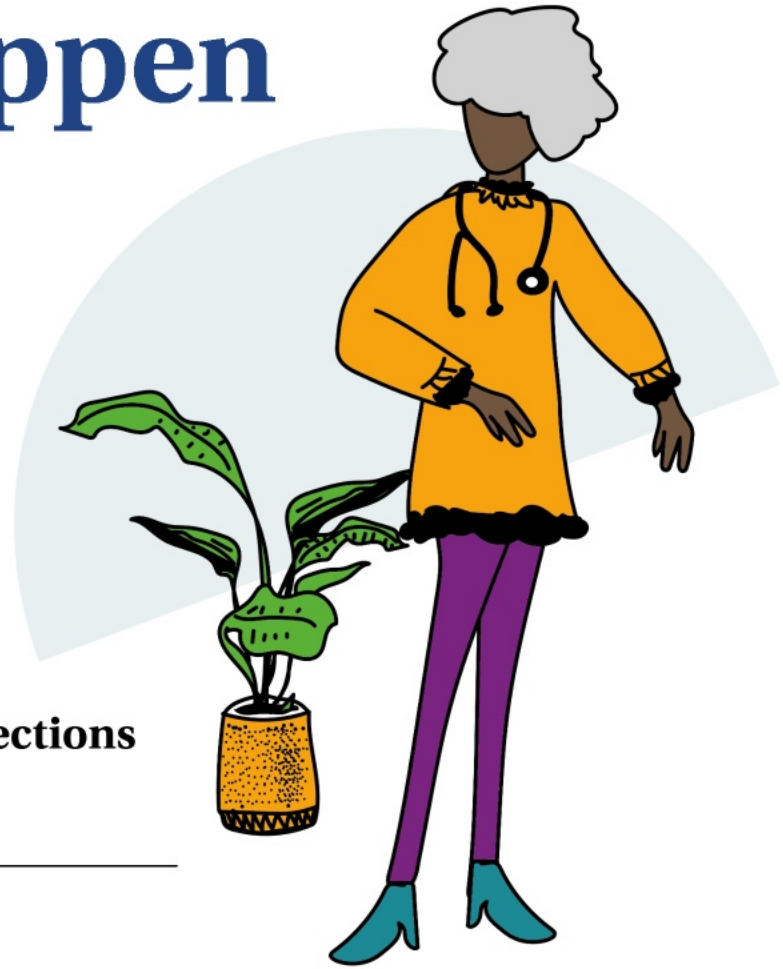
NAPC | National Association of Primary Care

No Better Time to Make Health Tech Happen



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A new era for health technology.

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The most significant pandemic of our time, no-one could have imagined the role that technology would come to play in caring for our communities.

In 2019, we launched the National Association of Primary Care (NAPC) Digital Programme. This was in anticipation that over time, the practice of many of us in the NHS would digitise and bring new technologies to our patients.

Back then, we couldn't have predicted the extent to which the pandemic would accelerate this transformation. Nor the extent to which the research and expertise of the NAPC would be called upon to help Primary Care adapt to a 'new normal' in patient care.

Not only did we see all of general practice and some hospital outpatient departments digitise, but to make this happen, we saw our patients and those around them pick up their smartphones and devices to help us to help them.

All over the NHS we saw the uptake of technologies. And for the first time in its history, many of the barriers to adopting technology were lifted.

Our concerns about taking the NAPC Digital Programme forward at a time when NHS colleagues could not have been under more pressure, were unfounded.

