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FUTURE OF HEALTHCARE

06 HOW HEALTHTECH CAN TRANSFORM CARE

18 FIGHTING HEALTH INEQUALITIES

22 DESIGNING THE FUTURE HOSPITAL

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FUTURE OF HEALTHCARE

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VACCINES

What we can learn from the COVID vaccine success

The UK's coronavirus vaccine rollout is exceeding expectations, but are there lessons the healthcare industry can learn from its success?

Abby Young-Powell

The UK's vaccine rollout has been one of the few success stories of the pandemic. More than 28 million people in the UK have now received at least one dose of a coronavirus vaccine and the country is on track to inoculate everyone aged 50 and over by mid-April, well ahead of other European countries and the United States.

But what does this success mean for the future of research and development in the healthcare industry? And do the exceptional circumstances make it a one-off or can the R&D industry learn from it?

A number of factors led to the development of the Oxford-AstraZeneca vaccine in the UK. These range from increased public and private funding spurred on by the crisis, to advances in technology, the ability to conduct clinical trials in a population with high levels of virus and a successful collaboration between a pharmaceutical company and academia.

But it didn't happen overnight. Much of the success is down to the UK's world-class R&D capacities and research into malaria vaccines carried out over decades. "We weren't working from a zero base," says Bryan Deane, director of new medicines and data policy at the Association of the British Pharmaceutical Agency.

Dr Martin Michaelis, professor of molecular medicine at the University of Kent, also highlights the role of R&D in the process. "It's important to understand this didn't come out of nothing," he says. "As soon as the sequence of the new virus was available, people could immediately start to adapt the vaccine."

The rapid development of coronavirus vaccines has been aided by new techniques in vaccine development. "In the initial stages of R&D, a lot of work is done to narrow the candidates down," says Ana Nicholls, managing editor of industry at the Economist Intelligence Unit. "Machine-learning techniques can be used to sift through studies very quickly to find potential candidates."

Technological advances and the rapid rollout of the COVID-19 vaccine may have changed people's expectations about what is possible and shown what can be achieved with the right investment.

"The increased focus on collaboration within the industry, between researchers, manufacturers and supply chains, has achieved results in record time and has now set the benchmark when it comes to best practice," says Dr Jen Vanderhoven, director of the National Horizons Centre, a bioscience centre based in Darlington.

Gukzilla/Shutterstock

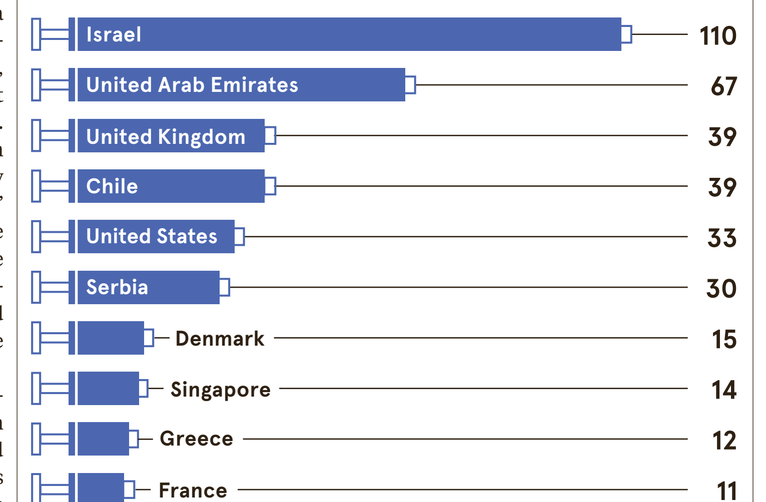
Lessons can be learnt from the UK's COVID-19 vaccine success. A key takeaway is the importance of continued funding for R&D. The rationale behind funding is also significant, with Dr Ohid Yaqub, senior lecturer in the Science Policy Research Unit at the University of Sussex, pointing out that "too much focus on efficiency and productivity doesn't always help".

"What this exercise has shown is that some innovations can be unseen," says Yaqub. "What you might want in an R&D system is a standing army of skilled, trained people with enough slack in the system to drop what they're doing when they need to."

Deane points to the "incredible collaboration" between academic institutions, governments and industry that enabled the development of COVID-19 vaccines. "One of the key learnings is that having collaborations has really helped us and are critical," he says.

RATES OF CORONAVIRUS VACCINATION AROUND THE WORLD

Cumulative COVID-19 vaccines per 100 people, as of 16 March



Our World In Data 2021

Regulators also showed a willingness to use emergency authorisations more widely than they had previously. Dr June Raine, chief executive of the Medicines and Healthcare products Regulatory Agency (MHRA), says the organisation wants to embed learnings from the pandemic into its future.

"Companies developing COVID vaccines have been invited to discuss their plans with the MHRA and to submit their data for rolling review as soon as it becomes available," she says. "As of January 1, rolling review is one of the routes for new marketing authorisation applications."

Despite the success in developing and rolling out vaccines at record speed and scale, there remain challenges. Many countries now have a huge debt burden, meaning funding is likely to be an ongoing challenge.

Plus, not all of the lessons from the pandemic can be neatly applied to other areas of science. Michaelis says: "You can't transfer directly from one area to another. It's not like, now in a short time we've produced a COVID-19 vaccine and so we're going to solve Alzheimer's disease or be better with cancer."

Developing treatment is a lengthy process, from identification, to pre-clinical work and finally on to clinical trials, which means there is still a limit to the extent drug and treatment development can be speeded up. "There are a lot of things that need to happen that can't be compromised," says Deane. "Lots needs to be done before we can look at treatment in patients, for example."

However, overall the vaccine success is likely to be positive for the future of R&D. "The most important lesson we should learn as a society is that basic research is very important," says Michaelis. "Most big problems are not solved by applied research, they are solved by our general increase in knowledge or by serendipity."

The global need and rapid response required to tackle COVID was the catalyst to do things in a different way. "The UK bioscience industry already knew what it was capable of," says Vanderhoven. He believes it just needed greater support to scale and accelerate timeframes.

Deane also believes the vaccine success is positive for the future of R&D because it has led to more awareness and appreciation for it. "It's definitely brought the importance of research and development very much into the public eye," he concludes.

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REFORM

Charting a new course for the NHS

Despite the NHS still reeling from the impact of the coronavirus pandemic, the government is looking to shake up the health service and position it for a new future

Martin Barrow

At a time when the NHS is living through the most serious challenge in its history, along comes the biggest shake-up of the health service in more than a decade. The government's *Integration and Innovation* white paper, published in February, is the first serious attempt to unwind the reforms of the 2012 Health and Social Care Act, which was marshalled by the then health secretary Andrew Lansley.

The proposals have provoked fierce debate about the future of the NHS and the best way forward. However, there is almost universal agreement that the Lansley reforms were a costly mistake, bringing disaggregated leadership and the chaos of competition. Roy Lilley, health policy analyst and former chairman of an NHS trust, described the white paper as a "40-page Tory apology to the NHS for screwing it up".

As for the timing, the BMA medical union said the proposed reorganisation must not be rushed through at a time when staff are "physically and emotionally exhausted", with the NHS still under enormous pressure in the fight against COVID-19.

Chaand Nagpaul, BMA council chair, says the NHS is facing the greatest backlog of care. Dealing with this would require "significant new resources and an immediate action plan" and investment must not be diverted to the reorganisation, he says. The counter-argument is that the pandemic forced health and care services to do things differently and now is the time to build on what worked well.

So, what is the reorganisation all about? Media coverage has mainly focused on new powers given to the secretary of state for health and care over the NHS. It would allow him or her to intervene in any service reconfiguration without need for a referral from a local authority. The department of health and social care would also be able to reconfigure and transfer the functions of arm's-length bodies such as the Care Quality Commission and the National Institute for Health and Care Excellence, including closing them down, without primary legislation.

Some have seen this as an attempt by the government to seize back some of the powers that, in theory, were devolved to NHS England under the Lansley reforms. The NHS Confederation says these new powers of intervention are "an area of concern". However, the reality is it is hard to see how the reorganisation gives additional powers to ministers to do things they can't already do.

> There is often anxiety about 'another NHS reorganisation' but we have been on this journey now for several years

The pandemic provides a number of examples of government taking the lead, among them the Nightingale hospitals, the shake-up of Public Health England and personal protective equipment procurement. In any case, taxpayers probably expect the government to hold the keys to an organisation that spends more than £100 billion of our money every year.

From the point of view of patients, the most important change taking place across the NHS is the shift away from the old legislative model of competition between health care organisations towards a new model of collaboration, partnership and integration. Over the past three years, the NHS has been creating what are known as integrated care systems (ICS) across England. This is where the NHS, local councils and voluntary organisations come together at a local level to design and provide services to meet local needs.

The ambition for the fledgling ICS's is to provide joined-up care for patients. An example is when elderly patients are discharged from hospital. In simple terms, at this point they cease to be the responsibility of the NHS hospital trust and the local authority takes over, arranging and paying for domiciliary care or a care home.

At present, many people are stuck needlessly in hospital because this process breaks down. The role of the ICS is to ensure this process takes place seamlessly. Each system is given the freedom to remove any barriers that block collaboration in local communities. The message is: if you think this is what needs to be done, go do it.

Bridging the gap between health and social care has been a pipe dream for many years and numerous earlier attempts have failed. Perhaps there are better grounds for optimism this time because the latest blueprint does not rely on a Big Bang reorganisation, with thousands of people moving from one organisation to another. ICS's have quietly been finding out what works best in local communities and forming myriad partnerships with different organisations for different tasks. The white paper proposes putting them on a statutory footing, which is necessary in terms of corporate governance and public accountability.

> By sweeping away clunky competition and procurement rules, these new plans could give the NHS and its partners greater flexiblity to deliver joined-up care

Another significant change concerns procurement. The white paper aims to remove, or at least blunt, the need for a competitive market in health procurement, something which was at the heart of the Lansley reforms. Compulsory tendering of clinical services is abolished, leaving NHS organisations free to commission services they agree will work best for their patients in their local communities. This is seen as critical to the success of the ICS, whose leaders want to strengthen local services without the requirement to embark on a lengthy and costly national procurement process.

Richard Murray, chief executive of The King's Fund, the health and care think tank, says: "By sweeping away clunky competition and procurement rules, these new plans could give the NHS and its partners greater flexibility to deliver joined-up care to the increasing numbers of people who rely on multiple different services."

This proposal has been welcomed by those who fear privatisation by stealth of the NHS, though some warn it is open to abuse. In an analysis of the white paper, Allyson Pollock, professor of public health at Newcastle University and a former member of independent SAGE (Scientific Advisory Group for Emergencies), and Peter Roderick, principal research associate at Newcastle University, warn: "We see no place for a market bureaucracy in the NHS. But far from needless, transparently competing for contracts is the check against corruption and cronyism within a market model. Contracts worth £10.5 billion were awarded directly without any competition during the pandemic to the end of July 2020; this will now become the norm."

There is now a period of consultation, with the bill reaching parliament in early-summer and implementation getting underway in 2022. With significant NHS and political support behind them, these proposals are unlikely to prove as divisive as the Lansley reforms. Danny Mortimer, chief executive of the NHS Confederation, says: "There is often anxiety about 'another NHS reorganisation', but the NHS and the partners we work with across other public services have been on this journey now for several years. This is the logical next step."

NHS leaders will be hoping for a smooth passage of the bill and quick implementation period, for they cannot afford to be distracted from the fight against COVID and dealing with the massive backlog of patients awaiting non-COVID care.

Murray, at The King's Fund, concludes: "Health and care services are facing chronic staff shortages, deep health inequalities laid bare by the pandemic and an urgent need for long-term reform of social care. In addition to the structural reforms proposed in this white paper, there is a pressing need for the government to chart a way out of these deep-seated challenges." ●

SPENDING ON THE NHS

£214bn Amount spent on the NHS in 2018

5.3% Yearly increase in amount spent on the NHS in 2018

10% Total healthcare expenditure as a share of GDP in 2018

Office for National Statistics 2020

Commercial feature

Q&A

Tech powers better healthcare, but it mustn't replace the human touch

Newly appointed chief executive of digital health firm Reframe, **Catherine McDermott** reveals the rapid advances in technology-driven healthcare, supported by a human touch

Q How has healthcare evolved, especially in the last 12 months during the coronavirus pandemic?

A I find healthtech fascinating because one of the key characteristics of innovating in other sectors is fail fast, yet in the health system, where lives are at stake, there's a very unique need to be ultra-cautious. That makes for an interesting tension, which often leaves healthcare lagging behind other sectors in its adoption of technology. However, in the last 12 months, technology has been integral to maintaining healthcare services during the pandemic, significantly accelerating digital transformation in the sector. I was working in NHS Property Services last year and technology projects that would have taken literally years were being executed in weeks and months. The success of that has given people confidence in the role technology can play to drive efficiencies, which not only have a cost and resource benefit for the NHS, but also can help save lives.

Q How important is data in enabling more patients to self-serve on their healthcare journey?

A The ultimate opportunity of data and analytics in healthcare is utilising technology and insights to empower patients by allowing them to self-manage their health and wellbeing for better outcomes. That can be achieved through a combination of technology, but also then working with them as individuals to understand what they need for the best outcome. Self-serving means individuals have the control to engage in their health on an ongoing basis and make the right decisions every day, powered by easier access to information and services, thereby reducing the need for interventions. The starting point, which we are seeing already and COVID-19 has really forced the issue, is virtual appointments with GPs or consultants and getting tests online. We're seeing more and more of these point solutions for people who need, say, a physiotherapist. When it becomes super interesting, and where Reframe starts to come in, is by connecting all these points together to build a more holistic picture of people's needs.

Q Traditionally, health and wellbeing haven't been viewed particularly holistically, why is it important this changes?

A We've known for a long time the food you eat and whether you exercise can have a significant impact on physical health. But now there's more evidence to say it can also have a big impact on your mental health. Similarly, we know mental health has a big impact on how well you take care of yourself physically and this, again, will affect how you cope with the conditions you face. It's all interlinked, which further supports the need to think of people as human beings who don't necessarily always fit into a data box. We are focused on that humanity piece, working with individuals to help them cope with the situation they find themselves in through a combination of clinical, practical and emotional support.

Q What in your view is the future of healthcare?

A The health space is a bit like the Wild West at the moment; it's very fragmented. Lots of people with lots of great ideas. Through the clinical commissioning groups structure, the NHS has tried to allow innovation to happen locally, however there are now plans for integrated care systems that bring together providers and commissioners of NHS services with local authorities and other partners to collectively meet the needs of their population. There is a need from a patient perspective to have this all connected, because fragmentation makes it difficult for them to navigate health services, and for the NHS to drive the efficiencies it needs. It will become clearer which technologies and approaches are going to work and we will see some consolidation that will hopefully drive simplification. Reframe will play an important role in helping individuals with life-changing conditions to navigate what can be a really confusing space, as well as building out the technology that will make that navigation much easier.

> We need to think of people as human beings who don't always fit into a data box

For more information please visit reframe.co.uk

<reframe>

INFRASTRUCTURE

Designing the hospital of the future

With 48 new NHS hospitals set to be built in the coming years, there is an opportunity to rethink how they are designed and used to maximise patient comfort and service provision

John Illman

Phonlamai Photo / Shutterstock

The building of the first NHS Nightingale hospital in just nine days last year showed what is possible in a pandemic. It was a remarkable achievement. Natalie Forrest, who led the London initiative, is now overseeing the building of 48 new NHS hospitals, which is the biggest such programme since the 1960s. The cost could reach £24 billion.

A former nurse, Forrest rose to prominence after supervising the four-year rebuilding of Chase Farm Hospital, London, where she was chief executive and director of nursing. Her new challenge is one of the most daunting in the NHS.

Few buildings are more complex and costly than hospitals. In his book, *Anatomy of a Hospital*, Julian Ashley says that a large provincial hospital includes some ten million bricks (enough for 900 homes), 12,000 rooms, two-and-a-half miles of corridors and a floor area totalling 55 acres, not to mention a dazzling array of medical technology.

Small wonder that building hospitals can take up to ten years or more. But Forrest is committed to delivering prime minister Boris Johnson's hospital building programme by 2030. Will she make it? Some pundits say it is impossible. They point to the NHS's infamous record for not meeting construction deadlines and going millions of pounds over budget per project.

For example, last year the National Audit Office reported that the Royal Liverpool Hospital was due for completion in 2022, more than five years late. The cost of the private finance initiative had risen by more than 40 per cent, from £739 million to £1.06 billion.

The hospital building programme was announced before the pandemic. The government proposal to restrict pay to nurses and other NHS staff to 1 per cent has generated speculation that the squeeze on spending may also affect the hospital budget.

Forrest will need the same kind of managerial flair and steely determination shown by Florence Nightingale to transform nursing if she is to ensure Johnson's hospital programme does not go the same way as his River Thames Garden Bridge project costing £53 million and his aborted plans for an airport in the Thames Estuary on so-called Boris Island.

> It's a matter of striking the right balance and recognising the importance of patient choice

So what can we expect? Prepare for surprises. Boarded-up department stores in your local shopping centre may give way to community hospitals doubling up as community centres with shops, cafés, clubs and patient groups.

Influential bodies such as the Health Foundation, which spends £30 million a year to improve health and healthcare, believes that opening NHS buildings and land for public use can help to bring communities together.

