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Time to care

Securing a future for the hospital workforce in Europe

November 2017

Deloitte Centre *for* Health Solutions

Contents

Deloitte Centre for Health Solutions
The Deloitte Centre for Health Solutions is the research arm of Deloitte LLP's health care and life sciences practices. Our goal is to identify emerging trends, challenges, opportunities and examples of good practice, based on primary and secondary research and rigorous analysis.

The Centre's team of researchers seeks to be a trusted source of relevant, timely, and reliable insights that encourage collaboration across the health value chain, connecting the public and private sectors, health providers and purchasers, patients and suppliers. Our aim is to bring you unique perspectives to support you in the role you play in driving better health outcomes, sustaining a strong health economy and enhancing the reputation of our industry.

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Foreword

Welcome to the Deloitte Centre for Health Solutions' report *Time to care: Securing a future for the hospital workforce in Europe*. The report examines how the health care workforce is responding to the inexorable rise in demand for health care and the challenge of meeting this demand with the right numbers of appropriately skilled staff. It provides actionable insights and evidence-based case solutions to these challenges.

Our research findings are derived from extensive literature reviews; analysis of international datasets; structured interviews with executive directors in hospitals and interviews with policy makers and professional bodies responsible for the hospital workforce; a survey of over 1,300 doctors and nurses working in hospitals across Europe; and insights from colleagues working with health care clients across the world.

Our findings highlight a number of important challenges facing the hospital workforce, with one prominent theme being universal concern about workforce shortages and the lack of time for hands-on care. Despite decades of health workforce planning, education, recruitment and retention initiatives, most countries are facing increasing challenges with regard to the demands placed on the workforce, raising important questions about the sustainability of most of our countries' workforce models.

The clinical workforce take several years to train; in the case of doctors as much as ten years with a risk of attrition at all stages of training and throughout employment. Maintaining high-quality care requires a focus on staff retention, including health and wellbeing and also support to develop new skills and competencies in response to advances in scientific knowledge and the impact of the fourth industrial revolution on the future of work.

Investing in a cost-effective health care workforce is an investment in population health and wellbeing, and a driver of economic growth. Getting the right workforce in place is not merely a numbers game, nor can it be tackled with short-term or silo-based solutions. Without a transformation that enables smarter and more flexible working, the decline in motivation and staff wellbeing, and concerns over workforce productivity that are all too evident today, will become unsustainable tomorrow.

We hope that the report stimulates debate and encourages actions that help realise the quadruple aim of health care that all countries aspire to, and ensure a hospital sector that not only survives but thrives.

As always we welcome your feedback and suggestions for future research topics.

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Executive summary

There is widespread recognition across Europe of the growing mismatch between demand for hospital care and the supply of staff and other resources to meet that demand. Access to high-quality health care is not only a fundamental human right, it improves the health of both individuals and the population as a whole. It also helps economic growth and development. Health professionals are the biggest asset in any health system and represent a significant investment. While countries differ in how they fund health care, how much they are prepared to pay for services and which services they prioritise, health care is first and foremost a people business – with the quality of care dependent on having the right professionals with the right skills in the right place at the right time.

Each country's approach to health workforce planning has evolved over time in response to the history, culture, and economic and political environment in which it operates. While some countries have traditionally trained more staff than they need, others train too few, and recruit trained staff from elsewhere.

Within every health care system, hospitals are the largest employer of doctors and nurses and make up the largest proportion of overall health care spending, with the clinical workforce accounting for between 60 and 70 per cent of hospital expenditures. This report examines the scale and complexity of the workforce challenges facing hospitals in 14 European countries. In the absence of sufficient reliable and comprehensive data on hospital activity and outcomes, our research focuses mainly on insights derived from a unique survey of doctors and nurses working in hospitals, and interviews with over 50 health care leaders.

The WHO predicts a shortfall of up to two million health professionals (or 15 per cent of the workforce) across the EU by 2020. Although some countries have not, as yet, experienced significant workforce shortages, this situation is now changing, with leaders across all countries identifying staff shortages to varying degrees, especially in specific medical and nursing specialties, and in more rural areas. However, in looking beyond the 'numbers game', most health care leaders identified the following common challenges:

Today's challenges

- a lack of the right level and type of skills to respond effectively to increasing patient complexity and a critical lack of time for hands-on care
- emerging views and evidence on safe staffing levels, particularly for nursing
- shortages of certain clinical specialties such as emergency departments, intensive care and operating theatre staff, radiologists and paediatricians
- a lack of access to, or gaps in, performance monitoring information and availability of real-time data
- limited influence at organisational level on training models that are too rigid and lengthy and fail to equip today's workforce with more flexible skills for the emerging digital age
- an increasing need to re-design care pathways, with implications for the workforce and for new ways of working.

Tomorrow's challenges

- changing demographics of the talent pool due to ageing of the current workforce, combined with an increasingly competitive market for people with the required skills and talent
- entry of millennials into the workforce, with different expectations around work-life balance, flexible careers, rewards and incentives, and relationships with their employer
- increasing patient complexity and expectations of the medical treatments available to diagnose and treat each patient
- increasing pressure on the funding available for health care
- Artificial Intelligence (AI), robotics, automation, and advanced digital and cognitive technologies disrupting health care delivery models.

A snapshot of current hospital trends

The available hospital data show that the number of hospital beds has decreased dramatically and length of stay has shortened in 10 out of 13 countries. Our analysis demonstrates that having a higher ratio of skilled professionals is key to enabling teams to cope with the demand from increasingly complex, multi-morbid patients, and at the same time manage higher volumes of patients in emergency and outpatient departments, safely and cost-effectively. Although in some countries there are models for safer hospital staffing, especially for nurses, which provide a basis for monitoring, measuring and optimising workforce planning, to date few countries are using such models or acting on the evidence.

Doctors and nurses are more likely to move from one country to another than individuals in any other highly regulated profession. Income differentials, as well as wider professional opportunities, are the main drivers of migration.

Only two of the 50 senior leaders that we interviewed believe they are well prepared for future workforce challenges. All identify, as a priority, the need to improve staff satisfaction, recruitment and retention and increase workforce productivity. Many raised concerns about reduced morale among their workforce, linking it to increasing workload and limited flexibility in being able to change working conditions. This view was supported by the survey respondents, with doctors in 8 and nurses in 10 out of 11 countries saying their workload had become more difficult to manage compared to five years ago. Over 32 per cent of respondents indicated that they were thinking of leaving their job for employment elsewhere: nurses on average showed less loyalty to remaining in the profession, while over around a third of doctors intended to reduce their working hours to part-time working and a quarter reported plans to leave the country where they were currently practising to work elsewhere.

All interviewees recognised the value of using temporary staff. While many highlighted as a major concern the quality and cost of temporary staff, nearly all struggled to reduce their dependency on them. At the same time there was also growing recognition that the global market for talent was shrinking and that looking to international recruitment to fill vacancies was not sustainable in the long term.

Securing the future hospital workforce

Future workforce shortages could be tackled more cost-effectively if the efficiency and productivity of clinical activities were addressed through innovative approaches to workforce planning, recruitment, skills development and use of technology – most of which may also require institutional reforms.

Initiatives that improve recruitment and retention and staff motivation are: more flexibility in career and job planning, including more reliable staff schedules; more opportunities for continuing professional development; and a culture that encourages employee participation, is transparent about decision-making and deploys effective communication strategies.

Technology will underlie most aspects of care in the future, but care delivery will still require distinctively human capabilities, such as creativity, and social and emotional intelligence. Currently, electronic health record systems are the most widely applied technology; however most interviewees recognised that these were not used to their full capacity. New advanced technologies, such as AI, robotics and virtual reality, were hardly mentioned by survey respondents, and only 40.3 per cent thought that their organisation was well prepared to implement technologies in patient care.

Moreover, the exponential increase in the pace and scale with which new technologies are emerging means that adapting to the future of work will require task shifting and task reorganisation. Consequently, hospitals will need to develop both the human and digital skills of their workforce. Hospital leadership will need to foster a culture of innovation and collaboration if they are to enable the workforce to embrace the technological revolution. Senior management and human resource professionals should seize the opportunity to think creatively, and focus on the opportunities that cognitive technologies offer to help make hospitals more efficient, productive, and affordable, and jobs more meaningful and engaging.

Our findings include sixteen case studies that point to solutions to the above challenges that, if adopted on a larger scale, could help address some of the skills and talent shortages, in a more collaborative and sustainable way. Progress will require significant political commitment and an open public debate to strengthen health systems in a systemic manner, through aligned incentives for digitisation and service integration, improved intelligence-based workforce planning, and new approaches to education and training of health care staff.

Key facts about the European countries covered in this report

Iceland
- 332,000 (2016)
- 8.6%/$4,106
- 8 (2016)
- 3.2 (2016)
- 2.7 (2016)
- 6.3 (2016)

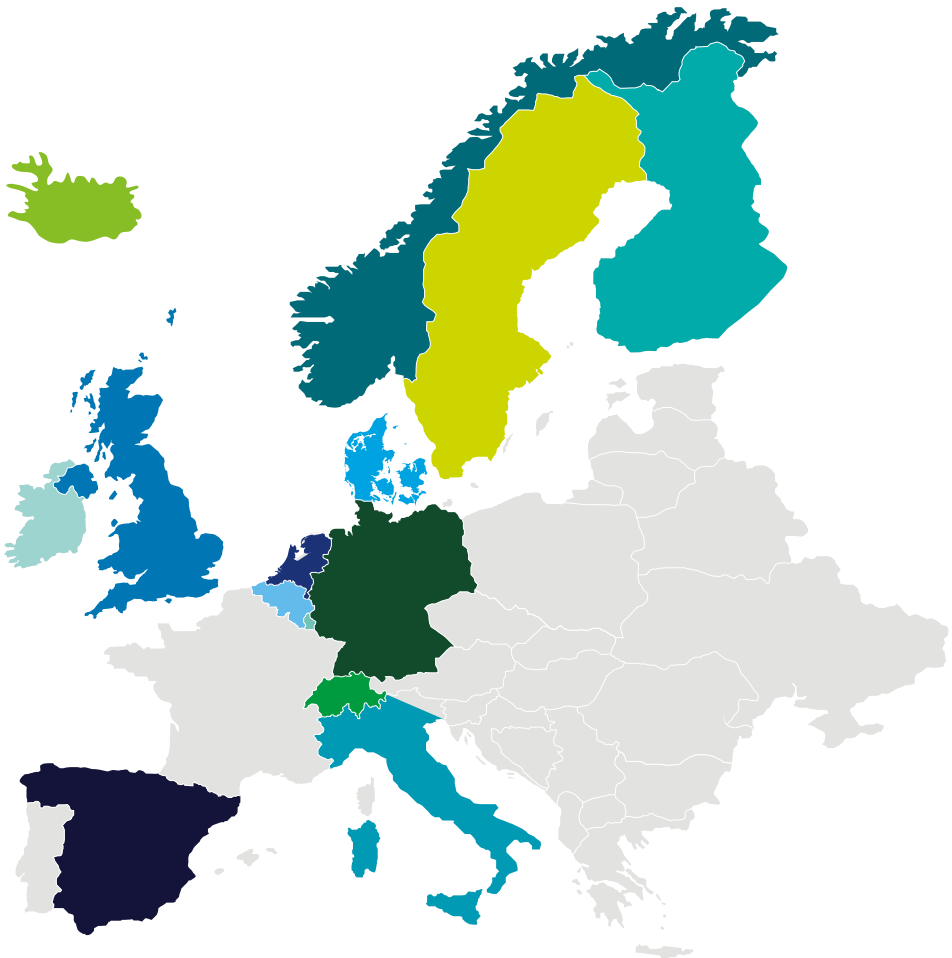
Norway
- 5,255,000 (2016)
- 10.5%/$6,190
- 3.8 (2015)
- 2.3 (2015)
- 9.2 (2015)

Sweden
- 9,838,000 (2016)
- 11.0%/$5,266
- 2.4 (2015)

Ireland
- 4,726,000 (2016)
- 7.8%/$5,276
- 3.0 (2015)
- 1.7 (2016)
- 5.1 (2016)

UK
- 65,789,000 (2016)
- 9.7%/$4,125
- 1,896 (2015)
- 2.6 (2015)
- 2.0 (2015)
- 6.4 (2015)

Spain
- 46,348,000 (2016)
- 9.0%/$3,180
- 765 (2015)
- 3.0 (2015)
- 2.0 (2015)
- 3.3 (2015)



Source: OECD, 2017.

Finland
- 5,503,000 (2016)
- 9.3%/$3,993
- 268 (2015)
- 4.4 (2015)
- 1.5 (2015)
- 1.1 (2014)

Netherlands
- 16,987,000 (2016)
- 10.5%/$5,297
- 505 (2014)
- 4.2 (2013)
- 1.4 (2015)
- 4.4 (2015)

Germany
- 81,915,000 (2016)
- 11.3%/$5,353
- 3,108 (2015)
- 8.1 (2015)
- 2.3 (2015)
- 5.9 (2015)

Denmark
- 5,712,000 (2016)
- 10.4%/$5,058
- 2.6 (2016)
- 2.8 (2014)
- 7.3 (2014)

Belgium
- 11,358,000 (2016)
- 10.4%/$4,779
- 177 (2016)
- 6.1 (2016)
- 0.7 (2014)
- 7.6 (2014)

Switzerland
- 8,402,000 (2016)
- 12.4%/$7,536
- 288 (2015)
- 4.6 (2015)
- 2.5 (2015)
- 7.4 (2015)

Key
- Population
- Percentage GDP on health care (2016)/ Expenditure on health per capita (current prices, PPP, $USD) (2015)
- Number of Hospitals
- Number of hospital beds, per 1,000 population
- Number of full-time medical doctors working in hospitals, per 1,000 population
- Number of full-time nurses and midwives working in hospitals, per 1,000 population

Luxembourg
- 576,000 (2016)
- 6.3%/$6,818
- 12 (2016)
- 4.8 (2016)

Italy
- 59,430,000 (2016)
- 8.9%/$3,352
- 1,115 (2015)
- 3.2 (2015)
- 2.1 (2015)

The scale of the hospital workforce challenge

"We have never produced as many professionals as today but are still not matching the constantly increasing demand. We urgently have to transform the health system in other ways."

Chief Nursing Officer

The right to health is recognised internationally as a fundamental human right, and universal health coverage is important in helping to realise that right.[1] Providing equal access to good quality health care can improve the health of both individuals and populations, and support economic growth and development.[2]

Health systems are universally complex and diverse, the result of history, culture and the economic and political environment in which they operate. Countries differ in how they fund health care and how much they are prepared to pay for services, as well as which services they prioritise.[3] For example, current expenditure per capita (purchasing power parity) in 2016 was $3,248 in Spain, $4,193 in the UK, $5,205 in Denmark, $5,385 in the Netherlands, $5,528 in Ireland, $5,551 in Germany, $7,463 in Luxembourg and $7,919 in Switzerland, compared to $9,892 in the US, $4,753 in Canada and $4,708 in Australia (see ***Country Overview Supplement***).[4, 5]

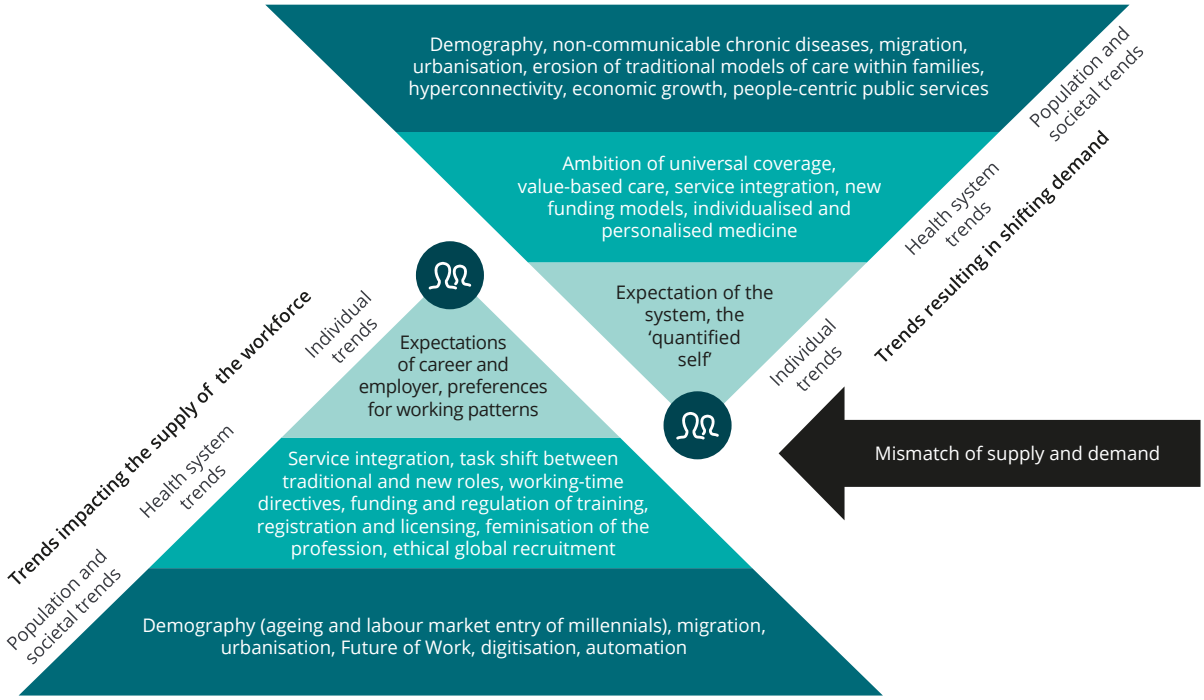
Despite most health economies declaring an ambition to move care closer to and into people's homes, hospitals remain a critical part of the care system. Within most health economies, hospitals employ the largest percentage of doctors and nurses. Hospital clinical staff account for the biggest proportion of hospital expenditure, up to 70 per cent of hospital costs.[6]

The hospital workforce is comprised of multi-disciplinary teams of health professionals, from doctors and nurses to allied health professionals and a growing array of new roles, supported by teams of human resource (HR), administration and finance managers; however, doctors and nurses together make up the largest group of hospital staff and provide the largest share of clinical care.

Health care is first and foremost a people business in all countries, and quality of care depends crucially on having the right professionals with the right skills in the right place at the right time.[7] Health professionals are a hospital's biggest asset, and represent a significant investment. Organisations and governments need to shift their mind-set from seeing the workforce not as a cost to be controlled but as an investment to deliver more productive and high-quality care.

Globally, the scale and complexity of demand for health care is increasing, due to a growing and ageing population and greater public expectation of more personalised and convenient services.[8, 9] As a result the global cost of providing health care is projected to reach $8.7 trillion by 2020 up from $7 trillion in 2015, accelerating at a rate of 4.1 per cent (2016 to 2020) from just 1.3 per cent between 2012 and 2016, driven by increases in the cost of staff salaries, new technology and advances in diagnostic tests and therapeutic interventions.[10] The mismatch between the demand for and supply of health care resources, including staff, is increasing (Figure 1).

Figure 1. Converging global health care trends



Source: Deloitte research and analysis, 2017.

The difficulty of measuring the scale of the challenge

While all countries need to understand the changing demand and supply patterns and the impact these have on the quality, safety and sustainability of care delivery, comparable cross-country and in-country indicators are rarely available at a sufficiently granular level. Measuring comparative performance and understanding the challenges facing the sector is extremely difficult.[11, 12] Moreover, trying to understand the root causes and identify solutions is often restricted to focusing on segments of the system and on countries with the best comparable data, despite the need to understand interdependencies of sectors and global trends.[13]

The WHO (World Health Organisation) predicts a health professional shortfall of up to two million (or 15 per cent of the workforce) across the EU by 2020. However, within the EU some countries produce a surplus of health care staff while others fail to produce enough to meet demand, and instead rely on recruiting staff from elsewhere. There is generally an under-supply of health professionals in most rural areas.[14] Shifts in labour legislation, such as the EU Working Time Directive, has further accentuated these shortages. While regulating working time of health professionals is hugely important to ensure patient safety and wellbeing, organisations have faced significant challenges in staffing hospital services 24 hours a day, seven days a week from a staff pool that supplies fewer available work hours.[15]

About the European Working Time Directive

In 1993, the European Commission adopted the European Working Time Directive (EWTD) – a directive from the Council of Europe (93/104/EC). The EWTD aims to "improve health and safety at work by introducing minimum rules for employees relating to daily and weekly rest periods, rest breaks, annual leave entitlements, length of working week, and on night work". Most countries enacted the directive into national law. In the UK, it has applied to health care consultants and career grade staff since October 1998, however, some groups of workers were initially excluded from the regulations, including doctors in training. From August 2004, the provisions of EWTD applied to doctors in training also and their working week was reduced on a gradual basis reaching an average of 48 hours by 1 August 2009 (calculated over six months).