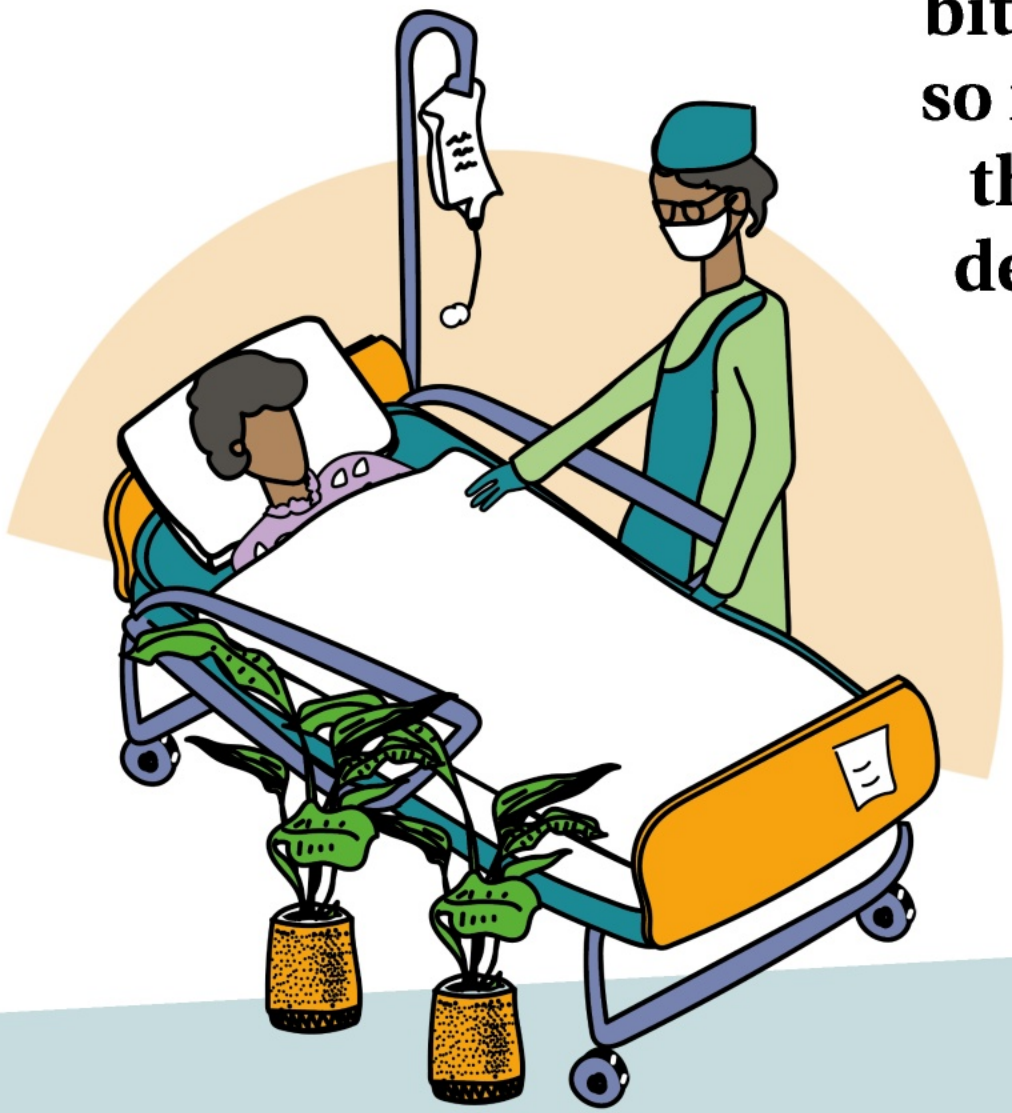
Instead of resistance, we found our participants and colleagues were more ready than ever.

Ready to hear about new technologies.

Ready for new ways to integrate technology into models of care.

Ready for our support in bringing their teams in on their journey.

We also saw technology companies of all stages and sizes rise to the occasion - offering solutions and ideas to help the NHS with the day-to-day battles they were now facing.



It will always be bittersweet to make so much progress at the cost of such a devastating crisis.

We know that this is just the beginning. And whilst we are in the process of realising the direct impact of the pandemic, alongside this there has been an unfolding indirect impact.

We have learnt that we should be more prepared. And technology is steadily becoming part of our path to preparedness and resilience.

A new era for health technology.

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In their words.

Our team talks about how our programme took off.

NAPC Digital Programme Team

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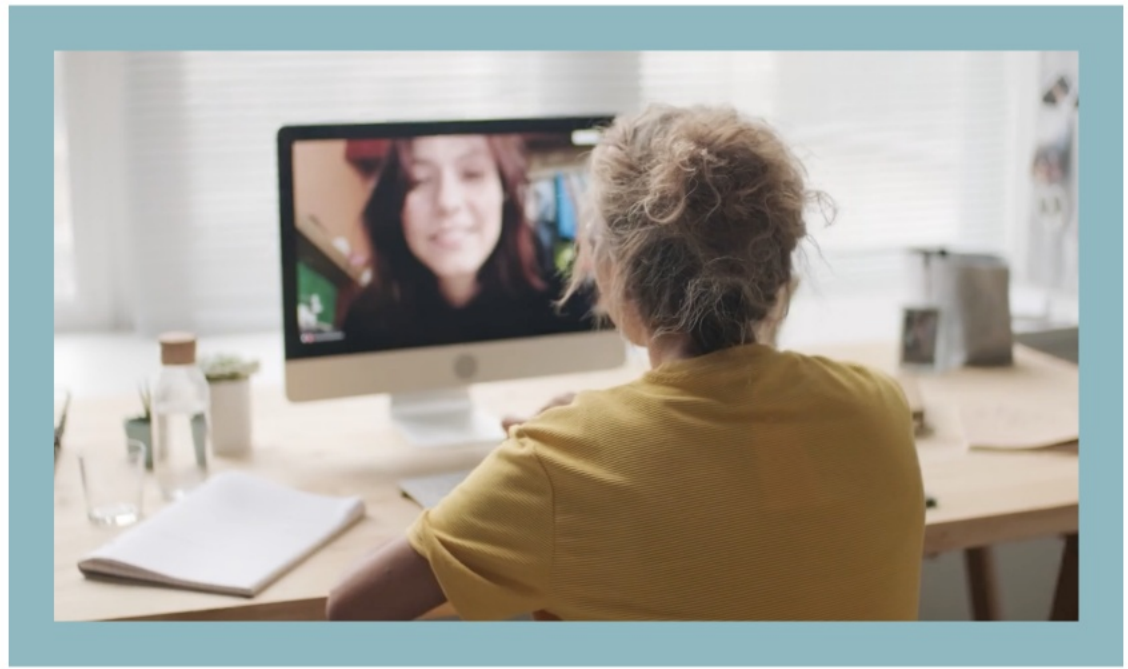

