transitioned from protocols to decision-support algorithms to standardise nurse triage and ensure that key patient assessment points are never missed. As a result, patient access to providers improved by about 10 percent, since about 36 percent of the patients were redirected to a lower level of care than originally expected. Moreover, the decision-support system at Mayo enables a more agile way of working. During the H1N1 outbreak of 2010, when the US Centers for Disease Control frequently changed its recommendations for providers as its under-

<sup>38</sup> EvaluatePharma. World Preview 2017, Outlook to 2022. Evaluate. June 2017.

<sup>39</sup> ExtraMed. Case study: 'Ready to go' with patient flow. Extramed.co.uk.

<sup>40</sup> Stewart M et al. The impact of patient-centered care on outcomes. *Journal of Family Practice*. 2000;49(9):796–804.

<sup>41</sup> Sensely website. Sensely.com.

<sup>42</sup> Jackson Health System. Presentation to the Florida chapter of the Healthcare Financial Management Association. October 16, 2016.

standing of the virus evolved, Mayo was able to maintain standardised care across a large number of care units.<sup>43</sup>

- **Enhancing connectivity between patients and clinicians**, no longer requiring them to be co-located. Remote monitoring can facilitate patient care—among multiple units or even multiple hospitals—from a single control centre. This approach is used by the Philips eICU (electronic intensive care unit) system, which also deploys predictive algorithms to assist in patient care. Studies of eICU systems have shown that they can lower mortality and length of stay, decrease the time before intensive care physicians become involved with deteriorating patients, and reduce response times.<sup>44</sup> Silver Chain in Australia is piloting a physician-consultation service enabled by 3-D goggles for patients near the end of life. The service is expected to revolutionise patient experience and reduce hospital attendance numbers, cutting care delivery costs in the process.<sup>45</sup>

### Availability and expectations of the healthcare workforce are changing

Workforce costs amount to 50 percent to 70 percent of expenditures in hospitals across the world, our research has shown. And despite automation, a skilled workforce will remain a major part of the resources needed to deliver high-quality care. However, attracting and retaining a skilled clinical workforce is an increasing challenge around the globe.

The global workforce shortage of 7.2 million healthcare workers in 2013 is projected to grow to 12.9 million by 2035.<sup>46</sup> Absolute numbers mask further challenges, both geographic and within professions:

- In Europe, the estimated share of physicians aged 55 and over rose from 27

percent in 2005 to 38 percent in 2016 and continues to increase.<sup>47</sup>

- Growing numbers of newly qualified doctors are exploring alternative career opportunities. In the United Kingdom in 2011, 4.7 percent took a career break or left the profession permanently within two years of qualification<sup>48</sup>; this figure rose to 13.8 percent in 2017.<sup>49</sup>
- In some parts of the world, attracting a workforce to rural areas has been challenging and has required incentives. To address the shortage of primary care physicians in rural Australia, for example, the government's Five Years Overseas Trained Doctors Recruitment Scheme provides incentives to trained doctors from other countries as long as the doctors agree to work in rural areas of Australia; the government also makes it easier for the doctors to remain in that country by halving the ten-year moratorium on obtaining a 'provider number' (once overseas-trained doctors have such a number, they can apply for jobs in Australia on a par with those trained within the country).<sup>50</sup>

There is also a global shortage of nursing and allied health professional staff. Vacancy rates vary from 790 to 1,330 nurses per 100,000 inhabitants in Belgium, France, Germany, the Netherlands, and the United Kingdom.<sup>51</sup>

There are several reasons why attracting and retaining a skilled clinical workforce is a growing challenge across the world. A significant share of the workforce (e.g., one-third of US nurses) are baby boomers, which means that the supply of experienced workers will decrease once they retire. Furthermore, replacing a workforce also takes time. In the United States, it takes two to four years to become a registered nurse, a four-year Bachelor of

<sup>43</sup>Bresnick J. How Mayo Clinic uses CDS algorithms to standardize nurse triage. HealthITAnalytics. October 04, 2017.

<sup>44</sup>Lilly CM et al. A multicenter study of ICU telemedicine reengineering of adult critical care. *Chest*. 2014;145(3):500–7.

<sup>45</sup>Silver Chain website. Silverchain.org.au.

<sup>46</sup>Global health workforce shortage to reach 12.9 million in coming decades. World Health Organization. November 11, 2013.

<sup>47</sup>Statistics Explained. Healthcare personnel statistics—physicians. Eurostat. Updated 20 November 2018. Accessed May 2, 2018.

