Daeschner Consulting

WHAT'S NEXT IN DIGITAL HEALTHCARE TRANSFORMATION POST COVID-19?

FORWARD

'NECESSITY IS THE MOTHER OF INVENTION'

March 23rd, 2020 will go down in history as a pivotal moment for many reasons not least of all its impact on healthcare provision. As specialists in digital health and wellbeing, Daeschner Consulting wanted to better understand what this event means for the different stakeholder groups involved in healthcare provision in the UK today. We know that COVID-19 revealed some fundamental flaws in policy including;

• Lack of NHS capacity which necessitated a halt in all non-life-threatening elective surgeries to minimise pressure.
• Lack of pandemic preparedness for testing and PPE supply chain provision.
• Total lack of focus on social care planning.
• Skilled worker shortage and the urgent need to recall people out of retirement.
• The role of central government vs regional and local groups and the effective sharing of information and data.
• The inertia of the governments track and trace strategy despite the many examples that exist in Europe and Asia.

And the list goes on, but it wasn't all bad, COVID-19 did highlight what can be achieved when healthcare providers pull in the same direction to thwart a common enemy and protect the health and wellbeing of the nation. The system was not overwhelmed at the peak, patients did not have to line hallways or sit in reception areas due to lack of beds.

There has been a dramatic increase in the use of digital platforms to facilitate remote communication, and the collaboration of private and public sector organisations to solve many of the problems highlighted above. As we make the first tentative steps to unlocking the economy, the freedom of individuals and to help analyse how COVID-19 has impacted digital healthcare transformation, in May the team interviewed and surveyed over 150 senior executives, consultants and digital-tech leaders operating in public and private sector healthcare to assess:

1. What has changed?
2. What are the priorities moving forward?
3. What have we learned from this catastrophic event?

This report highlights what we found out and outlines a set of thoughts for debate regarding what needs to happen in order to capitalise on our learnings from the last three months.

Mindy Daeschner
Managing Partner

THE TRANSFORMATION AGENDA

Unlike retail, travel, and the finance sectors, healthcare's rate of adoption of new technology has been glacial. There are many reasons given, but the politicisation of the NHS by all political persuasions has impeded the transformation agenda. Feast and famine funding, a fundamental lack of skills and expertise, problems of data integration and data silos have all hindered progress.

Even before the ticking bomb of COVID-19 came along, the pressure building on the NHS was colossal, our aging population, obesity epidemic and run over primary care system were all converging in a perfect storm to undermine the effective delivery of healthcare in the UK. Following discussions with several healthcare specialists we asked survey participants how they would prioritise the transformation agenda.