A new era for health technology.

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Who we are.

The National Association of Primary Care

The National Association of Primary Care (NAPC) is a not-for-profit organisation representing the interests of all those providing NHS services and wider community services.

We actively work with interested providers, commissioners and clinicians to support the improvement of health and care systems and its delivery across society.

Over the last decade, we have built our expertise in population healthcare: believing it to be the key to creating sustainable health and care systems, and to achieving better outcomes for their communities.

We are involved in the continued research of international healthcare systems and best practices in the UK associated with delivering population healthcare, and in supporting our providers to apply this to the NHS and social care redesign.

Why we set up the NAPC Digital Programme.

We are firm believers that the rapid adoption of health technologies can help health and social care systems achieve better outcomes.

In 2019, we launched the NAPC Digital Programme with a view to harnessing innovative digital health and other technology products and services for our NHS colleagues. The programme is dedicated towards:

- Delivering accelerated adoption across Primary and Secondary care and out-of-hospital services.
- Using our expertise to help our participants achieve better outcomes for their populations.
- Giving better insights on how to provide care, and supporting better working lives for their professionals.

Who we work with.

Ranging from primary care networks, CCGs, integrated care systems, and community and acute providers, we partner with organisations across England to help them navigate the diverse health technology landscape.

Together these providers cover over 5.5 million lives, with over a 100 clinical, system change and commercial leaders involved. The coronavirus pandemic has demonstrated that not only do our health and care services need to adopt new technologies, but that when we have all parts of the system working together with health tech suppliers, we can make innovation happen fast.

What we do.

Embedding technology into our thinking on population health.

The NAPC has a long history of looking at healthcare from a population health point of view. We believe that; in order to truly address health inequalities, use resources in the most effective way and successfully transition to a more preventative healthcare model, we must build and co-ordinate the health and social care system using population health principles.

The pandemic has revealed deep-seated health, social and economic inequalities, not just in the UK but across the world. We have to face the idea that we have to do more with less, and address the diversity in social determinants of health, access to healthcare and advice, and protect those who are vulnerable not only from the virus, but also from the worries that they 'shouldn't bother the doctor'.

So, when we consider changing services by digitising them, we should be thinking from a population health point of view. Technology can make care more equitable, more timely, support clinicians and teams to make more precise and better decisions, and help to identify those likely to be most vulnerable, helping us target resources.

What now?

For a long time, the debate around health technology has been concerned with how digital health tools can improve access or digitise back office functions, in parallel to electronic care records.

Whilst that has been the right approach for the last decade, the potential for health tech to deliver higher quality services - and to deliver more resilience of health systems in the future - will be achieved by a broader set of health technologies, many of which will deploy futuristic deep technologies. This will include novel point of care diagnostics and devices,using machine learning and Artificial Intelligence (AI) tools to help us make swifter and better decisions.

Or technologies such as genomics and real-time bio-data, which will deliver predictive recommendations and precision medicine.

The future of health tech globally will mature, and Covid-19 has been a real stimulus. Not only for invention, but for the scale up of technologies which are already available and now need refining in the context of health systems and population needs.

How we knit this together, how much investment and resource is available, and how we respond as multi-professional teams, will depend on what we do in the coming days and years to lead and deliver this. Needless to say, it will require the government, national bodies, regional and local commissioners, provider leadership and each health and social care professional to take this forward with the help of our citizens and patients.

The Covid-19 pandemic has shone a light on deep-seated health, social and economic inequalities. We have seen ethnic, socio-economic, age and geographical differences, alongside the prevalence of chronic disease, reveal the largest gap in accessing care and achieving desirable health outcomes.

What we do now is in our hands.

A new era for health technology.

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In their words.

Embedding technology into our thinking about population healthcare.

Dr Nav Chana

NAPC Clinical Director

NAPC | National Association of Primary Care

A new era for health technology.