"The great advantage of shopping centres as locations for community hospitals is they have good transport links," says Christopher Shaw, chair of Architects for Health and the founder of the practice Medical Architecture. Repurposing existing premises may also be cheaper than building new ones.

Forrest says: "We have the opportunity to trail blaze." Imagination is a magic prescription. For example, the Royal Children's Hospital in Melbourne has a meerkat zoo to brighten the lives of seriously ill children.

Shaw envisages future hospitals resembling high-tech, air traffic control centres, with "controllers" monitoring hundreds of patients at home. Before coronavirus, the NHS had a poor track record in adopting digital technology. The pandemic has spawned a revolution.

So-called virtual wards will be as much a part of tomorrow's hospitals as x-ray machines and scanners are of today's. Enabling patients to have hospital care in the comfort and safety of their own homes, virtual care took off when COVID patients at home began measuring their oxygen levels and heart rates with finger-tip oximeters. Clinical teams checked in with them several times a day.

Virtual care stopped the pandemic from overwhelming hospitals. *The British Medical Journal* described how the West Hertfordshire Hospitals NHS Trust in Watford managed around 1,200 patients at home. Nearly 400 were monitored initially through phone calls, saving 300 bed days over three weeks at the height of the pandemic.

Patients then fed into an app their temperatures, heart and respiratory rates and oxygen levels. This enabled the number of patients monitored from home to more than double. Extending virtual care after the pandemic should reduce the need for hospital beds and, most importantly, anxiety among patients.

> The focus must be on functionality. It would be wonderful if we could create beautiful-looking hospitals but we must ensure they give us function

Additional ward space may allow a correspondingly big increase in single-bed rooms. Single rooms could account for up to 70 per cent of patient accommodation in new hospitals. Privacy and dignity are regarded as a high priority. but single rooms can be lonely places. Forrest says: "It's a matter of striking the right balance and recognising the importance of patient choice."

Single rooms, virtual wards and out-patient telephone consultations, which are increasingly common, should reduce hospital acquired infections (HAIs). It may seem ironic that, of all buildings, hospitals are "unhealthy", but about 5,000 patients a year in England alone die from HAIs. Treating the estimated 100,000 HAI cases that occur yearly costs as much as £1 billion.

$35.9bn

Predicted annual value of the smart hospital market

Global Market Research 2019

£3,780

Average cost per square meter of building a general hospital in London in 2018

Turner and Townsend 2018

However, healthy hospitals are about far more than infection control. Landmark research by Professor Roger Ulrich, of the Chalmers University of Technology, Sweden, highlighted how nature, gardens and art can reduce pain, stress and healthcare costs. He found that 23 surgical patients in rooms with a window looking out on a natural scene had shorter hospital stays and took fewer potent pain killers than 23 matched patients in rooms facing brick walls. Ulrich's research has impacted the design of billions of dollars of hospital construction.

But while what is environmentally best for patients has been recognised, NHS staff have been severely neglected. Forrest says: "The last 12 months have shone a spotlight on how important rest facilities are to our staff." Doctors on breaks were recently charged for blankets and had to rest on office floors. Others have had to rest in their cars in car parks for which they had to pay.

One of Forrest's biggest challenges will be future-proofing. The pace of medical change is such that many new hospitals are outdated even before opening day. Tomorrow's hospitals will be multi-functional. For example, there will be medical gas capacity in all clinical areas in case of emergencies such as another pandemic. Design will enable four-bedded bays to be converted into two single rooms and vice versa. In addition, wherever possible, buildings will be designed so they can be extended by going either up or sideways.

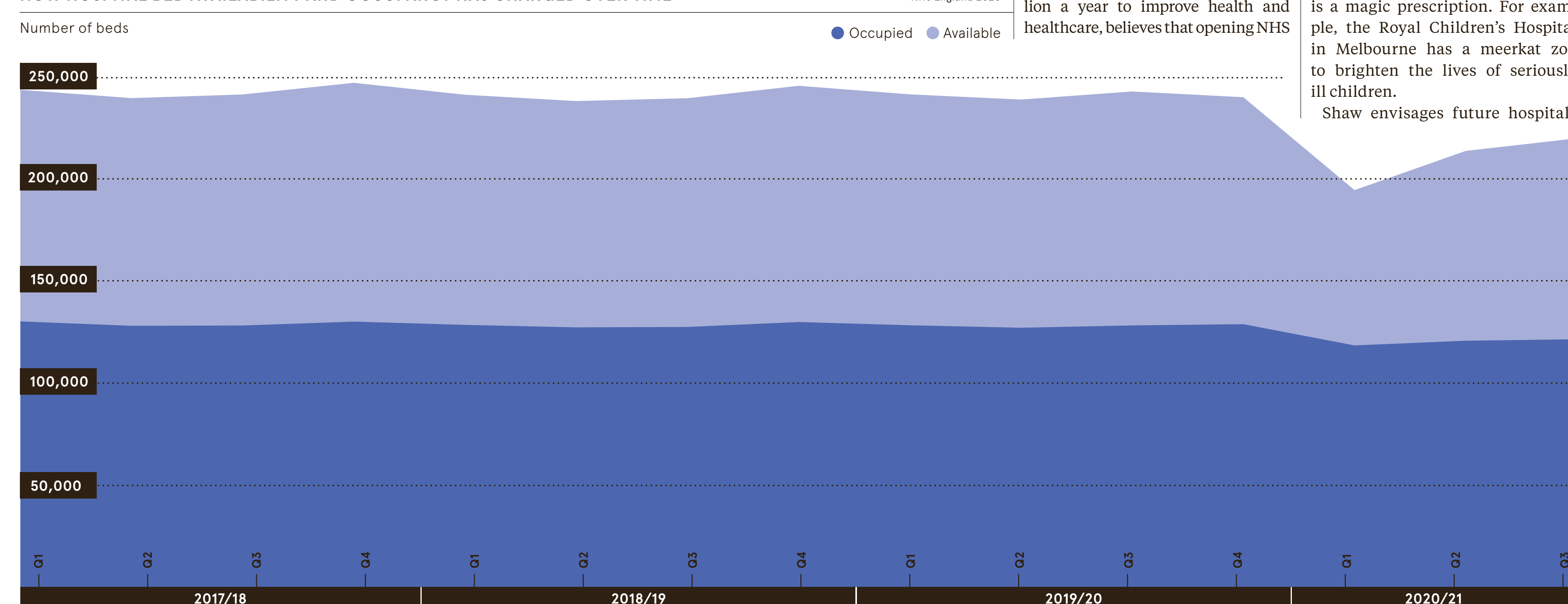
What constitutes a "good" or "beautiful" design? Forrest concludes: "We are open to all design concepts so long as we can repeat them. If we were to spend a lot of money on bespoke hospitals, we may miss an opportunity to streamline the programme and get as much value for money as possible.

"We want to establish templates, but we will learn, refine and improve as we go along. One of our main aims is to shorten the construction process. This is essential if we are to complete the programme on time.

"The focus must be on functionality. It would be wonderful if we could create beautiful-looking hospitals, but we must ensure they give us the function they were designed to deliver. That in itself is beautiful."

HOW HOSPITAL BED AVAILABILITY AND OCCUPANCY HAS CHANGED OVER TIME

NHS England 2020



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Qatar Foundation genomic research in fight against COVID

Genetic data research targeting coronavirus can deliver better and more equitable treatments encompassing all socio-economic and ethnic groups

The race for a coronavirus vaccine has focused global scientific attention and its successes have been garlanded with gratitude and praise.

The triumphs – at least four vaccinations with regulatory approval – have been accelerated by genomic sequencing that has decoded coronavirus and provided key intelligence on its impact and growth rate through communities.

Susceptibility and severity vary between ethnic groups and researchers need rich and diverse genetic data to generate responses to the virus and its variants.

The immediate challenge is to eradicate COVID-19, but wide-reaching genomic data will also be the driving force propelling precision medicine and its ability to tailor treatment to a person's genetic makeup.

However, studies have identified that genetic research is far from comprehensive and often accented towards people of European descent.[1] A report by Public Health England[2] underscored the urgent need to fully understand genomic implications, stating: "Many analyses have shown that older age, ethnicity, male sex and geographical area, for example, are associated with the risk of getting the infection, experiencing more severe symptoms and higher rates of death."

Generating data that covers different ethnic groups is essential for a complete approach to confronting the virus and enabling precision medicine.

"If you are researching a disease or looking for disease treatments, the Arab genome is massively under-represented," says David Brown, science and programme director of the Qatar Precision Medicine Institute (QPMI), a member of Qatar Foundation Research, Development and Innovation, which is close to sequencing 20,000 whole genomes to create a valuable bank of genomic intelligence.

"With COVID-19, it was noticed that different ethnic groups were being affected disproportionately and, after analysis, there were very strong signals for certain genetic variants that are known to be more prevalent in certain ethnic groups."

Tackling coronavirus is a global mission and Professor Sir Mark Caulfield, chief scientist for Genomics England who was charged with delivery of the 100,000 Genomes Project, emphasises the importance of understanding how COVID-19 behaves across all genetic and societal environments.

"If we leave reservoirs in place, the virus will continue to mutate, and it will continue to evolve," he says. "And as we know from previous pandemics, sometimes that leads to a worse situation. We desperately need to get the vaccination strategy right globally to defeat COVID.

"There is evidence ethnic groups of people have different reactions to it and we need to understand everything related to that because this is a global mission. It cannot be just country specific."

Data has already given scientists vital information about the genetic codes that make some people more susceptible to the virus. A programme is underway to pinpoint the factors involved by studying 20,000 severely ill people and 15,000 control samples in the UK.

"It is an ambitious goal, but we want to answer the questions what is within the virus and what is within the human that makes a difference, and what will make the difference when we put those two together?" says Sir Mark.

"It's very clear there's a disproportionate impact, particularly on south-Indian Asian communities but also, to some extent, on people of African and Caribbean ancestry, so we have an absolute duty to make sure they're included in sufficient numbers."

If you are researching a disease or looking for disease treatments, the Arab genome is massively under-represented

He adds that ethnically diverse data gathered from around the world, including the well- organised Qatar Genome Programme (QGP), is vital to overcoming the pandemic and building a safer world.

The QGP was launched by the Qatar Foundation with the aim of integrating genomics into healthcare and creating a landscape where precision medicine can prosper. The initiative synchronises with a wider healthcare technology programme that is attracting academia, research communities, and technological and pharmaceutical enterprise to the country.

The progress aligns with Qatar's National Vision 2030 to establish a regional hub for advanced healthcare through research and collaboration.

"Qatar has invested strongly in research and is funding more than 100 projects relating to precision medicine and it has established the QPMI to force the pace of discoveries and bring them into clinical practice," adds Brown, former head of informatics infrastructure at Genomics England.

"It is also making sure that specific Arab genomic traits are made accessible to groups developing new treatments around the world."

He believes initiatives in Qatar can be a catalyst for the greater understanding and application of genomic data to tackle a range of diseases, such as cancer and cardiovascular conditions, as well as ensuring viruses can be tackled effectively for all populations.

Collaboration is a key factor and Sir Mark adds that research work in east London's culturally and ethnically diverse population has huge global implications because it will pick up similarities and differences between ethnic communities, which can steer vaccine and precision medicine research. The potential was highlighted in a partnership between QGP and Genomics England which discovered that 211,000 of 366,000 Qatari genome variants were present in the English genomics database.

Sir Mark, who oversees a coalition of 2,500 researchers in the Genomics England Clinical Interpretation Partnership, believes that novel techniques, such as how RNA was used to develop coronavirus vaccines, could provide treatment templates against a range of diseases.

"I think it will open up new vistas on accelerated production of vaccines and, potentially, new areas such as rare diseases and, possibly, cancer. I think these alternative therapies will create new opportunities to fight diseases," he says.

As the world starts to emerge from the stranglehold of the virus, it is paramount to learn the lessons to insulate against future threats and to recalibrate systems to deliver better and more equitable care that encompasses all socio-economic and ethnic groups.

Investments in genetic data research, as demonstrated by the QGP, will pay dividends around the world.

[1] https://www.sciencedaily.com/releases/2019/06/190619142605.htm

[2] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/892376/COVID_stakeholder_engagement_synthesis_beyond_the_data.pdf

For more information please visit qf.org.qa/research/precision-medicine

Q&A

Genomic research and development

Qatar Foundation (QF) is a nonprofit organisation made up of more than fifty entities working in education, research and community development. **Dr Richard O'Kennedy**, VP, QF Research, Development and Innovation, speaks about QF's role in genomics research and precision medicine

Q: What is Qatar Foundation's vision when it comes to healthcare?

A: QF is a catalyst of innovation in Qatar and part of its long-term health initiatives is to map the genomes of the Qatari population. This required the establishment of the Qatar Biobank (QBB) and Qatar Genome Programme (QGP). More than 20,000 participants have already been recruited for the study and, although the aim is to reach 100,000 of our 2.8 million population, the data and intelligence generated so far has proved vital for both tackling coronavirus and developing better treatments and healthcare delivery. Both QBB and QGP are working together with other national stakeholders, to maximise the development and rollout of precision medicine.

Q: How has the nation coped with the pandemic?

A: We were faced with countless challenges brought about by COVID-19, but we were able to mobilise our resources quickly & effectively. As a result Qatar has one of the lowest death rates in the world. Research, development and innovation (RDI), and many QF entities, supported the Ministry of Public Health and the hospitals in their work. QF RDI facilitated different research collaborations with local and international entities to better understand the impact of the COVID-19 outbreak and the outcomes have been very promising. This includes providing very impactful insights into the roles certain genes play in infection. We also collaborated with other nations around the world which proved valuable to the global approach to counteracting the pandemic. By working together both locally and globally far better outcomes have been achieved.

Knowing a person's genome is vital as it means therapies can be much more tailored to the individual's needs

Q: How has Qatar's genome research helped tackle COVID-19?

A: Sequencing enabled us to identify a number of genes that are associated with greater or less severe COVID-19 infections. Sequencing of the viral genomes also allowed detection of viral variants. An aspect to note is that there is sparse information available on Arab genomes even though there are more than 300 million Arabs worldwide. They have been poorly represented in the past, but our research is aimed at redressing that imbalance.

Q: How is QF reshaping healthcare in Qatar and influencing global progress?

A: We aim to translate the outcomes of our research into improved patient welfare. Our genomic research entities are now focused on clinical implementation of research findings as soon as possible to enhance patient welfare. The value of knowing a person's genome is vital as it means therapies can be much more tailored to the individual's needs as clinicians can determine what is the best drug to use for treatment, the dosage needed, and when it should be given. We have a strong, continuing collaboration with Genomics England and all these efforts are working towards our goal to be at the forefront of precision medicine development.

Q: What conditions could this pioneering approach help?

A: Precision medicine is proving to be incredibly valuable and economically effective. There are many studies underway or planned in areas including cancer, childhood diseases, pharmacogenomics, autism and diabetes. We are also looking at the importance of the environment and the role of education in providing a much-improved approach to healthcare and the public's understanding of precision medicine.

Eventually, from an individual's genome, we aim to develop health reports on what conditions they are more susceptible to and how they can adjust certain factors, such as their lifestyle, to stay healthy. There can be multiple genes and factors involved so being able to provide early warning of potential problems is a major asset.

Q: How much has Qatar invested?

A: Public health has a strong national commitment with substantial resources allocated. At QF, investment in infrastructure, personnel and education has being going on for more than 25 years. QF's Sidra Medicine, the major hospital addressing women's and children's health, is globally recognised and has a huge focus on genomics. QF has created an attractive environment for investment and innovation with major pharmaceutical and technology enterprises, joining the already existing extensive academic ecosystem. In addition, Hamad Medical Corporation, the nation's main provider of healthcare, has over 30,000 healthcare-affiliated professionals and specialised hospitals and clinical centres. This focus on precision medicine will be of major benefit to Qatar by providing more research capacity, improved healthcare provision, training opportunities and enhanced job creation.

NHS

The challenges facing the NHS during COVID-19 and beyond

The British public holds the NHS in high regard, but leaders must address a number of major challenges if it is to meet the country's growing medical needs

Natalie Healey

When the NHS roared into life on July 5, 1948, it marked an historic moment both for the UK and the world. It was the first time anywhere that free healthcare was available at the point of use and paid for by the tax system. At the time, health minister Aneurin Bevan said it was "the biggest single experiment in social service that the world has ever seen".

The experiment paid off. The health service has been a major source of national pride ever since; surveys show that we love the NHS even more than the Royal Family. But more than 70 years on, the nation looks very different.

The NHS grapples with considerable challenges such as long waiting lists, staff shortages and a population that is getting older and sicker with increasing rates of chronic diseases such as type-2 diabetes and dementia. These problems existed long before coronavirus, but they have been brutally exposed during the pandemic. Tough conversations about how to secure the health service's future are long overdue.

Once the pandemic is finally extinguished, a major stumbling block will be the backlog of care the crisis has created. In March 2020, the economy and life as we knew it was forced to shut down to prevent the very real risk of the NHS being overwhelmed. Although the worst-case scenario did not occur, many patients dealing with non-COVID needs found the health service was not available for them.

Routine care and many scheduled operations were suspended to free up resources, so hundreds of thousands of patients could be admitted to COVID wards. NHS England says more than 300,000 people in England have now waited more than a year for routine hospital treatment, the highest number since January 2008.

Sally Warren, director of policy at The King's Fund, says long waiting times are likely to be a feature of the NHS for many years to come. "The NHS was already struggling with meeting some of their waiting-time targets coming into COVID," she says. "They then had 12 months of needing to shift their activity away from normal and now they have new demand as well. The big question is how they can start to recover."