All countries across the EU can point to decades of workforce planning policies, including numerous initiatives aimed at regulating the entry to the labour market (mainly numerus clausus) and improving staff recruitment and retention.[16, 17, 18] There are differences in the level at which planning takes place, at the centre or at regional or even individual hospital level, and the effectiveness of workforce planning varies significantly.[19, 20, 21]

This report focuses on the scale and complexity of the challenges facing health systems from the viewpoint of medical and nursing staff and their managers in 14 European countries with relatively mature health systems (Belgium, Denmark, Finland, Germany, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Spain, Switzerland, Sweden and UK). This enables us to explore the in-country challenges and the impact of the increasingly interconnected health and social care markets across Europe, including the movement of staff between countries.

Our research is based on extensive literature reviews, analysis of international datasets of health metrics, interviews with health care leaders and a crowdsourced survey of doctors and nurses. Our findings demonstrate the vulnerability of health systems across Europe and the variations in performance both within and between countries.

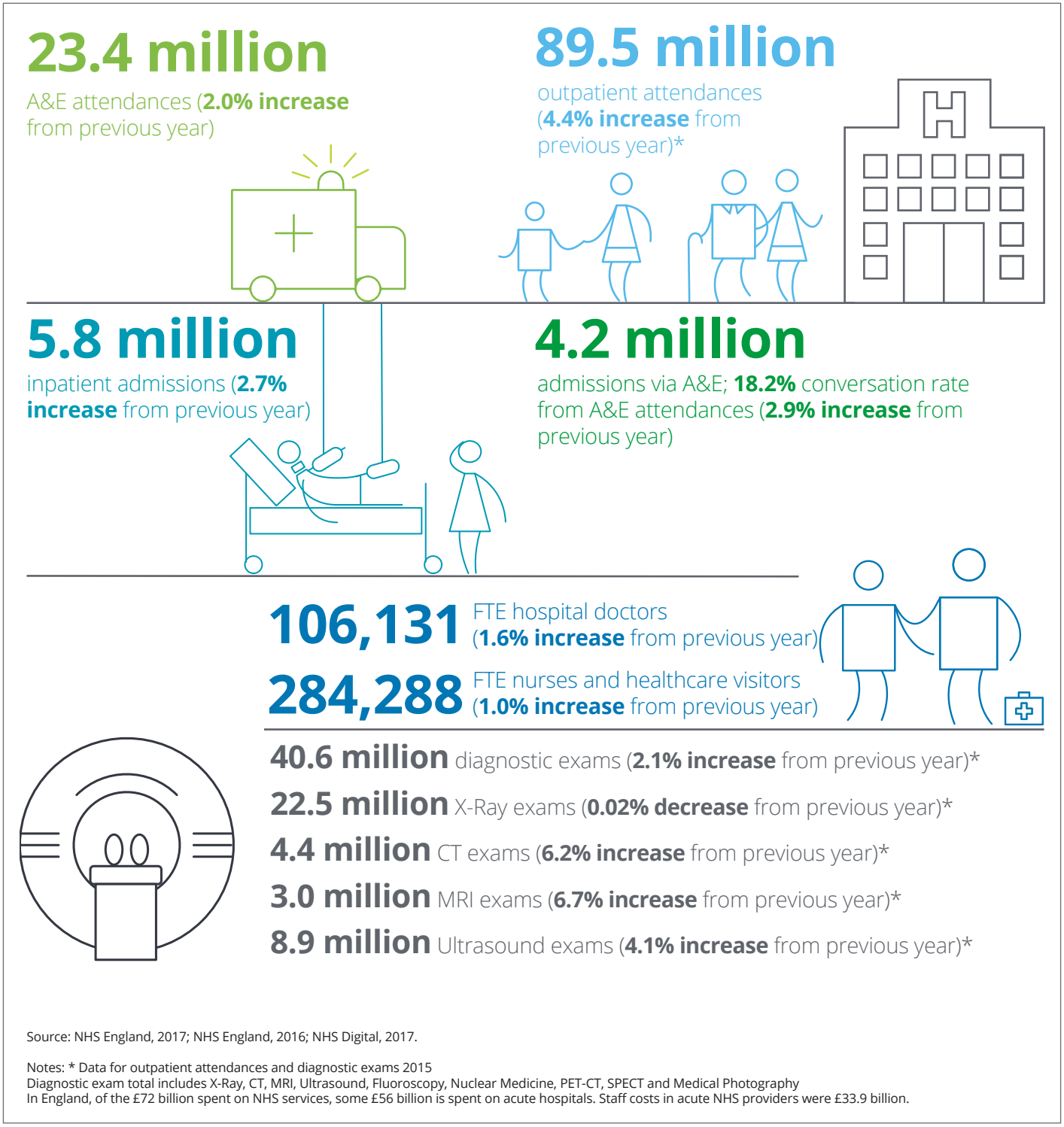
The productivity puzzle

All senior health care leaders interviewed for this study told us that they were seeing growing workforce pressures in terms of numbers, specific skills and workload, and that this was one of their biggest concerns. One interviewee stated that while his organisation was not yet under serious pressure, he was seeing "a tsunami of skills shortages coming".

Interviewees also expressed an ambition to take a more data-driven and evidence-based approach to workforce planning. However most still struggle to define comparable and reliable measures for understanding workload and productivity. They acknowledged that robust information on activity is not routinely collected. Some European countries submit only limited amounts of data to trusted datasets such as the OECD (Organization for Economic Cooperation and Development) and Eurostat. Among all countries there are large variations in how hospital activity and outcomes – including accidents and emergency (A&E) attendances, non-elective and elective cases, and outpatient services – are captured and reported.[22, 23]

A comprehensive pan-European comparison of hospital workloads is therefore virtually impossible. Only a few countries, such as the UK, provide comprehensive data. Figure 2 illustrates the complexity of data and how activity changed from one year to the next in English National Health Service (NHS) hospitals and illustrates the complexity of increasing demand and impact on performance (Figure 2).[24, 25, 26]

Figure 2. Overview of the increase in hospital activity in NHS hospitals in England (2016-17 or nearest year)



Source: NHS England, 2017; NHS England, 2016; NHS Digital, 2017.

Notes: * Data for outpatient attendances and diagnostic exams 2015
Diagnostic exam total includes X-Ray, CT, MRI, Ultrasound, Fluoroscopy, Nuclear Medicine, PET-CT, SPECT and Medical Photography
In England, of the £72 billion spent on NHS services, some £56 billion is spent on acute hospitals. Staff costs in acute NHS providers were £33.9 billion.

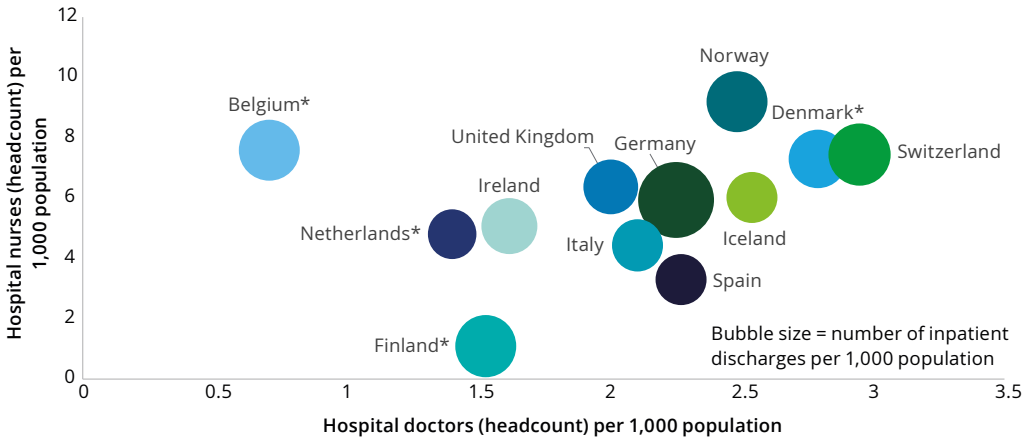
Right numbers, right skills, right mix

The WHO estimates of staff shortages, together with feedback from our interviews, demonstrate the magnitude of the challenge in trying to provide an adequate stock of skilled and motivated professionals at the right time and in the right place. They also highlight an urgent need to rethink planning, training and deployment of health care staff.

Ensuring high quality care is not just a game of total numbers. It requires a good understanding of the links between the availability of health professionals, hospital activities, ways of delivery and expectations of both patients and staff.

Across the countries surveyed for this report, there are wide differences in the current density of health professionals per population and in levels of hospital activity, illustrated by the variation in the ratio of doctors, nurses and inpatient discharges to 1,000 population (Figure 3). [27, 28, 29, 30, 31]

Figure 3. Variation of ratio of hospital doctors, nurses and number of inpatient discharges per population across Europe (2015 or nearest year)



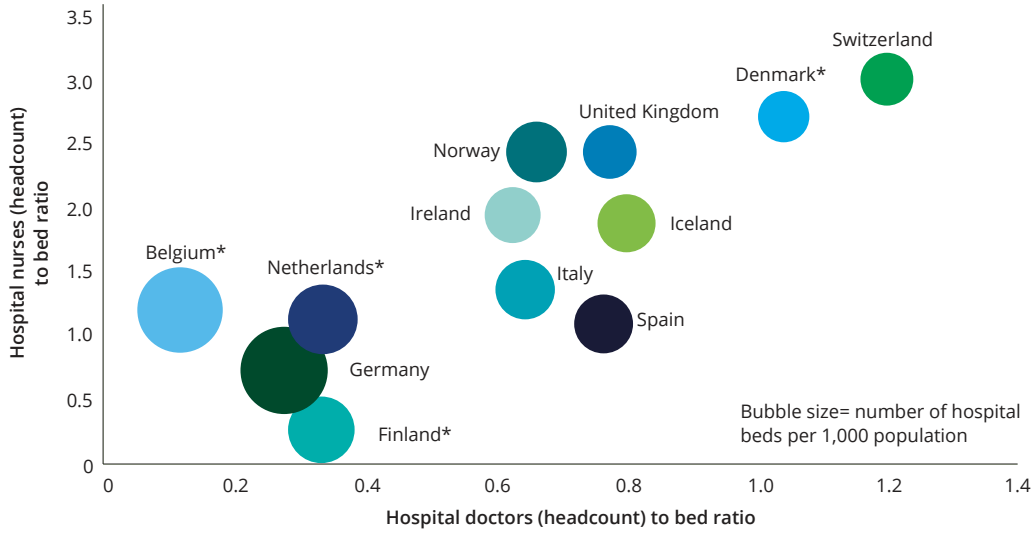
Source: OECD, 2017; NHS digital, 2017; Stats Wales, 2017; ISD Scotland, 2017.

Note: Hospital nurse values include professiona registered nurses and midwives; for England value includes health visitors.
* Data for Belgium, Denmark and Finland 2014 (estimated values for doctors and nurses in Finland); data for the Netherlands 2012 (estimated values for nurses).
Luxembourg and Sweden are omitted from this analysis due to comparable data on the total number of doctors employed in hospitals not being available.

Figure 4 shows the inter-country variation of doctors and nurses to hospital bed ratio.[32, 33] Both Figure 3 and 4 indicate a very lean hospital workforce in Belgium when considering a relatively high number of hospital beds per population.

Following hospital consolidation across the country, Denmark has higher density of doctors and nurses per available bed. Germany has the highest number of hospital beds per population.

Figure 4. Ratio of hospital doctors and nurses to hospital beds (2015 or nearest year)



Source: OECD, 2017; NHS digital, 2017; Stats Wales, 2017; ISD Scotland, 2017.

Note: Hospital nurse values include professional, registered nurses and midwives; for England value includes health visitors.
* Data for Belgium, Denmark and Finland is 2014 (estimated values for doctors and nurses in Finland); data for the Netherlands 2012 (estimated values for nurses).
Luxembourg and Sweden are omitted form this analysis due to comparable data on the total number of doctors employed in hospitals not being available.

In considering hospital activity and productivity, the measures often used to demonstrate improved efficiency are length of stay and the number of hospital beds. The data for these measures shows that in 13 out of 14 countries, the number of hospital beds has decreased and the length of stay has shortened in 10 out of 13 countries (Figure 5).[34, 35]

While these measures provide some indication of changing patterns in the efficiency of care delivery, interviewees also indicated that the growing complexity of patients and medical advances combined with accelerated patient turnaround are having a significant impact on workload. However, there is limited information on these developments as data is not yet collected in a regular or consistent manner.

Figure 5. Changes in numbers of hospital beds and length of stay (2010 to 2015 or nearest year)

Figure 5a. Changes in numbers of hospital beds, per 1,000 population, from 2010 to 2015 (or nearest year)

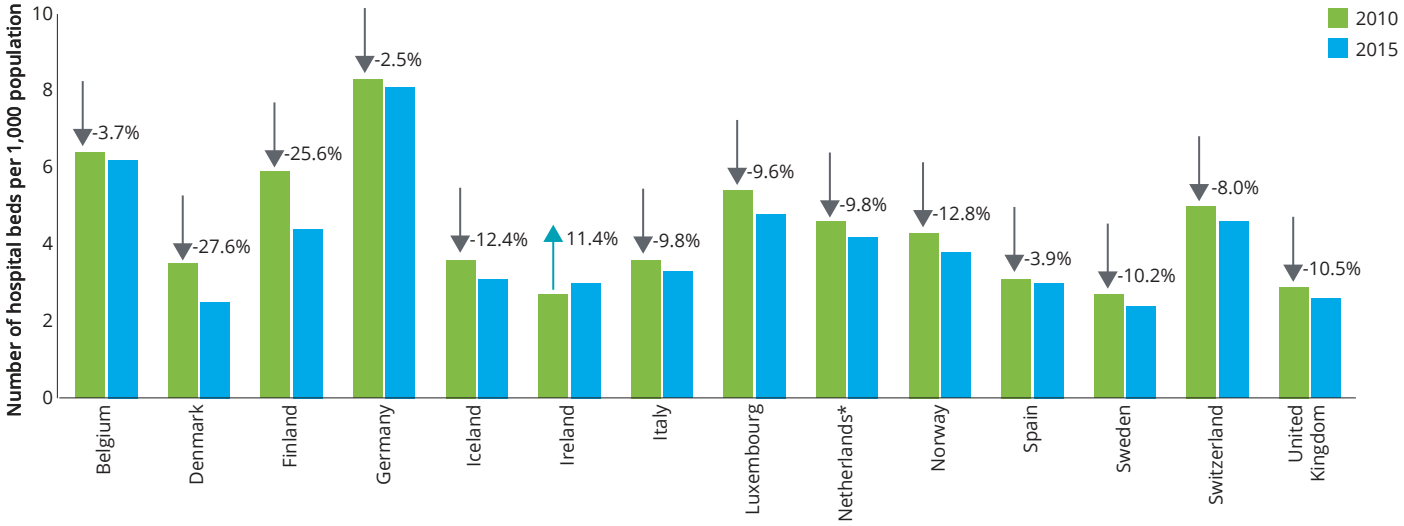
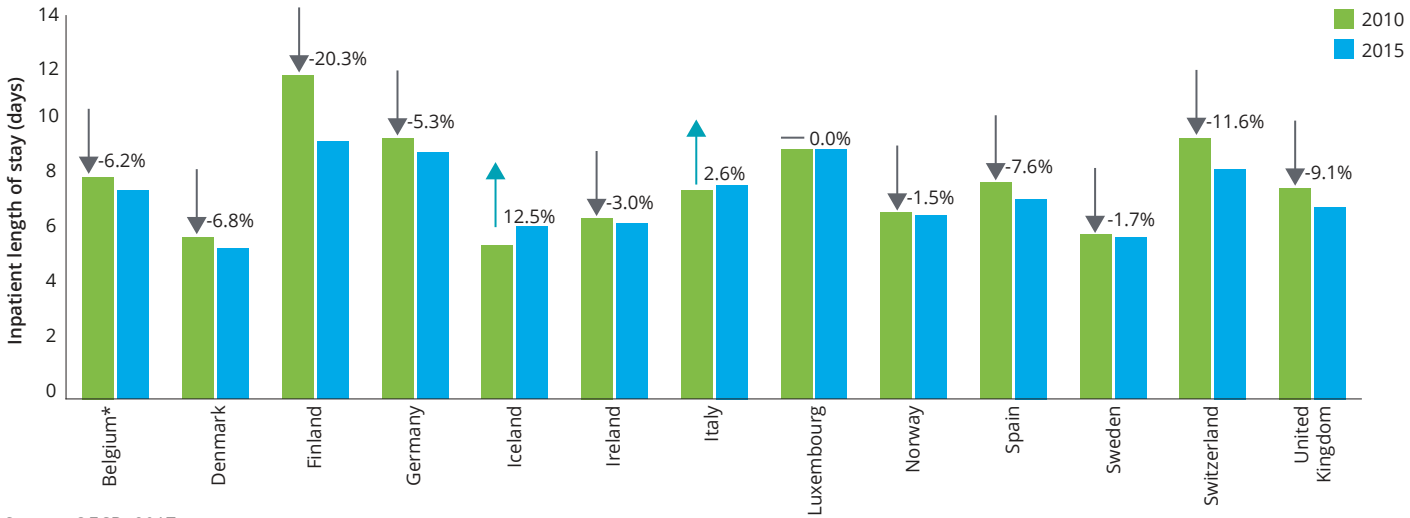


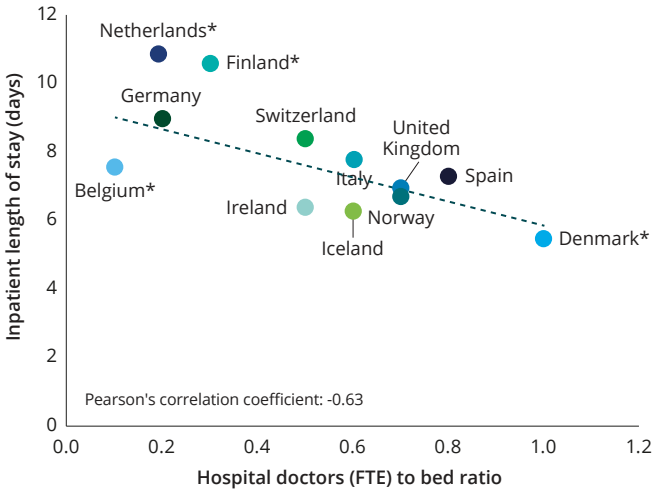
Figure 5b. Changes in the average length of inpatient stay in hospitals, from 2010 to 2015 (or nearest year)



Source: OECD, 2017.
Note: * Belgium data for length of stay 2014; hospital beds data for the Netherlands 2009 and 2013.
Netherlands is omitted from Figure 5b due to country-level data for length of stay only available for 2006.

Figure 6 shows that there is a correlation between a higher density of doctors to bed and shorter length of stay. Nurse staffing is a complex issue. For example a summary of policy and practice in the UK has highlighted that different approaches to determining nurse staffing are being developed in the four countries of the UK and that the current evidence base on nurse staffing and outcomes, although improving, is weak, narrow and incomplete.[36] Our research suggests that a higher ratio of high-skilled professionals in teams is key to coping with the demand from increasingly complex, multi-morbid patients, while also managing higher volumes in emergency and outpatient departments in a safe and cost-effective manner.[37, 38,39]

Figure 6. Relationship between ratio of hospital doctors to beds and length of stay (2015 or nearest year)



Source: Eurostat, 2017; OECD, 2017; NHS digital, 2017; Stats Wales, 2017; ISD Scotland, 2017.

Note: * Data for Belgium, Denmark and Finland is from 2014. Data for Spain and Italy is hospital doctors is for headcounts and not full time equivalents. Data for Netherlands is from 2006 due to this being the latest year length of stay is reported on a national level; Netherlands has been omitted from the correlation analysis.
Luxembourg and Sweden are omitted from this analysis due to comparable data on the number of full time equivalent (FTE) or headcounts of doctors employed by hospitals being available.

Across Europe staff imbalances have often been managed with short-term solutions, increasing or decreasing the available numbers of health professionals, without regard to long-term estimations of demand and supply or evidence-based indicators of what would be a safe and efficient skills mix. However, some countries have developed more robust health workforce planning systems, based on a quantitative and qualitative approach, to improve planning and implementation in the long run.[40, 41]

Notwithstanding economic pressures on hospitals to reduce costs, striking the balance between better outcomes and a healthy workforce is a fundamental driver underpinning programmes for safe staffing. Researchers from across 12 different European countries are collaborating in the registered nurses forecasting (RN4CAST) consortium. The original research starting in 2009-10 comprised a survey of fully qualified professional nurses and patients in about 500 general acute care hospitals in 12 European countries and an analysis of discharge data from hundreds of thousands of patients. Several countries have replicated the study since the original data collection. Findings indicated a trend towards a dilution of the skill mix of nursing staff by hiring a larger contingent of health care assistants. However, the research showed that a higher percentage of fully-registered nurses was associated with:

- lower odds of mortality
- lower odds of reports of poor quality
- higher patient satisfaction.