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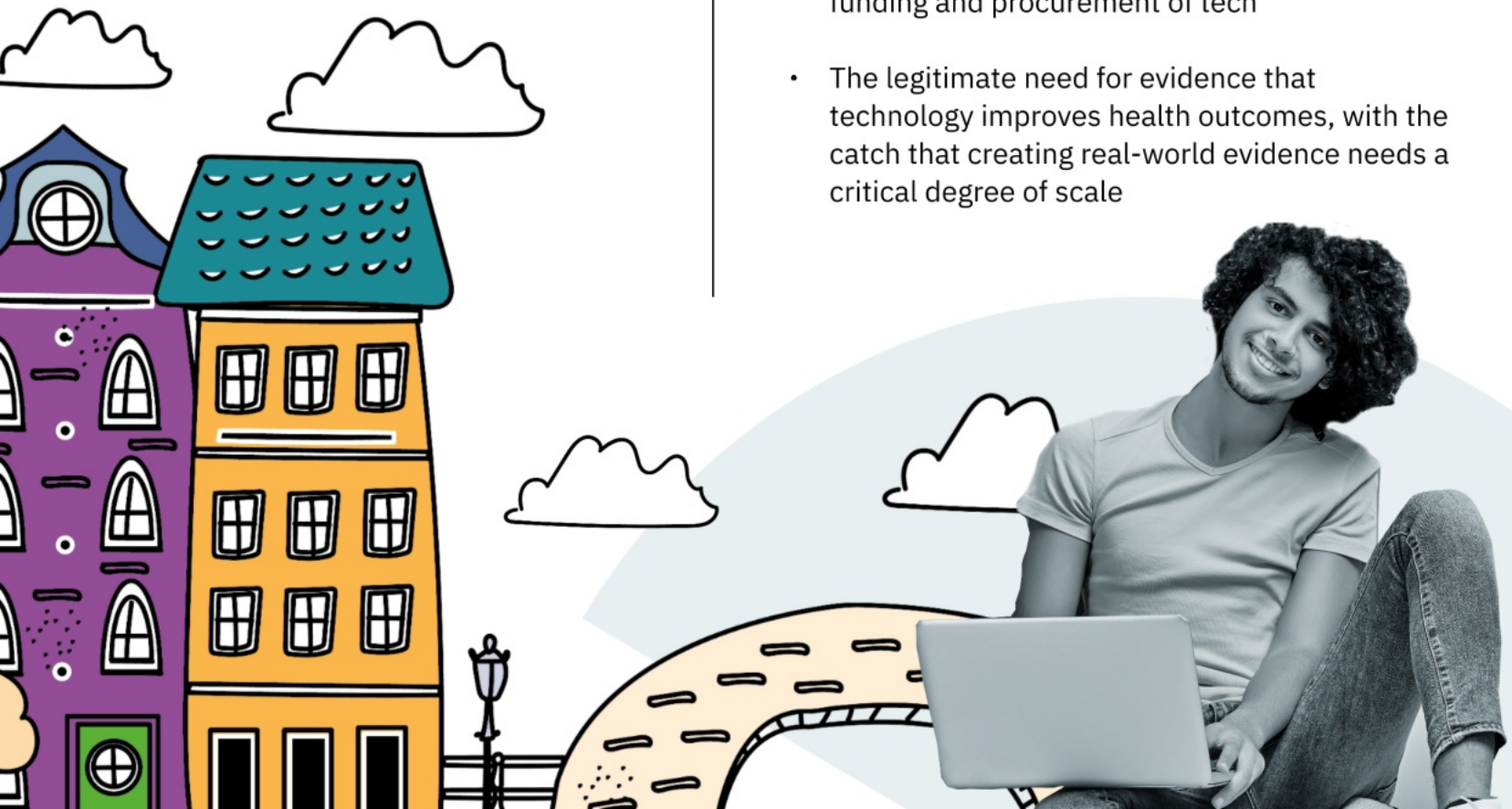
Why did it take a pandemic to shift the dial on health tech adoption?

A slow start.

There are many reasons why the adoption of health technologies has been historically slow in the NHS. Often the reasons have been understandable at an individual level, but cumulatively have proven to slow our ability to innovate and change.

There are some well-rehearsed barriers to adoption. These include:

- Poor clinical acceptance
- Lack of headspace
- The struggle for NHS leaders to cope with the demand on their services
- Confusing and un-coordinated approaches to funding and procurement of tech
- The legitimate need for evidence that technology improves health outcomes, with the catch that creating real-world evidence needs a critical degree of scale



Breaking down barriers.

The pandemic created the urgency and the momentum to lift some of these barriers. As without this remote access to patients and virtual ways to communicate with teams, we would have failed our patients at a time when they needed us most. We're now at the beginning of a different pace of seeing, understanding and taking on other new technologies.

Turning to tech.

Technology companies, both large and start-up, quickly mobilised their solutions and support during the pandemic. While this was an opportunity for them to show their worth, it was also done so with a genuine sense that they could step up and help.