DATA DRIVEN WORLD

Unsurprisingly the increased adoption of data and analytics to improve patient outcomes came out just ahead of everything else as a priority with 30% putting this at the top of the agenda.
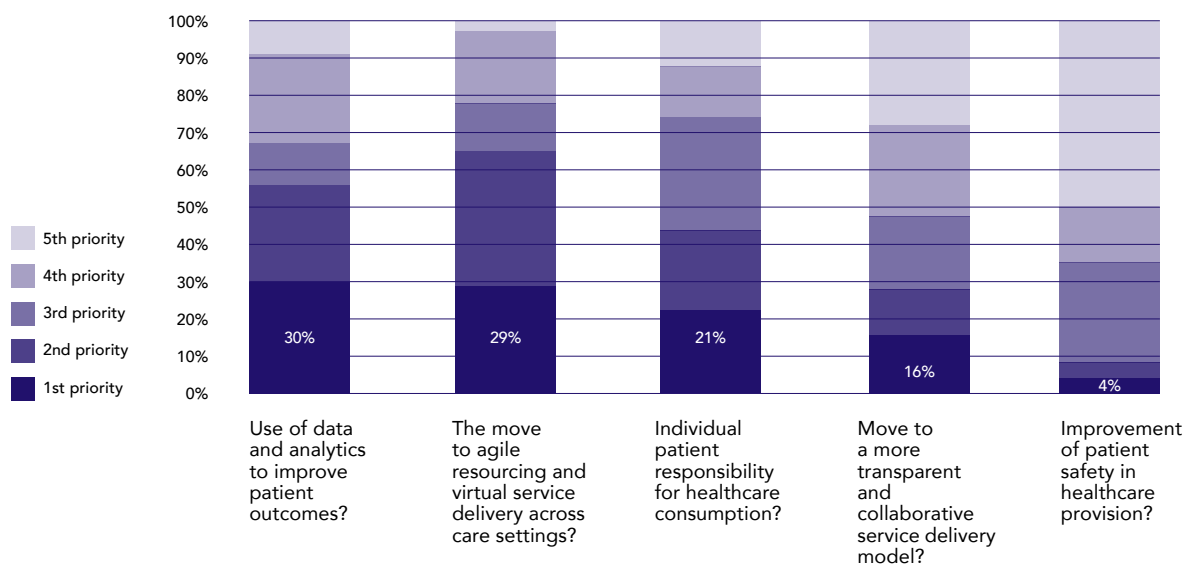
Probably this area more than any other is a focus of growth within the health tech sector. The application of revolutionary new applications which have the capability to process vast quantities of data instantly is here to stay. The rapidity with which the global scientific community is learning about COVID-19, its epidemiology, infection rates, etc… and investigating the effectiveness of new vaccines and treatments is all testament to our ability and preparedness to share and analyse data at record speed. However, our more localised use of data across the NHS itself as it strove

to plan for the pandemic and its onset was not all it could have been.

Government pandemic planning originally highlighted the potential for up to 500,000 deaths, and the advent of the Nightingale hospitals which were never really used. This was revised down three times during the pandemic.

Commenting on the importance of accurate data, Sir Jim Mackey, Chief Executive of Northumbria Healthcare NHS Foundation Trust, said *"Thankfully, in Northumbria, we have not had the terrible predicted COVID-19 surge. We have 900 bed capacity and we currently (May 2020) have c.20 COVID-19 positive in-patients. In total we've had 180 deaths. That is, clearly a huge relief but we now have anxious staff who want to start re-opening access, dealing with the backlogs, and getting busy again.*

WHAT ARE THE BIGGEST HEALTHCARE TRANSFORMATION CHALLENGES MOVING FORWARD?*

Legend:
- 5th priority
- 4th priority
- 3rd priority
- 2nd priority
- 1st priority

Categories:
- Use of data and analytics to improve patient outcomes? — 30%
- The move to agile resourcing and virtual service delivery across care settings? — 29%
- Individual patient responsibility for healthcare consumption? — 21%
- Move to a more transparent and collaborative service delivery model? — 16%
- Improvement of patient safety in healthcare provision? — 4%

Throughout the pandemic there has been a real problem with the quality and access to data collated at the centre. Teams have had to resort to ringing colleagues in other regional Trusts. These networks and intelligence were invaluable but we should be able to rely on proper data flows and exchange."

Another example of poor inaccurate data was the shielding list which was inaccurate with many people on them that shouldn't be and others that should be.

The Daeschner Consulting team spoke to one patient suffering from chronic allergic asthma who was not on the list and had mistakenly thought she was not in the high-risk group because she hadn't received a letter. The criteria referred to prescribed use of steroids and admissions – neither were applicable to her. Because of the seriousness of her condition, she

*Source: Daeschner Consulting

is prescribed a biologic treatment and is now well managed. The patient, who receives nurse administered injections monthly, was subsequently told that she definitely should have been on the list was mistakenly left off. Not before she had been out shopping post lock-down which could have placed her in serious danger.