<sup>48</sup>Foundation programme annual report 2011. UK Foundation Programme Office. November 2011.

<sup>49</sup>Career destinations report 2017. UK Foundation Programme. December 2017.

<sup>50</sup>Australian Government Department of Health. Five Year Overseas Trained Doctors Recruitment Scheme Administrative Guidelines. 2012.

<sup>51</sup>Staffing Industry Analysts. Europe—demand for nursing staff on the rise, UK sees biggest shortage of nurses. January 12, 2018.

Nursing degree and one or two years of additional training to become a nurse practitioner, and nine or more years to become a physician or surgeon. Shortages increase the strain on the workforce, leading to employee overwork and burnout.<sup>52</sup> Attracting students to health profession training programmes has become more challenging, which explains why some hospitals are offering large signing bonuses, college tuition, and free housing to employees and their children.<sup>53</sup>

In many countries, the primary method used to meet the growing demand for healthcare services has been to increase the size of the clinical workforce; there has been little change in the efficiency with which care is delivered.<sup>54</sup> Improving the productivity of care delivery would help address the workforce shortage, but achieving that aim will require significant changes to hospital operations.

## Payers find it increasingly difficult to finance healthcare in line with increasing costs—which puts pressure on hospitals to deliver high-quality care more affordably

The rise of healthcare spending is expected to continue to exceed the gross domestic product (GDP) growth in the Organisation for Economic Co-operation and Development (OECD) and BRICS countries, as well as many others, because of population aging, higher patient demands, and more advanced treatments and technologies (Exhibit 4). Based on current trends, healthcare spending in the United States may exceed 24 percent of GDP by 2040.<sup>55</sup> By 2060, healthcare and long-term care spending in the European Union and Norway is projected to double from 2007 expenditures and reach 13 percent of GDP.<sup>56</sup>

Many payers globally—be they governments, institutional and private insurers, or individuals

<sup>52</sup> Dixon L. The state of the health care worker shortage. Talent Economy. November 17, 2017.

<sup>53</sup> Kavilanz P. Hospitals offer big bonuses, free housing and tuition to recruit nurses. *CNN Money*. March 8, 2018.

<sup>54</sup> Sahni N et al. *The Productivity Imperative for Healthcare Delivery in the United States*. McKinsey report. February 2019.

<sup>55</sup> Teitelbaum J et al. The financial sustainability of health systems: A case for change. A joint report from McKinsey and World Economic Forum. 2012.

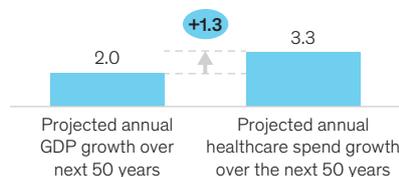
<sup>56</sup> Appleby J. Spending on health and social care over the next 50 years: Why think long term? The King's Fund. 2013.

Exhibit 4

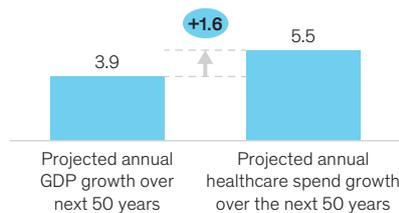
## Healthcare spending is likely to exceed economic growth globally, creating a sustainability challenge for healthcare systems

Projected GDP vs healthcare spending, compound annual growth rate, %

### OECD countries



### BRICS



### Selected countries

Country	Economic spending growth	Healthcare spending growth
USA	1.4	2.0
UK	1.7	2.3
France	1.6	2.1
Germany	1.5	2.1
Brazil	2.1	3.3
China	3.3	5.3
India	4.2	6.1

BRICS, Brazil, Russia, India, China, and South Africa; GDP, gross domestic product; OECD, Organisation for Economic Co-operation and Development.

Source: OECD GDP long-term forecasts 2011–60; OECD public spending on health and long-term care: a new set of projections, June 2013.

financing care through self-pay—struggle to find enough money (through taxes, raised premiums, or out-of-pocket funds) to keep up with the high annual growth in healthcare costs. Therefore, they are applying more pressure to healthcare systems to deliver high-quality care more affordably. Taking the English National Health Service (NHS) as an example: public funding has risen in line with GDP growth, but the cost of healthcare has grown faster still. The NHS has increased the efficiency of its provision of care but is struggling to do so at the rate required to close the gap. In 2017, 44 percent of NHS hospitals were spending more than their budgets, up from 26 percent in 2013 and 8 percent in 2010.<sup>57</sup>

In addition, the growing focus on primary care and secondary prevention is leading to proportionately more funding being directed towards those types of care. The percentage of health expenditures devoted to inpatient services has fallen gradually but consistently across almost all OECD countries since 2000.<sup>58</sup>

Capital requirements and availability are also issues. Many hospitals across the world require significant capital investments because of aging infrastructure, the need for new technologies, or both. In some countries, however, capital funding is scarce.