Moreover, RN4CAST showed a positive correlation of higher levels of education of nurses and lower odds of mortality.[42]

Ireland is one of the few countries implementing a new staffing framework based on available academic research undertaken by the RN4CAST consortium (Case study 1).

Our research suggests that a higher ratio of high-skilled professionals in teams is key to coping with the demand from increasingly complex, multi-morbid patients, while also managing higher volumes in emergency and outpatient departments in a safe and cost-effective manner.

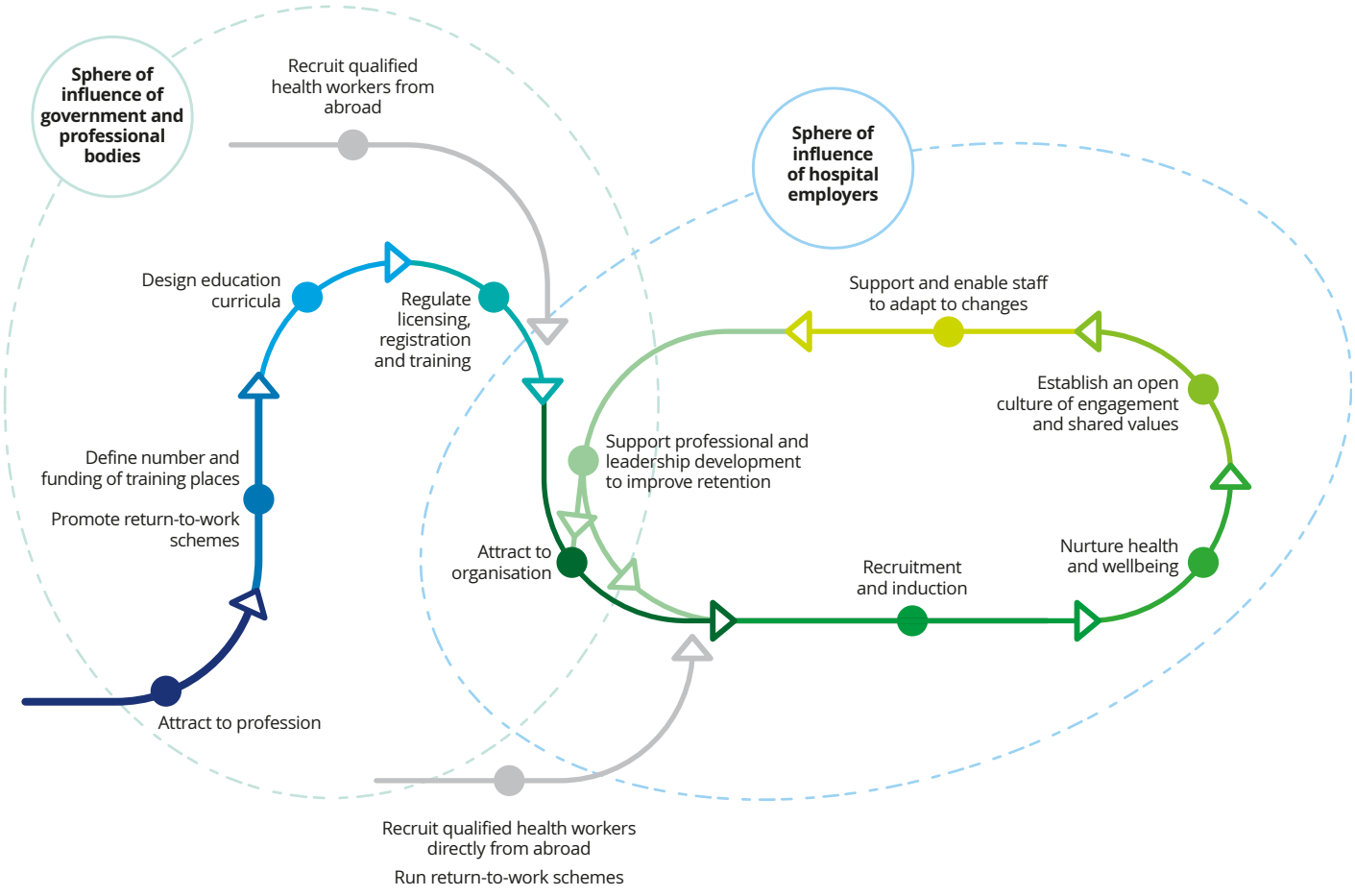
Case study 1: Using international evidence for decisions on safe staffing (Ireland)

Following the results of the 2013 Irish RN4CAST study, the Irish Department of Health published the "Framework for Safe Nurse Staffing and Skill Mix in General and Specialist Medical and Surgical Care Settings in Adult Hospitals in Ireland".[43] In 2016 a taskforce, led by the Chief Nursing Officer planned and delivered a pilot of the Framework across hospital wards in three different small-scale to large-scale hospitals.[44] The €2 million project determined nurse staffing and skill mix across acute in-patient general and specialist medical and surgical wards, and was underpinned by a programme of research to evaluate the outcomes and impact. Measures included nursing hours per patient day, nurse-sensitive outcomes, care left undone events (CLUEs), nurse perceptions of care and ratings of job satisfaction.[45] The evidence-based approach to staffing stabilised staffing and reduced agency use, improved job satisfaction and provided early indications of positive trends on reducing the occurrence of adverse nurse-sensitive patient outcomes. Although the dataset is small, the trends in relation to adverse outcomes is promising. Recommendations from the pilot include a role out of the framework across all hospitals in Ireland.[46]

Securing adequate numbers of health care professionals

Maintaining a steady inflow of well-trained professionals into hospitals is a cornerstone of effective health care services. Figure 7 summarises the factors impacting the availability of the hospital clinical staff.

Figure 7. Activities that impact the availability of health care professionals



Source: Deloitte research and analysis, 2017.

Domestic investment in workforce development

In recognition of the current and projected shortages, most governments across Europe have acted to increase the supply of doctors and nurses. Between 2010 and 2015, the number of graduates leaving medical school, per 1,000 population, increased in 8 out of 13 countries. Likewise, the number of nursing graduates increased in 8 out of 13 countries (Figure 8).[47] Countries with lower ratios of graduates in 2010 such as Belgium or Spain have shown the greatest increases.

Ireland introduced a new graduate-entry level into medical training in 2009 which contributed to a 38.8 per cent increase in the number of doctors, per 1,000 population by 2015.[48]

Other countries experiencing a decrease in the number of medical graduates in 2015 (for example Germany and the UK) have recently increased their intake of students into medical and nursing schools. However, it will take time before the benefits of these attempts to grow in-country training are realised.[49] Our interviews, together with the data available in some countries, also show that the number of applicants, especially for nursing degrees, has fallen in recent years, reflecting changes in funding and the reputation of the profession.[50] Faced with problems attracting students into the profession, some countries have increased their investment in return-to-practice schemes.[51]

Figure 8. Changes in numbers of doctor and nurse graduates in Europe (2010 to 2015 or nearest year)

Figure 8a. Changes in the numbers of medical gradates from 2010 to 2015 (or nearest year)

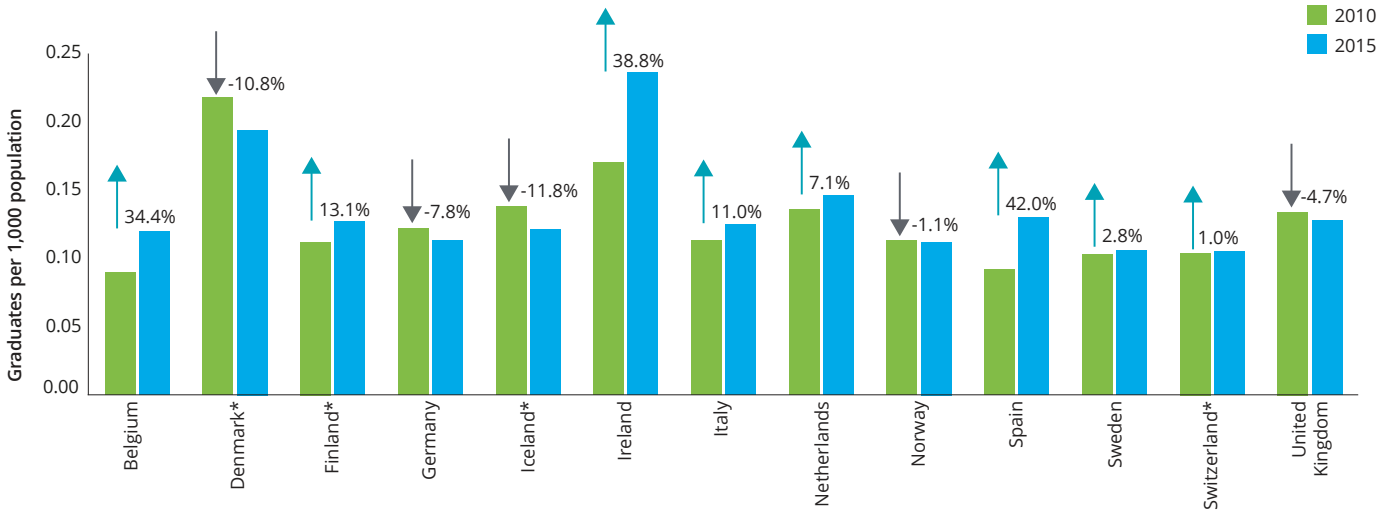
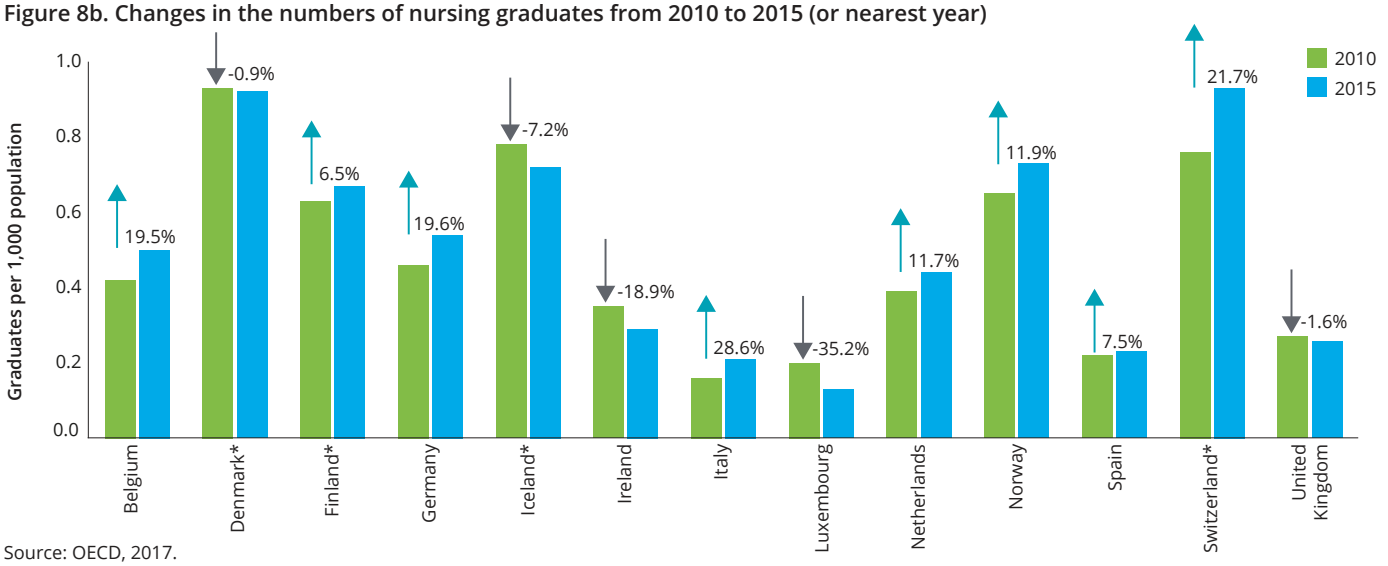


Figure 8b. Changes in the numbers of nursing graduates from 2010 to 2015 (or nearest year)



Source: OECD, 2017.

Note: * Data for the number of medical graduates in Denmark, Finland, Iceland and Switzerland 2014. Data for the number of nursing graduates in Denmark 2012, Finland 2014, Iceland 2013, and Switzerland 2014. Comparable data for nursing graduates for Sweden not available. The University of Luxembourg does not offer full training in medicine.

International recruiting

Due to the time lags and concerns around the feasibility of increasing domestic training, as well as in consideration of the high cost of medical and nursing degrees (estimates range from €100,000 to €250,000 to educate just one doctor), it is likely that most countries will continue to fill gaps in their services by recruiting doctors and nurses from other EU countries and elsewhere.[52, 53]

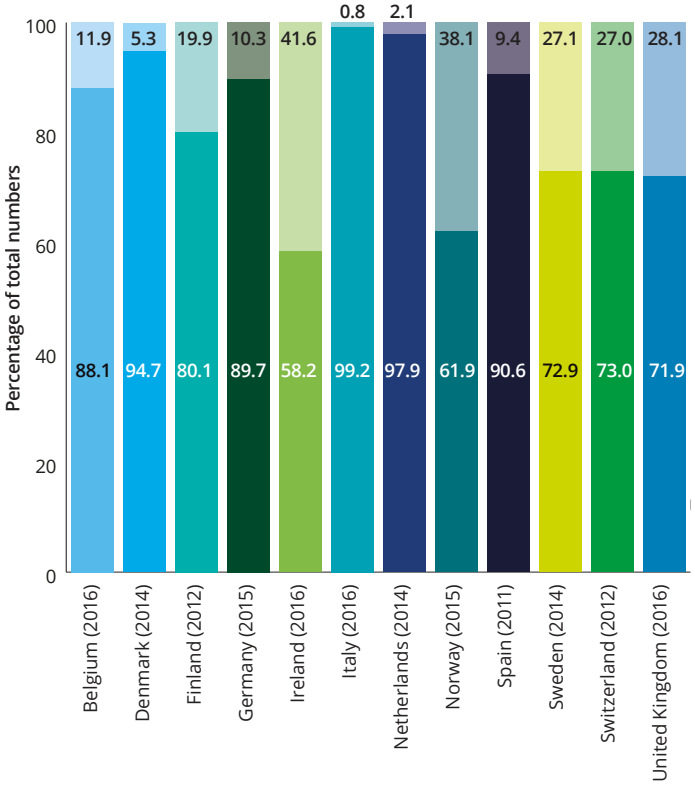
In the EU, more doctors and nurses move from one country to another than qualified individuals in any other highly regulated profession. While the reporting of migration data remains patchy a POLITICO analysis of European Commission data found the exodus of health care professionals is especially pronounced from east to west and from southern to northern Europe.

In effect, some countries are training health professionals for their richer neighbours.[54] An EU study on health professional mobility in the region found that all member states continue to experience migration of health professionals both from within and outside the region.[55]

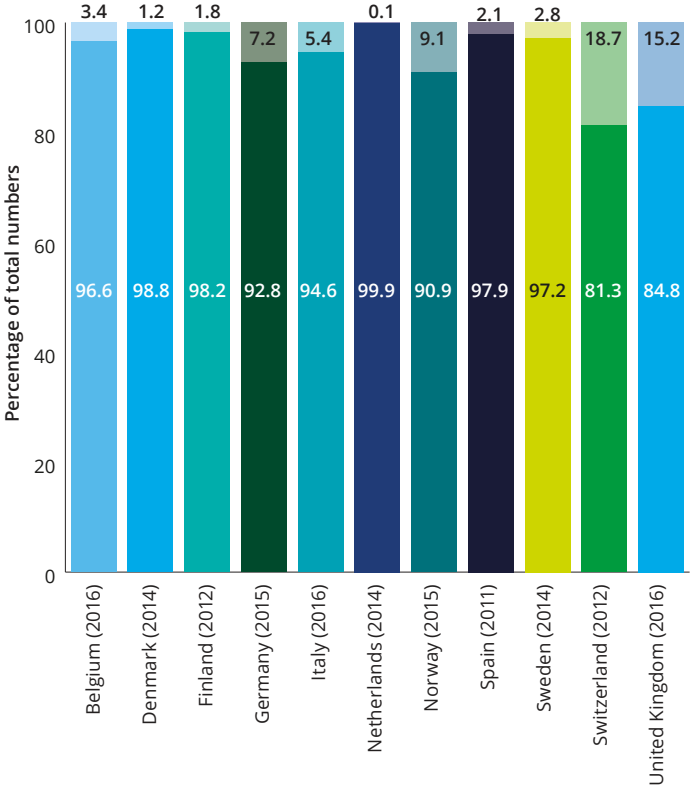
Figure 9 shows that Ireland reports the highest reliance on foreign-trained doctors – 41.6 per cent, followed by Norway (38.1 per cent) and the UK (28.1 per cent). The percentage of foreign-trained nurses in the total nursing stock is highest in Switzerland (18.7 per cent), followed by the UK (15.2 per cent) and Norway (9.1 per cent).[56]

Figure 9. Comparison of share of domestic and foreign-trained doctors and nurses (2016 or nearest year)

9a. Percentage of domestic and foreign-trained doctors to total numbers of doctors (2016 or nearest year)



9b. Percentage of domestic and foreign-trained nurses to total numbers of nurses (2016 or nearest year)



Darker shades = Domestic-trained, lighter shades = Foreign-trained

Source: OECD, 2017.
Note: Comparable migration data for Finland, Iceland, Ireland (for nurses) and Luxembourg not available.

Differences in reliance on foreign-trained staff reflect domestic training patterns, and other drivers of health professional migration, such as salary differentials, differences in infrastructures and the use and availability of modern medical technologies. In addition our interviews confirmed that pre-existing language skills contribute to higher migration towards English-speaking countries and between countries that share the same language. Our survey ranks Australia, the UK, the USA, Germany and Canada highest as potential career destinations when doctors and nurses think about leaving their current position.

Figure 10 shows income differentials for average salaries between countries, one explanatory factor underlying the asymmetry in availability of health professionals.[57]

Figure 10. Differences in health professional remuneration (2016 or nearest year)

Figure 10a. Income for salaried specialist doctors (2016 or nearest year)

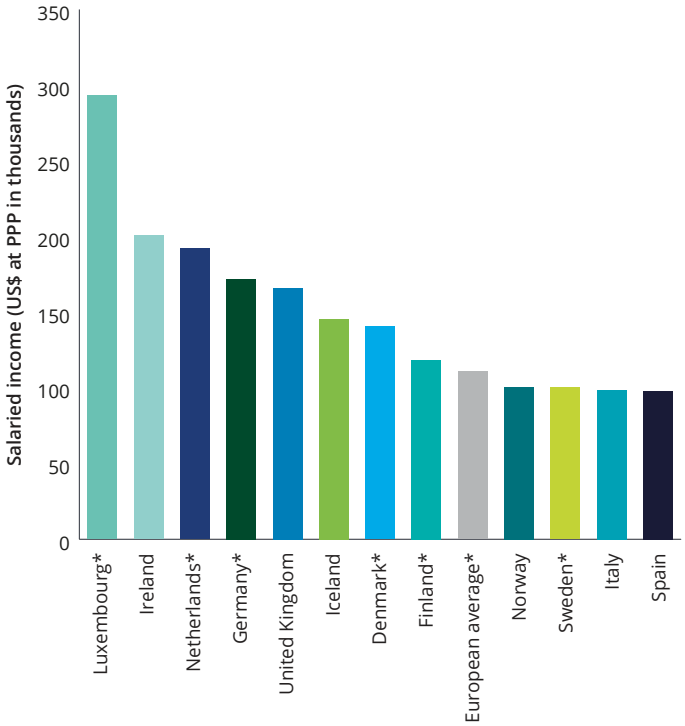
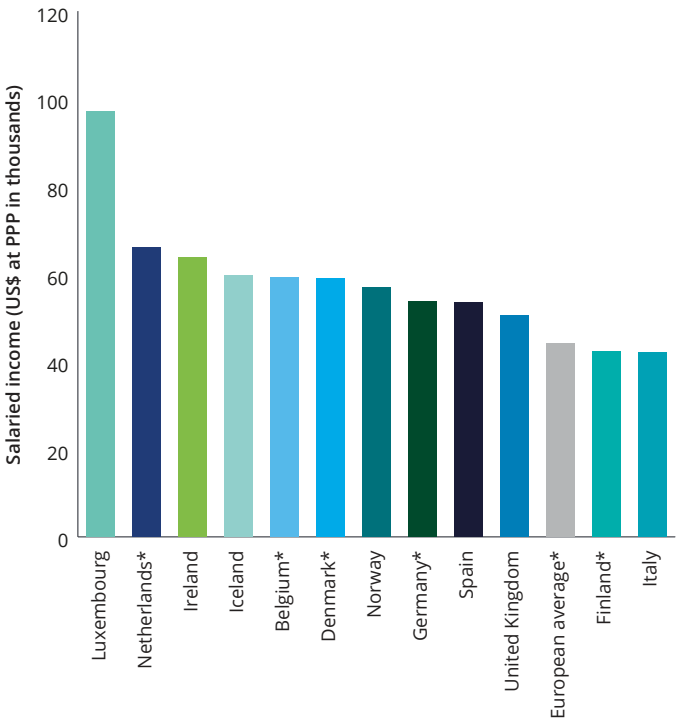


Figure 10b. Income for salaried nurses (2016 or nearest year)



Source: OECD, 2017
Note: Income is for salaried hospital nurses and specialist doctors, and expressed as US$ Purchase Power Parity (PPP). Specialist doctors may include those practicing in ambulatory private practice.