THE VIRTUAL WORLD

A close second in the priority list was the move to an agile resourcing and virtual service delivery across care settings. Pre-Covid the Conservative government had already committed £45m to helping drive primary cares' adoption of digital services by supporting GP surgeries implement online consultation programmes and piloting virtual services, with Babylon's controversial video GP consulting services (GP at Hand) already making an impact. Covid-19 has served to

accelerate this adoption and it's hard to believe that primary care will ever go back to more singular ways of working with place-based, in-person only consultations.

Virtual services have rocketed to the forefront of many patient's minds, with over 99% of practices using remote consults either telephone and / or video in comparison to 1% pre-COVID-19 using video. The number of suppliers of services has also grown which should lead to increased competition, quality of service and value for money for patients.

One such supplier is iPlato, developers of myGP®, which provides a range of services including; online consulting, booking and messaging and now has over 3000 practices registered, *"Lock-down was a bit like a Dunkirk moment when anybody with a solution that could support the NHS showed up*

"For me the real question is what happens with investment post COVID-19 when we are in recession." – Tobias Alpsten, CEO iPlato

but the path to commercialisation of the technology is far from clear' said Tobias Alpsten, CEO. *"For me the real question is what happens with investment post COVID-19 when we are in recession. We need partnership from the NHS in order to continue in improve our services for doctors and patients.*

For those thinking this is just a fad, think again, although the worse maybe over, COVID-19 is here to stay and despite a move back to socially distanced normality for most, those more elderly constituents and for those practicing shielding who may not survive being infected by COVID-19, virtual consultations could become the norm.

The advent of virtual / remote GP or consultant consultations also necessitates a new agile working model which allows healthcare professionals to work from multiple locations, at a variety of times which suit their lifestyle and for multiple employers and into retirement if they choose. This may help solve some issues, but it highlights other issues for example the way in which primary funding is allocated which has already reared its head when some patients choose to move to largely virtual services.
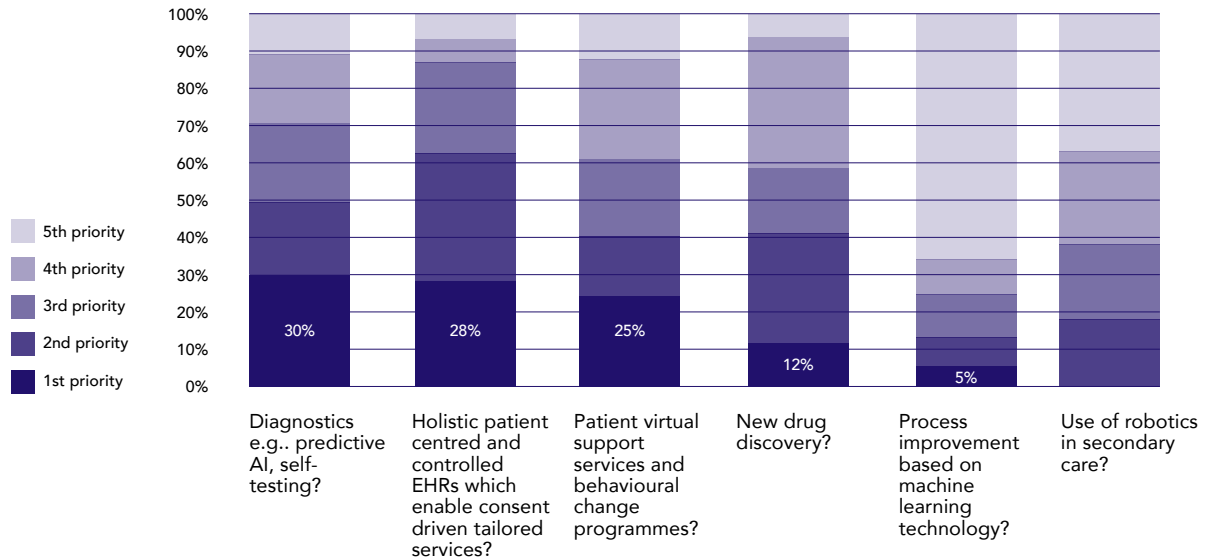
CARING COLLABORATION