Morale on the frontline

Bouncing back will be tough without a ready workforce. COVID has put healthcare workers under significant strain. "Doctors are exhausted and in many cases nearing burnout," says Dr Helena McKeown, workforce lead at doctors' trade union the British Medical Association (BMA). No one could deny medical professionals across the UK have demonstrated extraordinary levels of commitment during the pandemic, but this has often been to their personal detriment and without adequate protection, she points out.

There may well be long-term effects for healthcare workers too. Research suggests some doctors and nurses could develop severe mental health problems, such as post-traumatic stress disorder, after battling coronavirus on the frontline.

At the same time, there are simply not enough healthcare professionals in the NHS to meet demand. One in ten nursing posts are currently unfilled, amounting to almost 40,000 vacancies. The UK also has fewer doctors for its population than the majority of European countries, at 2.8 per 1,000 people compared to the European Union average of 3.4.

Anita Charlesworth, director of research at the Health Foundation, believes money is one reason for the shortage is the government's reluctance to invest in medical training. It is expensive to train a doctor or nurse and those costs are very visible in a publicly funded system, she points out. But reducing training costs was shown to be a false economy during the pandemic. England's temporary Nightingale hospitals were assembled in record time, but staffing them was a problem. For much of the crisis, these field hospitals remained empty.

"Not protecting the NHS became the Treasury's problem because then we had to shut down our economy," adds Charlesworth, suggesting that staff should be seen as an asset rather than a cost to the public balance sheet.

Brexit is another sticking point, says McKeown. Freedom of movement enabled the UK to harness the best talent from within the EU. "Now we have left the bloc, the UK is putting up barriers to international recruitment at a time when the NHS needs it most, as well as sending entirely the wrong message to our overseas colleagues about making Britain a welcoming country to pursue their careers," she says.

A nation's health isn't solely determined by the numbers of doctors and nurses, though. The NHS does not operate in a vacuum, says Lindsay Forbes, professor of public health at the University of Kent. Coping with demand for health services is not only to do with the size of the NHS, but is also about factors that cause people to get sick in the first place. "The key thing over the past few years that has caused the NHS to nearly fall over has been the relentless picking away at local government spending," she says.

In particular, local authority public health services, which largely focus on preventing disease, reducing health inequalities and improving residents' health have been reduced substantially, according to King's Fund research.

While spending on public mental health services and promoting physical activity has increased, cash for smoking cessation services, substance abuse clinics and occupational health has been largely cut. Many local authorities warn they will have to slice their budgets even smaller in the wake of the pandemic if support from central government is not increased.

Scrimping on local services will cost the NHS dearly in the long term, says Devon-based GP Dr Michael Dixon, who is chair of the College of Medicine. It will increase demand for downstream acute services such as hospital care. "The fundamental challenge is how we increase the ability of people to stay healthy and look after themselves as much as they can," he says.

Whether some of the NHS's challenges could be relieved by the private sector is a hotly debated topic. But it's perhaps a less controversial issue than the public imagines, says Warren. Private companies have always played a role in the NHS; most GP practices are independent businesses, for instance.

Despite claims to the contrary, King's Fund research shows NHS spending on external providers has not substantially increased in recent years. Warren believes support from private hospitals could be useful in meeting the post-COVID backlog challenge and help the NHS work through waiting lists more quickly.

Calling on private companies doesn't always bring the intended results, though. The pandemic has exposed the best and worst of this approach. On one hand, the relationship between the life-sciences industry and the NHS has resulted in the development of an effective COVID-19 vaccine and a successful rollout campaign. On a negative note, NHS Test and Trace, the UK's system for identifying people who have been in close contact with a COVID sufferer, has been widely criticised.

In March, the Public Accounts Committee warned the impact of Test and Trace, which relies on outsourcing firms such as Serco for contact tracing, is still unclear despite the UK government setting aside £37 billion for it over two years.

"The NHS is the jewel in the crown," says Forbes. "We can tinker around the edges with the private sector, but we need to remember the service is the envy of many countries in the world. Just increasing the role of the private sector won't do anything to reduce the demand on the health service."

What will save the NHS?

There is no magic bullet that can solve all the health service's problems, but there are several approaches leaders could explore to alleviate them. First up, the wellbeing of healthcare professionals needs to be an absolute priority following the pandemic, says McKeown at the BMA. "The impact on their mental and emotional health cannot be underestimated. Meanwhile many will have had COVID-19 and will still be suffering the long-term consequences."

She would like to see full occupational and mental health services offered to staff, as well as supported phased returns for those who have had to take sick leave. A silver lining to the pandemic is that the public has never been more aware of the amazing work healthcare staff do. And there is renewed interest in wanting to work for the NHS. Applications to nurses courses in England rose by 17 per cent last year compared to 2019, with 28,920 students starting a nursing degree in autumn 2020.

If the government wants to protect the NHS, it must stop neglecting its poorer cousin, social care, says Warren at The King's Fund. The pandemic has shone a light on the difficulties many older people face; a large proportion of COVID deaths have occurred in care homes, for instance. But unlike healthcare, elderly care is rarely free of charge and most people have to pay at least some of the eye-watering fees themselves.

In 2019, think tank the Institute for Public Policy Research claimed giving free social care to the over-65s could save the NHS £4.5 billion every year by allowing more elderly people to get help in the community instead of ending up in hospital. For years, leaders have promised reforms to the social care system, but no concrete plans have emerged.

This could be set to finally change. In February, a Department of Health and Social Care white paper stated that a roadmap for social care would be announced later in the year. As well as new social care funding models, Warren would like to see more ways of delivering support for older people. A care home doesn't have to be the only option for those who can no longer live independently. Building more extra-care housing, accommodation that includes personal care such as help with washing, getting dressed and preparing meals, is one possible solution, she suggests.

The old adage that prevention is better than cure has never been more relevant. Leaders need to focus on improving the health of the nation, says the College of Medicine's Dixon, and even injecting the NHS with unlimited cash won't achieve that. Improving housing, working conditions and giving patients more agency in their wellbeing could mean they won't need a hospital bed in the future.

Social prescribing, where GPs connect patients to non-clinical community services such as gardening groups or financial advice sessions, could also have a big impact. And Dixon thinks building on the community spirit that was so evident in the UK during the first wave of the pandemic will lead to healthier, more resilient communities. "The nation is going to have to roll up its sleeves," he says. "Ask not what the NHS can do for you, but what you can do for the NHS." ●

The NHS is facing mounting challenges caused by the pandemic and increases in demand for its services

John Gomez/Shutterstock

> The NHS was struggling with meeting some waiting-time targets coming into COVID. How can they start to recover?

> The fundamental challenge is how we increase the ability of people to stay healthy and look after themselves as much as they can

THERE IS GROWING DEMAND FOR NHS SERVICES

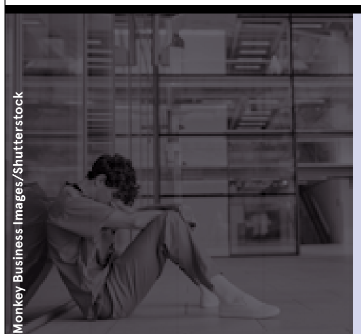
Between 2009/10 and 2018/19 there has been a...

37% annual rise in NHS activity

4.3m increase in A&E attendance

36m increase in outpatient attendances

Department of Health & Social Care 2021



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Why retention is as much a worry as recruitment in the NHS

Ensuring staff stay in the healthcare service is just as important as hiring them. Failure to boost morale will lead to a mass exodus of talented medical professionals from the NHS, warns Dr Michael Dixon, chair of the College of Medicine.

He says the NHS "has not been a good employer" in recent years. "When I was a young doctor, we were given breakfast after on-call nights, I had a room I could sleep in if I needed to and I could park my car at the hospital," he says. "But young doctors can't do any of those things. They've not been respected as people who have made a personal sacrifice and that's created a problem."

Pay has been another thorny issue for healthcare workers. In March, the Department of Health and Social Care recommended a 1 per cent pay rise for nurses, a figure unions have blasted as "insulting". The Royal College of Nursing warns large numbers could leave the nursing profession this year as a result.

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ROUNDTABLE

Health inequality and the digital opportunity

Does the shift to digital healthcare risk widening the inequalities that have been highlighted during the coronavirus pandemic? A virtual roundtable panel assesses the situation

Gren Manuel

NHS commissioning support units (CSUs) are an essential part of the health and care infrastructure, helping plan service delivery and ensuring efficient resource usage. Each covers a region containing thousands of GPs and dozens of hospital trusts, as well as countless other health and care organisations, which rely on their CSU for a wide range of services and support. They also play an essential role in identifying and helping reduce health inequalities in their areas. But how could this be affected by the increased digital delivery of healthcare?

Experts from three CSUs, whose combined footprint covers more than half of England, plus Paul Clarke, head of government practice at Esri UK, which provides advanced geographical information systems that can help identify patterns of health inequality or uneven service delivery, share their views.

Q What are the most important things learnt about inequalities and digital healthcare over the last 12 months?

MVH It has certainly brought inequalities into sharp focus. It's also forced the pace on the whole digital-first agenda within healthcare and challenged some of our assumptions around, for instance, senior people not being digitally aware. We were aware of these issues, but they have now gone to the top of the list.

DB It's emphasised what we've known about particular groups of the population being more likely to be affected by health inequalities due to socio-economic factors such as ethnicity and social deprivation. As part of our response to the pandemic, we have been trying to identify the factors that could have a disproportionate, negative impact on those who may contract the virus.

PC What has stood out for me is the existing indicators of health inequality, like access to transport, housing and socio-economic conditions, and ethnicity are the same factors that put people at risk from coronavirus. The last 12 months have also made clear how in the public sector the data is held in lots of places, some in the health service, the police service, some in local authorities and further afield. The pandemic has forced the agenda, bringing those organisations together to mount an appropriate response, solving problems that were thought insurmountable.

HS Yes, bringing a lot of those datasets together has enabled us to have a much clearer handle on the risk of having a worse outcome from COVID, including in areas with significant inequalities. Collectively, there is a lot of learning to be done from a data and a digital perspective.

Q On the issue of inequality, do we fully understand the issues? Or are there still unknowns?

HS We have established ways in the NHS to look collectively at how we segment the data to look at factors that disadvantage some populations. We've been able to put the learning from COVID on top of this to enhance that level of understanding further. But I think it will continue to evolve; there will always be unknowns. The issue for us is to keep working together, speed up the pace at which we increase our level of understanding. This is not a start-and-finish situation.

PC I often hear people saying their data is incomplete. If people have no faith in data, they have low care about what they capture and it can feed upon itself. They need information products that give them value, which in turn creates a business case for why they should capture it in a quality way. Better quality data with good spatial analysis tools will allow us to discover new patterns.

> Data and digital can really help empower patients and citizens to take greater control of their health

Debbie Bywater
Chief information officer, NHS Midlands and Lancashire Commissioning Support Unit (CSU)

Michael van Hemert
Managing director, NHS South, Central and West CSU

Paul Clarke
Head of government practice, Esri UK

Helen Seth
Director of business intelligence, NHS Arden and Greater East Midlands CSU

DB What's emerged during COVID, the positive community response to it, is the importance of tacit knowledge to enhance our understanding and inform the approach to tackling health inequalities. The question going forward is how do we effectively harness the tacit knowledge individuals and communities have.

Q Are we making the best use of the tools and data we already have?

MVH I think we're making really good use of it, but we could do more. It's about having a cultural openness to it. And sometimes you could say the tools can do more than people have the headspace to use. You can produce reports with fantastic information, but people sometimes don't have the time to dig in and gain insight.

DB It's all about interpreting data, converting it into actionable insight. If you're presenting data differently, such as geospatial data or heatmaps, that can help.

MVH The point about geospatial information systems (GIS) is an important one. It allows us to visualise data in a way that people can really connect to; it means something to people and they can relate right away. We've seen huge growth in the amount of GIS work we're doing and we've doubled our team in the last year or two.

PC We see excellent use of tools and data, but we can always do more. For example, we know that there are challenges about using data from individuals, how we ensure anonymity. But once you aggregate data geographically, it almost automatically anonymises it, making it safe to share. It also provides immediate interest to people because they can contextualise it: this is where I live, this is where I work and so on. It also allows you to bring lots of different datasets together. Suddenly you can aggregate information from the NHS, the local authority, data about air quality, with location as the reference, getting real insights.

HS You could be looking at two GP practices and find they have pretty similar demographics, but generate very different outcomes from episodes that come out of the pandemic, for example mental health or respiratory disease. You can then say: "OK, the demographics are similar; what's made a difference?". You can support ongoing discussion and debate.

MVH Another good example is mapping the low uptake of vaccinations and seeing if there is any particular geographical pattern. That's been incredibly useful in drawing conclusions about why certain individuals aren't getting the vaccine when invited.

Q Do we have the data we need to generate real insights?

HS We don't want a whole smorgasbord of datasets that just gets bigger and bigger if that takes us away from doing our job, which is analysing the data, seeing the insights we can take from it and then doing what needs to be done locally.

Q Is the move to more digital delivery of healthcare, such as video outpatient and GP consultations, lasting?

MVH Some of the surge of progress we've had throughout COVID perhaps won't be maintained, some has subsided already. But I do think there will be lasting change in the way people use data and making sure solutions such as clinical pathways are digitally led. I think it's important to ensure equality, ensuring that digital is not the only way to access good care.

PC Not all members of the public are going to access services digitally. But using data to understand that and target people with appropriate alternative services is powerful.

DB I think it's essential we do robust evaluations of digital programmes, so we understand the benefits and impacts they've had and we don't just make a simple set of assumptions and assume it is the reality.

HS I agree. It's important to ask, has it done what it said on the tin? And this may require niche skills that might not normally be within the NHS. When we do analysis, I also think we need to be broader in our approach. It comes back to a storytelling perspective: this was the problem, this was the target group, this was the intervention and these were the results. This builds ongoing trust in how data is being used and the social benefit.

Q Who is at risk of not being able to access new, digital services?

DB There are multiple factors impacting digital take-up. One is willingness. But geographical variation is also significant. The communities I work with range from very urban to sparsely populated rural areas where many people struggle to get broadband. There are parallels to the families trying to access education during lockdown where some families had limited connectivity to the internet or due to financial hardship not everyone could afford a device, or were trying to access lessons using a pay-as-you-go mobile. It needs a multi-organisation response because there are multiple factors we need to work together to overcome.

> The pandemic has forced the agenda, bringing those organisations together to mount an appropriate response, solving problems that were thought insurmountable

Q Is now the moment for a push towards preventative medicine?

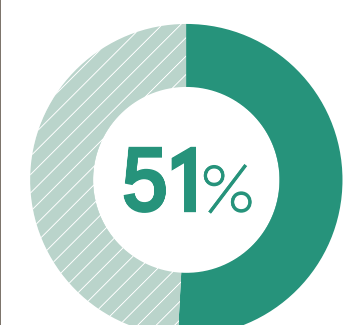
MVH This is something we have been focused on for quite a few years now. Much of the data integration leads us down that path and the pandemic, of course, has accelerated this. And so has the greater availability of digital information. So I think now is a pivotal moment in terms of the opportunity to do this efficiently.

DB Data and digital can really help empower patients and citizens to take greater control of their health. There are numerous examples of that, for weight management for instance, a personalised, targeted preventative support programme using data is very powerful.

HS I live in a rural area, so I often see walkers, but now I see a lot more, especially families. I would love to think we could capture data about that so you could see how it impacts general wellbeing rather than our more traditional ways of measuring things.

PC We were talking earlier about data and visualisation tools; I think there is an opportunity here as well. You can look at a location and ask why the outcomes are good. And you can look at another area and understand how a couple of points shift in behaviour will bring benefits. It allows you to target resources and share with the public—tangible and demonstrable benefits from taking action.