Indeed many tech companies are steeped with talent with origins in the NHS, including clinicians and service managers, who care deeply about the success of the NHS and the clinical outcomes we are all trying to achieve. Many founders see themselves as part of the NHS, but looking through an innovative and creative lens, willing and able to work collaboratively with NHS and public bodies.

The UK's health tech sector has shown why it is a global leader, quickly using its expertise to develop practical solutions to help the government and the NHS with innovative products and services to respond to those in need.

These new technologies will not only help in the here and now, but they will also shape the future of healthcare in the UK and indeed across the world. We owe a huge debt of gratitude to the start-ups and tech companies that have switched their entire focus to backing the national effort to tackle this health crisis.

Caroline Dinenage

Minister of State for Digital

Facing the future.

For those commissioning clinical and operational leaders in the NHS, there is a sense that the process to review, curate, procure and select the right technologies can often prove overwhelming. This is where the NAPC can help.

The sheer volume of technologies trying to gain traction in the NHS is immense. And there is now a co-ordinated effort needed to continue to stimulate the sector and innovation - whilst also having the skills and capacity to choose the best for patients, clinicians and services.

We believe the establishment of organisations such as NHSX, and clearer budgets and procurement frameworks from NHS England to support rapid deployment of technologies, are important to stimulating better adoption of technologies. However, feedback from our Digital Programme participants is that more needs to be done.

A new era for health technology.

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In their words.

Why did it take a pandemic to shift the dial on health tech adoption?