Third in the line-up was the move to a more transparent and collaborative service delivery model. Commenting on the provider collaboration during the pandemic, David Hare, CEO of the Independent Healthcare Providers Network said, *"In the main the collaboration with the NHS has been brilliant. The crisis forced us all to work in different ways. The fact that we had a deal complete within six days that required massive changes to contracts,* *legal and funding, just shows what can be done when there is focus and the will to get it done."*

Although there is much political debate about private and public investment the real debate is how primary, secondary and social care work better together for the improvement of patient outcomes. It is also how does the NHS work effectively with private organisations who bring deep expertise, products and services that the NHS cannot effectively offer on its own. Despite huge investments the NHS has singularly failed to compete with private enterprises when it comes to the delivery of technology, resulting in lost investment which could have been more effectively allocated to other pressing areas of need based on the savings made through the purchase of proven technology solutions which solve problems and enhance services from the start.

HOW WOULD YOU PRIORITISE THE AREAS OF FOCUS FOR DIGITAL INNOVATIONS?*

Legend:
- 5th priority
- 4th priority
- 3rd priority
- 2nd priority
- 1st priority

Chart categories and 1st priority values:
- Diagnostics e.g.. predictive AI, self-testing? — 30%
- Holistic patient centred and controlled EHRs which enable consent driven tailored services? — 28%
- Patient virtual support services and behavioural change programmes? — 25%
- New drug discovery? — 12%
- Process improvement based on machine learning technology? — 5%
- Use of robotics in secondary care?

The global digital health market is set to exceed $504 billion by 2025. Success in this area will benefit everyone, so let's champion it and get ready for some disruption.

– Global Market Insights Inc

*Source: Daeschner Consulting

PATIENT CENTRED CARE

With few exceptions the patient is at the heart of the transformation agenda.

Early intervention, improved support and management, drives the agendas of providers, clinicians and governments but there is also an increasing swing towards the provision of better preventative behavioural change programmes and initiatives which will ease the public health burden and encourages our aging population to live healthier lives. There is already much debate about the need for individuals to take increased personal responsibility for their health and wellbeing at a time when investment is finite.

This is a debate which will undoubtedly continue for many years. It's a prickly issue and may not be as simple as just eating healthier diets but the need to consider more deep seated health inequalities in our society – but the momentum is starting and closer scrutiny of lifestyle behaviours looks set to become the norm and is reflected in the transformation agenda.

A HEALTH-TECH FUTURE

Recognition of the need for transformation is absolute – without exception the world is moving to a digital health driven future.

This has to happen for society to be able to afford healthcare provision for its citizens moving forward and this is not a first world challenge, it's also a core focus for the emerging markets. China, India and Africa are all leap-frogging the West as they move directly to digital-first healthcare systems.

"The pandemic has exposed our 'unhealthy' shortcomings. But what the pandemic has shown us is how we can make healthcare go further."

– Ali Parsa, Founder and CEO of Babylon Health

The sheer size of these populations and geographies mean, in-person consultations are often impossible and remote diagnostics, consultations and advice imperative. Lack of existing infrastructure and entrenched bureaucratic healthcare provision enables governments to accelerate the delivery of these services in emerging markets because there is no need to overcome the challenges of integrating with legacy technologies.