DB When I first joined the NHS 15 years ago, I recall having a conversation with a GP and one of his patients. She was an older lady who had a thyroid problem. She could access her GP record and test results and had agreed with her GP the thresholds that allowed her to manage that condition, adjusting her medication. She said it was truly transformative for her as a patient. These sorts of stories are very powerful because we can all relate to them.



of benefits claimants have low/very low digital engagement

Lloyds Bank UK Digital Consumer Index 2020

Public Health England

88%
GP surgeries equipped for video consultations in July 2020, against

5%
before the pandemic

Royal College of General Practitioners survey

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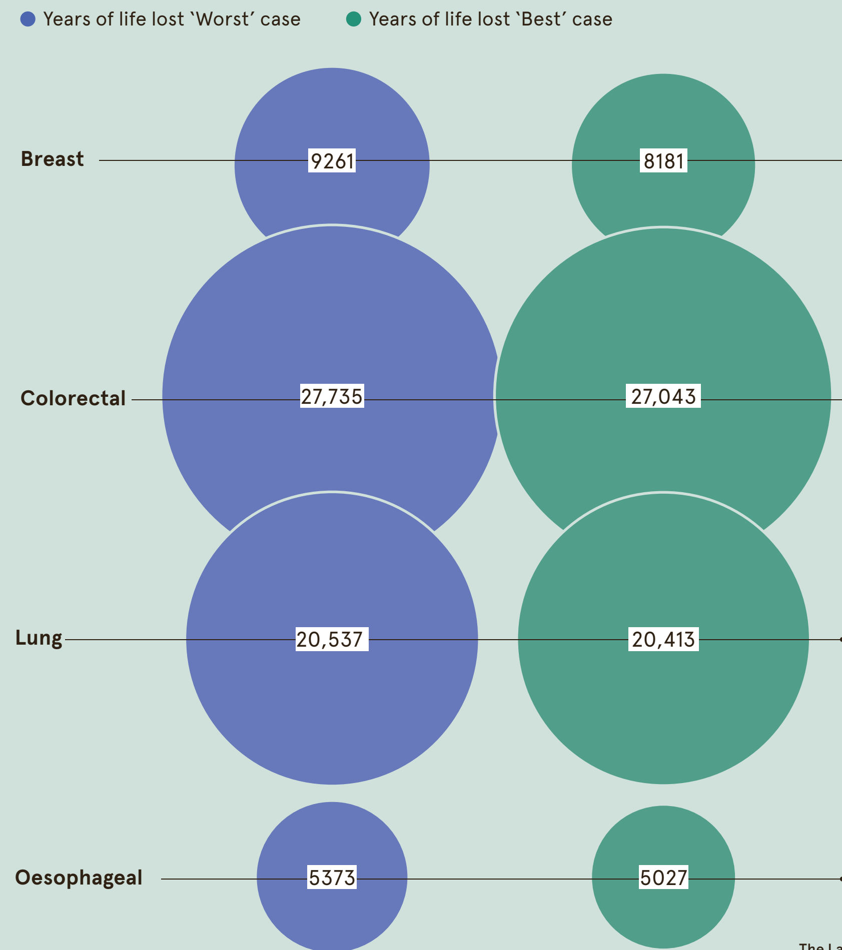
THE CORONAVIRUS EFFECT

While the COVID-19 pandemic has had a direct impact on healthcare as people catch the disease, it is also having a knock-on effect on wider provision of health services. Waiting times for treatment referrals are on the rise, appointments for health screenings have been missed, surgeries have been postponed and cancer treatment put on hold.

COVID-19 IS EXPECTED TO HAVE A BIG IMPACT ON CANCER DEATHS

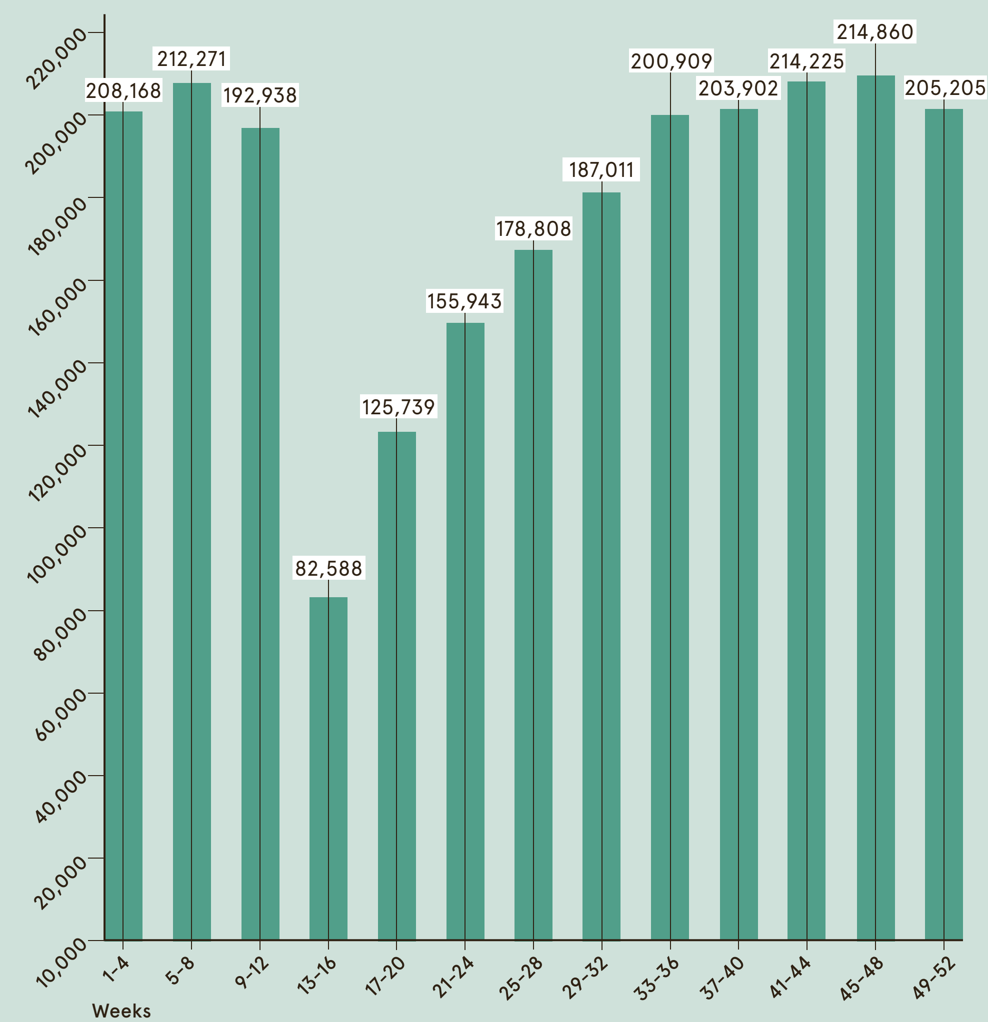
Estimated years of life lost at five years from diagnosis, 'best' and 'worst' case scenarios



The Lancet 2020

URGENT CANCER REFERRALS SLUMPED

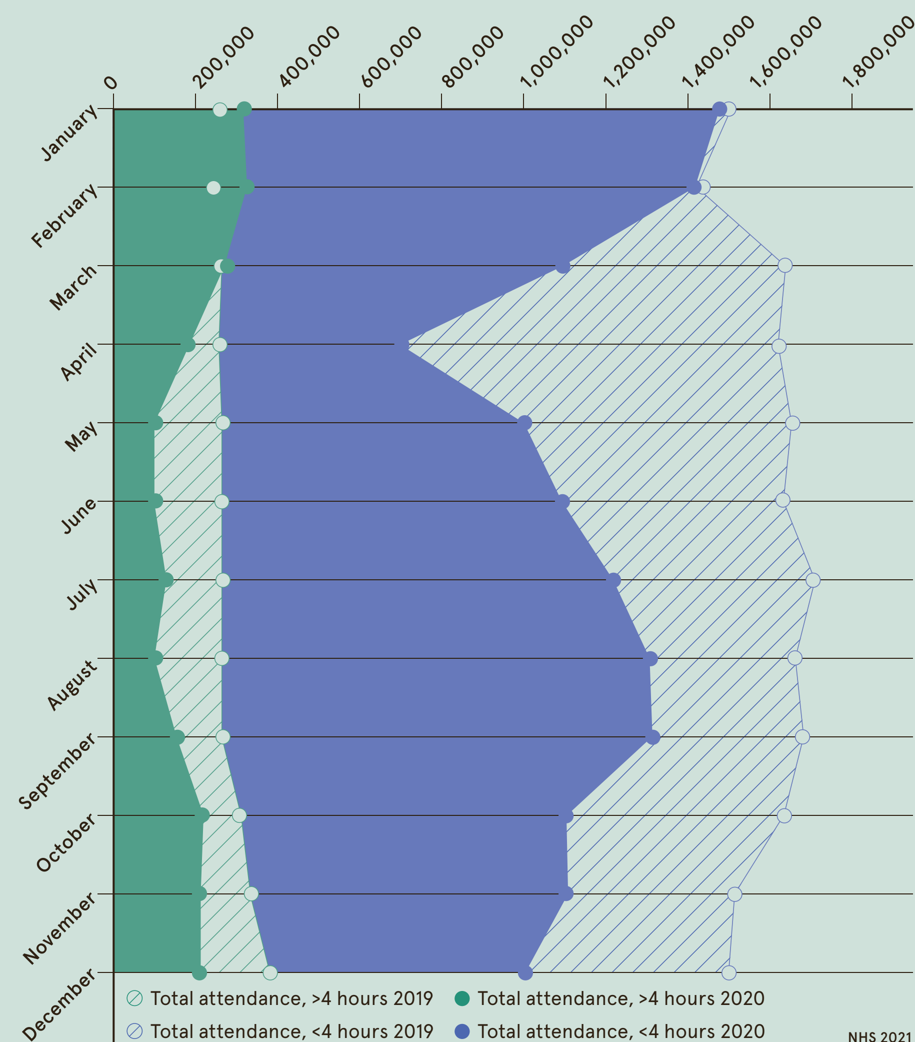
Weekly number of urgent two week wait referrals to hospital, all cancers



NHS 2021

ATTENDANCE AT A&E FELL BACK

Numbers attending A&E across major A&E, single speciality departments and other A&E/minor injury unit



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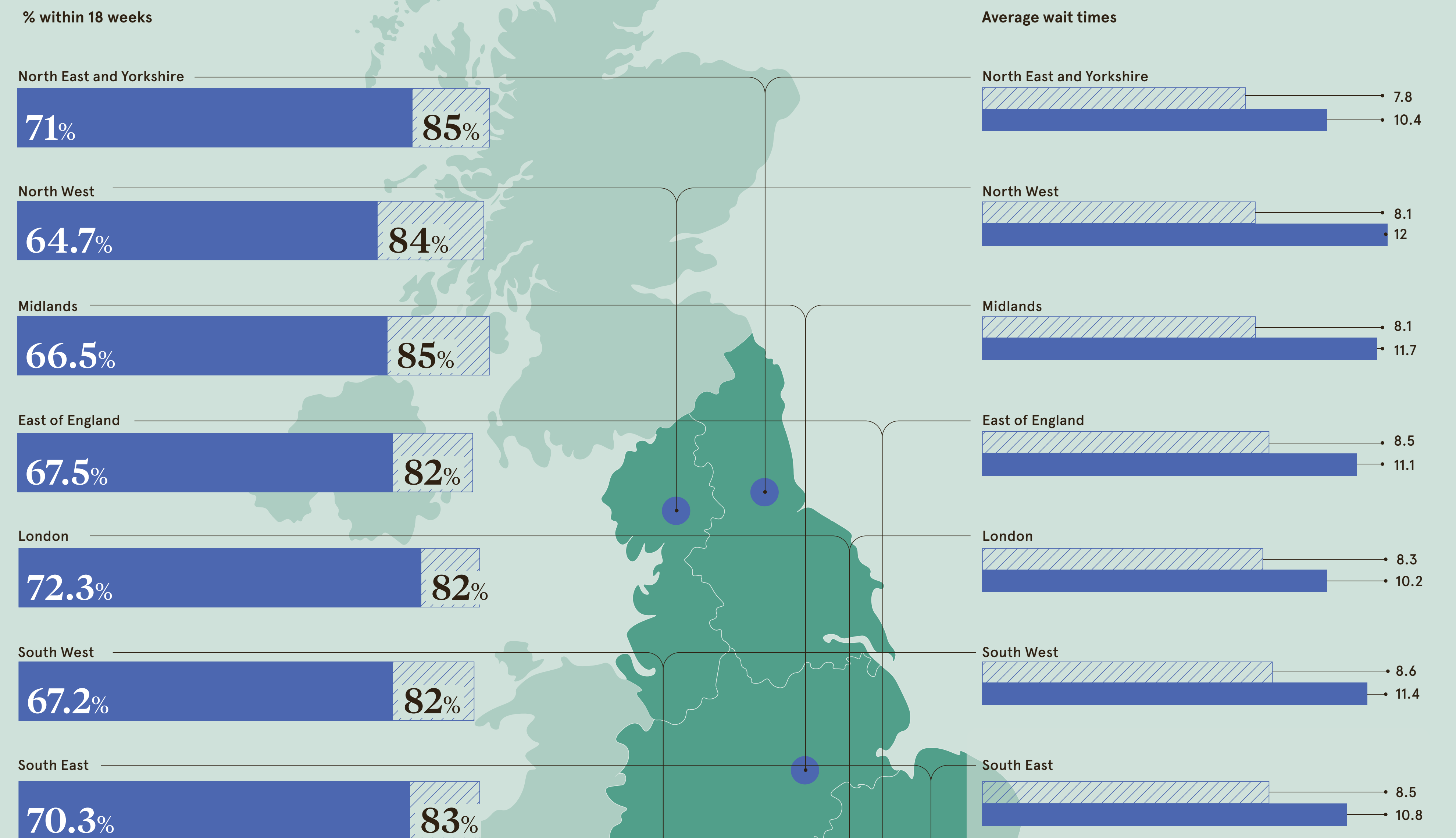
WAITING TIMES FOR TREATMENTS SUCH AS NEUROSURGERY AND CARDIOLOGY HAVE RISEN SHARPLY

Waiting lists for referral to treatment, in weeks



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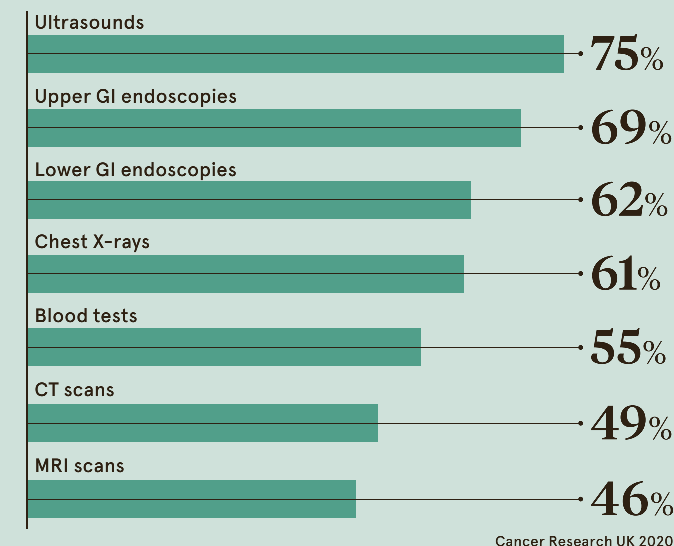
QUEUES ARE BUILDING FOR GP APPOINTMENTS AND TESTS

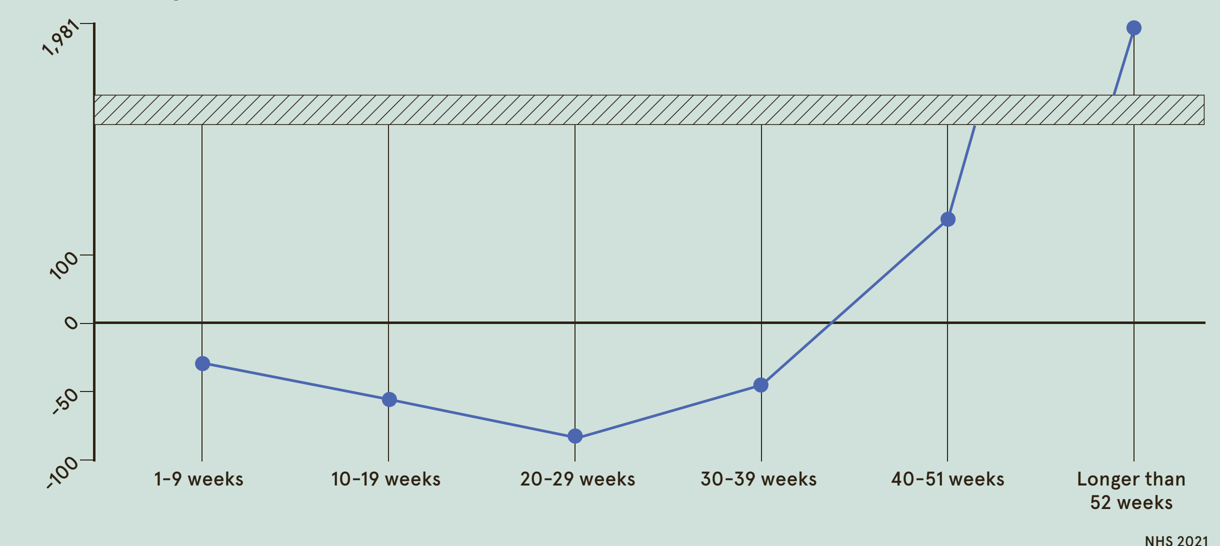
% of UK GPs saying waiting lists have increased for the following tests



Cancer Research UK 2020

LESS PEOPLE ARE BEING REFERRED FOR TREATMENT AND THOSE WHO ARE, ARE WAITING LONGER

Numbers waiting, December 2020



NHS 2021

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LEADERSHIP

Who is responsible for transforming the NHS?

The NHS will need innovation, transformation and the public to take more responsibility for their health if it is to survive the long-term pressures draining its will and resources

Danny Buckland

Celebration of a coronavirus all-clear will still be echoing around the nation as the NHS turns to face its next challenge.

Perfect storm after perfect storm is rolling over the horizon: a mountainous backlog in surgery and cancer treatments, an ageing population and an obesity epidemic, recognised as a contributory factor to the UK's COVID death toll, seemingly tattooed onto the national identity.

How then to navigate yet more Treasury jeopardy? How to recalibrate the complex and arcane NHS structures populated by more than 1.1 million staff, 1,250 hospitals and 7,454 GP practices that deal with a million patients every 36 hours?

These questions are absorbing the energy and ingenuity of politicians, NHS executives, social care experts and the private healthcare sector.