Dr Juhi Tandon

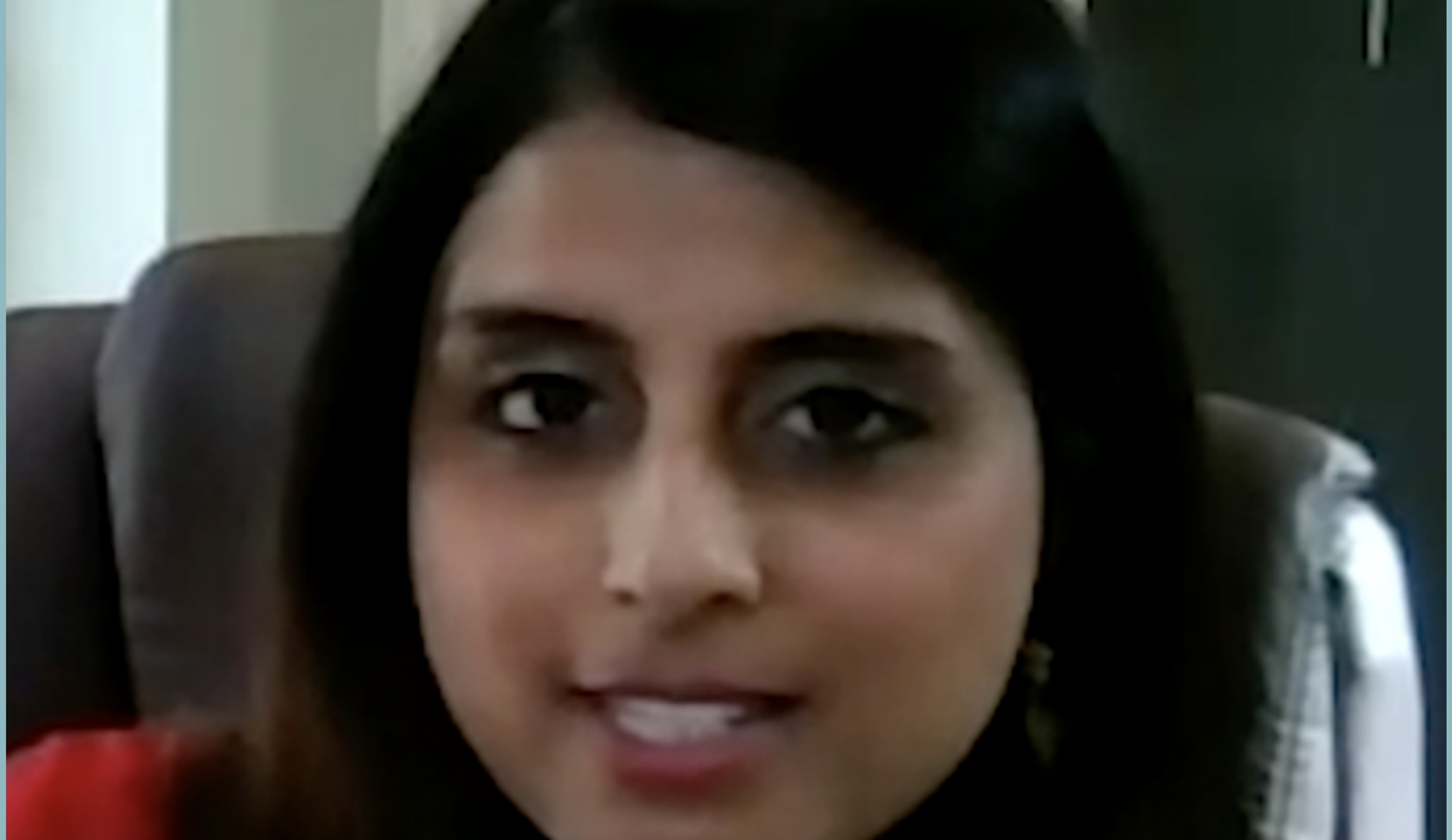
Clinical Director

COGNITANT

Dr Petteri Hirvonen

CEO & Founder

KLINIK HEALTHCARE SOLUTIONS



A new era for health technology.

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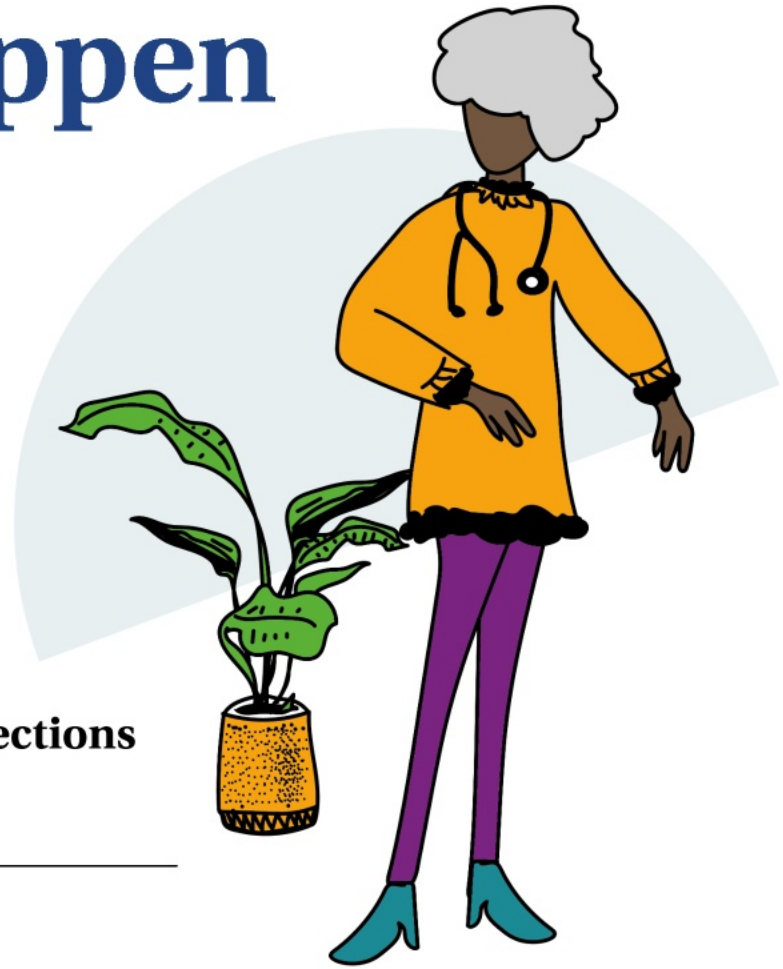
No Better Time to Make Health Tech Happen



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Locking in the benefits.

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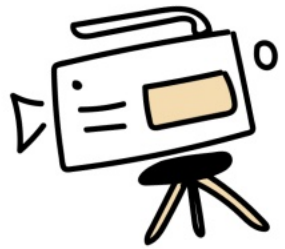

4. New models of care
5. Lifting the barriers to adoption
6. Keeping on the case

There is now a window of opportunity for us to learn from the positives and reflect on the challenges presented by the new virtual models of care that patients, carers and staff have experienced.

Rising Covid-19 cases and the decision to enter the first national lockdown in March 2020 marked a sudden and dramatic change for the UK. A change on our work, on our personal lives, and on everyday life as we knew it.

The impact on our health services and the pressure on the UK and global scientific community to produce a vaccine, was immense. Looking back, it's hard to find a comparable example where circumstances demanded such a rapid transformation in how we delivered and continue to deliver care.

Today, as we dare to look forward, 2021 brought with it a third lockdown and unimaginable pressures on society and the system. However, it also brought with it a glimmer of hope. The success of a British and European vaccine represented a much needed light at the end of the tunnel.

However, while we continue to grapple with the short term, we can only begin to understand the long term effects of what the pandemic has brought on both our colleagues and the most vulnerable members of our communities.

When one door closes, another opens...

Early in the pandemic, due to a national mandate and our duty to keep patients safe, in many cases we were forced to close the physical door and open a digital door to Primary Care.

Trusts reorganised outpatients, teams from different organisations collaborated virtually over complex patients, and by using digital platforms and dropping devices into our patients' homes, the health system created resilience and became resourceful.