Although it is impossible to eliminate in-person consultation completely there are a host of opportunities to better triage, prescribe and support patients virtually. The research highlights those technological areas which participants ranked as being the most significant in accelerating the transformation agenda.
The list of technologies which are likely to shape the future of healthcare provision are to some degree interdependent e.g. inaccurate data means increased risks in decision making and poorer outcomes. The group that was surveyed prioritised data and analytics at the top of the transformation agenda, so it's no surprise to see diagnostics tools offering predicative analytics at the top of the list of digital technologies for use in clinical and operational provision. We are already seeing new technologies piloted in breast cancer screening, skin cancer screening, kidney disease and genomics, all areas where early detection can help prevent premature death - but this is just the beginning. This area of digital health is burgeoning, there are 100's of new technology start-ups focussed on using large scale data to identify and highlight patients who maybe at particularly high risk of developing a condition. It is also being used to improve operational and management to solve problems in real-time, versus retrospectively. The use of truly artificial intelligence to fully diagnose conditions is not here yet but have no doubt it is coming!

Ali Parsa, Founder and CEO of Babylon Health, is someone that firmly has his sights on digital healthcare transformation and believes that despite its horror, COVID-19 represents a great opportunity for change. *"The pandemic has exposed our 'unhealthy' shortcomings. But what the pandemic has shown us is how we can make healthcare go further. New technologies, seminal advances in medicine and a radical worldwide awareness due to COVID-19. We are witnessing an inflection point. We truly believe that AI, big data and wearable tech can transform healthcare and enable each doctor to care for vastly greater numbers of people. New discoveries in quantum computing, AI, mixed reality, robotics, organ reconstruction, genetic*

Greater collaboration between providers, tech companies and life-sciences businesses could greatly improve this situation.

engineering and synthetic biology will help us shape new possibilities that we would not even have imagined."

His passion for what is coming is clear. *"In 10 years' time we will have automated so much - your wearable tech will not only be prompting you to change your diet, or do more exercise, but it will be monitoring you and letting you know when you're becoming ill even before you realise yourself. AI will spot the alert and know whether to tell you to change your behaviour or see a doctor. The doctor will have all your information at their fingertips, and the AI will have given advice and reminders about the likely cause and potential rare cases. The system will monitor how well you do with treatment, alerting your doctor if there are any problems, help manage you back to full health - and continue working to keep you that way. That will be truly personalised medicine and support which is affordable for all."*

The population at large is already starting to re-align to using self-testing and measurement of blood pressure, heart rate, non-invasive blood glucose monitoring and a plethora of mental health app's which seek to take a more holistic approach to a person's overall wellbeing.

Again COVID-19 has pump primed the wellbeing market in ways we couldn't have imagined previously. As the population locked-down, more people have had time to invest in their personal wellbeing giving a welcome boost to those wanting greater focus on healthy living.

As the general population collect and analyse their own personal health information, the next big area for digital transformation is electronic patient health records (EHR) – you may think we already have this my GP has told me I can access my personal

health record. Not true - if you are over the age of 25 most of your practice record is still paper based, even more importantly primary and secondary care have totally separate health records for patients. The argument for 'owning' your own complete patient record is gaining ground and the person with the biggest vested interest is the patient themselves. Imagine a scenario where your 'mobile phone' is updated directly by the physician as you leave your consultation, whether that is the primary care or secondary care practitioner, along with all your blood tests, x-rays etc.. Once you store all this information in your own secure app, you can 'choose' to share access to your record with your pharmacist, another third party doctor or a research organisation looking to accelerate treatments for a condition you suffer from. Personal EHRs could be the catalyst to huge change moving forward and will break down the silos

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– Hassan Chaudhury, Digital Health Lead at Healthcare UK, part of the Department of International Trade (DIT) and co-founder of the TECH4CV19 community

that currently impede physicians accessing the absolute latest information on a given patient.

Beyond diagnosis and treatment there is also the whole area of patient disease management, technology has the potential to make managing conditions much easier to monitor and manage. There are 1,000s of disease management programmes available - many low-to-no cost to the patient but there is still a lack of engagement and access to these programmes. Greater collaboration between providers, tech companies and life-sciences businesses could greatly improve this situation.