The European average is for 2014. For specialist doctors it includes 20 countries across Europe. For nurses income average includes 19 countries.
* Indicates a country whose nearest year is not 2016
Doctors: Denmark 2013, Finland 2015, Germany 2015, Luxembourg 2015, Netherlands 2015 and Sweden 2015. Comparable data for Belgium (majority of doctors are self-employed) and Switzerland is not available. European average includes Estonia, France, Greece, Hungary, Latvia, Poland, Slovakia, Slovenia and Turkey.
Nurses: Belgium 2014, Denmark 2013, Finland 2015, Germany 2014 and Netherlands 2015.
Data for Denmark includes only publicly employed nurses. Comparable data for Sweden and Switzerland not available. European average for nurses includes Estonia, France, Greece, Hungary, Latvia, Poland, Slovakia, Slovenia and Turkey.

In the past decade, austerity policies in the European region have contributed to an increase in migration. At the same time our interviews confirm that most countries have encouraged the inflow of foreign-trained professionals: initiatives are either politically-led, placing the professions on immigration short-lists; or market-driven by individual providers through active recruitment in other countries.[58]

Committing to ethical recruitment

The WHO estimate of a global shortfall of up to 18 million health professionals by 2030 will make international recruitment increasingly difficult.[59] At the same time, the competitive approach to international recruitment is coming under increasing scrutiny. Low-income countries are particular vulnerable to large numbers of professionals exiting the country, and those who remain are left with a larger share of the workload, increasing the risk of further outflows of professionals.[60]

The principles of the EU Health Programme 2014-2020 highlights the importance of reducing inequalities in the availability of health professionals in the region.[61] In May 2016 all WHO member states unanimously adopted the Global Strategy on Human Resources for Health, agreeing to:

- optimise the existing workforce
- anticipate future workforce requirements by 2030 and plan changes to make the workforce fit for purpose
- strengthen the data, evidence and knowledge for cost-effective policy decisions.[62]

Most European countries have also signed the WHO Code of Practice on International Recruitment, which requires member states to "strive to meet their health personnel needs with their own human resources for health".[63] If countries are to live up to these commitments, they will need to improve and increase domestic training to match domestic needs, as well as improve pay and working conditions to improve domestic retention.[64]

In the light of growing demand and uncertainty around the feasibility of increasing the supply of health professionals, sustaining good outcomes for patients requires changes in the ways that care is delivered. To a large extent, increasing efficiency and productivity currently requires staff to work harder, which impacts negatively on retention and perceptions around the desirability of health professions.

In the light of growing demand and uncertainty around the feasibility of increasing the supply of health professionals, sustaining good outcomes for patients requires changes in the ways that care is delivered.

A snapshot in time of current workforce challenges

"The hardest of jobs and the best of jobs. I am amazed that my staff still come to work and strive to do their best for patients every day."

Director of Nursing

Understanding the attitudes of those working in hospitals, and their perceptions of working conditions, career ambitions and future trends, is of vital importance in helping policymakers and employers to develop strategies for attracting and retaining sufficient numbers of appropriate talent today, and providing a sustainable hospital workforce for tomorrow.

About Deloitte's primary research

Deloitte commissioned a crowdsourced survey of doctors and nurses working in hospitals across Europe. The app-based survey took place over the summer of 2017, with a response from more than 1,350 hospital doctors and nurses in 11 countries (Belgium, Denmark, Finland, Germany, Ireland, Norway, Netherlands, Spain, Sweden, Switzerland, UK). Deloitte also interviewed over 50 health care leaders in 13 countries (Belgium, Denmark, Germany, Iceland, Italy, Ireland, Luxembourg, Netherlands, Spain, Switzerland, UK, US and Australia), including hospital chief executives, human resource directors, medical directors and chief nursing officers, as well as local and national leaders responsible for health policy and strategy, workforce planning and education (see Appendix 1: Methodology). Our research is to stimulate debate and discussion. We identify good practice case studies that are local in nature but which, if adopted at scale, could help all those engaged in planning, recruiting and workforce deployment to improve their workforce strategies.

While the workforce challenges are similar across nearly all organisations, our research identified clear in-country variations in the ability and preparedness of organisations to tackle them. A number of countries have increased the priority they are giving to tackling their workforce challenges, and are in the middle of local, regional or national health reforms (for example the UK, Finland and Belgium).[65] However, the outcomes of these reforms are yet to be seen.

Only two out of the more than 50 organisations we interviewed believed they are fully prepared for the future challenges. Most reported a medium level of preparedness, despite a high intensity of effort. One interviewee stated: "While we have worked hard to try and tackle our recruitment problems, we have stood still in our ability to recruit the right numbers; we expect that even working harder, we will achieve less in the future."

While optimising workforce numbers at the national level was seen as important, the highest priorities for health care leaders focused on improving staff satisfaction, driving up recruitment and retention, and increasing workforce efficiency. Most of these objectives overlap with each other; nevertheless each requires targeted strategies to secure a sustainable workforce in the future.

Our survey and interviews covered the following issues:

- responsibility for workforce planning, education and training
- employee satisfaction and workforce wellbeing
- leadership culture and team collaboration
- recruitment and retention of hospital staff
- managing the workforce, including rostering and use of temporary staffing
- new models of care.

"We need to stop being complacent about the challenges."

Director of Nursing

Responsibility for workforce planning, education and training

Many interviewees expressed dissatisfaction with national workforce planning, including graduate and post-graduate training. They told us about their frustration in being dependent on systems that in their view are too rigid, inflexible and lengthy.

Most interviewees called for a joint effort to improve national workforce planning. Many also recognised the responsibility of individual health care organisations for ensuring the efficiency, validity and adaptability of workforce planning. There was universal recognition of the need for a national framework for numbers, skills and competencies, to reduce in-country variation and ensure quality, but few of the organisations we interviewed felt that the larger share of this responsibility should lie with government alone.

On the whole, the training models for both the nursing and medical professions were seen as outdated and not fit-for-purpose to produce the professionals needed today and in the immediate future. Interviewees considered redesigning the educational model a pivotal requirement for future sustainability. The recent trend towards accelerated training was frequently criticised by our interviewees.

While recognising the need for swift action to address shortages, several interviewees raised concerns about the resulting lack of a maturity and limited general knowledge of graduates, which in their view negatively impacts the ability to cope with workload, patient complexity and change.

This leads to a significant challenge for post-registration training in both professions, to up-skill professionals in the critical skills of prioritisation and decision-making (Case study 2). Furthermore, interviewees judged that the trend towards early specialisation over the past years had left a gap in generalist clinical knowledge, thought to be crucial for dealing with complex and comorbid patients.

While funding was recognised as a major barrier, vested interests at both professional and political levels were judged equally important. Indeed, regardless of the health system, interviewees identified as main barriers the rigid and very traditional professional cultures and educational systems that persist across Europe.

However most countries, particularly Denmark, Italy and Spain are integrating methodologies such as online training and virtual and simulation training, in the pre- and post-registration training of their workforce.

> "We are training our workforce in a straight-jacket educational system, fit for a model of the 1960s."
>
> **Medical Director**

Case study 2: 'Flying Start NHS®': developing competent and capable health practitioners

Flying Start NHS® is a national development programme for newly qualified nurses, midwives and allied health professionals designed to support the transition from pre-registered student to qualified, confident and capable health professional in Scotland in their first year of practice. The programme has been developed by NHS Education for Scotland (NES) and is funded by the Scottish government. Whilst the programme has been running since 2006, NES in collaboration with a wide range of stakeholders have completely revised and relaunched the programme to take account of evaluation findings, the changing health and social care landscape in Scotland, and the different environments that practitioners find themselves working in. The new programme is practical, work-based, tailored to the individual and designed to fit in with other learning in the work place. All material to support the programme is hosted on a digital platform.[66] The programme has been adopted across Scotland, as well as by organisations in Queensland, Australia, aiming to improve clinical skills development and confidence.

At NHS Lothian, all newly qualified nurses and midwives are required to join the programme, undertaking eight study days, co-designed with senior staff. Participants are expected to complete the national programme as well as produce a small quality improvement project related to clinical practice, establishing knowledge and skills in improvement methodology among the workforce. Projects implemented by the programme participants included patient information leaflets, development of educational resources for the departments or wards and patient-centred projects including implementation of technology in care pathways. Since 2015, 440 health professionals have completed the programme at NHS Lothian. Reflections of the staff are positive and formal evaluation is currently under way.[67]

Employee satisfaction and workforce wellbeing

Across Europe we found a growing emphasis on the importance of understanding the levels of staff satisfaction and identifying the key motivators that keep the workforce engaged, and mentally and physically well (Case study 3). Organisations are increasingly conducting staff surveys and other research that monitor staff (and patient) satisfaction. System leaders across the sector told us that they observed mixed levels of satisfaction across their respective organisations. However, a number of interviewees also reported a discrepancy between anecdotal perceptions of low morale and surprisingly positive findings from staff surveys. This in part reflects the general resilience of the workforce and the fact that for many it is a vocation and a job in which they take pride and pleasure. Indeed, responses to our survey indicate that levels of job satisfaction are generally high across all countries (Figure 11).

"Treating staff outrageously, failing to change bad working conditions, is unsafe."

Medical Director

Case study 3: Measuring positive working conditions to improve staff satisfaction and patient outcomes (US, Belgium, Netherlands, UK)

The Magnet Recognition Program® is an international programme for high quality nursing. Magnet Hospitals® are recognised for their ability to attract and retain talent, foster a collaborative culture, advance standards and practices for nursing and improve patient care, safety and satisfaction. Hospitals receive a recognition as Magnet Hospital® for the quality of patient care they provide, including evidence of nursing excellence and innovations in professional nursing practices. It was founded by the American Nurses Credentialing Centre (ANCC), which is an affiliate of the American Nurses Association. Independent research has demonstrated that Magnet hospitals have lower rates of mortality (4.6 per cent lower mortality) and provide patients with a better overall experience than non-Magnet hospitals.[68],[69] Currently, there are approximately 469 Magnet recognised facilities worldwide. Data shows shifts in the sentiments of nurses following the recognition, indicating improvements in career support, involvement in hospital decision making, the quality of care being delivered and a reduction in the number of nurses indicating that they were planning to leave their jobs.[70] In Europe, Antwerp University Hospital Belgium received Magnet accreditation in October 2017, following an eight-year process focussing on nurse-sensitive patient outcomes, aligning processes and redesigning pathways.[71],[72] Further hospitals in Belgium, Finland, Germany, the Netherlands, Spain and the UK are showing interest in the Magnet Recognition Program®, including Nottingham University Hospitals and Oxford University Hospitals NHS Foundation Trust.[73]

In the 11 countries covered by our survey, the percentage of doctors that were generally or very satisfied ranged between 52 and 81 per cent, with six countries recording satisfactions levels of 70 per cent or higher. The highest numbers of doctors reporting satisfaction with their job were in Belgium, where the majority of hospital doctors are self-employed and operate in teams with the highest ratio of nurses to doctors. Doctors in Ireland showed the lowest likelihood of reporting satisfaction (43 per cent), with a large share reporting neutral feelings towards their current job (36 per cent). The highest numbers of those dissatisfied were recorded in Denmark and Finland (26 and 25 per cent).

The percentage of nurses who were generally or very satisfied ranged between 64 and 84 per cent, with the highest numbers reporting satisfaction in Netherlands and Norway (84 and 83 per cent). The highest numbers reporting dissatisfaction were in Belgium (29 percent), possibly due to the low ratio of doctors to nurses and lean nursing workforce, which suggest that nurses have a higher workload.

Figure 11. Job satisfaction of hospital doctors and nurses

Figure 11a. Current job satisfaction of hospital doctors

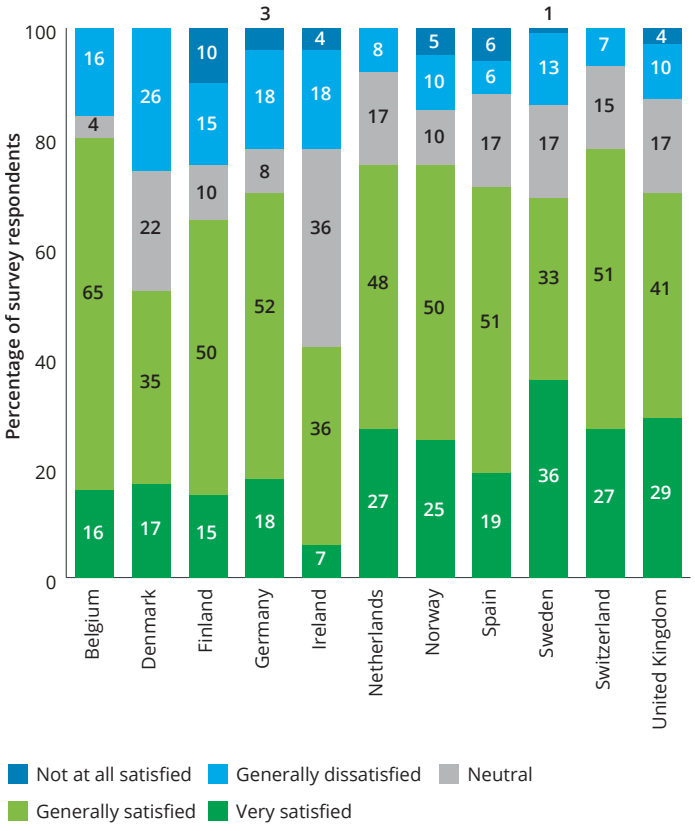
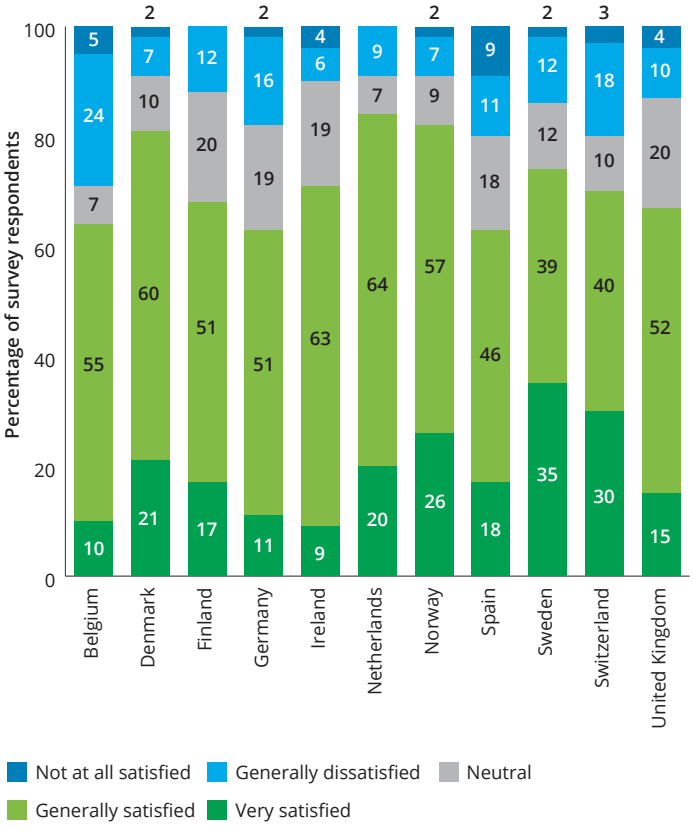


Figure 11b. Current job satisfaction of hospital nurses



Source: Deloitte research and analysis based on a crowdsourced survey commissioned from Streetbees, 2017.
Survey question: "How satisfied are you with your job at the moment?"

Factors impacting satisfaction

For the subgroup of respondents who were satisfied with their work, the most common reasons given were having a positive working environment, a high variety of work and a sense of accomplishment. For those who were largely dissatisfied key factors were heavy workload, poor management, bureaucracy and low pay.

Figure 12 summarises how factors generally driving job satisfaction were ranked among survey respondents. Interpersonal and professional factors were seen as most relevant for positive job satisfaction, while factors around organising work, such as lack of time to spend with patient, shift patterns, work-life balance, and pay were reported to contribute most to lack of satisfaction.

"If you train them right, and create the conditions to keep them well, you have a greater chance in retaining them, creating safer care and securing continuity of care."

Medical Director

Figure 12. Ranking of top five factors impacting job satisfaction of hospital doctors and nurses
Top 5 factors contributing to positive satisfaction; focus is largely on interpersonal and professional factors

Rank	Belgium	Denmark	Finland	Germany	Ireland	Netherlands	Norway	Spain	Sweden	Switzerland	UK
1	Recognition	Recognition	Ability to use skills	Support from immediate team	Recognition	Recognition	Ability to use skills	Support from immediate team	Ability to use skills	Pay	Recognition
2	Ability to use skills	Ability to use skills	Support from immediate team	Recognition	Pay	Support from immediate team	Support from immediate team	Recognition	Support from immediate team	Recognition	Support from immediate team
3	Support from immediate team	Support from immediate team	Opportunities for CPD	Level of responsibility	Support from immediate team	Ability to use skills	Opportunities for CPD	Pay	Recognition	Support from immediate team	Ability to use skills
4	Pay	Opportunities for CPD	Recognition	Pay	Level of responsibility	Level of responsibility	Recognition	Ability to use skills	Sense of fulfilment	Ability to use skills	Pay
5	Level of responsibility	Level of responsibility	Level of responsibility	Ability to use skills	Sense of fulfilment	Amount of time to engage with patients	Amount of time to engage with patients	Sense of fulfilment	Level of responsibility	Level of responsibility	Opportunities for CPD

Top 5 factors contributing to lack of satisfaction; focus is largely around the organisation of work

Rank	Belgium	Denmark	Finland	Germany	Ireland	Netherlands	Norway	Spain	Sweden	Switzerland	UK
1	Amount of time to engage with patients	Amount of time to engage with patients	Pay	Work-life balance	Work-life balance	Work-life balance	Work-life balance	Work-life balance	Pay	Pay	Work-life balance
2	Work-life balance	Pay	Work-life balance	Flexibility of shifts	Amount of time to engage with patients	Amount of time to engage with patients	Amount of time to engage with patients	Amount of time to engage with patients	Work-life balance	Work-life balance	Pay
3	Pay	Work-life balance	Amount of time to engage with patients	Pay	Pay	Flexibility of shifts	Pay	Flexibility of shifts	Support from organisation	Amount of time to engage with patients	Flexibility of shifts
4	Support from organisation	Support from immediate team	Support from organisation	Amount of time to engage with patients	Recognition	Support from organisation	Flexibility of shifts	Pay	Amount of time to engage with patients	Recognition	Amount of time to engage with patients
5	Support from immediate team	Opportunities for CPD	Flexibility of shifts	Recognition	Flexibility of shifts	Pay	Support from immediate team	Recognition	Support from immediate team	Support from immediate team	Recognition

Colour shades indicate thematic clusters: Blue = interpersonal, Grey = professional, Green = organisation of work
Source: Deloitte research and analysis based on a crowdsourced survey commissioned from Streetbees, 2017.

Note: Ranking is based on frequency of mentions per country. Survey questions: "Please select the three factors which most contribute to your satisfaction/ lack of satisfaction with your job."

Our interviews with senior leaders confirm the following themes as ways of improving job satisfaction among doctors and nurses:

Opportunity for professional and career development
The availability of professional and career development was the most dominant response from both professions to questions about what drives workforce satisfaction. For doctors and their leaders the diversity of case mix as well as working in an academic or training hospital was also important; while nursing professionals valued job enrichment and opportunities to follow new career pathways.

Team fit and culture
Many interviewees mentioned a good team fit, positive working environment and support and recognition from immediate team members, giving employees a 'home' within the organisation, as important for staff retention and workforce wellbeing.