The bright lights are technological advances, supercharged out of necessity through the pandemic, that are connecting patients to treatments through computers and smartphones. The digital revolution is also reshaping the potential for more care to switch from expensive clinic and hospital settings to the home.

Chris Hopson, chief executive of NHS Providers, the membership organisation for the NHS hospital, mental health, community and ambulance services, believes the nation is facing significant threats from an ageing population living longer with multiple co-morbidities and the resulting extra pressure on NHS finances, as well as acute staff shortages.

"Demand for NHS services is rising by around 4 per cent a year, but we've just been through a decade of the longest and deepest financial squeeze in NHS history, when funding went up by around 1.5 per cent annually," he says.

"We will also have to live with COVID for some years to come, but the underlying, long-term challenge is that you might argue we have a 'National Illness Service' geared around treating people when we know we will have to get much better at looking after ourselves and support citizens to do that."

The Office for National Statistics forecasts that by 2030 one in five people in the UK will be aged 65 or over, while the number of people aged 85 and over will double from 1.6 million in 2016 to 3.2 million in 2041. Yet 84 per cent of the population has a smartphone and access to a blizzard of diagnostic, treatment advice and support apps.

"There's a real opportunity here," says Hopson. "The vast majority of the nation has smartphones that enable them to track their weight and get access to advice around fitness which gives us scope to, if we can configure our health services, use smartphones to help people manage their health."

He believes a new class of healthcare professionals could also be developed to support and school the public towards healthier lifestyles and less reliance on care. But all new initiatives and structures are freighted with the burden of social deprivation, employment population densities, the environment and health inequalities.

> It is clear that to keep pace with care demands, the NHS is going to have to do things differently

"It is clear that to keep pace with care demands, the NHS is going to have to do things differently," says Hopson. "The NHS will go as fast as it can. For example, it moved to online GP consultations during the pandemic at real speed, which gives confidence that it can change pace and direction.

"But we will have to think quite carefully how we go forward and how we deal with the things that anchor us to the current model, such as the way buildings are configured and jobs are structured."

Health secretary Matt Hancock laid out a white paper of reforms in February designed to strip away bureaucracy, modernise systems and boost local integration of services so they can withstand long-term demands.

NHS Transformation Unit, which focuses on service redesign to aid recovery from the pandemic and improve care long-term, is devising fresh approaches to tackle issues such as surgery waiting lists and connecting the public more efficiently and rapidly to diagnosis, treatment and care.

> Disease prevention has always been the Cinderella of our healthcare system, attracting less than a tenth of the funding devoted to treatment

It is making the best of NHS resources and sees gains in creating hubs for specialisms and the use of digital technologies to support care in virtual wards away from hospitals.

"There also needs to be a bigger agenda in terms of health prevention and how we do health management to reduce demand," says Janet Budd, the unit's chief executive. "There is a lot of collaboration through the NHS and an absolute will to recover and then build to cope with future demands."

Andrew Corbett-Nolan, chief executive of the Good Governance Institute, a consultancy that advises NHS executives, health authorities and commercial clients, believes restructuring programmes need to have the mechanics to function in concert or reach the entire population.

"The trick to pull off will be to create a revolution where some parts remain exactly the same," he says. "By that, I mean a commitment to the core principles of being free at the point of delivery. But there also needs to be a very grown-up conversation with the general public about playing their part, how they look after themselves, how they use health services and how they plan for old age. We also need more research to help understand what influences personal choices and behaviour; social research is as important as clinical research."

Rearranging healthcare furniture in terms of responsibilities and demarcations seems a national pastime, but it can undervalue the importance of human behaviour.

"Disease prevention has always been the Cinderella of our healthcare system, attracting less than a tenth of the funding devoted to treatment," says Dr Robert West, professor of health psychology at University College London's Health Behaviour Research Centre. "Although it is understandable in that we can't ignore it when people have heart attacks or develop cancer, we can all too easily ignore it when people are building up health problems for the future.

"It is also irrational because disease prevention more than pays for itself. It has the benefit of helping people live longer and healthier lives, and reducing demands on our treatment services."

Changing behaviour takes time and is unlikely to succeed within the timeframe of the government, while the food, alcohol and tobacco industries have a powerful lobbying force and deep pockets.

"In the UK, most people already have a high level of motivation to improve their health. What we need to do is to harness that motivation by enhancing their capability and opportunity," says West. "This has the added benefit of feeding back into motivation; we are more likely to want to do things if we think we will succeed."

Dealing with the pandemic is a Herculean task; coping with what comes next will need planning, collaboration, innovation and investment across health and social care. The Department of Health and Social Care points to a £52-billion investment in the NHS this year on top of a £9.4-billion capital programme to build and upgrade hospitals to frame the government's commitment.

"I'm always very optimistic when it comes to the NHS because of its amazing staff, who are the rocket fuel of progress, the goodwill of the public, combined with advances in research, life science and biotechnology expertise in the UK," NHS Providers' Hopson concludes. "We have the capacity to change healthcare to take advantage of these trends." ●

THE COMPLEX STRUCTURE OF THE NHS

1.1m
Staff

1,250
hospitals

7,454
GP practices

1m
patients every 36 hours

NHS 2020

Commercial feature

Infection prevention is now key to health and wellbeing at work

Coronavirus has put infection prevention at the top of everyone's agenda

Whether you work in a hospital or live in a busy household, the pandemic has made us all think more carefully about how germs are spread and what simple steps we can take to stay well.

One of the biggest lessons of the pandemic is that while infection prevention is well established in the healthcare industry, there is not the same level of awareness in many workplaces. As we enter the recovery phase of this pandemic and begin to look ahead, it is important to ensure we build on what we have learnt over the past year.

Dr Guy Braverman, chief executive and co-founder of GAMA Healthcare, the infection prevention specialist best known for its Clinell Universal Wipes, the most widely used disinfectant wipes in the NHS, says coronavirus has changed everything to do with employee health and wellbeing.

"Of course, employee health and wellbeing has always been important," says Braverman. "Employers have always had a responsibility to look after their employees' wellbeing. But as employees everywhere begin to return to offices and workplaces, they are reliant on their employer taking an active role in keeping them safe from infection.

"For a lot of employers, that's a very new, very sudden responsibility. Inevitably it comes with its own challenges and its own learning curve."

Companies who take action to protect their employees will not only benefit from fewer lost days, but will foster a stronger culture of trust and partnership. "Employees who feel that their managers and employers are committed to their health and wellbeing will perform better at work," says Braverman.

By reducing the risk of infections in the workplace, companies also help to ease the burden on the NHS at a time when hospitals must begin to reduce the huge waiting lists, which have built up during the pandemic.

GAMA was founded in 2004 by Braverman and fellow doctor Allen Hanouka. Since then, the company has become established as a leading infection prevention specialist, dedicated to finding new and innovative ways to protect from different types of infection.

> Not all disinfectants are created equal and the primary purpose of cleaning is not aesthetics; it is about keeping customers, employees and families safe

During the pandemic it has formed partnerships with businesses, to help overhaul their infection prevention policies. What these companies are now learning is not all disinfectants are created equal and the primary purpose of cleaning is not aesthetics; it is about keeping their customers, their employees and their families safe.

"When COVID-19 started to impact people's lives, we knew we had to start testing the potential of our products to alleviate the burden," says Braverman. "With this in mind we tested our products against the exact strain (SARS-CoV-2) to make sure what we were providing to our customers would be effective against the virus, alongside the other enveloped viruses that still pose a threat in everyday life."

GAMA's goal was to create a range of products that would allow offices to maintain a safe working environment for their employees. The Clinell Touch-Free Hand Disinfection Range was designed specifically for businesses or offices to provide high-quality alcohol hand gel dispensed via wall-mounted and free-standing options. The gel was dermatologically tested and contains moisturisers to protect skin from drying out while disinfecting hands.

This works alongside their existing Clinell Universal Wipes, the disinfectant wipe used in nine out of ten NHS hospitals. These two-in-one wipes clean and disinfect in a single action and, because they are designed for use on medical devices, they won't damage surfaces. They are effective against 99.99 per cent of bacteria and viruses, and kill the COVID-19 virus on surfaces in just 30 seconds.

Braverman says: "Seventeen years later, we are still advocating for more effective infection prevention methods in healthcare, but in the interim we have recognised the importance of more infection prevention awareness outside healthcare."

Disinfection products and hand hygiene can reduce risk of the virus spreading by up to 85 per cent, according to a paper by Kurgat et al (2019) in the *International Journal of Hygiene and Environmental Health*.

For more information please visit gamahealthcare.com/safe-offices

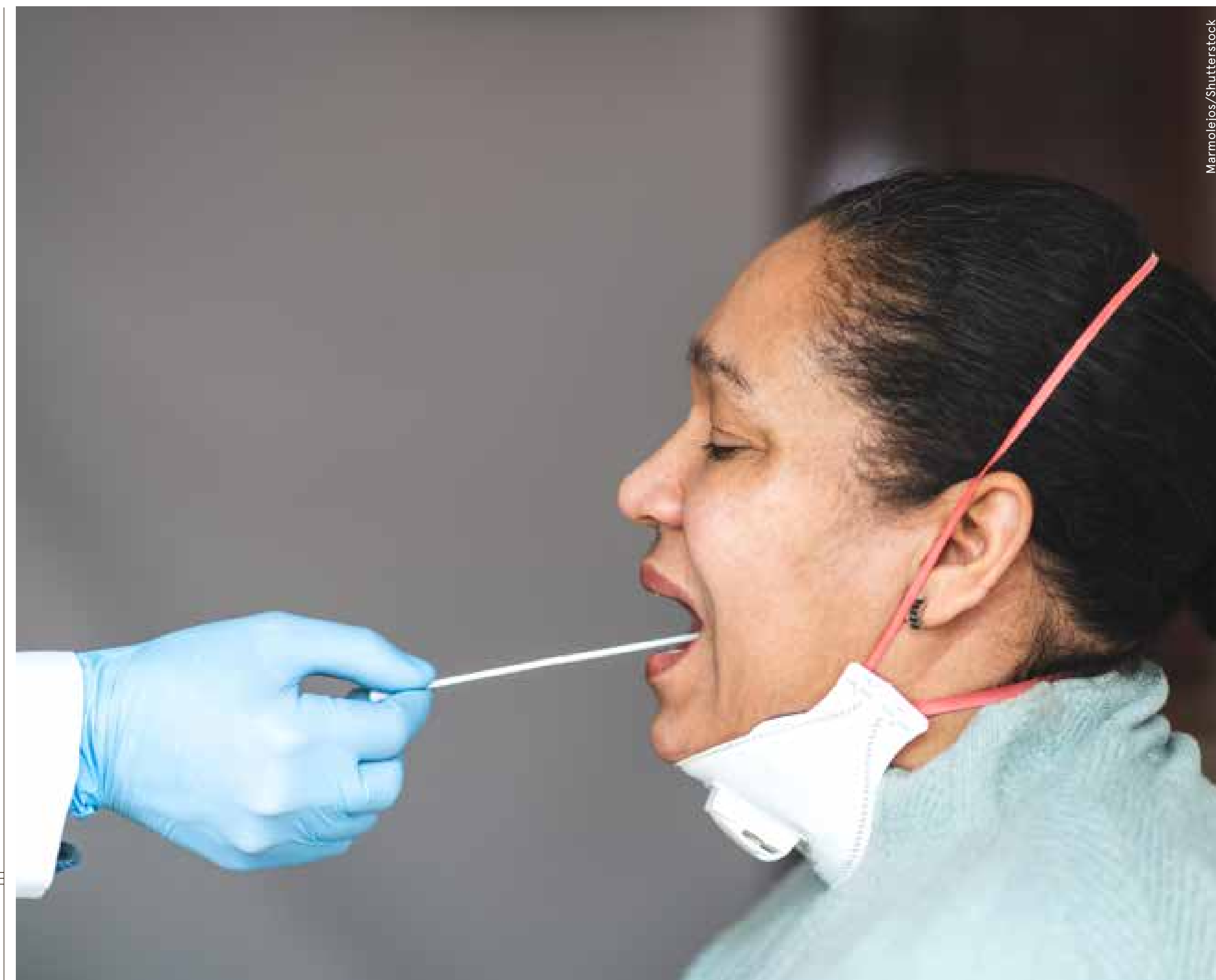
gama healthcare

INEQUALITY

Finding a solution to healthcare inequality

Over the past year, coronavirus has exacerbated healthcare disparities among many communities and shown the inequalities to be truly life threatening. So where do we turn post-pandemic to solve this urgent problem?

Jonathan Weinberg



Marmolejos/Shutterstock

There are a multitude of reasons for the wide variation in healthcare diagnosis and treatment across the UK, ranging from where someone lives or works to their gender, race and age.

The inequalities have been highlighted by the coronavirus pandemic, calling for redistribution of the latest medical technology and innovations nationwide to address such an urgent problem.

But can healthcare inequality be tackled effectively when fallout from COVID will see NHS funding stretched as waiting lists continue to grow?

Some disparities were already increasing before the pandemic hit, as Imperial College London's Dr Jonathan Clarke, co-author of *Reducing healthcare inequalities and enhancing the NHS*, explains: "In the last decade, life expectancy had fallen for some women in the poorest parts of the UK. Many improvements in population health of recent decades have stalled."

To counter this, and to build on the success of localised vaccination programmes, one option touted as a potential way forward is community diagnostic hubs, sited on high streets or in shopping centres.

Neil Mesher, chief executive of Philips UK and Ireland, says: "The willingness of people to engage with health services in non-traditional settings, including supermarket car parks and dedicated vaccination centres, is one lesson we must not overlook.

"By embedding diagnostic capabilities deeper into the community centres, where so many people already spend their time and transport links are well established, we can improve the NHS's ability to discover and treat health issues more rapidly."

> The willingness of people to engage with health services in non-traditional settings is one lesson we must not overlook

Ex-NHS radiographer Jane Rendall, managing director of Sectra, a diagnostics imaging company, adds: "This could alleviate pressures on pathology, radiology and other specialities in acute environments. The right technology needs to be in place to make this happen, for example the cloud computing required to allow imaging and other digital diagnostic data to flow, potentially nationally."

At the local level, community pharmacies have also been heralded as having a potentially bigger role. But research by Medicine Direct shows this could prove tricky because, as it found in a stud of nearly 17,000 of them, there are big disparities in the number of people they serve. In London this was 1,131 patients per pharmacy, while in Salisbury it was almost 6,000.

Many technological solutions have been offered to solve this inequality crisis, including the digitalisation of records for more effective data analysis using advances in artificial intelligence, plus more apps to aid diagnosis, treatment and care. But a survey from diabetes management app Quin showed just one in ten of those questioned had used an app to monitor their own health conditions, despite 87 per cent agreeing with their positive benefits.

To change this, Quin co-founder Cyndi Williams wants more support and partnerships with the healthcare industry. She says: "The onus cannot fall solely on the patient to find the right app for them. You wouldn't expect a patient to find the right drug on their own, so it is unreasonable and unrealistic to expect the majority to find medical apps independently.

"The more effectively we can integrate technology with healthcare, maximising access and convenience and offering guidance to suit a patient's individual lifestyle, behaviours and preferences, the more we can democratise healthcare and improve people's lives."

Nicholas Kelly, chief executive of care technology provider Axela, cautions on "trying to run before we've learnt to walk".

"We're actively talking about video consultancies, remote patient monitoring and electronic health records. This is amazing and definitely the way forward, but in doing that we forget a large majority of the country don't have access to standard broadband speeds or even have access to technology that would facilitate this. I would like to see more money spent in bridging the digital gap in terms of the use of technology," he says.

Such inequalities are not just physical, they exist in mental healthcare too. Dr Stephani Hatch, professor of sociology and epidemiology at King's College London and lead for its healthcare inequalities research group, will discuss such issues at May's international MQ Science Summit.

"To tackle racial and ethnic inequalities in mental health we need wider recognition of racism and discrimination as pervasive sources of adversity and in some cases trauma, which are witnessed and experienced across institutions and over the life course," she says.

"We need to see institutions demonstrating racial inclusion as a practice and an expectation in education and training pipelines and leadership. Investment is needed too in improving racial and ethnic minority representation in those conducting and participating in mental health research."

Lord Victor Adebowale, chairman of video-collaboration platform Visionable, has a similar view on inclusion. He says to get the most from digital adoption and to advance equity, we must ensure those commissioning services design them with a fuller understanding of the needs of the individuals and communities they are intended for.

"Procurement could otherwise present a clear and present danger to ensuring that digital tech in health supports increased equity and equality in healthcare," he warns.