Commenting on the impact of COVID-19, Hassan Chaudhury, Digital Health Lead, at Healthcare UK, part of the Department of International Trade (DIT) and also co-founder of the TECH4CV19 community

said; *"COVID-19 certainly appeared to create a sense of panic, which led to many of the 'blockers' in the system saying 'yes' to the adoption of virtual consulting services. On the surface this may seem like an obvious positive but I think it disguises a lot of fundamental transformation challenges which are yet to be addressed. I work inside the system and feelings in the supplier community are strong, I am constantly asked searching questions about 'the centre' and there appears to be a lack of clarity around the roles and responsibilities of NHSI/E, NHS Digital and NHSX especially from firms looking to invest in the UK. Who should suppliers go to, when and what for? Does the centre want to engage homegrown SMEs or are they always going to pick the bigger, often foreign players? Troublingly, at the height of the pandemic response in late March, many innovators and suppliers believe to this day, rightly or wrongly, that there was*

a lack of capacity to sift through the many offers of help which inevitably resulted in missed opportunities for them and I have my work cut-out to explain otherwise."

THE POWER OF AI

AI is not a magic bullet, and it still relies on human ingenuity to deliver almost miraculous results, but it is becoming one of the most effective weapons in the healthcare professional's arsenal to help improve patient outcomes and at times prevent undesirable ones.

The term AI has become pervasive in everyday life, particularly when it comes to healthcare, yet it can mean very different things to different people. Artificial Intelligence allows machines to perform complex actions without humans having to specifically program those actions. In order to do this, the machine needs to apply learning algorithms to large amounts of data, a process called "training". When the training process is successful, the machine is able to use what it has learned on data that it has never seen before. A typical example we are all familiar with is that of assessing whether a patient may have cancer based purely on their CT or MRI scans.

Far less known, but powerful uses of AI, include classification of patients, symptoms, diseases or behaviours based on a number of measurements we call features. It is this aspect of AI that can deliver previously undiscovered relationships between cause and effects where pure human observation would have failed because of the vast complexity of the data.

AI is not a magic bullet, and it still relies on human ingenuity to deliver almost miraculous results, but it is becoming one of the most effective weapons in the healthcare professional's arsenal to help improve patient outcomes and at times prevent undesirable ones.

– Dr Alfonso Ferrandez, Founder, Indigo Labs

THRIVING OR SLOWING

WHAT ARE THE BIGGEST BARRIERS TO TRANSFORMATION FOR HEALTH CARE PROVIDERS?*
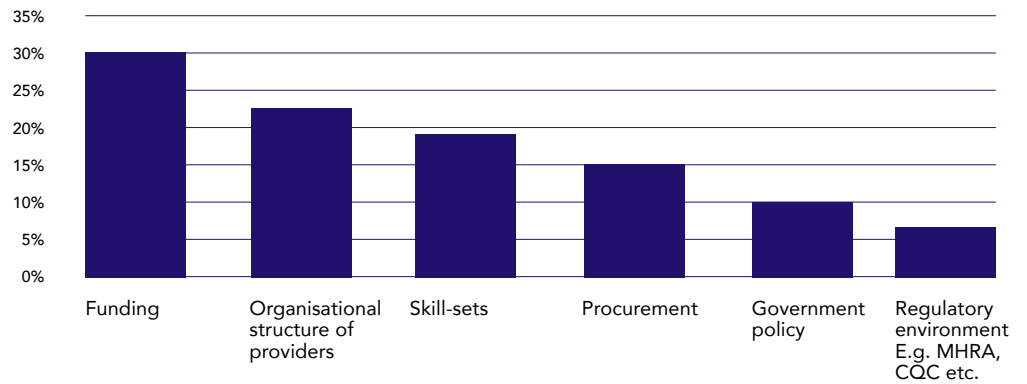
Making digital transformation a reality will not be straightforward but if there is one thing we have learnt from COVID-19, it's where there's a will there's way! The survey revealed that by far the largest barrier to success was funding but lifting the lid on funding is really only part of the problem, if we could become more efficient at prevention and management, accrued savings could be used to provide more cancer

	£bn	%
Curative care	109.6	54
Long term care	46.4	23
Medical goods	26.5	13
Preventative	10.3	5
Other	9.7	5
	202.5	100

Health expenditure represents 10% of GDP (at least £208 billion) which is up from 8% in 2000.