Vocation and ambition to provide high standard care
All interviewees referred to the high prevalence of an intrinsic ambition to deliver high-quality care (Case study 4).

Flexible working patterns
The desire to work more flexibly and to have more flexible roles was highlighted as having a strong impact on motivation across both professions.

Few of the senior executive saw pay as an isolated driver for attracting and retaining staff. However, many interviewees recognised that competition within local health economies was a challenge. For example, several interviewees reported attempts to strenghten mutual agreements between providers in the region not to recruit from neighbouring organisations. Moreover, observing changes in the wider labour market, interviewees saw a risk of losing talent to other industries, due to both higher pay and more flexible and diverse opportunities. The more innovative hospitals across Europe recognise this and are introducing greater flexibility and internal and external career opportunities: one director of nursing stated: "we cannot give our staff more money, but we can give them time to learn and develop."

> "We can't change some jobs, but we can significantly change the conditions and environments we work in."
>
> **Chief Executive Office**

Case study 4: 'Learning from Excellence' improves patient safety and workforce morale (England)

The focus of quality improvement in patient safety has traditionally been on learning from error. Recognising the potential limits in efficacy and the negative impacts on staff morale, a team of clinicians at Birmingham Children's Hospital initiated a movement called Learning from Excellence.[74] Excellence in health care is highly prevalent across hospitals, but there is rarely a formal system to capture it. Following a pilot in Birmingham, the initiative today has over 150 registered members from around the world.[75] North Middlesex Hospital Trust in London introduced Greatix, an easy to use, confidential excellence reporting system mirroring existing critical incident reporting systems. Greatix aims to implement a culture of providing private, formal, positive feedback to individuals and teams and create new opportunities for learning across the organisation. Staff are encouraged to report back on outstanding performance of individuals and teams. Reports are analysed to identify the key components that led to the success and lessons are shared with staff across the organisation to spread development and improve staff morale. Individuals nominated through the system receive a certificate of excellence. Operating within existing IT infrastructure the initiative did not require significant additional investment. Within the first year of implementation, uptake equalled the use of the critical incident reporting system. 100 per cent of staff surveyed reported an uplift in morale and in applying lessons learned in their working lives. Staff surveys show a higher satisfaction with quality of care and motivation when compared to similar organisations in the NHS.[76]

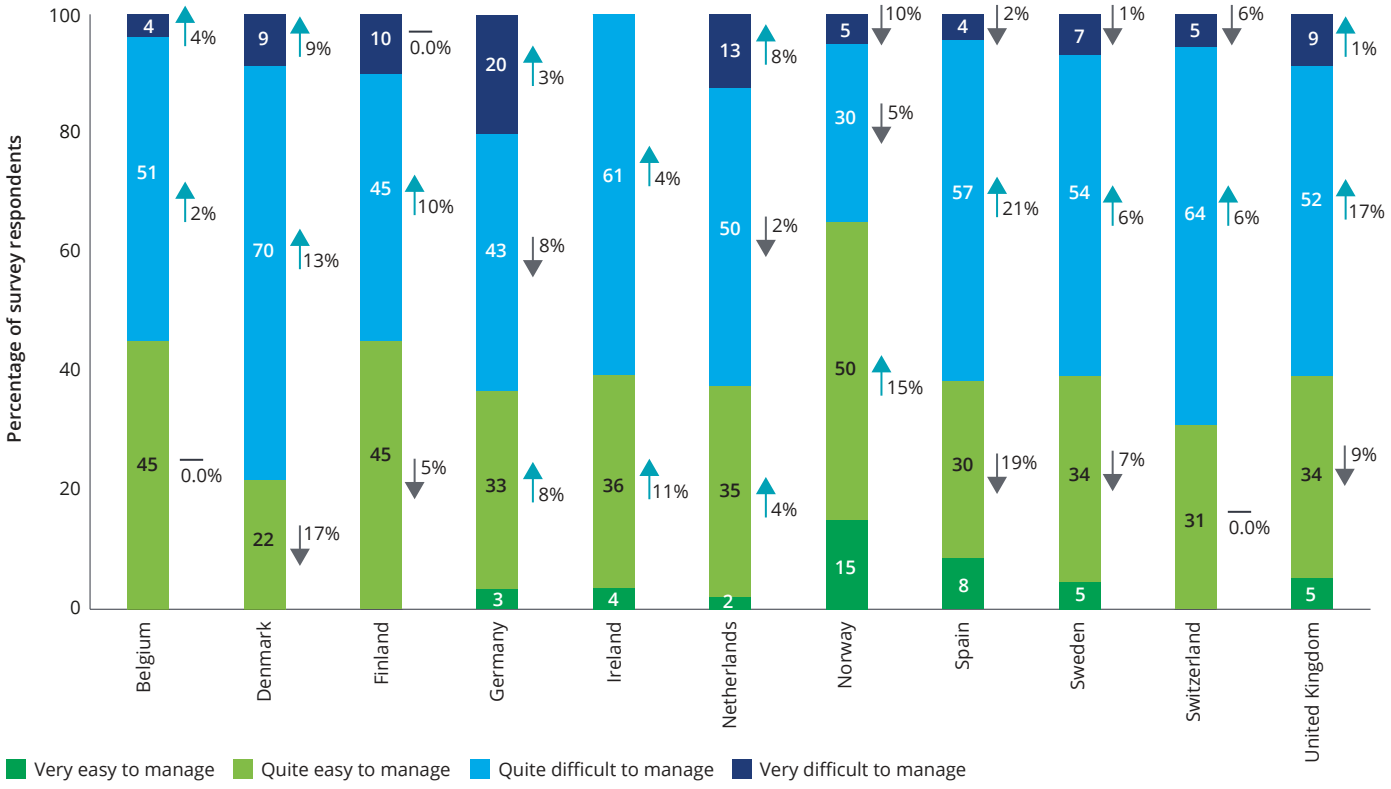
Concerns about the workload

Most interviewees raised serious concerns about the morale of the workforce, linked to workload and working conditions. Left unaddressed, they feared a downward spiral in the emotional, mental and physical wellbeing of doctors and nurses. This perception was also reflected in the responses to our survey.

Asked about their workload today compared with five years ago, doctors in 8 out of the 11 countries in the survey responded that their workload had become more difficult to manage. Nurses in 10 out of the 11 countries surveyed held the same view (Figure 13a and b is below and overleaf).

Figure 13. Perceptions of doctors and nurses of their workload over time (2012 to 2017)

Figure 13a. Perceptions of hospital doctors of their workload



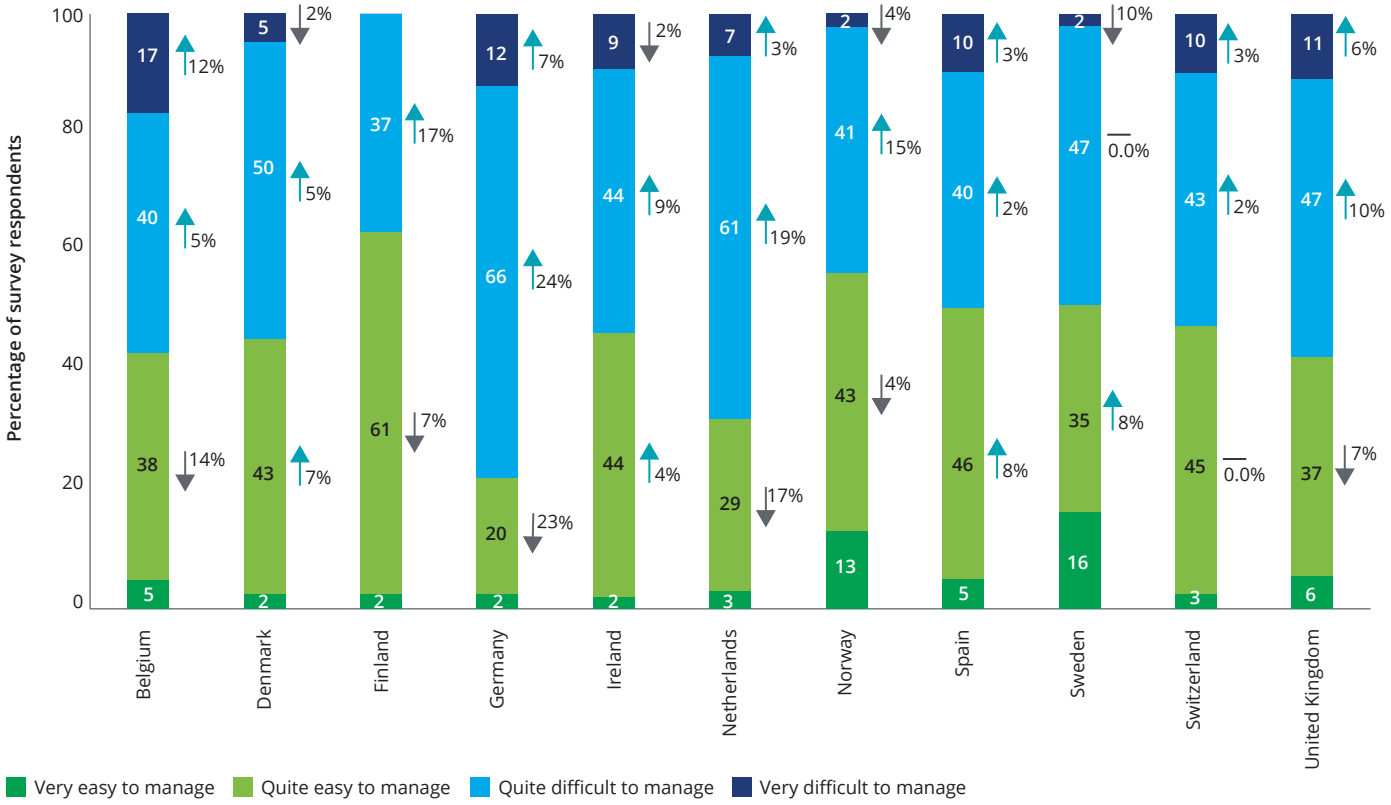
Source: Deloitte research and analysis based on a crowdsourced survey commissioned from Streetbees, 2017.

Note: Arrows indicate percentage point differences over time from 2012 to 2017.
Survey question: "How would you describe your current workload?" and "How was your workload 5 years ago?"

For doctors, the most manageable workloads appear to be in Norway, where 65 per cent of respondents found their workload 'very easy' or 'quite easy' to manage. Doctors in Denmark, followed by those in Switzerland, were the most concerned about their workloads, finding their workload 'quite difficult' or 'very difficult' to manage. At 2.5, Switzerland has the fifth lowest ratio of nurses to doctors, potentially resulting in more of the overall workload falling on doctors' shoulders.[77] In our survey 31 per cent of doctors in Switzerland indicated that increasing patient numbers were the primary causes of changes in their workload. Over the past five years, Denmark has seen the largest shift from 'very easy or quite easy to manage' towards 'quite or very difficult to manage' (22 percentage points), followed by Spain and the UK (19 and 18 per cent).

Figure 13. Perceptions of doctors and nurses of their workload over time (2011 to 2016) continued

Figure 13b. Perceptions of hospital nurses of their workload



Source: Deloitte research and analysis based on a crowdsourced survey commissioned from Streetbees, 2017.

Note: Arrows indicate percentage point differences over time from 2012 to 2017.
Survey question: "How would you describe your current workload?" and "How was your workload 5 years ago?"

For nurses, workload was seen as most manageable in Finland, with 63 per cent of respondents indicating that they found their workload 'very or quite easy to manage', despite Finland having the highest number of inpatient discharges per nurse (155 in 2014).[78] However, at 1.4 in 2014 Finland also has the highest ratio of doctors to nurses amongst the countries in the survey, indicating a highly qualified skills mix.[79] Nurses in Germany reported their workload as least manageable (78 per cent 'quite or very difficult to manage'), also indicating a large shift over the past five years (31 percentage points): staff shortages and increased patient numbers were given as the primary reasons for their change in workload over the past five years. Nurses in the Netherlands (22 percentage points), Belgium, Finland and the UK also reported a large increase of workload since 2011.

Figure 14 shows the cross-country differences in the main reasons given by survey respondents for changes in workload across Europe. The most notable being:

- increases in patient numbers (ranked highest in Switzerland, Netherlands and Belgium)
- staff shortages (ranked highest in Spain and the UK)
- change of job or employer (ranked highest in Norway and Belgium).

Figure 14. Factors leading to increased workload vary across Europe

	Belgium	Denmark	Finland	Germany	Ireland	Netherlands	Norway	Spain	Sweden	Switzerland	United Kingdom
Increase in patient numbers or workload	22.9	12.5	22.2	20.5	3.9	10.9	7.7	9.9	13.4	27.5	12.5
Changed job or employer	18.8	9.4	11.1	14.5	13.7	6.3	23.1	11.1	10.4	5.0	11.5
Staff shortages	10.4	6.3	11.1	16.2	9.8	4.7	7.7	22.2	9.0	7.5	20.0
Change in role (same employer)	4.2	15.6	7.4	1.7	5.9	3.1	19.2	8.6	9.0	10.0	5.5
Gained more experience	2.1	3.1	3.7	6.8	21.6	10.9	0.0	7.4	9.0	15.0	7.5
Changes within the organisation	12.5	9.4	7.4	5.1	9.8	6.3	3.8	3.7	7.5	10.0	3.5
Increased responsibility	4.2	6.3	7.4	3.4	2.0	14.1	3.8	4.9	4.5	5.0	6.5

Values represent percentages of responses per country sample.

Source: Deloitte research and analysis based on a crowdsourced survey commissioned from Streetbees, 2017.
Note: Only responses selected with a 5 per cent or higher average across the total survey cohort are included in this figure.
Survey question: "If there has been a change in your workload, what is the single most important reason for that change?"

"Whenever we discuss staff wellbeing, the issue we actually discuss is workload."

Director of Policy

An unhealthy profession?

Persistently high workloads can negatively impact the physical and mental wellbeing of individuals. Indeed, rates of mental disorder and substance abuse are disproportionally high among health professionals.[80] Most interviewees expressed concerns about an increase in the level of sickness absence and a shift to mental health-related causes. Figure 15 shows that in 7 of the 11 countries, more than 50 per cent of respondents experienced that work had a negative impact on their physical and mental health during the previous 12 months. 54.2 per cent of nurses responded that work had a negative effect on their physical wellbeing, compared to 48 per cent of doctors; 52.1 per cent of nurses indicated that work had negatively affected their mental wellbeing, compared to 51.7 per cent of doctors.

"If you do not have a healthy workforce, you do not stand any chance of getting healthy populations."

Director of Policy

Figure 15. Perceptions of hospital doctors and nurses about the effect of work on their physical and mental wellbeing

Figure 15a. Effect of work on physical health of doctors and nurses

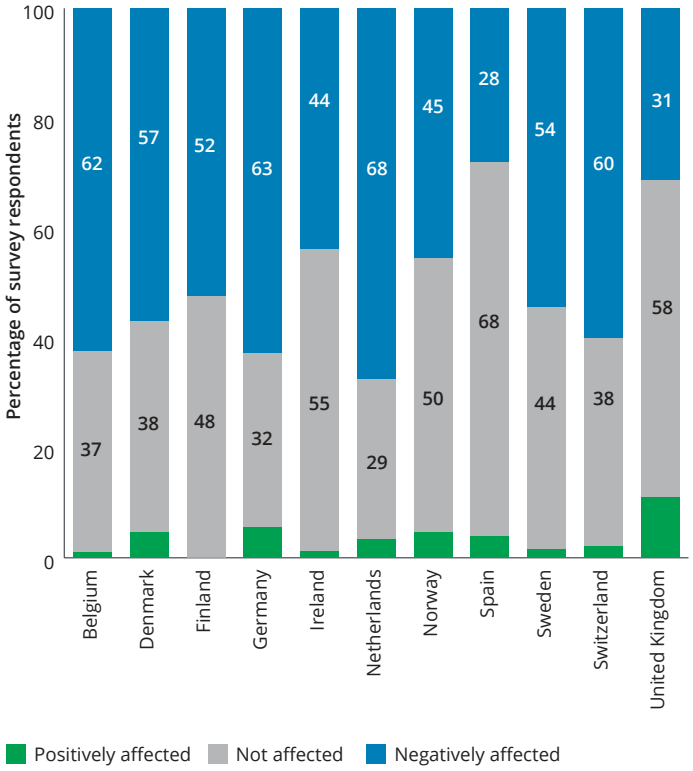
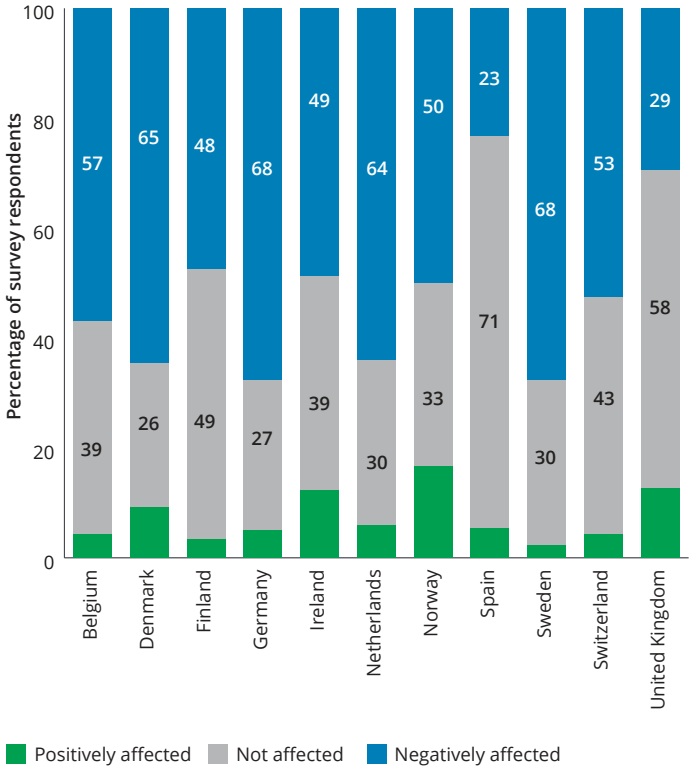


Figure 15b. Effect of work on mental health of doctors and nurses



Source: Deloitte research and analysis based on a crowdsourced survey commissioned from Streetbees, 2017.
Survey questions: "Over the last 12 months, has your work affected your physical/ mental health?"

The highest proportion of respondents indicating that work had negatively affected their physical health was in the Netherlands (68 per cent) followed by Germany (63 per cent) and Belgium (62 per cent); health professionals in Germany and the Netherlands together with Denmark, Sweden and Belgium also showed the highest numbers reporting being negatively affected in their mental health.

For these countries, the results also correlate with low levels of employer support: 61 per cent of respondents from Belgium, 46 per cent of respondents from the Netherlands and 41 per cent in Denmark reported lack of employer-provided services supporting physical and mental wellbeing (Figure 16).

Figure 16. Hospital doctors and nurses report a varying level of organisational support for physical and mental wellbeing

	Belgium	Denmark	Finland	Germany	Ireland	Netherlands	Norway	Spain	Sweden	Switzerland	United Kingdom
None	61.3	41.5	13.1	26.2	23.2	46.2	40.9	44.7	22.1	33.7	6.0
Gym membership or sports classes	12.9	29.2	29.5	37.7	14.6	23.9	18.2	16.0	11.0	45.3	28.2
Occupational health	17.2	10.8	44.3	5.5	40.2	5.1	16.7	6.7	43.4	3.2	62.0
Other health services	2.2	6.2	8.2	19.1	19.5	7.7	3.0	13.3	16.9	11.6	34.8
Other health-related classes or activities	5.4	9.2	6.6	11.5	6.1	16.2	12.1	22.7	5.1	7.4	8.2
Financial incentives for maintaining wellbeing	0.0	0.0	3.3	3.8	2.4	6.0	9.1	0.0	5.9	3.2	0.3
Physiotherapy	1.1	4.6	4.9	1.6	0.0	2.6	0.0	3.3	1.5	2.1	1.3
Discounts for treatments	1.1	0.0	0.0	6.6	0.0	0.0	3.0	0.0	1.5	4.2	1.3
Childcare	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.7	0.0	0.0	0.0

Values represent percentages of responses per country sample.

Source: Deloitte research and analysis based on a crowdsourced survey commissioned from Streetbees, 2017.
Survey question: "What services does your employer have in place to support their employees health and wellbeing?"

Age and experience can also be a factor in a person's ability to cope with work stresses (Case study 5). In our survey a larger proportion of respondents aged over 35 reported to be negatively affected by work than those of younger age. The same pattern can be seen for those with 11 years or more experience when compared to those with 10 years or less.

Denmark had the largest difference between the two experience groups, with longer-serving staff more negatively affected, both physically (12 per cent difference) and mentally (18 per cent gap).