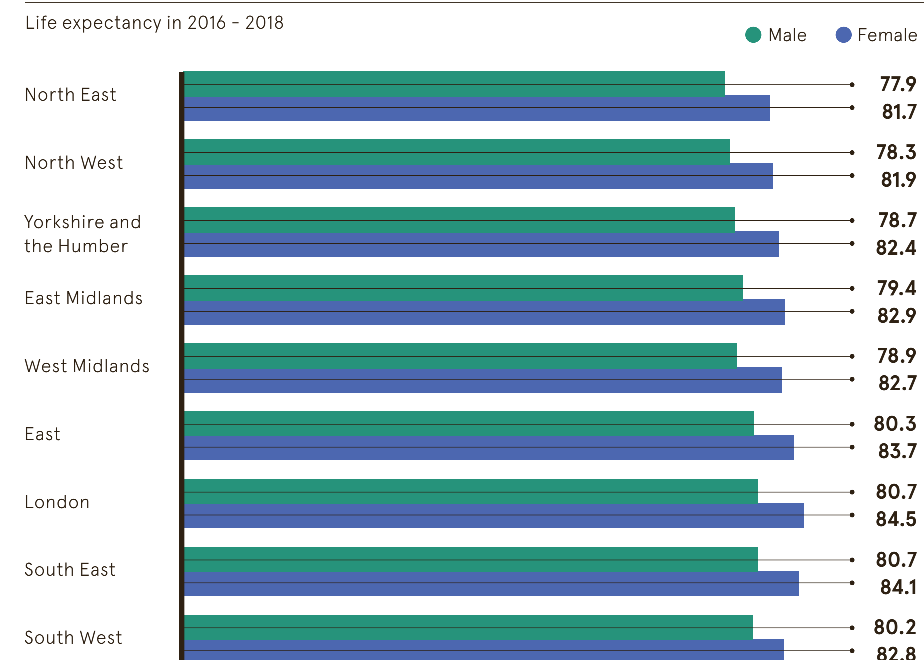
Empowerment is another important factor, with a recent report by Public Policy Projects including as one of its twelve policy recommendations the need to empower patients to become informed co-creators of their own health.

A solution could simply be listening and talking more, says Peter Taylor, director of research at the Institute of Development Studies. "It is rare for the views of those who experience the worst effects of healthcare issues to be included in decision-making around interventions," he says.

"Listening and engaging is essential to rebuilding trust and confidence in healthcare providers and interventions, which in turn determines take-up and effectiveness. Without consultation with the communities affected at local, national or global level, there is a huge risk those already left behind will fall even further behind." ●

LIFE EXPECTANCY IN ENGLAND DIFFERS BASED ON WHERE PEOPLE LIVE

Life expectancy in 2016 – 2018



ONS 2019

Commercial feature

Point of care testing comes of age

The coronavirus pandemic caused many healthcare systems to buckle under the pressure, but it also forged a new era in which technological innovation can thrive

Employee testing programme using next-generation point of care technology

Screening, diagnostic testing and monitoring are the foundation of healthcare decisions. A patient can't be treated effectively until a diagnosis is made. Testing for the coronavirus has been one of the toughest global challenges and it has demonstrated how rapid, reliable diagnostics can benefit individual patients and influence economic recovery.

Previously, testing performance and speed were at odds, but because of recent technological advancements, it's now possible to deliver both. Next-generation point of care testing (POCT), different from traditional lateral flow tests, has proven its ability to deliver highly sensitive COVID tests results within 15 minutes.

Accurate, fast testing has allowed children to attend schools, helped the NHS rapidly triage patients attending A&E into COVID-positive and COVID-negative treatment areas, and enabled workers to resume employment safely where testing was needed. This is a paradigm shift for healthcare.

While diagnostic testing is an important part of patient care, it has not been a focus for many health systems: the NHS spends less than 1 per cent of its total budget on diagnostics, although they influence nearly 70 per cent of clinical decisions.[1]

Diagnostic testing had been considered a lengthy and laborious process. In order to give test samples, patients often had multiple touchpoints, sometimes in different buildings, then waited days or weeks for the results and further GP appointments.

Lack of reliable point of care technology hindered the adoption of testing that better served patients, but COVID-19 demonstrated the need for testing and heightened the importance of receiving accurate and immediate results, and the importance of connectivity to report the data.

"POCT has come of age in the pandemic because of its ability to deliver accurate results while you wait, compared to four or five days' delay for results," says professor Chris Price, emeritus professor in clinical biochemistry at Queen Mary, University of London. "POCT delivers results more quickly and reduces the need to send a patient to the hospital for an outpatient appointment."

Professor Price's recent commentary in the BMJ Innovations Journal, Will COVID-19 be the coming of age of point-of-care testing?, highlights how technological developments have meant rapid test analytical performance now match laboratory devices.[2]

DIAGNOSTIC TESTING OPTIONS

Diagnostic needs for rapid testing	Central Laboratory method	Lateral Flow point of care technology	Next generation point of care technology
Reliable results	●		●
Fast turnaround time		●	●
Easy to use		●	●
Portable		●	●
Data reporting	●		●
Low cost		●	●
Broad test menu capabilities	●		●

UK-based LumiraDx has developed a next-generation point of care diagnostic platform and tests that are transforming care, including its rapid test for COVID-19, which was rolled out across UK healthcare settings and high street pharmacies such as Boots.

"The severity of the pandemic highlighted the need for increased levels of innovation and we worked hard to deliver high performance. Now, healthcare, governments and the public are realising what rapid testing can bring." says David Walton, LumiraDx chief commercial officer.

"Fast and high-performing tests were a help during COVID-19 and are still a vital part of moving forward. It's about all of us: getting students back to school, being able to go to work safely, visiting friends and family in different countries. It is helping us live our lives to the fullest and allowing economies to reopen."

The barriers to rapid testing have been falling as next-generation technology provides accurate results that can be trusted and delivered economically.

Rapid testing is effective in a broad range of settings, such as remote communities and for employers, and for a variety of conditions such as hepatitis Professor Price adds. A study of rapid testing in diabetic patients found improved glycaemic control and patient satisfaction along with significant reductions in patient visits, phlebotomy needs and administration costs.[3]

While rapid testing has clearly been a critical tool in diagnosing COVID-19, it has also made it possible for patients with chronic disease to receive rapid and ongoing monitoring of their illness in safe environments during the pandemic.

Beacon Primary Care, in Skelmersdale, Lancashire, organised a drive-through INR (international normalised ratio) testing facility for patients at risk of thrombosis, a potentially life-threatening condition if unchecked. Patients simply extended their arms for a pinprick of blood that was analysed by LumiraDx technology within minutes, with dosing instructions delivered the same day by email or text. INRStar clinical decision support software was used to manage anticoagulation treatment.

Professor Sir Bruce Keogh, former medical director of NHS England[4] says, "Point of care technologies have clearly come of age and now offer much more convenient, reliable and cheaper diagnostic testing. They offer an exciting and essential contribution to the inevitable post COVID redesign of healthcare. Their use is now a no-brainer."

Future developments

Moving testing from huge, central laboratories to rapid, portable devices has been a pivotal change in medical technology and LumiraDx has been at the forefront of innovation since it was founded in 2014.

LumiraDx addresses the current limitations of legacy point of care systems by bringing lab-comparable performance to the point of care in minutes, on a single instrument with a low cost of ownership, making healthcare decisions affordable and accessible.

The LumiraDx Platform currently runs four microfluidic tests, in a device the size of a house brick, and is developing more than 30 tests addressing cardiometabolic disease, diabetes, coagulation and infectious disease.

"Making rapid testing accessible is about empowering people to take more control of their lives as well as making lab-quality testing widely available at pharmacies, schools, work and the home," says Pooja Pathak, LumiraDx vice president of platform strategy. She adds "The pandemic is a leapfrog moment, demonstrating the vital importance of rapid testing today and suggesting the potential of new developments tomorrow. The public wants medical technology to improve their lives in meaningful ways. We created high-performance testing that is faster, more convenient and cheaper than traditional diagnostics, because it will improve people's health and wellbeing."

<1%

of the NHS' total budget is spent on diagnostics, in spite of the fact they influence nearly 70% of clinical decisions[1]

For more information please visit lumiradx.com/uk-en

1 BIVDA:https://www.bivda.org.uk/The-IVD-Industry/The-Value-of-IVDs
2 Price CP, St John A. Will COVID-19 be the coming of age for point-of-care testing? https://innovations.bmj.com/content/7/1/3
3 Price CP, St John A. February 2019. The value proposition for point-of-care testing in healthcare: HbA1c for monitoring in diabetes management as an exemplar. https://www.tandfonline.com/doi/full/10.1080/00365513.2019.1614211
4 Professor Keogh sits on the LumiraDx Board of Directors

SOCIAL CARE

Tackling the challenge of social care

The coronavirus pandemic has shone a light on the complex social care sector and could be the catalyst for lasting reform, despite it being ignored in the Budget

Danny Buckland

Daisy Daisy/Shutterstock

Social care is being disfigured by a crazy paving of fault lines driven by rising demands, financial constraints and complex structures that straddle state and private support. The cost of wrapping our arms around the vulnerable is rising and experts believe an extra £7 billion a year, on top of its annual £22.2 billion government funding, is needed to stabilise a sector that has been badly damaged by the pandemic.

The plight of care homes, where the COVID death toll has been at its most concentrated, have become a totem of the malaise of social care. Prime minister Boris Johnson has pledged to "fix the crisis in social care once and for all", yet provision was conspicuously absent in the chancellor's March Budget and many feel it will take considerable ingenuity to fulfil Johnson's promise.

Social care does not lend itself to easy fixes: 1.1 million people work in adult care, but they are propped by more than five million unpaid carers (they may receive a carer's allowance) looking after family and loved ones. The financial profile is also confused, with families paying £10.7 billion for a range of care and the sector featuring 25,000 private businesses.

It is an arena where low wages dominate; almost 30 per cent of the workforce move jobs each year and vacancies stand at 122,000 or 7.8 per cent, compared to 2.8 per cent across all industries in the UK, according to The King's Fund think tank.

"Social care was in a bad state before the pandemic and it has been weakened further by it," says Caroline Abrahams, charity director at Age UK. "There is a huge workforce shortage and there's arguably a crisis in confidence among the public about care homes.

"There are also significant numbers of old people who are trying to manage without the support they need with basic things like eating, drinking, taking a shower and getting dressed, and those people are more likely to fall or get ill and need NHS care. Social care is often portrayed simply as being about older people, but it is a much wider issue than that and half the spend goes on younger adults with complex care needs and disabilities."

Greg Allen, chief executive of Future Care Capital (FCC), an independent charity shaping the future of health and social care, adds: "The sector consists of a patchwork of regulators, policymakers, commissioners and providers. People often think of social care as the elderly and frail in care homes, but it spans children, young people, people of working age, and disabilities, and each facet faces different challenges.

"Successive governments and policymakers haven't found a solution, but this government and others that follow cannot ignore social care because it will implode as a system."

FCC advocates a care covenant, similar to the UK's military covenant, which establishes mutual expectations and responsibilities of citizens and the state around care provision. It also wants to see more detailed research and data deployed to help design services that are tailored to evolving demands.

"We need to raise the debate to look at this from different angles and see it as a bigger societal issue," says Allen, who has worked at board level in the NHS. "The pandemic has opened the public's eyes not only to the amazing care delivered in homes, but that social care is not just about care homes. Perhaps the pandemic is a catalyst for better understanding and developing better options."

The government has promised to "fix the crisis in social care" yet it was absent from the March Budget

Danny Kruger, Conservative MP for Devizes, recently petitioned health secretary Matt Hancock to explore systems used in Germany and Japan, which involve social insurance to spread costs, while promoting new models of care that compensated family members who give up work to perform care and fund semi-professional domiciliary care workers drawn from the local community.

Kruger's creative approach is echoed around healthcare as public anger continues to rise about the number of families forced to sell their homes to pay for care. The government's recent healthcare white paper, addressing some of the wider concerns, promises greater integrated care at local level and the use of technology to widen the range of at-home care options.

"The pandemic has made a lot of people realise that even if you're really responsible, and you do all the right things, stuff can happen, which can hold your life below the waterline," says Anita Charlesworth, director of research at the Health Foundation, an independent charity.

"Lots of people assume the state will be there for them if anything happens to them or a loved one, so it is a deep shock when people find out that is not always the case. We do need a big public conversation about social care because we have not worked out what our individual responsibilities are for those we love and where the state should be supporting us."

The Health Foundation wants the government to invest to stabilise the current system, improve access to care, protect the public from ruinous costs and explore alternative revenue-raising options.

"Investing in social care has a very big price tag and often the political gain doesn't look that great. It's the right thing to do and it's the long-term decent thing to do, but there's often not a lot of short-term political mileage in it," adds Charlesworth.

"The reality is there is unmet need, a lot of providers are not sustainable and care staff work under really poor terms and conditions, while individuals can be exposed to catastrophic costs.

"I believe the government will do something because the downside of not acting on an unambiguous and bold commitment would be very difficult. The question is how wide or narrow the support package will be. The concern is that if it is not big enough then more people will exist in the silent misery of unmet need."

Carers UK, a membership charity representing the one in eight adults who are unpaid carers, wants to see ambitious reform that includes legal rights for paid leave and flexible working for carers along with greater government recognition of their role in social care.

"We have waited years, more than a decade, for a plan for social care and the pandemic has highlighted that wholescale change needs to happen now if it is to be fit for purpose in the future," says chief executive Helen Walker. "The demand for formal care has increased. If we ignore social care for much longer, families' lives will deteriorate and the economy will feel the hit too."

Age UK echoes the call for urgent social care reform. Abrahams adds: "If we continue as we are, then everyone's experience of it will get worse, and we will get more scandals to do with poor care, and that will put extra pressure on the NHS when it can least afford it.

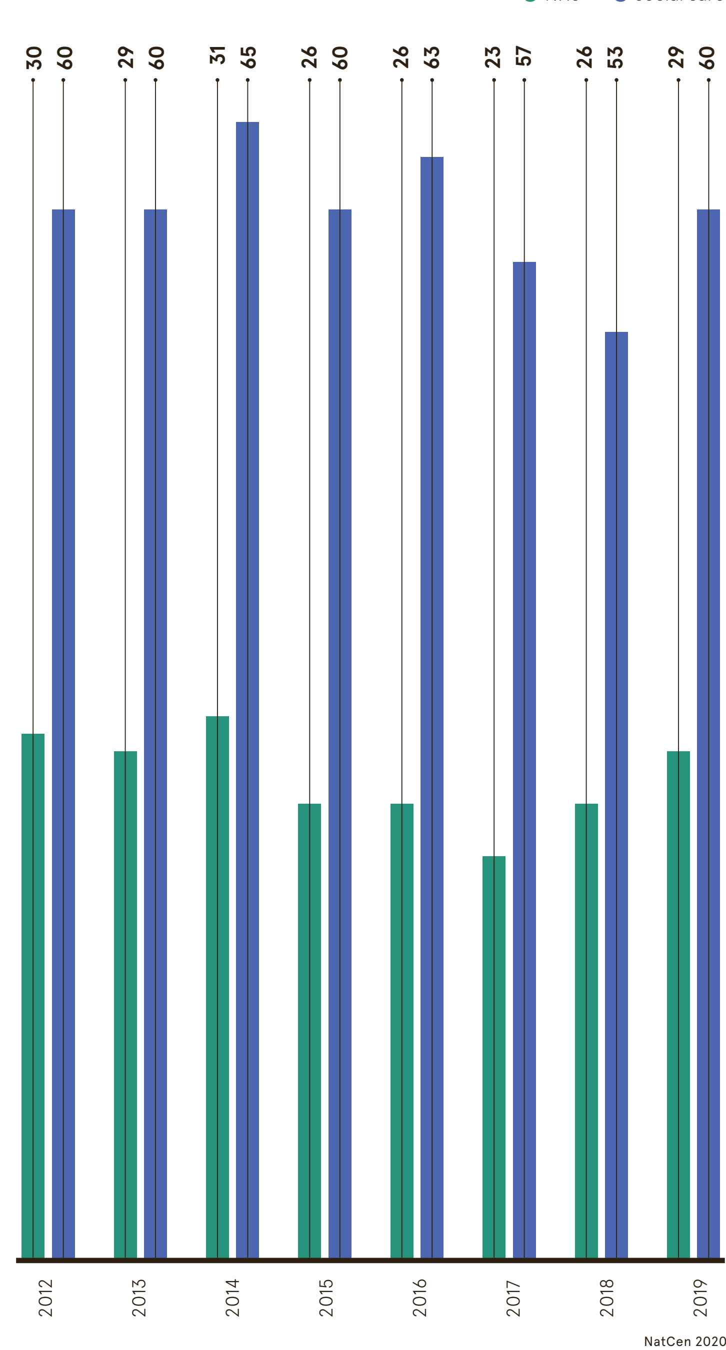
"I'm optimistic they'll do something, but I'm worried they'll do enough. If we're going to get social care reform and refinancing, then it requires the prime minister to exert his political power over the Treasury." ●

> We need a public conversation about social care . We have not worked out what our individual responsiblities are and where the state should be supporting us

> We have waited years for a plan for social care and the pandemic has highlighted that wholescale change needs to happen now if it is to be fit for purpose in the future

PUBLIC SATISFACTION WITH SOCIAL CARE IS FAR BELOW THE NHS

% of people saying they are 'satisfied'



NatCen 2020

Commercial feature

New partnerships in health and care are transforming lives

Community-based care can free long-stay patients from a life in hospital and return them to their own homes

The way health and care are organised in England is changing, with a big shift towards partnerships between the NHS and local authorities. This transformation is driven by a commitment to remove the obstacles that often get in the way of making sure people get the care and support they need in their local community, as quickly as possible. Provision is arranged around people, not systems.

This model is nothing new to Gray Healthcare, which has deep understanding and experience of partnership with the NHS and local authorities to support people with mental health needs or learning disabilities to live independent lives in their own homes.

Gray Healthcare has been helping people to move from long-term hospital placements in restrictive environments for more than ten years. They are experts at creating packages of support that make it possible for men and women to live the lives they choose. Many of the people who are now settled at home previously had little prospect of leaving hospital, but are now able to enjoy being part of the community and taking decisions for themselves.