In England, more than 40 percent of NHS hospitals are more than 30 years old, and there is a maintenance backlog in excess of £1.5 billion in London alone.<sup>59</sup> To make ends meet in the context of costs rising faster than funding allocations, the NHS has, amongst other measures, transferred substantial amounts from the budget for capital investments—due to be spent on technology, cybersecurity, major equipment, and building works—to cover shortfalls in day-to-day running costs.<sup>60</sup>

In Sweden, a 2001 investigation concluded that one of the country's leading hospitals, Karolinska University Hospital, needed to be updated. However, renovating it would have entailed such high costs and produced such a negative impact on operations that Sweden decided it would be better to build a new hospital.<sup>61</sup> The new hospital, which is now operational, is designed in a modern way so that care delivery can be reorganized to address current patient needs, and advanced technology and scientific research can be accommodated.

### **There are more requirements to measure and publish quality metrics and to receive financial bonuses for high-quality care**

In the past, patients had limited information about the quality of their hospital's or doctor's performance. Today, hospitals in Canada,<sup>62</sup> Scandinavia,<sup>63</sup> and the United Kingdom<sup>64</sup> are legally required to publish quality measurements, and financial bonuses are paid to providers that deliver high-quality care. Mortality, readmittance, and infection rates are amongst the quality indicators that must be reported, and some healthcare providers volunteer to include additional information. As more data becomes available, patients will have a greater opportunity to assess the quality of care provided by hospitals, and even doctors, to make decisions regarding where and to whom to go. Patients who previously trusted their local hospital may decide to travel considerable distances for better care, resulting in greater patient volumes at already large hospitals. Increasingly, each hospital must have a distinctive offer to payers and patients if it is to attract and retain their business.

Quality-based metrics are being used in many countries across the world to inform

<sup>57</sup> Kings Fund. Trusts in deficit. June 2018.

<sup>58</sup> Analysis of 19 OECD countries for which annual data available for the period 2000–2015 showing the proportion of total health expenditure accounted for by inpatient curative and/or rehabilitative care. (See OECD Health Statistics 2018. Organisation for Economic Co-operation and Development. Accessed August 22, 2018.)

<sup>59</sup> Naylor R. NHS property and estates: Why the estate matters for patients. Department of Health and Social Care. March 31, 2017.

<sup>60</sup> The National Audit Office reported that 20 percent (£950m) was transferred from the NHS capital budget in 2015/16 to fund day-to-day operating expenditure. (See Morse A. Financial sustainability of the NHS. National Audit Office. November 22, 2016.)

<sup>61</sup> Det ljusa sjukhuset – Nya Karolinska i ord och bild

<sup>62</sup> Sutherland J, Repin N. Hospital quality policy brief. Vancouver: UBC Centre for Health Services and Policy Research. 2014.

<sup>63</sup> KPMG. Through the looking glass: A practical path to improving healthcare through transparency — Scandinavia. KPMG International. March 2017.

<sup>64</sup> NHS England. Clinical Services Quality Measures (CSQMs). NHS.uk. Accessed September 21, 2018.

pay-for-performance programmes. In Sweden, for example, performance-related payments are linked to quality targets and compliance with clinical guidance. Health-care financing is split by county councils and administered in different ways, resulting in varying payment methods throughout the country. However, most county councils have incorporated a pay-for-performance type of financing scheme, in which up to 3 percent of reimbursement to primary care practices depends on those practices

achieving quality targets in such areas as patient satisfaction, care coordination and continuity, enrolment of patients in national registries, and compliance with evidence-based guidelines.<sup>65</sup>

In England, NHS providers have incentives to support improvements in quality through payments from the Commissioning for Quality and Innovation, which pays for delivering specified improvements over and above baseline requirements set out in the NHS standard contract.<sup>66</sup>

<sup>65</sup>Glenngård AH. The Swedish health care system. The Commonwealth Fund. Accessed May 3, 2018.

<sup>66</sup>NHS England. Commissioning for quality and innovation (CQUIN) guidance for 2017–2019. NHS publications gateway reference 07725. March 2018.

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