Case study 5: Providing supportive working environments, a comprehensive care programme for sick doctors (Spain)

Doctors are at high risk of mental disorder and are also more likely to ignore, or postpone taking action with regard to their own health. They constitute a 'high at risk' group of staff.[81] The Programa de Atención Integral del Médico Enfermo (PAIME) was founded in 1998 by the College of Physicians of Barcelona with the aim of promoting and protecting the health of medical professionals offering strictly confidential, professional and personal support to doctors experiencing mental health or substance abuse challenges.[82] The programme receives funding from professional bodies, occupational health organisations and regional health authorities. Access is through self-referral, confidential communication from a concerned third party or via formal complaint against a doctor linked to concerns around an eligible condition.[83] Evaluations show that the majority of users was aged between 51-60 years and from general medicine, with self-referral being the most common pathway into the programme overall. Of those referred by other pathways, older doctors are the key demographic; third party/complaint referrals are more common in case of substance abuse. Since its start, PAIME has helped over 3,500 doctors with mental health conditions. Close to 90 per cent of the doctors treated have been rehabilitated and returned to medical practice, reducing the loss of trained professionals significantly.[84]

Caring for carers

The health care leaders we interviewed recognised the need to address the mental and physical wellbeing of staff, both regarding prevention and in supporting returning to work after long-term illness (Case study 5). A number of organisations admitted to an urgent need to improve their approach to staff wellbeing.

Where staff satisfaction and wellbeing had improved in recent years, this was considered to be linked to better engagement with staff across teams, better transparency around the objectives and goals of the organisation, and a visible and engaged leadership.

In addition to addressing general working conditions, our interviewees identified three main approaches to improving staff health and wellbeing:

- the importance of an open culture
  - supporting a culture of transparency, leadership development, and anti-bullying
  - downsizing and restructuring of teams to ensure a 'home or sense of belonging' for all employees
- programmes and services directed at prevention
  - access to complementary therapies such as fitness classes, mindfulness, yoga, sport and social clubs
  - counselling on nutrition and wellbeing
  - access to healthy food, break areas and green space
- services to tackle specific problems
  - the most important service was access to psychological assessment, counselling and therapy, both internally and externally
  - support services for employees struggling with caring for children or family members
  - bespoke return-to-work schemes after long-term illness.

"People don't leave jobs, they leave working conditions."

Director of Nursing

"Getting the culture right means you can do much more with the money you have."

Director of Education

The importance of leadership culture and team collaboration

All interviewees recognised the importance of leaders at all levels of the organisation promoting a culture of inclusion, health promotion and staff wellbeing, particularly the role and responsibility of middle management for cascading organisational values to the frontline (Case study 6). The more innovative organisations were prepared to learn from other industries. Notably, a number of hospital leaders from various countries mentioned working with leadership academies in the airline industry, to better understand methodologies for improving team collaboration and the management of difficult patients.

Moreover, our survey found that improving management and organisational leadership is key to achieving staff satisfaction. However, many organisations stated they struggled to provide the right level of leadership training. One key barrier repeatedly mentioned was that low levels of staffing reduced the overlap between teams that would allow for both individual and team training.

Case study 6: Co-producing organisational design makes the workforce feel VALUED (Northern Ireland)

Faced with increasing recruitment challenges the Medical & Dental Training Agency in Northern Ireland has developed a strategy to attract, welcome and support trainees and to encourage them to train and remain in the health and social care system in Northern Ireland. The strategy aims to address the main concerns that doctors in Northern Ireland report, including high workloads and emotional demands, irregular working hours impacting on work-life balance and importantly, a disconnect between trainees and management in hospitals and trusts. The agency developed the VALUED framework, recognising that the concerns can be more easily addressed when the following considerations are respected:

Voice is listened to

Applaud & acclaim success

Life-work balance

Up to date, high quality training

Enhanced learning opportunities

Distinctive experience.

Initiatives under the framework have been co-designed with trainees and are delivered in partnership with local hospitals. Findings from over 20 current initiatives show a positive impact on the satisfaction of trainees – with trainees rating training in Northern Ireland top in 10 out of 17 categories in comparison with the three other countries in the UK in the General Medical Council Trainee Survey in 2017. While overall evaluation of the programme is underway, early findings show that vacancy rates for trainee doctors have not increased over the last 12 months, a change to previous years. Further work is being undertaken by the Northern Ireland Medical and Dental Training Agency to ensure that the VALUED strategy becomes increasingly effective in the support of Northern Ireland trainees through collaborative work with trainees, trainers and trusts. In June 2017 and in support of the VALUED initiative, the Northern Ireland Medical & Dental Training Agency held an event acknowledging the achievements of doctors in training. The VALUED strategy feeds into the greater transformation programmes currently underway in Northern Ireland.[85, 86, 87]

"The competition between providers is going to be decided in the fight for talent."

Medical Director

Recruitment and retention

Most interviewees reported problems with recruitment and retention at least in certain specialties. Shortages were seen as most severe in intensive care, general medicine, paediatrics, operating theatre staff, radiology, psychiatry and pathology. Organisations reporting fewer problems stated that they felt "lucky" by comparison, due to advantages resulting from their geographical location, academic set-up and diversity of case mix. In general, recruitment was seen as a more critical concern than retention. Where increases in staff turnover was reported, this was attributed to:

- ageing of the workforce
- concerns around the quality of leadership
- market forces in the immediate neighbourhood of the organisation.

Leaving intentions of doctors and nurses

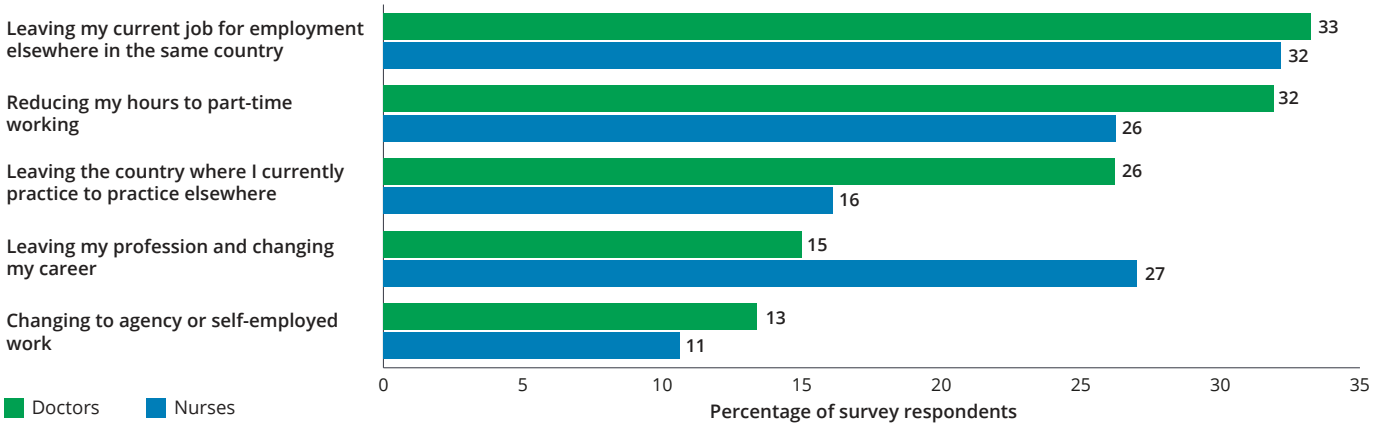
Our survey asked doctors and nurses whether they had considered changing their employment status during the past 12 months (Figure 17). Nurses on average showed less loyalty to their profession, with higher numbers reporting thoughts of leaving the profession and changing careers, while doctors showed a greater intention to reduce their hours to part-time working or to leave the country.

Inter-country comparisons show that for doctors, the countries with the highest numbers considering leaving the country to practice elsewhere were Ireland, UK and Spain with values of 68, 40 and 30 per cent, respectively; the lowest numbers were in Switzerland (13 per cent) Finland and Norway (both 15 per cent). Switzerland had the largest number of doctors reporting an intention to seek a new employer in the same country (51 per cent) followed by Denmark, Norway and Germany (48, 45 and 43 per cent). For nurses, the highest numbers intending to seek a new employer in the same country were in Ireland, Germany and Switzerland. (43, 42 and 40 per cent); nurses in Ireland (32 per cent, Spain and the Netherlands (both 23 per cent) were most likely to consider leaving the country.

The five main reasons for considering a move were similar for both professions: nurses ranked workload first, followed by pay and work-life balance, whereas doctors ranked work-life balance before workload, and pay, followed for both professions by mental wellbeing and lack of recognition.

Among those considering leaving their country to practice elsewhere, the top three countries that doctors were considering moving to were Australia, the USA and the UK, while for nurses it was Australia, Germany and France. 19 per cent of all respondents who said they were looking to move, did not know which country they would like to move to.

Figure 17. Hospital doctors and nurses show different patterns of intention to leave current employment



Source: Deloitte research and analysis based on a crowdsourced survey commissioned from Streetbees, 2017.
Note: Survey question: "Within the last 12 months, which of the following have you thought of doing? Please select two that you have thought of the most."

Improving recruitment and retention
Senior leaders recognised the urgent need to improve the recruitment and retention of the workforce. For most organisations, recruitment is the bigger concern.

Initiatives directed at recruitment included:

- driving better brand recognition through advertising, presentation at job fairs and social media (Case study 7)
- reimbursing relocation costs, providing free accommodation and support with student debt
- offering additional contract packages, including child care, and sports and wellbeing offerings
- providing financial incentives, though most leaders reported mixed short-term success and little long-term effects on staff retention of financial incentives, while considering them a threat to stability in local labour markets
- improving on-boarding and supporting early-career professionals through welcome packages and induction programmes.

"It is HR who recruits, but it is the line manager who retains."

HR Director

Case study 7: #BetterWithYou – engaging staff in recruitment for hard to fill posts (England)

Aware of national shortages and geographical challenges, University Hospitals of Morecambe Bay NHS Foundation Trust (UHMBT), developed a new approach to the recruitment of hard to fill vacancies. This focused on capitalising on their greatest assets: their staff. They created three short films featuring current nurses, consultant radiologists and radiographers, highlighting their passion for working in the hospital and featured their unique insights on living in the local area. The next phase of this approach was to use visual and interactive methods via online and social media platforms. From 'Twitter Takeovers' to story inserts and tips on the local area, they built excitement about what the trust had to offer personally and professionally. This simple, yet original approach resulted in 148 applications for hard to fill posts within six weeks. Furthermore, UHMBT appointed 7 midwives, 18 registered nurses, 1 theatre practitioner, 17 medical consultants, 3 radiographers and 1 mammographer. Following this success, UHMBT united with Health & Care Partners (a partnership of 11 local health care organisations within the Morecambe Bay area) to expand this initiative and create a recruitment portal website named '#BetterWithYou'. This enabled the organisations to feature all of their vacancies in one place, making it easier for potential applicants to browse and navigate through all the roles. Ultimately, this transformed the Trust's capability to put the right people in the right place, whilst reducing their reliance on expensive agency staff.[88]

Wider initiatives that were seen as impacting both recruitment and retention, were:

Offering flexible career and job planning
For doctors, examples include sharing roles across organisations, both regionally and at wider distance, to allow a more diverse and interesting case mix and opportunities for development. To overcome the limitations of career opportunities for nurses, organisations had trialled strategies that allow nurses to undertake tasks at the top of their licenses, enriching their jobs and increasing clinical responsibility.

Improving the opportunity and organisation of continuous professional development (CPD)
A number of organisations across different countries stated that while they were not at liberty to offer financial incentives within the nationally-set salary schemes, supporting internal and external training (including supporting staff in Masters and PhD programmes) had helped improve staff satisfaction and quality of patient care.

Shaping a culture of transparency, open feed-back and participation
Most interviewees reported ambitions to establish more transparency over and participation in strategic development of the organisation for all employees. Some of the more innovative organisations we talked to, reported learning from other industries to implement new ways of internal communication, including 360° feedback for the leadership and improving performance management (Case study 8).

"If we do not get flexibility right, competitors will win our staff. We can decide to lose all their time, or a share."

HR Director

Case study 8: Applying evidence-based performance management to health care (Iceland)

Following a strike by nurses in public health care institutions in Iceland in 2015, the Icelandic government offered to fund a pay-for-performance scheme for nurses. The Icelandic Nurse's Association accepted the offer, and a three-year project was initiated at Landspitali University Hospital, employing around 1,500 nurses. In close collaboration with the association, they created a common performance framework.

To develop the performance framework, six workshops involving nurses and nursing managers were held in the spring of 2016, with over 100 nurses participating. In the workshops, a combination of bottom-up (critical incident) and top-down (competency card-sort) approaches were used. A content analysis of the workshop output resulted in the definition of seven key factors for performance-based pay:

1. Professional competence and organisation
2. Knowledge and knowledge sharing
3. Interpersonal skills and service
4. Attitude and flexibility
5. Collaboration and team leadership
6. Reliability and safety
7. Improvement and development.

The incentive payments are paid out as annual bonuses, based on the individual's performance score and weighted by their contribution in terms of time worked over the preceding eight months. A key aspect of the programme is the right of the individual nurse to personal feedback from their manager. In addition, the hospital implemented a 360° feedback model to monitor the performance of all hospital managers. The first round in 2016 included 1,000 nurses and staff surveys show that three quarter of nursing managers see the performance evaluation as a positive tool to motivate staff. The trial project will be evaluated at the end of 2018.[89]

"We get lost in siloed short-term solutions that fill the gap; we need to think more about restructuring the workflow."

HR Director

Managing the workforce

Our research shows large variations in plans for improving efficiencies within the existing workforce. Several interviewees saw a lack of talent in the HR function as a key barrier. In their view this problem stifles the chance of innovative solutions for managing relationships with employees, as well as planning and deployment of the workforce.

Initiatives directed primarily at improving the management of the workforce were seen as having a positive effect on both recruitment and retention efforts. Improving reliability of rostering and schedules was given high priority by both medical and nursing directors.

Overcoming fragmentation of workforce planning

Few of our interviewees reported using a centralised decision-making tool to determine numbers and types of staff employed (Case study 9). Responsibility for safe staffing levels most often remains with the leadership of individual clinical departments. Decisions on numbers are based on centralised budgets, pre-agreed ratios and the experience of individual managers. However, most organisations expressed a desire to be able to base decisions about staffing and skills mix on agreed standards across the organisation.

Only one interviewee reported using forecast modelling for clinical activity. Another interviewee told us that linking staff planning to micro-managing the departmental budget among ward teams had led to greater openness for new staffing models. More innovative approaches included organising staffing collaboratively within the organisation and, in one case, in collaboration with external partnership organisations.

Case study 9: Reliable schedules improve patient care and increase staff satisfaction (US)

Rostering and maintaining efficient staffing schedules are crucial for saving time, reducing costs and ensuring patient safety and a good work-life balance for employees. In 2014 the University of Kansas Hospital undertook a partnership with Avantas, a provider of predictive analytics, to improve the amount of time that was being spent on scheduling, staffing and payroll functions.[90]
Prior to the partnership, hospital staff were spending more than 1,500 hours across all inpatient units in a single scheduling period. An average of 13.4 hours per person in each four-week schedule period was spent creating an initial schedule, while post-creation scheduling of tasks – such as entering schedule adjustments for absences – were costing them an additional 40.3 hours.[91]

Once the new scheduling system was implemented it saved the hospital time and money across a number of areas, including:

- time spent by managers spent on scheduling was reduced by more than 50 per cent, averaging 6.6 hours
- post-creation scheduling tasks were reduced to 4.4 hours
- total time savings per manager per schedule period added up to 61.1 hours
- the extra hours required by core staff were reduced from 32.7 to 4.7 per cent
- a reduction in overtime from 14.6 to 6.3 per cent. [92]

Time saved through advanced scheduling, provided by predictive analytics has freed up time for University of Kansas staff to engage with patients and maintain better levels of work-life balance; across the hospital spending on extra hours and overtime services was also reduced.

Improving reliability of rostering

The majority of our interviewees reported struggling to ensure reliability and long-term predictability of schedules, which is key to maintaining staff satisfaction among doctors and nurses (Case study 10). They expressed a desire to move to cross-site e-rostering, and to being able to guarantee schedules 12 weeks in advance. Currently e-rostering is more established for the nursing profession, with planning on average occurring four weeks in advance. Nearly all interviewees reported that e-rostering programmes were not used to the full extent of their capability, and that this still placed significant burden on the time of nursing managers.

Our interviewees indicated that the medical profession is even further behind, with most organisations using a variety of different programmes: for example, one organisation had as many as 64 different systems for planning medical schedules.

As well as having a negative impact on staff satisfaction and retention, the low reliability of schedules also increases the vulnerability of hospitals to the need for last-minute agency staff.

> "E-rostering is widely misused by simply digitising a paper process without providing staff with more flexibility."
>
> **Director of Policy**

Case study 10: Applying a non-salary reward programme to reduce unplanned variation (Germany)

Aware that a lack of schedule stability across their medical and nursing workforce negatively impacted staff satisfaction while also creating avoidable cost for hospital managers, the Friedrich-Ebert-Hospital in Neumünster, Germany, redesigned how they managed unexpected /unplanned staff absences. The new approach centred on the principles of efficient staffing and reliable, transparent planning. In addition to more traditional methodologies of strengthening the internal staff bank and financial incentives for substantive staff seeking to work extra shifts, the hospital introduced a non-salary reward programme to support an additional contingent workforce. Stand-by staff are planned into the schedule, significantly reducing the effort to fill unpredicted gaps in the schedule in case of sickness. Agreeing to be on stand-by for a defined period is rewarded with a €40 credit to a national cash card scheme, which can be used with shops and private organisations in the region, if the employee is not required. If the staff member is needed to fill a shift the standard rates for that particular shift apply. This non-salary-based reward programme has resulted in fewer employees being cold-called to fill in shifts when on leave. Staff surveys following the implementation of the new approach showed that 43 per cent of staff report fewer last-minute changes to their schedules, 38 per cent were working less overtime and 51 per cent felt empowered to manage variations in staffing at ward level. These benefits have resulted in improved staff satisfaction, while also helping the organisation to reduce overall overtime and agency spend.[93]

"There is a need to recruit and organise flexible staff purposefully, with the right support programme in place."

Director of Nursing

Addressing cost and quality concerns around temporary staffing

All interviewees recognised the value of using temporary or agency staff effectively, while at the same time trying to reduce their reliance on them, yet few have succeeded in controlling their dependency on agency staff. This is largely due to having a number of hard-to-fill vacancies, as well as unpredicted changes in the acuity of patients.

With the exception of Luxembourg, where agency staffing in health care is prohibited by law, most hospitals we visited have seen increases in levels of agency staffing, most commonly in areas of intense pressure such as accident and emergency departments and intensive care. Employers in the Nordic countries reported being actively pursued by agencies offering agency staff. Italy and Spain reported significantly lower reliance on agencies, due to the inherent culture of the clinical workforce and a regional over-supply of nurses.

Temporary staff give hospitals the flexibility to address short-term workforce pressures and can be an attractive option for staff due to the flexibility and financial reward it offers. However, high levels of temporary staff are costly and an inefficient use of resources. The cost of temporary staff was a major financial concern for many of our interviewees.

They were also concerned about the quality of care provided by temporary staff, largely due to their lack of familiarity with the hospital and the lack of consistency and continuity of care. Furthermore they considered agency staff as disruptive to permanent teams as they can destabilise team dynamics. However, when faced with decisions impacting revenue, such as closing of operating theatres or intensive care beds, bringing in temporary staff was seen as a necessary compromise.

Where hospitals had been successful in reducing their dependency on agency staff, this has been achieved by building, sustaining and optimising the use of the internal permanent and flexible workforce. Health care leaders in a number of countries mentioned the need to provide employees with a 'sense of belonging', good team fit and clear lines of management to improve motivation and secure the wellbeing of their workforce while ensuring enough flexibility to manage variations in the workload. Some hospitals reported successes in addressing the challenge by introducing new forms of collaboration within and between hospitals in the same geographical area, including establishing a flexible team in a centrally-managed bank (Case study 11).