The pandemic has been challenging and continues to pressurise the NHS. But the benefits of working differently, implementing technology and encouraging patients to self-care, have been far reaching.

We now have the tools and a game-changing acceptance of virtual consultations and technology-enabled care, which will transform adoption.

In their words.

Is adopting technology across our health systems different to any other service change?

Craig Oates

Managing Director

Doctrin

Locking in the benefits.

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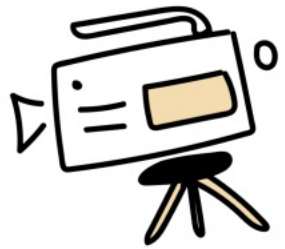

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What we learned.

The NAPC Digital Programme has given us unique insight into the experiences and reflections of a wide range of primary care organisations since the outbreak of Covid-19.

From primary care networks to integrated care systems, our participants have welcomed the opportunity to share how they have adapted and how they aspire to future models of care where digital technology is a key enabler.

What they said

... about managing demand.

Shifting to a model of total triage means face-to-face contact has been replaced by a large volume of calls.

However, complex cases still need to be seen face-to-face or in people's homes, and incorporating this into a day of triage can be challenging.

Face-to-face appointments take longer due to travel and the use of personal protective equipment.

30+ calls a day were highlighted as not viable, particularly given the more difficult nature of calls when managing problems remotely.

Care navigators, such as front desk practice teams, play an important role in signposting patients to additional support and services.

Primary Care Network practices have adopted a hub approach, with separate hot sites for coping with Covid-19. This has built relationships and opened up new ways of working.

It is important to review the triage and virtual consultation systems that were rolled out nationally at pace to ensure they address all future requirements.

Patient and carer feedback is a key element to this review, and how we continue to move forward.

What they said

... about health inequalities.

Whilst many patients adapted well to virtual access to the practice team and to the consultations by phone or video, it is not the case for all.

In some situations, this can be addressed by signposting to local partners who can help with digital literacy or by encouraging family members and carers to access technology on other's behalf.

The current situation has shone a light on health inequalities and individuals who are further disadvantaged in terms of their health and wellbeing.

Maximising those that can benefit from virtual support creates space to focus on those who are digitally excluded.

Some patients are excluded from the digital approach, either by their condition or their socio-economic situation.

Identifying the digitally excluded patients, including coding them on clinical systems, is key to then working out how to reach them.

What they said

... about long-term care.

Primary care is managing to respond to the majority of patient demand on the day.

However, teams are left 'holding' lots of patients as secondary care waits become longer and longer.

There is an increasing backlog and services are also reduced due to Covid-19 constraints.

A key challenge is physical checks. Clinicians have asked patients to buy BP machines and offered guidance on self-checks, but everything is more challenging virtually.

There is much potential for digital technology to enable improved remote support. Virtual group consultation has been explored in some areas, including CBT.

Virtual meetings, including multi-disciplinary team discussions, are more frequent and can be effective subject to local bandwidth and meeting fatigue.

What they said

... about looking forward.

We must make sure that human contact is not lost. Teams still need to carve out time to simply connect and engage face-to-face.

Teams need training and time to time build confidence with new technologies.

There needs to be a sustainable balance for GPs of triage, virtual consultations and face-to-face.

Patient, carer and workforce experience is key to the re-design of primary and community care.

Key areas to focus on

Understanding population health priorities

Developing a strategy for digitally enabled estate

Maximising workforce capacity

Harnessing the benefits of new technologies

Addressing health inequalities

Locking in the benefits.

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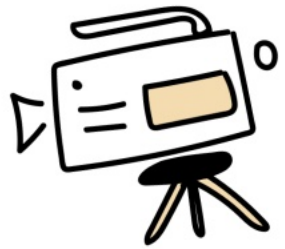

4. New models of care
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In their words.

Representatives from our programme talk about their experience of turning to technology during the pandemic and beyond.

NAPC Programme Participants

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Dr George Winder
Clinical Director at Leeds Seacroft PCN and Clinical Lead for CCG
Mute
Stop Video
Security
Participants
Chat
Share Screen
Record
Reactions
End

Locking in the benefits.