Source: BMJ Fig 2a.

*Source: Daeschner Consulting

drugs, additional doctors and nurses, and more scanners.

Understanding where the NHS currently invests its money is helpful (fig 2a) in understanding the system we have, but also how we may help shape the system we want for tomorrow and where technology could help play an increasingly important role to help us get there.

Although areas like curative care will always be significant – reducing surgeries through improved diagnostics and treatments could dramatically reduce costs and improve long term outcomes. Greater access and use of virtual disease and medication management programmes could again improve adherence and outcomes in long term care.

Speaking to Dr Tim Ringrose, CEO of Cognitant a health-tech start

up focussed on delivering better, more engaging health advice and support to patients via their mobile phones said, "*...despite the lock-down we are busier than we have ever been as physicians and medication manufacturers look for new ways to support patients virtually.*" Commenting on the barriers to transformation Parsa has strong views. "*Einstein used to say 'the definition of insanity is doing the same thing over and over again and expecting a different result.'*

I am going to be controversial here. The old methods of healthcare, with all their best intentions, have failed us and we cannot go back. Science and technology by themselves won't transform healthcare. What is required is a change in attitude. Healthcare has adapted faster than most thought possible to meet our needs for COVID-19. Only a few months ago, something

'We need to use technology to drive service change and improve efficiencies, costs and outcomes. We are only at the foothills of this and unfortunately we are not desperately well organised to achieve it.

– David Hare, CEO Independent Healthcare Providers Network

as mundane as telemedicine was considered 'a radical new technology'. Now, it's commonplace. A doctor behind a phone is as expensive, and as much in short supply, as one sitting in a clinic. We must focus on our needs, and not the means. It's not the technology that is the issue, it's how we apply it to solve the root cause of a problem.

Hopefully this will be the moment that healthcare systems decide that innovative technologies can be applied to assist with significant challenges such as management of chronic conditions, from diabetes to mental health. If healthcare systems can learn from the way we can now funnel care to the COVID-19 patients who need it most, whilst automating it where we can, to proactively think of new ways of harnessing technology to deliver care, it will reduce the pressure on clinicians so they can operate at the

top of their licenses and divert their attention to where it is most needed."

Considering transformation from the private provider perspective David Hare echoed some of these points.

"There really needs to be a cultural change of attitude. We have seen a big uptake in online consultations, but that is a different channel to the same service. For me, the real question is how do you change the service? We need to use technology to drive service change and improve efficiencies, costs and outcomes. We are only at the foothills of this and unfortunately we are not desperately well organised to achieve it. The NHS locally should be allowed to get on, it cannot be over complicated at the centre."

So, while funding is an issue, and technological change is starting to have an impact; skills shortages, poor

operational data reporting, policy and operational structures are also significant barriers which need to be overcome.

THE PATH FORWARD

The road ahead is unlikely to be smooth, but 95% of people that completed the survey believed that COVID-19 would drive changes in healthcare provision.

"COVID-19 has led to the adoption of a swathe of solutions but there appears to be serious concern and frustration from firms feeling left behind, not listened to and feeling they have nowhere to go because all the channels are gridlocked. Some of these firms point out they don't feel they have the connections, contacts and PR to make it, having focused instead on the fundamentals of a good track-record and evidence of impact and value. The frustration is palpable. It is not just the suppliers. Local NHS buyers of HealthTech solutions need guidance that agnostically evaluates the merits of the solutions on offer looking at economic impact, interoperability, safety records etc. At the moment, more and more of these buyers feel they have to rely on informal networks to generate recommendations.
The UK genuinely has some of the best digital health solutions in the world. I know this because my role at the DIT is to scout, engage and promote the very best. I know they are incredibly attractive to international providers, but we simply must make it easier for the best firms to secure widespread adoption in the NHS. My hope is that COVID 19 will lead to introspection

and, with that, positive change." said Chaudhury

Despite its horror and economic destruction COVID-19 has refocussed us on the fundamental nature of our healthcare provision but also the role that digital technology can play now and in the future.