Case study 11: A flexible team to answer flexible needs (Belgium)

The University Hospital of Brussels (UZB) established a flexible team of some 44 full-time equivalent nurses, midwives and care assistants operating across the entire hospital. Significant clinical experience is a key requirement to become part of the team, as well as good knowledge of the various departments of the hospital (minimum of three years employment at UZB). Nurses are incentivised to apply by the opportunity of more flexible working patterns and the opportunity to develop their skills across different clinical specialties, without losing the experience of working within a defined team. The deployment of the flexible team is based on daily, real-time, data-driven workload forecasts, using electronic patient and e-rostering data, including patient acuity, to match demand to staff skills and experience. The approach has helped to reduce dependency on agency staffing and improved workforce satisfaction. The hospital has been repeatedly voted to be among the best employers in Belgium.[94]

In England, NHS annual expenditure on agency staffing increased from £2.2 billion in 2009-10 to £3.7 billion in 2015-16. Agency staff tend to be relatively more expensive – for example, in 2015 agency nurses cost, on average, an estimated £39 per hour, compared with £27 per hour for bank nurses. In October 2015, the Secretary of State for Health announced mandatory caps on how much hospitals can pay per shift to help control spending on agency staff and set targets for individual hospitals to reduce overall spending.[95] In 2016-17, agency spending decreased by £700 million to around £3 billion. Applying caps on hourly rates and use of mandatory pricing frameworks, has had the greatest effect in agency nursing.

Hospitals have now being set the target of making further cuts in agency and temporary staffing costs in 2017-18, of which around £150 million should come from reduction in medical locum expenditure.[96] A number of innovative approaches for reducing reliance on medical locums have now been introduced (Case study 12).

Case study 12: Using innovative digital technologies helps improve quality and reliability of temporary staff (England)

Chelsea and Westminster Hospital in London is collaborating with LocumTap to use their innovative technology to improve the management of medical locums. LocumTap is a digital platform that aims to solve administrative barriers of temporary staffing. The platform uses a mobile app that enables locum shift matching for clinicians and a cloud-based portal that enables staff bank administrators to coordinate recruitment, manage vacancies, process payments and report data.

Replacing the traditional bank management of doctors by LocumTap resulted in:

- facilitating the recruitment of more than 300 doctors into the staff bank
- app-based booking of over 15,000 hours of locum work within the first 3 months
- increasing utilisation rate of the staff bank from 35 per cent to 90 per cent
- improving long-term planning, as 84 per cent of shifts were booked more than four weeks in advance, reducing the need to escalate rates for late bookings or rely on agency clinicians.

Projected annual cost savings for the hospital of more than £500,000 result from reduction of agency spent, as well as improved transparency and quality of workforce planning. The hospital is planning to roll out the solution for other clinical staff groups.[97]

Facing challenges of international recruitment

Among our interviewees, there is a growing recognition that the global market for talent is shrinking, and that international recruitment is not sustainable in the long term. Some hospitals are instead focusing on identifying individuals with a background of medical and nursing qualifications acquired abroad who already are living in the local community and helping those individuals meet the necessary language and professional qualifications needed to obtain full registration with the national regulators.

> "Europe is bled dry."
>
> **Medical Director, speaking about international recruitment**

However, most interviewees also recognised the need to guarantee some flow of professionals between countries, to benefit from international learning and knowledge exchange. Respondents in smaller countries such as Luxembourg and Iceland highlighted a high dependency on international collaboration to ensure that they have enough professionals with the skills for complex patient care. Our survey respondents, although working in one of the 11 countries covered in our survey, had obtained their initial professional qualification from a total of 49 different countries, with France, the Philippines, Greece and the US being the most common country of training outside of the countries included in the survey.

"We need to balance a system of multiple moving parts; our responses need to be able to all move together."

Director of Policy

New models of care

Across all countries, when asked to consider the one thing they would change if they could, most respondents recognised the need to reorganise work collaboratively (Case study 13). Most also indicated a need to improve their HR function including new models of training and recruitment across local health economies. Few saw increasing staff numbers as the only solution.

While most senior leaders would welcome the opportunity to work with new models of care, integrating care across professions and sectors, few reported engaging successfully at scale with external partners. A common theme was the need to raise public understanding of the role and responsibilities of the hospital workforce. In particular in Germany, the UK and Ireland, senior leaders expressed concerns about the far-reaching impact of constant negative reporting of health care issues in the media.

Case study 13: Reorganising hospital care – beds belong to patients not to professionals (Denmark)

Odense University Hospital in Denmark is currently constructing a new 837 bed, 250,000 m^2 facility designed to put the patient at the centre of care pathways. The hospital aims to achieve this by locating clinical specialties in geographic proximity in the new hospital. For example, interdepartmental collaboration between geriatric medicine and orthopaedics, enable a more cohesive relationship between these two departments that are highly dependent on each other's expertise to achieve optimal patient outcomes. Operating rooms are not allocated to defined clinical specialties but will be used by multiple departments, thereby maximising resource capacity. To realise the ambition the current project phase includes a strong focus on inter-professional and cross-specialty planning to co-design governance frameworks around resource utilisation. The project is further supported by the Centre for Innovative Medical Technology (CIMT), a research and innovation centre between the university hospital and the University of Southern Denmark, focusing on trialling academia and staff-driven technology pilots, creating a fail-fast culture among the clinical staff. The future hospital will be structurally linked with the University of South Denmark and will share resources including laboratories and auditoriums. The new facility is expected to cost €950 million and be completed in 2022.[98]

Securing the future of the hospital workforce

"There are so many broken angles that would be easy to fix, if only all stakeholders would come together."

HR Director

Demographic and economic changes, increased patient expectations and advanced digital and cognitive technologies will disrupt the future of work in health care.[99] Patients with complex and acute inpatient needs, will be treated in 'smart', digitally-enabled hospitals, with hospitals optimising clinical roles and the use of cognitive technologies to deliver more seamless, integrated care designed around patient needs. Managers will be able to access real-time data, improving their understanding of patient flows and patient acuity, increasing the efficiency of workforce planning. Robotic Process Automation (RPA), Cognitive Analytics (CA), Virtual Reality (VR) and Artificial Intelligence (AI) will enable hospital staff to initiate and coordinate concurrent activities, automate many back-office services, and resolve workflow pain points, thereby allowing professionals to spend more time providing care and less time documenting it.[100]

While the technology to implement this vision of the future hospital workforce is available today, many hospitals are caught in the pressures of the 'here and now' and devote little time, energy or funding to planning for new ways of working. While there is an increasing number of hospitals around the world using hospital-wide IT systems to manage the entire continuum of care, they amount to less than five per cent of the total. This section of the report considers the views the hospital executives and staff across Europe about digitisation and the disruptive potential of the future of work.[101]

Digitisation and the adoption of technology

All our interviewees reported an increasing engagement with digital strategies and efforts to implement digital solutions into the day-to-day working lives of hospital managers, doctors and nurses. To date, the implementation of technology has progressed most in back-office and administrative functions, with much lower levels of use to by frontline staff in their daily work.

Our survey showed the highest numbers of health professionals indicating use of technology in Finland, followed by Norway and Sweden. The lowest reported use of technology was in Ireland, Denmark and Germany (Figure 18).

"IT can facilitate communication and can be a win for the workforce. However, staff needs help to learn and technology cannot be the end in itself. Nobody is going to be energised by working mostly on the screen."

Director of Policy

Figure 18. Hospital doctors and nurses report a variation of current use of technologies in patient care

	Belgium	Denmark	Finland	Germany	Ireland	Netherlands	Norway	Spain	Sweden	Switzerland	United Kingdom
Electronic health record	83.9	92.3	69.7	59.6	57.3	95.7	93.9	66.7	93.4	82.1	67.4
E-prescribing	51.6	50.8	91.8	29.0	2.4	50.4	51.5	50.0	67.6	56.8	38.6
Point-of-care diagnostics	47.3	10.8	36.1	31.1	35.4	53.0	36.4	42.0	36.8	31.6	42.4
E-rostering	19.4	9.2	23.0	57.4	22.0	41.9	57.6	26.7	32.4	51.6	43.7
Remote vital sign monitoring	26.9	18.5	39.3	35.0	26.8	21.4	39.4	43.3	31.6	30.5	41.5
Wearables	30.1	35.4	23.0	3.3	13.4	24.8	53.0	25.3	33.8	24.2	17.7
Patient apps	17.2	21.5	34.4	10.4	13.4	29.1	9.1	20.7	16.2	10.5	25.3
Remote consultations	7.5	4.6	34.4	32.2	8.5	10.3	6.1	20.0	34.6	33.7	8.9
Automated drug dispense	12.9	6.2	9.8	6.0	13.4	17.9	9.1	20.7	12.5	5.3	14.2

Values represent percentages of responses per country sample.

Source: Deloitte research and analysis based on a crowdsourced survey commissioned from Streetbees, 2017.
Note: Only responses with a 10 per cent or higher average across the total survey cohort are included in this figure.
Survey question: "Which of the following technologies do you currently use in support of patient care? Select all that apply"

Both our interviews and our survey found that electronic health records (EHR) are the most widely-used technology, and all organisations we interviewed are in the process of implementing EHRs. However, most interviewees said that they were yet to operate their respective model at full capacity. Since 2005, the Healthcare Information and Management System Society (HIMSS) Adoption Model of Electronic Medical Records (EMRAM) has been measuring the adoption and utilisation of Health IT and the extent of digital capabilities. Its measuring system comprises eight stages, ranging from 0 (very limited digitisation) to 7 (awarded to hospitals that can demonstrate significant, sustainable improvement in patient outcomes and financial returns, and are virtually paperless).

By 2017, in the US five per cent of hospitals (334) were at Stage 7, with 70 per cent at Stage 5 or above. In Europe, some 2,500 hospitals have been assessed, but by November 2017 only three in the EU were at Stage 7 (one each in Spain, Turkey and the Netherlands) and 50 had been assessed as at Stage 6; Belgium (2), Germany (1), Ireland (1), Italy (4), Netherlands (3), Portugal (1) Slovenia (1), Spain (9), Switzerland (1), Turkey (22) and the UK (4).[102]

A number of executives expressed concern over the failure to realise the full benefits of EHR which they thought were due largely to poor usability of the systems, a failure to adapt underlying systems and processes, and concerns around reliability. Lack of funding to support system change and implementation was also highlighted as a barrier. As one interviewee put it: "IT change is first and foremost behavioural change", which requires training and support for staff.

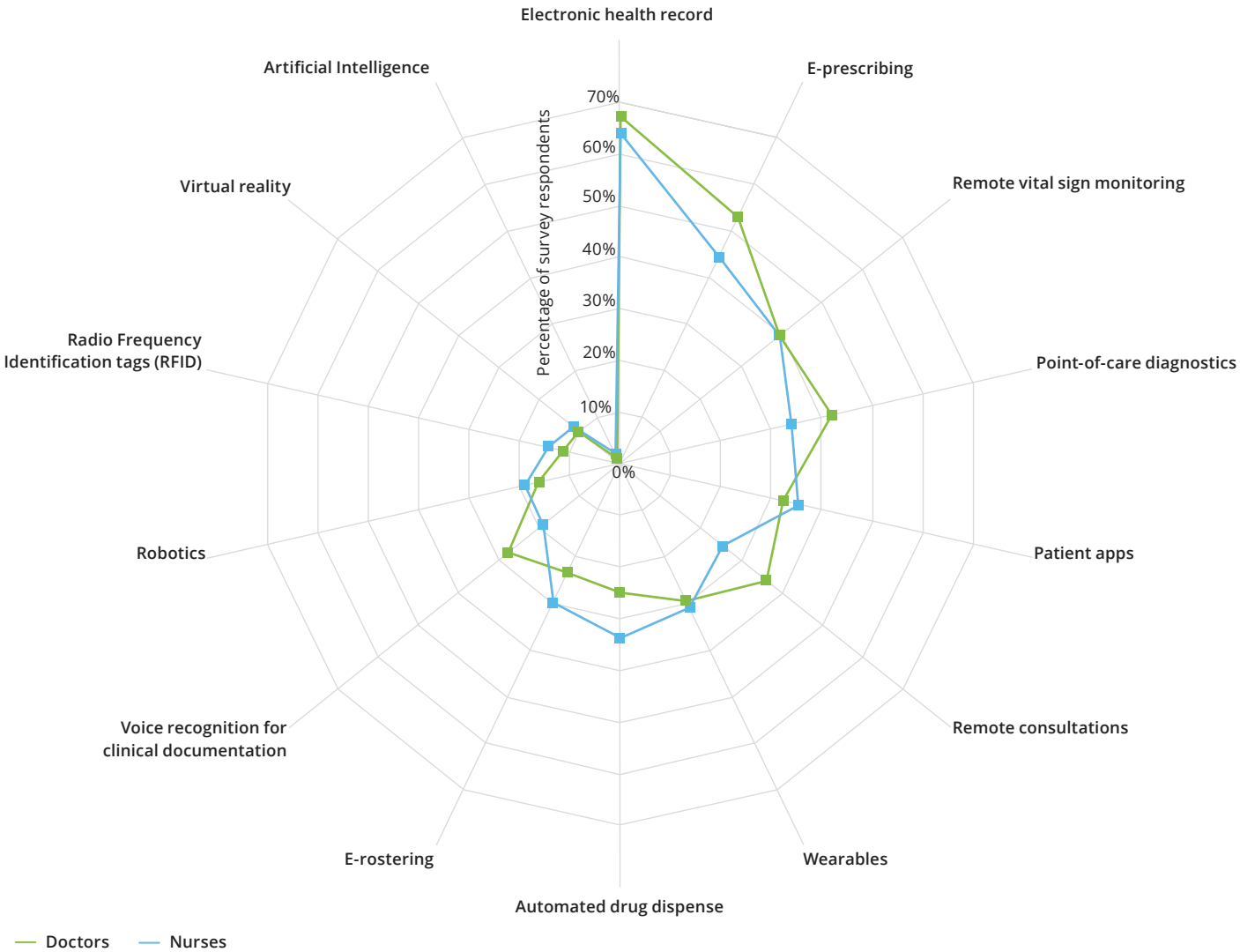
Integration of new technologies

Among survey respondents new, emerging technologies such as AI and robotics were hardly mentioned as being in current use; only 7.3 per cent were aware of the use of robotics, 3.2 per cent virtual reality and 1.1 per cent AI. Finland emerged as the highest user of new technology, reporting a higher-than-average use of these three technologies (14.8 per cent, 8.2 per cent and 1.6 per cent respectively) (Figure 19).

"It is a change – a revolution indeed – going on across all of society. So we better move along with it."

Chief Innovation Officer

Figure 19. European hospital doctors and nurses expectations of what technologies help to improve efficiency of patient care.



Source: Deloitte research and analysis based on a crowdsourced survey commissioned from Streetbees, 2017.

Note: Responses for doctors and nurses are averages taken from across each respective cohort.
Survey question: "Which of the following technologies do you think are helping to improve the efficiency of patient care? Please select all that apply?"

Despite the potential for technology to disrupt methods of delivering health care services, there is some variation in opinion about its usefulness in improving efficiency in patient care. EHRs were expected to be the most useful application of IT, but there also were cross-country differences of opinion: 82 per cent of survey respondents in Finland thought that EHRs provided efficiencies in patient care, whereas only 53 per cent in Belgium said the same. These differences may be a reflection of the vast array of EHR software available on the market and variations in its functionality and usability. Emerging technologies such as virtual reality and AI were least named when professionals considered a technology's potential for improving efficiency in patient care (11 per cent and 2 per cent of respondents respectively), probably reflecting the low current levels of exposure to emerging technologies.

Case study 14: Embedding technology in frontline care: back-up for heavy lifters (Japan)

Robotics are already revolutionising many aspects of health care, from surgery to the automated delivery of materials and collection of goods around hospitals.[103] However, their impact on the day-to-day working lives of hospital doctors and nurses is limited. Providing care for sick patients is a hands-on job that requires both physical and mental stamina. Repeated lifting and moving of patients is a main reason for staff health and safety incidents and sickness absences, including early retirement. Panasonic has created a nursing care bed that is able to transform into a wheelchair to help assist in the care of the elderly. The product has acquired ISO 13482 certification, which is the international standard for safety requirements for personal care robots.[104] The technology could prove useful for hospital nurses, making a difficult job easier to perform. During our interviews, organisations in the Netherlands and Germany expressed interest in trialling robots that assist care activities and increase staff and patient safety.

The impact of new technologies on workload

Doctors and nurses respondents showed different expectations about the potential of technology to improve working conditions, with nurses more receptive, scoring their usefulness higher in 9 out of the 14 categories shown in Figure 19. This was also reflected in our interviews, with nursing directors showing a greater interest in integrating new technology into daily care, including robots for handling patients (Case study 14). Doctors considered e-prescribing, point-of-care diagnostics, remote consultations and voice recognition for clinical documentation as most useful for improving efficiency in patient care.

"Patterns of activity and productivity will change due to technology."

Director of Policy

Case study 15: Implementing new technologies to better manage workload (US, UK)

The John Hopkins Hospital in Baltimore has developed a state-of-the-art hospital control centre in association with GE (General Electric). The Capacity Command Center uses the latest in systems engineering, predictive analytics and innovative problem-solving to manage patient safety, volume, and the movement of patients in and out of the hospital more effectively, improving access to services. The Command Center provides staff with real-time and predictive information, helping them prevent and resolve bottlenecks, reduce patient waiting times, coordinate services and reduce risk. Real-time information is available 24/7 alerting staff to: the numbers of patients coming into the hospital; which hospital units need additional staff members; the health status of patients; the need for and availability of beds across the hospital; priority admissions and discharges; and other information essential for ensuring high-quality patient care.[105]

Early results of the implementation of Capacity Command Center demonstrates that there has been:

- a 60 per cent improvement in the ability of the hospital to accept patients with complex medical conditions from other hospitals around the region and country
- the critical care team dispatched 63 minutes sooner to pick up patients from outside hospitals
- patients assigned a bed 30 per cent faster after decision to admit from the emergency department
- patients transferred 26 per cent faster after they are assigned a bed
- transfer delays from the operating room after a procedure, reduced by 70 percent
- 21 per cent more patients discharged before noon, compared to previous years.[106]

"Technology implementation is service redesign, with the patients at the heart."

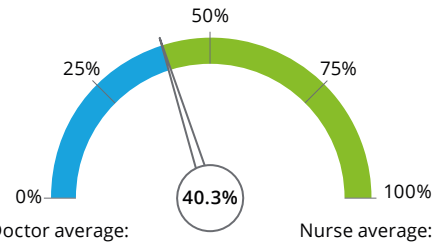
HR Director

Realising the benefits of technology depends on successful implementation, together with staff training and digital literacy. Our research found wide variations in the level of organisational preparedness to develop the digital skills of the workforce (Figure 20).

Figure 20. Views of hospital doctors and nurses on organisational and individual preparedness to engage with technology in health care

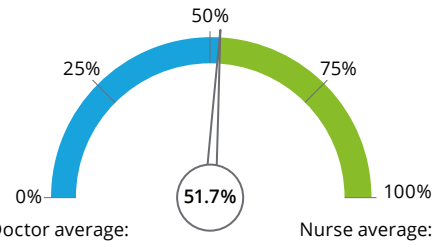
Views on organisational preparedness

Very well and reasonably well prepared



Individual preparedness

Adequately trained or tech expert



Average satisfaction levels with the training and support from their organisation to integrate new technologies into their daily work

	Very and generally satisfied	Generally dissatisfied and not at all satisfied
Combined	38.2% **Highest ranking countries** 1. United Kingdom (55%) 2. Belgium (45%) 3. Netherlands (44%)	53.1% **Lowest ranking countries** 1. Ireland (37%) 2. Spain (34%) 3. Denmark (34%)
Doctors	33.6% **Highest ranking countries** 1. United Kingdom (60%) 2. Belgium (47%) 3. Spain (47%)	58.5% **Lowest ranking countries** 1. Finland (45%) 2. Denmark (39%) 3. Sweden (39%)
Nurses	42.1% **Highest ranking countries** 1. Sweden (55%) 2. Switzerland (55%) 3. United Kingdom (53%)	48.7% **Lowest ranking countries** 1. Ireland (37%) 2. Spain (36%) 3. Denmark (31%)

Source: Deloitte research and analysis based on a crowdsourced survey commissioned from Streetbees, 2017.
Survey questions: "How well do you think your organisation is prepared to adapt the necessary technology to make your work easier? How well do you feel trained to use new technologies in your daily work? How satisfied are you with the level of training and support you get from your organisation to help you integrate new technologies into your daily work?
Values are taken from combined average results for "very and generally satisfied" and "generally and not at all satisfied". Neutral results are omitted from this analysis.

Figure 20 above, shows similar levels of satisfaction among hospital doctors and nurses with the support and training for technology implementation. Survey respondents' views of their hospital's level of preparedness to adopt technology ranked Spain as best prepared: 58 per cent of Spanish doctors and nurses believed that their organisation was reasonably or well prepared to support the implementation of technology, followed by Finland (51 per cent) and the UK (49 per cent). Norwegian doctors and nurses scored highest in believing that their organisation was ill-prepared (53 per cent), followed by Ireland and Denmark (45 and 42 per cent). At an individual level, hospital doctors and nurses in Spain also felt best prepared for new technologies (70 per cent), followed by Sweden (65 per cent) and Switzerland (59 per cent). Doctors and nurses in Ireland (52 percent) and Finland showed highest rating of feeling ill-prepared (51 per cent), despite the reported high use of technology in Finland; followed by Belgium (47 per cent).