Gray Healthcare is providing the community-based care that is at the heart of the new model now being championed by the NHS and local authorities. Its national team of clinical experts includes mental health nurses, learning disability nurses, occupational therapists and positive behaviour support practitioners, working collaboratively with people to ensure their needs are met and they feel safe and supported. They understand an individual's previous experiences form part of who they are, but should not limit them from who they want to become.

Jonathan Gray, chief executive of Gray Healthcare, says: "We are excited by the discussions taking place as a result of the new partnership approach being introduced across health and care at a local level. This brings opportunities to work collaboratively and design new models of care that support those with complex needs. It's enabling innovation and solutions that will benefit patients.

"Living with mental health needs can be hard at times. It can impact every aspect of your life. It can take away your hopes, dreams and future. With our support, we believe you can change that. We believe everyone has the right to live healthy, happy lives in their own home."

The latest Care Quality Commission (CQC) inspection of Gray Healthcare praises the company's "innovative approach" to working with individuals and stakeholders to introduce a new model of care. The CQC says Gray Healthcare has a good record of sharing work nationally with stakeholders and commissioners.

The inspection also found staff treat clients with dignity, respect, compassion and kindness, and understand the individual needs of clients. There is a strong person-centred culture, with clients empowered to have a voice and realise their potential.

Gray Healthcare's partnership with the NHS and local authorities begins months before someone is due to leave hospital, when preparation for discharge begins, through to helping to identify the right housing in the community and the appropriate support package.

Their model is based on prescribed core hours of support, complemented with agreed clinical interventions around the needs of the person each week and month. Individualised flexible packages are agreed for each person at the point of referral, driven by a nurse assessment and conducted by in-house specialist nurses, who are experts in working with those with mental health needs or learning disabilities.

The underpinning philosophy at Gray Healthcare is no person should remain in an acute or long-stay hospital environment for a day longer than medically necessary. The organisation believes it is better for people to lead independent, self-sustaining lives as part of their community in their own home environment with the least restrictive support. Clinical interventions may still be needed, but should not prevent someone leaving hospital. Working in partnership with the individual and stakeholders makes this possible.

> We believe everyone has the right to live healthy, happy lives in their own home

For more information please visit https://www.grayhealthcare.com/commissioners-and-professionals/

GRAY HEALTHCARE

TECHNOLOGY

How could healthtech transform patient care?

As the pandemic has left patients unable to visit GP surgeries or anxious about leaving their home, a raft of new digital and AI-enabled tools has emerged to plug the gap. What role might they play in future healthcare and where do the limits of this technology lie?

Megan Tatum

In the coming years, Dr Chris Morris estimates 70 per cent of care at the NHS GP surgery where he works will be delivered to patients remotely.

Already any patient wanting advice will first be asked to answer questions on their symptoms via telephone, email or text, he explains. They may be asked to snap pictures of "lumps, bumps and rashes" via their smartphone, with images automatically added to their notes. Or asked to join a video consultation to go into further depth, with Morris able to send follow-up advice via SMS. "We don't want to go back to how things were," he says.

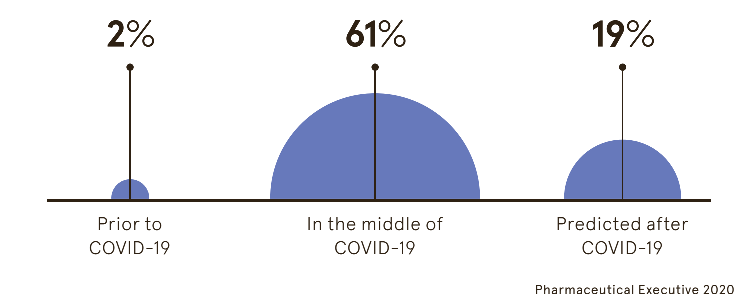
In fact, this integration of technology into how healthcare is delivered looks set to be a legacy of the pandemic. The risk around in-person care has prompted a wave in adoption of digitally enabled alternatives in the last 12 months, from digital check-ups, to remote monitoring tools and even stethoscopes using artificial intelligence (AI). Such is the speed and scale with which the healthtech market has grown that investment reached record levels of $5.4 billion in the first six months of 2020, according to McKinsey.

On the one hand, many clinicians on the front line, such as Morris, believe these technologies can "help raise the level of patient care" while allowing providers, like GP surgeries, to operate far more efficiently. On the other, there is caution we shouldn't forget the value of in-person care or underestimate the expertise that needs to accompany even the smartest of digital tools.

"This is not a panacea," says Morris. "But it is another way of delivering healthcare." It's one with plenty of potential.

USE OF TELEMEDICINE HAS SOARED DUE TO THE PANDEMIC

% of patient appointments in the US



Pharmaceutical Executive 2020

Pixel-Shot / Shutterstock

Remote symptom monitors

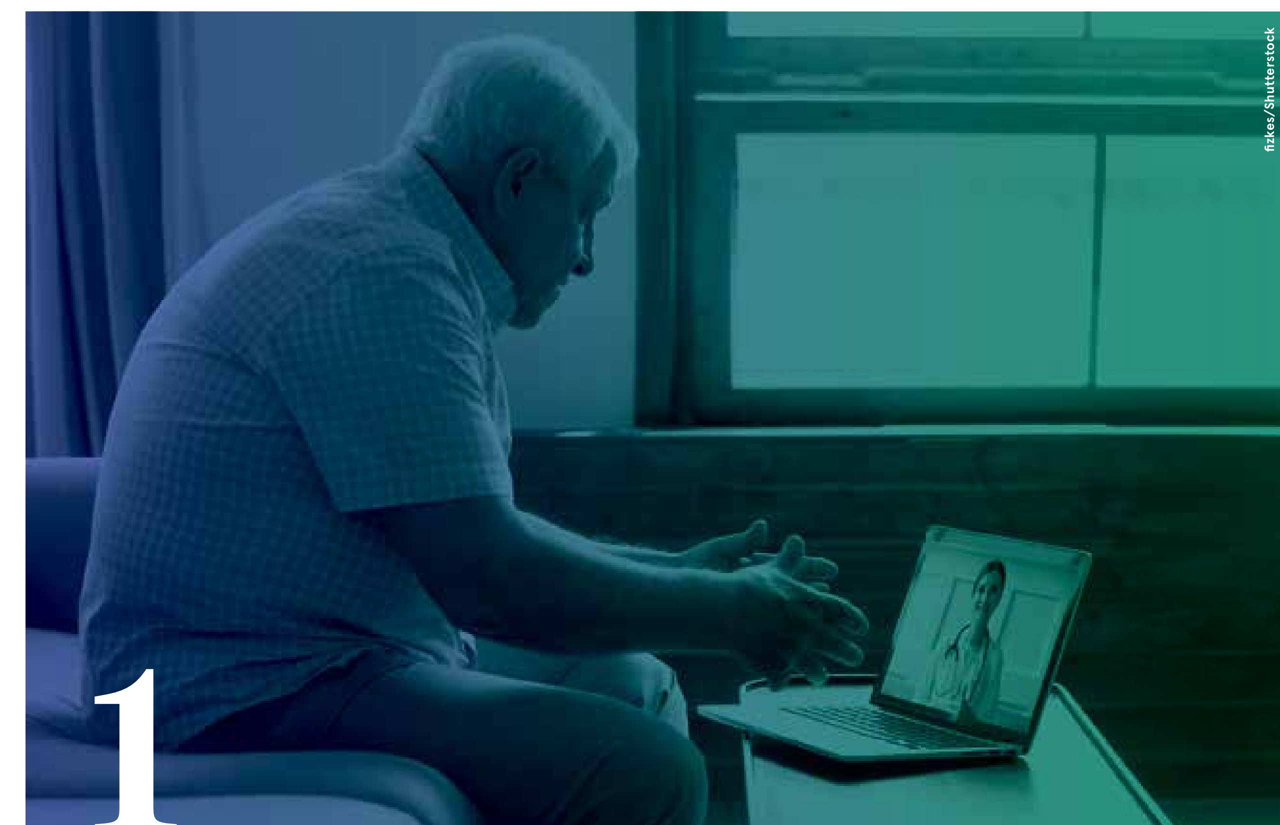
Paul Landau launched remote monitoring platform Careology after his wife was diagnosed with cancer at 34 weeks pregnant. Watching her endure treatment, including spells at home in between cycles of care, "I saw so many opportunities for how technology could be better used to support someone going through what is a complex and daunting diagnosis", he says.

Brought to market in July 2020, Careology now enables patients to log symptoms digitally, connect to Bluetooth devices to track heart rate or activity, receive medication reminders, download health summaries of their status and contact carers and clinicians at the click of a button.

As of February 2021, the technology has been used by Lloyds Pharmacy Clinical Homecare and has already proved a huge help, says its deputy head of nursing Jo Upton. "From our perspective it's all around the visibility of the patient," she says. "Our nurses go into a patient's home to take blood or give treatment as part of that patient's cancer pathway. With COVID though, every contact with the patient has been changed or has been limited."

Alternative ways of checking in, such as ringing patients frequently can be intrusive. "But the Careology app allows the nurse to view the status of the patient without invading their time or their privacy," says Upton.

Remote monitoring platforms go beyond cancer care. CliniTouch Vie, for example, enables patients to take regular readings of their vital signs using a Bluetooth device. The readings are then shared directly with clinical staff who provide remote advice.



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Digital check-up

At Numan, a digital check-up service targeted at men – the team has now conducted 1.4 million digital consultations in less than two years – is one of a number of digital consultation services seeing a rapid uptick in interest since the pandemic. Numan first launched in 2018. Its users are asked to fill in an online questionnaire and within 24 hours treatment will either be approved or patients will chat with a clinician via email to obtain further details.

"It brings healthcare up to speed with how we interact digitally with our lives anyway," says Luke Pratsides, lead GP at Numan and also a practising GP in East London. It allows clinicians greater control of the time and length of consultations, and gives patients greater convenience, he says. "Plus, because it's happening across the board, both in the private sector and the NHS, people are getting used to it and realising it can offer high-quality, safe and convenient care."

At myGP, an app which allows users to book GP appointments, order prescriptions and check medical records online, transaction volumes increased by 80 per cent in 2020, the company says, while there was a 96 per cent increase in people accessing their records and a 62 per cent rise in prescriptions ordered.

Digital consultations will never be for everyone or for every situation though, cautions Morris: "Some patients don't like them and they'll want to see their doctor face to face." In addition, you can "lose the nuances of body language and non-verbal communication".

"At my practice, we walk into the waiting room, see the patient get out their chair, walk down the corridor and sit down. That tells you an awful lot about the patient even before you talk to them. And you lose all that in a remote consultation," he says.

AI-enabled clinical tools

In April 2020, healthtech startup StethoMe announced the rollout of its smart wireless stethoscope, an AI tool the company says is "capable of detecting, classifying and analysing pathological sounds within the lungs using medical-grade precision". The small circular device, which can be pressed to the body to pick up a reading, works alongside a smartphone app that guides patients through each examination and then shares results with their doctor.

It's one of a number of such devices gaining popularity since the pandemic, allowing patients to collect simple readings at home. KardiaMobile, for example, is now being used by more than 92 NHS trusts to collect ECG readings from patients remotely. Two fingers from each hand are simply placed on the digital monitor and the results are transmitted to an app using high-frequency sound waves, ready for sharing with clinical teams.

And at NuroKor, a wearable technology that uses bioelectric nerve, muscle and microcurrent stimulation to help patients manage pain, sales grew by 156 per cent during lockdown, according to the company.

It's crucial, though, that behind these AI tools and connected devices "there's a system set up to deal with all the information", says Pratsides. It can be unhelpful as a patient, "if you're bombarded with information you don't understand" and just as unhelpful for clinicians if they're being constantly sent data. "So it's about trying to sift out information and use home monitoring in the right way," he says.

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At-home testing kits

Wouldn't it be easier for patients to test themselves for a condition or abnormality prior to seeking clinical advice? That's the idea behind the plethora of at-home testing kits now available, enabling patients to check for everything from hormone and nutrient levels to fertility and sexually transmitted infections. For diagnostics platforms such as Thriva, which says it has 54,000 subscribers, carrying out half a million tests, the potential is huge.

"To take just one example area, there are 3.9 million people living with diabetes in the UK; they each need a blood test every three months," says co-founder and chief executive Hamish Grierson. "You can add to that the millions of people who are on powerful drug treatments and require blood tests to monitor their liver function or those who require regular check-ups while they're on cancer treatments."

But if COVID has fuelled usage of these at-home tests, it's also served to highlight the potential risks. A swathe of at-home COVID-19 testing kits launched last year were met with concerns around how accurately they were being used by patients and how reliable the results were. As one expert at the New York University School of Medicine says: "There's a lot of bunk, junk and crank stuff out there. Some tests are coming from reputable places and some are not, and that's hard for the average consumer to tell." ●

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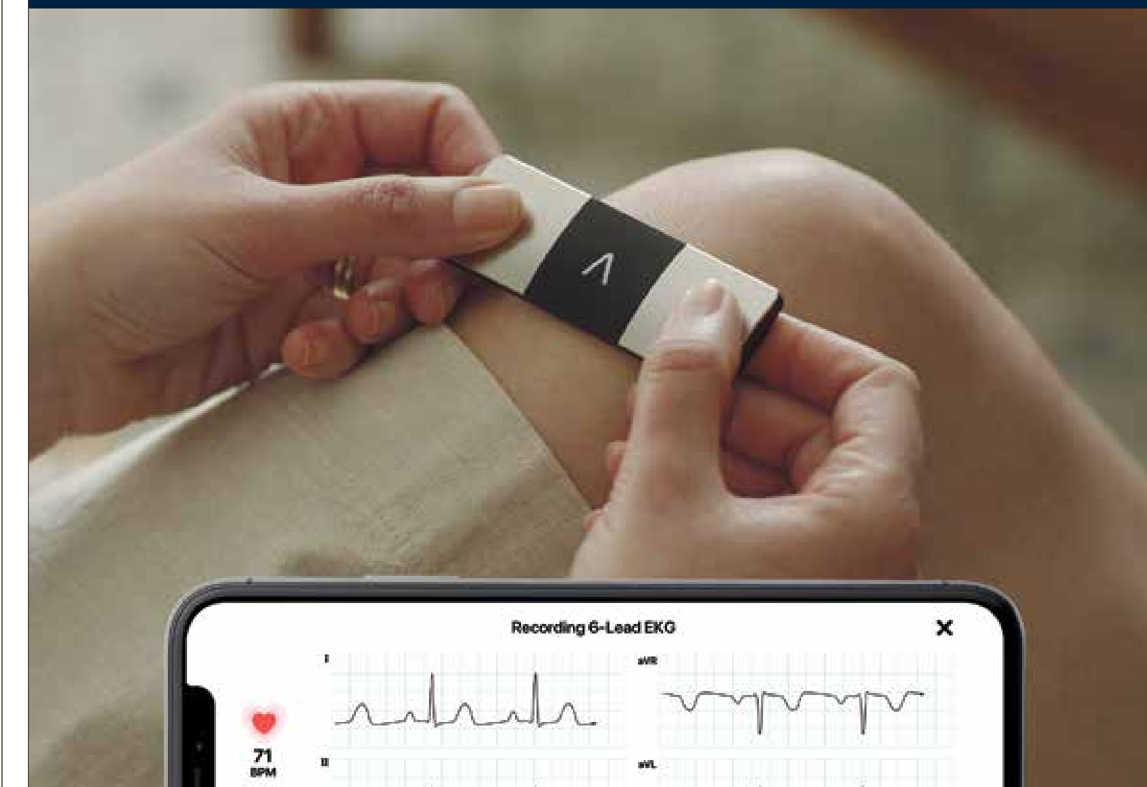

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MENTAL HEALTH

COVID and the cost to children's mental health

With the coronavirus forcing countries into lockdown and schools to close, children in particular have been impacted as their lives are disrupted

Rose Stokes

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Before the UK went into lockdown in March 2020 to curb the rapid spread of the coronavirus, Ben* (*name changed to protect the individual's identity) was an outgoing 14 year old who did well at school, played sports regularly, had a good social network and supportive parents.

Apart from struggling to cope with losing his two grandparents a couple of years before, Ben had never suffered emotional difficulties to any serious degree. A few months into the pandemic, though, separated from school and his friends, he started to become withdrawn. He stopped taking showers, became more and more reclusive, and his mum Katrina* noticed his mental health was in steep decline.

By September, Katrina suspected Ben had begun to self-harm, after finding broken glass and bloodied clothes in the top of his wardrobe. Things worsened and, despite her best efforts and attempts to get Ben the urgent mental health care he needed, in February the situation reached a crisis point. Ben was experiencing crippling panic attacks that stopped him from being able to do schoolwork. He eventually confided in his mother that he'd had suicidal thoughts, something he had never experienced before. "What could be more terrifying to hear as a mother?" Katrina asks.

Across the world, the coronavirus pandemic has hit mental health hard, the effects of which have been discussed to varying degrees in the global media and by institutions such as the World Health Organization. However, in many of these conversations, the impact on children has been notably absent. In the UK, a report into the impact of the first lockdown from mental health charity Mind found "more than half of adults and over two thirds of young people said their mental health has got worse during the period of lockdown restrictions".

According to Tom Madders, director of campaigns at YoungMinds, the impact on children has been especially grave over the most recent lockdown period. "In a recent survey we carried out with young people, 75 per cent told us they have found the recent lockdown harder to cope with than the previous ones," he says. "Many have told us they have struggled with social isolation, a loss of routine and the pressures of home schooling. Some are deeply anxious, have started self-harming again, are having panic attacks or are losing motivation and hope for the future."