As one survey participant put it. *"More virtual care at last and I hope that people will take more interest in their own health behaviours."* But it isn't just about individuals it is also about the system, *"It has changed the attitudes of healthcare professionals and will hopefully encourage the government to*
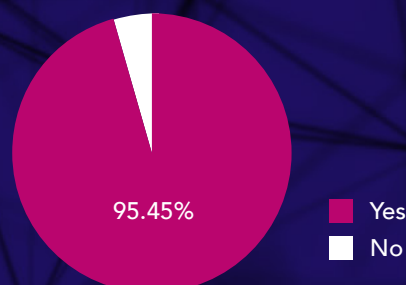
WILL COVID 19 DRIVE CHANGES IN HEALTHCARE PROVISION IN THE FUTURE?

95.45%   █ Yes
          ░ No

be more proactive in making effective changes for the future," was the sentiment shared by another.

Although there may be some variance around how participants would prioritise the transformation agenda, COVID-19 has certainly left its mark, virtual services are here to stay, arguably professionals and patients are less fearful of the changes and more positive about the benefits, but one thing is clear the appetite for change is growing. *'Necessity is the mother of invention'* and, the pre-COVID challenges are still here and the pressures on our precious healthcare system will only grow post-COVID.

To summarise with the words of one participant, *"The move to digital consultations has been hugely expedited. New relationships have been established, barriers to partnership have started to breakdown, both of which will drive reductions in bureaucracy."*

And hopefully lay the path forward for positive transformation!

FOOD FOR THOUGHT

Take this moment to trial new solutions to old problems and prepare to change in the process.

BE BRAVE

De-politicise healthcare, and the endless cycles of re-organisation of the internal market and take the long view.

HAVE FORTITUDE

The road ahead will be bumpy, but if health equals economic wealth, let's set a budget that is really forward looking: more on prevention, more on digital transformation and a move away from place-based funding so that money truly follows the patient.

BE TRANSPARENT

Technology gives us the opportunity to champion quality and provide transparency. Patients should be sharing and rating their experiences just as they do in every other area of life. Transparency will shine a light on quality and inferior quality of provision allowing change to take place.

ENGAGE AND COLLABORATE

Ensuring the NHS is free at the point of need is engrained in our culture but one size fits all rarely works and finding the right partnerships and commercial relationships to improve care quality is surely the most important thing. Let's move on from private vs public investment and focus on quality and outcome.

EMBRACE CHANGE AND INNOVATION

COVID-19 could have paralysed all communication and business, but it didn't primarily because people were forced to change how they worked. Innovation can improve the quality of our lives and healthcare provision – take this moment to trial new solutions to old problems and prepare to change in the process.

This report was produced by Daeschner Consulting.

Daeschner Consulting specialises in the area of digital transformation, health-tech start-up and scale-ups participating in the transformation of healthcare services and delivery today. We are passionate about exploring new ways of working, and bring a wealth of market experience and insight to helping solve business problems.

Mindy Daeschner is an acknowledged thought leader in the area and is regularly invited to speak at industry events about the future of telehealth and health tech in general.

The teams experience in the field of healthcare & technology is extensive. From working in leading global organisations, to entrepreneurial start-ups the team have actively worked with healthcare providers in both the private and public sectors and regularly advise at board level.

Whether you are fund raising or fully funded and focussed on scaling your operations, to find out more about how we could help develop, enhance or operationalise your commercial strategy and planning contact:

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