Most interviewees stated that they were less concerned about their younger workforce given they comprised an increasing proportion of digital natives. However, few hospitals had structured and certified programmes to upskill staff to improve digital literacy. The more innovative organisations, especially in Spain, reported having a mix of in-house and external mandatory and optional training in place, using both online and class-based methods. In some cases these included structured exchanges with other facilities and organisations, to accelerate learning and adoption. Some organisations also had dedicated teams in their HR functions to drive training and implementation of technology across all professions. The majority of organisations reported use of 'digital champions', to cascade adoption and implementation of new technologies down through their organisation. However, most reported some problems in monitoring skills and capabilities among staff, and a failure to engage with staff to co-design technological solutions.

"Things are now moving faster and faster. We also need to adapt how we care for patients faster."

Director of Nursing

The future of work

Adapting to the future of work will require task shifting and task reorganisations.[107] As with other industries, future jobs in health care will be hybrid jobs, requiring a high degree of human skills and digital literacy.[108]

The current level of staff shortages is an opportunity to utilise new technologies and create new role definitions that enable clinical professionals to work at the top of their license, and to recruit different types of skills that will be needed in the future.[109]

Strategic thinking and the of use intelligent staff recruitment and management solutions

Putting the right policies in place for co-designing the workforce of the future is pivotal. This will require investing in the right talent for recruitment and leadership, with HR playing a more strategic role:

Rethinking the organisation of the hospital workforce

Realise flexibility by controlling the optimal mix of bank, agency and substantive workforce

Turn back the clock on skills dilution and get the skills mix right

Understand division of labour between human and digital staff

Redesigning recruitment and performance management

Realise efficiencies through use of CA, RPA and cloud-based capabilities to filter resumes and profiles

Learn from other industries and adapt available tools to increase team fit and allow competency-based staffing

Support performance management using IoT, radio-frequency identification and CA, tracking staff activity

Smartening up workforce management

Extend use of e-rostering programmes, allowing for flexible and adaptable schedules to allow integration of gig economy workforce

Use CA for demand-led scheduling and deployment, including the use of real-time evidence for acuity-based staffing

Integrate CA and RPA to manage salaries and benefits

Nurturing collaboration and quality of care

Establish VR and online-based CPD opportunities

Promote culture of fail-fast mentality, driving adoption of technology, remote collaboration and communication

Encourage staff to use video meetings, screen-sharing and live chats

Embrace staff-driven problem-solving initiatives, prototyping, pilots and innovation sprints

"Technology can help us decide how we use the most expensive time of our workforce."

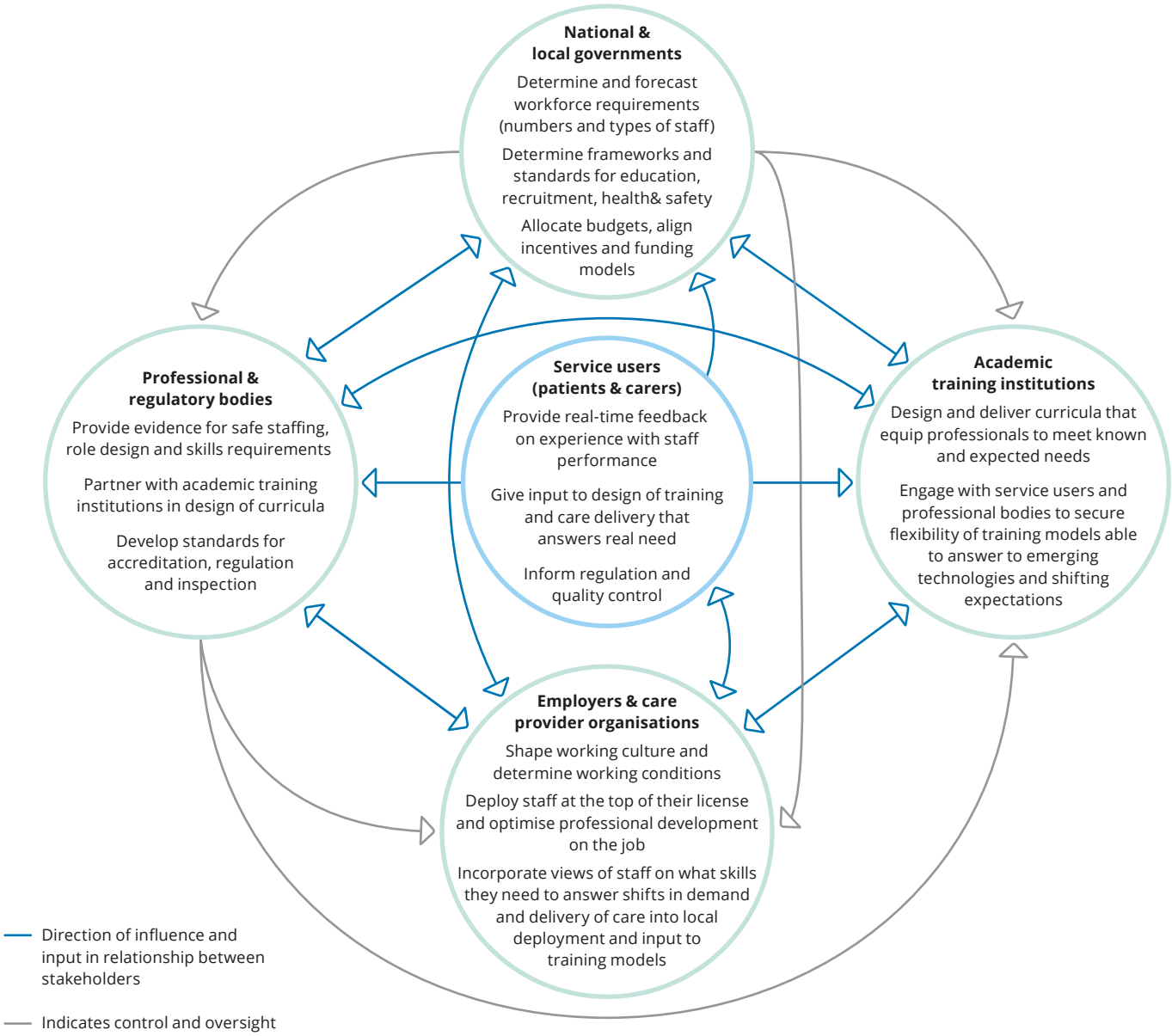
Medical Director

Co-designing a vision for the future workforce

There is an urgent need for an open public debate about what we can realistically expect from health services, and a need to develop a shared vision of the role of health professionals in those services. This includes addressing funding and infrastructural constraints and other difficult trade-offs.

Addressing future challenges of matching supply to increasing demand, improving workforce planning, education and deployment is a shared responsibility. All stakeholders in the health system must come together in a dynamic, iterative process, that integrates the views of service users, the current workforce and their employers on the skills required in the evolving environment. New ways of working, augmented by new technologies such as automation and robotics, can help employers with task-shifting and role enrichment to create a sustainable and flexible workforce that is able to respond efficiently and effectively to service users' needs.

Figure 21. The shared responsibility of co-creating the health workforce of the future

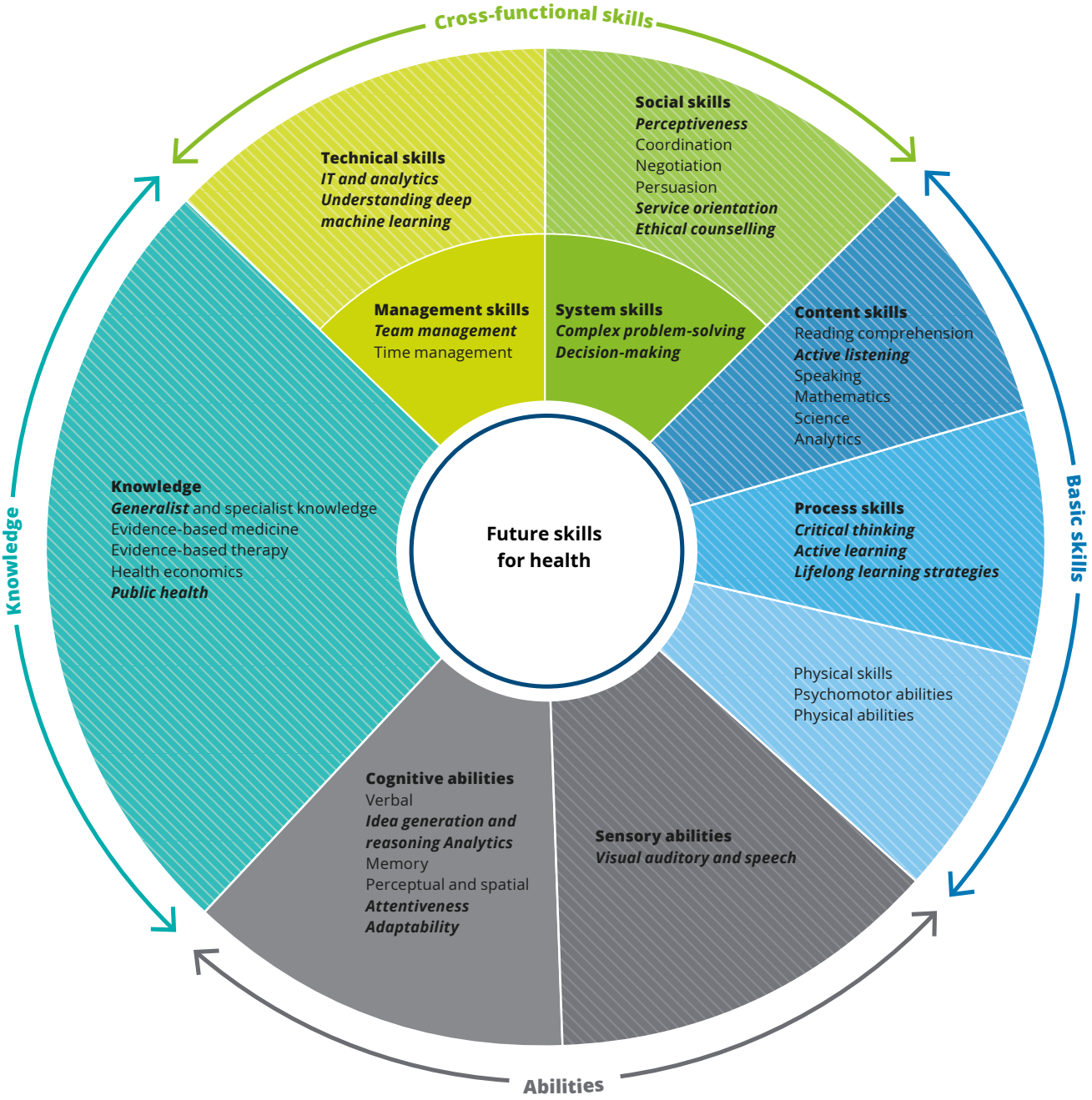


Source: Deloitte research and analysis, 2017.

"We need different people. The way we used to work is ending."

Policy Director

Figure 22. Cognitive, emotional and analytical skills will be key for the health professional of the future



Source: Deloitte research and analysis of interviews across Europe, Deloitte, 2017.

Note: Skills in ***bold italic*** font are seen as most relevant by senior health care leaders interviewed for this study.
A framework from a previous Deloitte report underpinned our discussion (Talent for Survival, Deloitte, 2017)

Skills requirements for future health professionals
Figure 22 summarises what our interviewees saw as key skills requirements for the health professional of the future.[110] Health professionals will need to be educated in a new way, requiring new training models that focus on:

- **Learning to adapt to constant change**
  Adaptability to change is going to be one of the key skills required of future care professionals, regarding new technologies, medical advancements and coping with changing system conditions. This will require equipping future professionals with the skills to collect, analyse, prioritise and act on information and ever-growing amounts of data concerning patient care as well as system management and health economics. Establishing a strong competency for change will prepare individuals to cope with fluctuating workload patterns.

- **Building foundations for collaborative care and new partnerships**
  Preparing individuals to collaborate across professions and sectors will be key to delivering value-based care. Shared foundational interprofessional education will help overcome traditional professional boundaries. This includes fostering interaction between clinical and digital teams to secure a seamless integration of innovations as they mature.

- **Aligning education and care delivery to emerging technologies**
  Professionals need to be educated by offering immersive experience in complex patient care and in applying new technologies. Pre-and post-graduate training in simulation centres and through virtual reality will enable better alignment with care delivery, providing professionals with the knowledge to engage with accelerating technological innovation. Understanding machine learning and ethical counselling are new skills that will be required in the future health care systems (Case study 16).

Case study 16: Training professionals of the future today (Italy)

Humanitas is a private hospital group, research centre and higher education facility operating in the north of Italy. The organisation invests significantly in innovation and use of cutting-edge tools and new technologies in education and medicine. In 2017 the university opened a new campus for its 1,200 students from 31 countries, including a new simulation hub. Humanitas University and Humanitas Research have also entered into a collaboration with IBM to develop and test an application of IBM Watson introducing cognitive computing to teaching and research, aiming to improve effectiveness of training, while also securing early exposure to new medical technologies for future professionals. The project involves Humanitas medical staff working closely with developers and researchers from Italy and the IBM Zurich Research Center. The 'Medical Cognitive Tutor', powered by Watson Developer Cloud, comprises a personalised, app-based platform that provides medical and clinical content to students and junior doctors based on scientific literature, de-identified information from patients, EHR data and best practice guidelines developed by senior doctors across the organisation. It helps students to explore complex situations, choose between different health records, simulate medical decisions in terms of diagnosis, medical tests and treatments, thus significantly increasing their potential capabilities, knowledge and skills. The system enhances the traditional senior professional-student relationship and supports targeted education by providing the opportunity for personalised learning and monitoring of each student's progress.[111]

"A simple, but universal truth is that there can be no health without a workforce."

Dr Marie-Paule Kieny, Assistant Director-General, WHO[112]

Realising the future of health care

Creating a diverse, multi-professional workforce that is deployed across permeable boundaries will help alleviate work pressures, while enriching careers for clinicians and increasing the attractiveness of the caring professions. This will also help hospitals deal with the impact of people generally living to a 100 years, and careers that will likely extend from 40 to 60 years.

All stakeholders need to come together to collaborate in the redesign of regulation to enable professionals to practice at the optimum level of their license. Regulators will need to adapt their approach to accreditation to allow for a more flexible and evolving professional workforce. Individuals need to become adaptable to new career paths, with shifting roles, potentially working for several employers or self-employed.

Working in enriched and augmented roles

In the next five to ten years the work of highly-skilled health care professionals will be increasingly augmented by fit-for-purpose technologies, showing a well-balanced skills mix, including sharing tasks across different and new types of health care workers. Cognitive computing technologies are now able to perform many tasks once considered solely the domain of humans. Speech recognition, visual perception, sensor technology and artificial intelligence are all converging to produce machines that talk, see, read, listen, and even learn.

As our research and case examples show, some of these concepts are already in use. However, in 2017 most organisations in Europe are still struggling with basic connectivity, and most of our interviewees expressed the urgent need to change ways of working to integrate technologies into new operating models, and to increase penetration to improve productivity. Health care leaders need to address concerns about the digital literacy of professionals and patients, to ensure that such technologies can successfully supplement and extend human interaction.

Moving towards value-based care models

Across Europe there is growing recognition of the need to adopt a more value-based care (VBC) approach to health care. Although the wide-spread adoption of VBC is currently quite low, it is increasing. The aim of VBC is to shift payment and reimbursement models from volume to agreed measures of value delivered to patients. The concept of value captures evidence-based clinical, social and economic benefits. It also has implications for the way that the workforce is deployed. The skills and competencies of health care professionals will need to expand and shift to meet patients needs and expectations in a value-driven care model.

"Leadership means helping staff and the public to overcome the fear of the new."

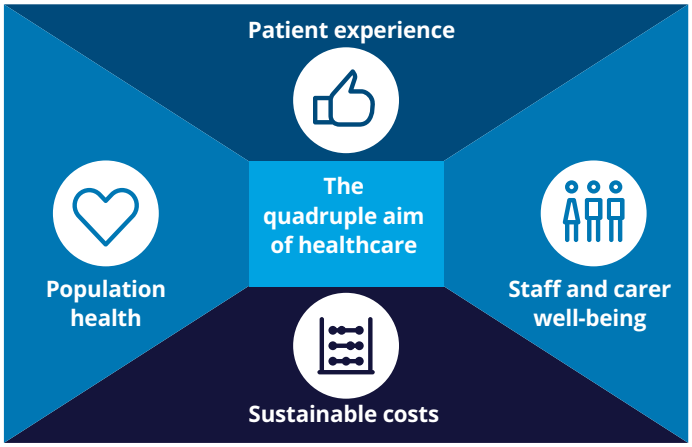
Director of Nursing

In the US, the health care system is in the midst of shifting from a system that pays for volume to one that pays for value.[113] These value-based reimbursement models will create a new paradigm in which care is delivered by an entire coordinated care community sharing in the responsibility – and risk – of outcomes and costs. Building an outcomes-based financial model and data infrastructure to maximise VBC reimbursement pathways will be fundamental to sustainable growth in the future. With accountability and risk more broadly shared across the care continuum, VBC challenges health care providers, health systems, and health payers to change their traditional role in the health care ecosystem. Key to winning the volume-to-value shift will likely be business integration and data aggregation: both inside and outside an organisation, across sectors and across models of care. Key to the transformation is the need to adopt a coordinated care model, improve clinician engagement and alignment, and build the technology infrastructure for sophisticated data analytics and financial modeling. While the level of investment is likely to be substantial, the market shift towards VBC presents unprecedented opportunities for re-designing the way the workforce is deployed.[114]

Delivering value for entire populations

Like most other industries, the health care industry is on the edge of a step change where digital and cognitive technologies will reshape what has, until now, been considered the traditional way of operating. There is an exponential increase in the pace and scale with which new technologies are emerging that support improvements in access to care, productivity in hospitals (and other providers), and reduce the costs of providing care.[115] Other industries that have deployed similar technologies have created value for their customers and altered consumer expectations. Applied to health care, these trends will lead to significant changes in the nature of work, as well as the nature of the health care workforce. Realising these ambitions and investing in a sustainable health workforce can help achieve the quadruple aim of health care, benefitting the health, social wellbeing and economic prosperity of the population (Figure 23).

Figure 23. The quadruple aim of healthcare: staff wellbeing is crucial to secure the future of healthcare



Source: From Triple to Quadruple Aim: Care of the Patient Requires Care of the Provider, Annals of Family Medicine, 2014.

Appendix 1: Methodology for this report

For this report we combined qualitative research and a quantitative survey of hospital doctors and nurses. We used extensive literature reviews, analysis of national and international datasets and our experience working with health care providers, policymakers and payers in the 14 countries we include in our analysis (Belgium, Denmark, Finland, Germany, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Spain, Sweden, Switzerland, UK)

We combined this analysis with semi-structured interviews with more than 50 board-level stakeholders from hospital organisations, government and professional bodies in 13 countries (Belgium, Denmark, Germany, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Spain, Switzerland, the UK, US and Australia). Interviews took place between June and October 2017 and were carried out in person or on the telephone in English, Dutch, German, Spanish, Italian and French.

In addition, in collaboration with DeloittePixel™, we commissioned Streetbees to crowdsource data from hospital doctors and nurses across 11 countries (Belgium, Denmark, Finland, Germany, Ireland, the Netherlands, Norway, Spain, Sweden, Switzerland and the UK). A total of 554 hospital doctors and 810 hospital nurses responded to the survey:

	TOTAL DOCTORS	TOTAL NURSES	COUNTRY TOTAL
Belgium	51	42	93
Denmark	23	42	65
Finland	20	41	61
Germany	60	123	183
Ireland	28	54	82
Netherlands	48	69	117
Norway	20	46	66
Spain	47	103	150
Sweden	87	49	136
Switzerland	55	40	95
UK	115	201	316
TOTAL	**554**	**810**	**1364**

Using Streetbees' geo-tagging crowdsourcing platform, we captured rich insights through a mix of multiple-choice and free-text questions, along with a number of profiling questions that were used to identify professional grade, type of hospital organisation and clinical specialty.

As part of our methodology we also developed a ***Country Overview Supplement*** comparing hospital services in our countries for the following parameters:

- key indicators of the health system
- set-up of the health system
- coverage and funding
- organisation of care across sectors
- education of doctors and nurses
- current reforms and status of ehealth implementation.

The country overview can be accessed through the website for this report on our Centre for Health Solutions website: **www.deloitte.co.uk/centreforhealthsolutions**.

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