Research published in *The Lancet* in January corroborates YoungMind's findings, with data showing an increase in incidence of mental health problems in children under 16, particularly among girls and young women. One of the report's authors, Dr Tamsin Ford, professor of child psychiatry at the University of Cambridge, says this is especially the case for children in underprivileged environments.

"The risk is hitting those who are already most vulnerable hardest," she explains. "We're seeing a divergence between the affluent and less privileged. It's one thing to sit in your house with a decent wifi connection when everyone has their own laptop, but it's not the same as living in a small house with no outside space, locked at home every day while your parents have to go to work."

> We so often see that unless these problems are effectively treated, the children will go on to struggle later in life

It's a trend that has seen referrals to Dandelion Time, a charity specialising in helping children and their families cope with mental health issues, skyrocket since the beginning of lockdown. The charity's founder and a former GP Dr Caroline Jessel says referrals have doubled since the first lockdown. "In addition to this and perhaps more concerning," she says, "is that the cases presenting are more serious, meaning our own referrals to safeguarding, when we think there's a real risk to the child's safety, have tripled."

Ford agrees, noting that research shows people are presenting later and with more serious issues owing to the pandemic. According to Jessel, the long-term risks for these children are huge. "We so often see that unless these problems are effectively treated, the children will go on to struggle later in life, perhaps passing their trauma onto their own children," she says. "It creates a cycle."

Lockdowns have also interfered with children's access to care. Dandelion Time's novel approach aims to break the trauma cycle by reconnecting children with the natural world. Their ability to do this has been compromised during lockdown. "We have been able to continue working, but there have been times when we haven't been able to see the families," Jessel explains. "Contact has been more sporadic or been interrupted if staff or children may have to isolate. It's been extremely difficult."

The government's recent announcement of £79 million in funding for the care of children and young people who need mental health support is reassuring. "The NHS has stepped up its support for children throughout the pandemic, including introducing a 24/7 crisis support line, face-to-face, telephone and digital appointments," says Professor Prathiba Chitsabesan, NHS England associate national clinical director for children and young people's mental health.

"I would encourage anyone worried about themselves or a young person to talk to their GP, health worker or a teacher at school and if you are facing a mental health crisis, please call your local 24/7 NHS all-age mental health helpline."

A combination of going back to school and some medical intervention is helping Ben to feel more positive, but Katrina is adamant that none of this would have happened if it weren't for the pandemic. "If he'd been going to school and maintaining relationships outside the house, I am certain we wouldn't be in this position," she says. Katrina believes Ben's anguish has been compounded by long waiting times for medical care. "Twelve weeks might sound like a short time, but when you're a child suffering with depression or a parent trying to keep your child alive, it feels like an eternity."

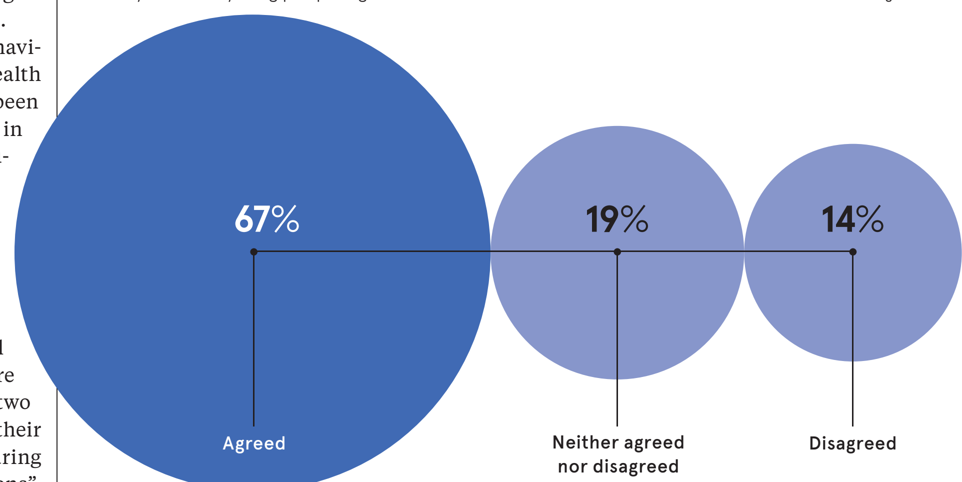
Ford is quick to reassure that with adequate support, most youngsters will be OK. "We shouldn't forget how resilient people are," she says, although she adds that teachers and primary carers will need a lot of support to help them navigate the period of re-establishing routines as the world begins to open up again.

"It's pushed our family to its limits; we need more support," says Katrina. "After what we've experienced, it makes you wonder how many other children and their parents are in this position."

YOUNG PEOPLE BELIEVE THE PANDEMIC WILL HAVE A LONG-TERM IMPACT ON THEIR MENTAL HEALTH

A survey of 2,500 young people aged 13–25

YoungMinds 2021



OPINION

> 'Through technology we will see a more personalised, empathetic approach that will enable better care for all'

For the past 2,400 years, since the time of Hippocrates, healthcare has been about balancing the science of medicine and the art of medicine. Where the art can be understood as the empathy expressed from a caregiver to a patient, the science can be seen in the innovations driving extraordinary breakthroughs in patient care, helping to save many millions of lives over the past century. As we look forward to the next 100 years, we will see the growing power of science allowing more time to focus on empathy.

From pioneering heart treatments in the 1950s, to recent breakthroughs in face and uterus transplant surgery, those at the forefront of medical innovation have often looked to technology. Empathy should be at the core of that drive to innovate, as we look to help patients with the most complex medical needs, ensuring science and art work together to provide the best care.

Some of these innovations in care are aided by specific tools, the use of robots in surgery for example. However, there is a much wider role that technology can play in safety, quality and clinical transparency, enabling the collection of data to help guide and determine the most appropriate course of treatment.

Hospitals have long been paper based, with inevitable delays in getting clinical information to frontline caregivers. Electronic medical records (EMRs), combined with devices and apps, allow medics to access test results and other clinical information in real time at the bedside. This increases clinical quality and puts the patient at the centre of decision-making.

Integrated technological developments like EMR free up caregivers from the burden of data collection and allow them to be the person that interprets the data and counsels the patient directly. Through this we will see a more personalised, empathetic approach that will enable better care for all. And by training future doctors and nurses with these cutting-edge tools, alongside the crucial focus on empathy, we can expand the skills of clinical teams of the future to deliver better care.

This move to digital is also hugely convenient for patients, who have instant access to their medical data via an app. People have become used to technology-enabled, transparent customer service in their daily activities and they expect the same of their medical experiences. Patient apps can give access to test results, prescription refills, follow-up appointments, payment and medical information.

Some may worry that technology will be used to replace doctors, but it can do the opposite. Technology can move patients and doctors to where they need to be quicker; it's an enabler, not a barrier. Technology can also greatly improve safety. A unit-dose pharmacy robot, for example, individually wraps and tracks medication by barcode to the patient's bedside, reducing the potential for human error.

Another area where technology can be hugely beneficial to both patients and caregivers is virtual medicine. Offering virtual consultations with world-leading specialists in London, for example, opens healthcare services up to a global audience. Of course, there's a limit to the virtual approach when it comes to treatment, but combining an initial virtual appointment with a global hospital network and the instant access to electronic records offers incredible flexibility for the patient.

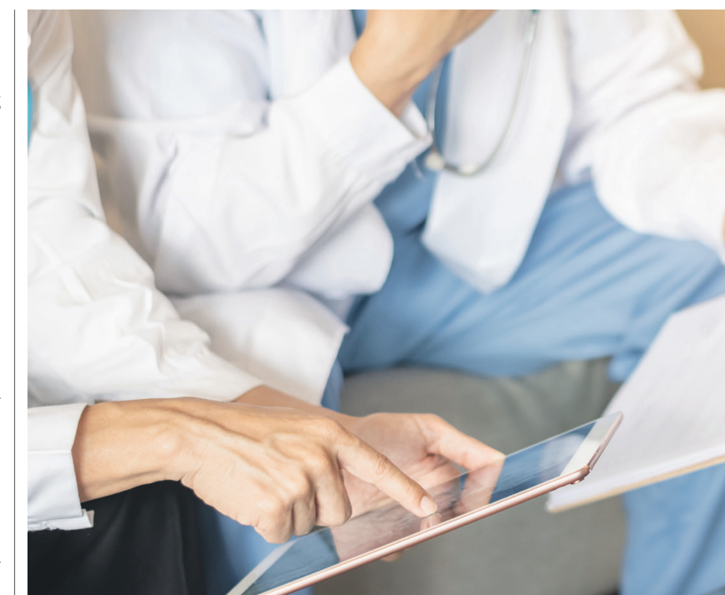
In many ways the future of healthcare will see a return to the strengths of the older versions of medicine, with providers attending to patients in their homes, albeit virtually, and following them throughout their lives. This will enable personalised and equitable care, while always being there for the individual at their time of greatest need for empathy.

Brian Donley
Chief executive,
Cleveland Clinic London

Commercial feature

Redefining the pharma and healthcare system relationship

Coronavirus has shown the vital role of life-science companies in public health, but their relationship with health systems must now evolve further to focus more on value and patient outcomes



Life-science organisations have taken tentative steps to beyond-the-pill initiatives over the last decade, supporting health systems on wider patient management issues such as improving disease awareness and education, and enabling diagnosis, adherence and homecare services.

Realising long-term conditions require holistic care, companies with products in primary and specialty care, such as diabetes and multiple sclerosis, have shown greater appetite and are also ahead of the digital health curve for complementing traditional therapeutic intervention, facilitated by positive policy initiatives by healthcare systems.

However, with these efforts predominantly amounting to ad hoc point solutions that aren't grounded in broader goals, life-science companies have still been viewed as suppliers of drugs, rather than true partners in the healthcare system. Trust has proved a major barrier, with pharma struggling to shake off a perception of being more concerned with commercial gain than patient care. If pharma was to ever bring anything more to the table than drugs, it was clear something disruptive was needed to break barriers and facilitate more collaboration.

Coronavirus may just be that disruptor. Not only has pharma played a central, and very visible, role in the vaccine race, improving its reputation among the population at large, but the pandemic has also forced healthcare to transform. The need for remote care accelerated discussions around care pathway support and led to collaborative campaigns to reach shielding chronic disease patients, for instance, and encourage screening for cancer and other diseases. The shift in priorities has benefited not only life science organisations, but also medtech companies, which had struggled equally to align across the whole value chain.

"The pandemic broke down barriers to digital health adoption by creating an immediate need to replace in-person visits and ease access to caregivers in both a safe and effective manner," says Santanu Das, managing director in the life-sciences business at Huron, focusing on helping life-science organisations transform the product life cycle process to improve outcomes. "Providers adopted a range of technologies overnight, from telehealth and remote monitoring to patient engagement solutions, and pharma and medtech companies alike now have a golden opportunity to extend momentum and redefine the default care models.

"Health systems are likely to always face cost pressures, but investment is crucial to continuing to improve precision and understanding of human biology. These investments allow for more targeted and proactive interventions, and can further digital-technology advancements as an enabler of a more holistic view of health. Where patients are empowered to better influence their health outcomes through a combination of lifestyle, wellbeing, risk management and medicines."

Digital technologies have long held the promise of supporting seamless care across the health continuum by reducing care variation, shifting care to post-acute and home settings, and improving chronic disease management. The end-goal is value-based, consumer-centric care models that help lower costs and alleviate budget pressures. But this has yet to be fully realised due to buyer ambiguity in how to assess the value of digital products, too many disparate solutions and a lack of a comparative framework or defined commercial models.

Pharma can drive much-needed collaboration with health systems, but life-science firms must first change themselves. That means moving from just incentivising on price and market share, to incentivising improvement in patient outcomes in the real world and helping healthcare systems evolve for the 21st century. This cannot be done in isolation, but requires a concerted effort between pharma and health systems to drive patient outcomes and optimise value.

"Life-sciences organisations need to set themselves up for a healthcare system based on value-driven collaborations," says Das, "repositioning partnerships as a key new differentiator."

> Life-sciences organisations need to set themselves up for a healthcare system based on value-driven collaborations

Connect with a Huron expert to learn more; please visit www.huronconsultinggroup.com/company/experts/employees/santanu-das

WORKPLACES

Why occupational health is now a top priority

Ethics aside, supporting the physical and mental health of employees creates a win-win scenario in the post-pandemic workplace, but there are challenges to providing better support

Oliver Pickup

The coronavirus crisis has squeezed the life out of so much we previously took for granted, at home and at work. Things have changed, irreversibly. Many people express both a heightened appreciation of life and respect for mortality. But how does this translate to occupational health?

As organisations begin to coax their employees back to the workplace, the expectation that employers should support the mental and physical health of staff, particularly in a workplace setting, has been dialled up in the past year.

To instil confidence in employees that a return to work is safe, many companies provide COVID-19 rapid lateral flow tests, promise better ventilation, rigorous cleaning programmes and gallons of hand sanitiser. But is it enough? Should businesses take more accountability for their workers' health?

According to employee benefits provider Unum's Value of Help study, published in December, 86 per cent of UK employers have changed their approach to staff health and wellbeing because of the coronavirus situation.

Moreover, 95 per cent of the 350 employers surveyed revealed the pandemic has "impacted their need to make employees feel more protected", says Glenn Thompson, chief distribution officer at Unum UK. "Whether it is from individuals, communities or organisations, 2020 has brought the value of help and support to the front of all our minds," he adds.

Dr Robin Hart, co-founder of Companion, which offers mental health support tools, is pleased organisations are showing a greater willingness to look after staff. "A lack of focus in this area historically has seen an increase in lost revenue and diminished productivity," he says. "Attitudes have had to change in a very reactive way due to the pandemic. In reality, it's accelerated a process that would have played out anyway, eventually."

Besides, supporting staff health and wellbeing creates a win-win scenario. Health and Safety Executive (HSE) data shows that in the 12 months to March 2020, when the first lockdown came into force, approximately 828,000 workers, the equivalent of 2,440 per 100,000 people, were affected by work-related stress, depression or anxiety. This absenteeism resulted in an estimated 17.9 million working days lost. In the previous year, the cost of workplace injury and ill health was calculated by HSE at £16.2 billion.

"Nobody's health should be worse at the end of a shift than it was at the start," says Dr Craig Jackson, professor of occupational health psychology at Birmingham City University. "If it is poorer, then there is something morally, ethically and legally wrong in that workplace."

He believes there is a newfound respect for occupational health departments. "The excellent, proactive work undertaken by many professionals in preparing COVID-secure workplaces – assessing staff return to workplaces, COVID screening, testing, tracking and tracing – will lead to people realising occupational health is not just somewhere to go to when you are ill and unable to work," he says.

> Not only is there a strong moral case for employers to look after staff health, it makes good business sense too

Jackson acknowledges "supporting staff better than before does involve additional time and costs", but argues such spending is a good investment. This is backed by research from Deloitte, published last year, that estimates for every £1 spent by employers on mental health interventions, they gain £5 back in business value.

"Not only is there a strong moral case for employers to look after staff health, but it makes good business sense, too," agrees Oliver Harrison, chief executive of Koa Health, provider of mental health programmes. "Healthy workplaces attract the best talent. They also avoid the negative impact of illness on productivity, measured in staff turnover, absenteeism and presenteeism."

From a legal standpoint, organisations have a statutory obligation to protect their staff from physical and mental harm. However, Elena Cooper, employment consultant at Discreet Law, reports that "a large number of employees are taking advantage of what they perceive to be their employer's duties around mental health".

She asks: "We know a caring and supportive employer is a good employer, but where do you draw the line between being a profit-making entity and a nanny state?" With the prospect of businesses having to afford time off to long-COVID sufferers in the coming months, if not years, it's a pertinent question.

Ethical and legal debates aside, organisations face other pressing challenges to improve staff wellbeing. "One of the greatest barriers is ensuring healthcare support tends to the needs of all who work within a company," says Bob Andrews, chief executive of private medical cover provider Benenden Health.

"There is often a disconnect between what employees want to see from a health and wellbeing programme and what businesses offer. Also employees are not the same and therefore a one-size-fits-all approach is outdated and ineffective." He advises using a range of tools, including mental health apps, as well as low-cost human management.

Luke Bullen, chief executive in the UK and Ireland at Gympass, which seeks to improve wellbeing through exercise classes, spots another issue. "One of the major challenges for a post-pandemic workforce is going to be the hybrid workplace," he says. "How do employees ensure their wellbeing strategy works just as well for those working at their tables as those working in the office?" Empowering staff to "tailor the wellbeing offering" is critical, he suggests.

Spurred by events of the past 12 months, occupational health will surge in importance in the coming years. "By 2025 I expect it to be available anywhere, anytime, thanks to digital advancement," predicts Paul Shawcross, clinical lead of occupational health services at physiotherapy provider Connect Health. His company employs an artificial intelligence-chatbot as a method of referral that "triages the patient to the right support for them, 24 hours a day, seven days a week".

Whether it is bot therapists, wellbeing apps or human professionals, employers need to prioritise occupational health in the post-pandemic workplace. Support, of any kind, is what staff truly want and need right now. ●

17.9m

Working days lost due to work-related stress, depression or anxiety in the year to March 2020

£16.2bn

cost of workplace injury and ill health in the year to March 2019

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