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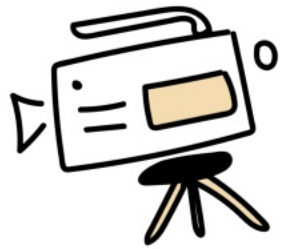

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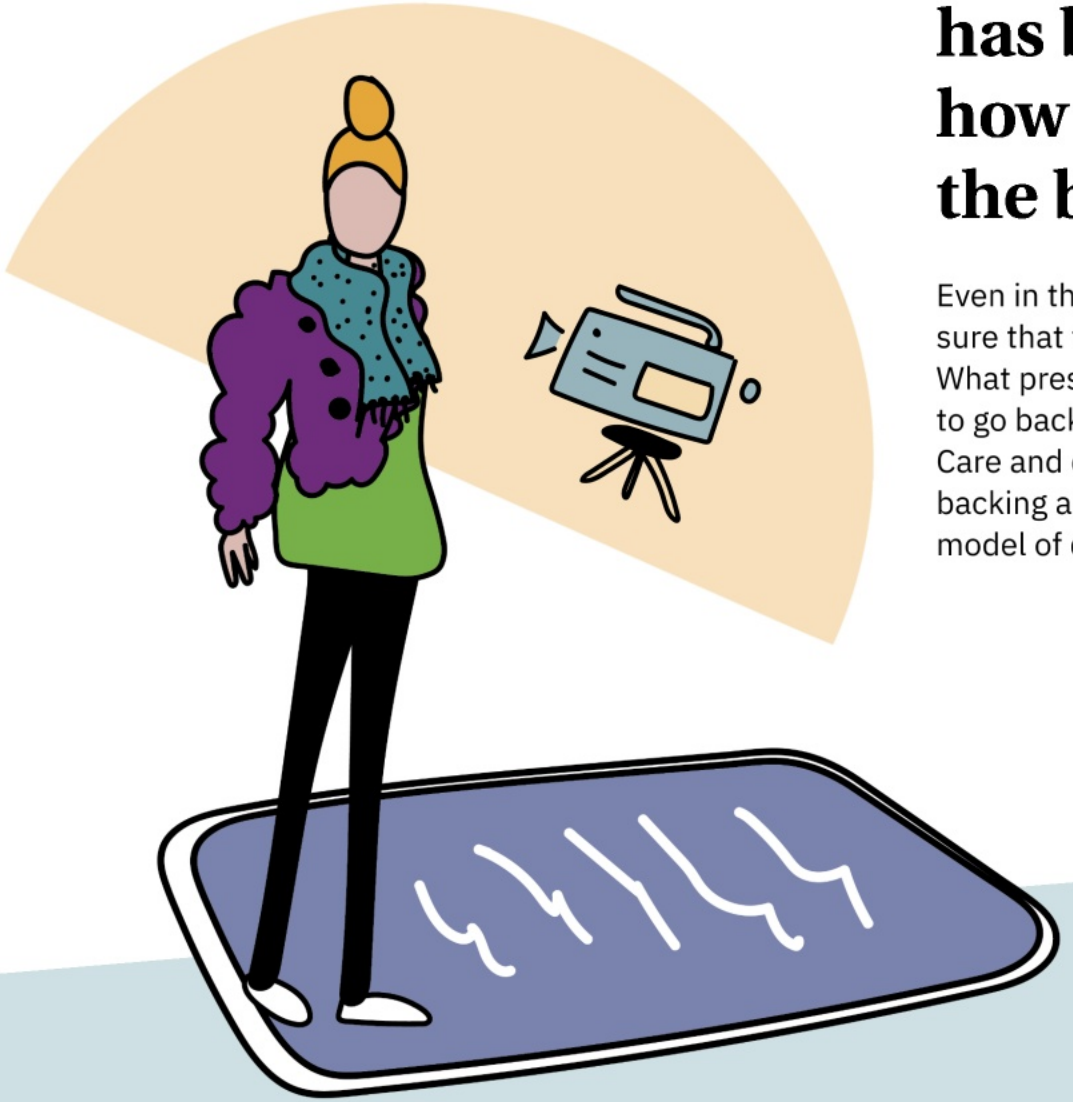
Fake news.

Contrary to some media headlines, our participants confirmed that General Practice does not want to abandon face-to-face care. In fact, clinicians want to make room for those who need it most. And in doing so, deal with the access and health inequalities that have inevitably risen when services are under demand pressures.

Through the NAPC Digital Programme, participants have overwhelmingly agreed that the digitisation of Primary Care is welcome, that it needs to build and accelerate, and that the response of patients has been both surprising and heart-warming.

From Primary Care networks to integrated care systems, our participants have welcomed the opportunity to share how they have adapted and how they aspire to future models of care where digital technology is a key enabler.



Now the digital door has been opened, how do we lock in the benefits?

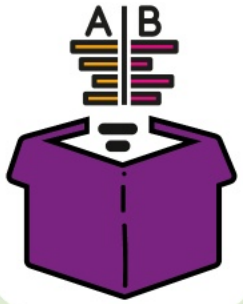
Even in the face of a vaccine, how can we be sure that this new model of care will stick? What pressure are clinicians and services facing to go back to the old? How can we give Primary Care and community teams the resources, backing and headspace to allow the new model of care to flourish?

Learning from our work on the Primary Care Home model.

In 2015, in conjunction with NHS England, we worked with 'rapid test sites' to develop the Primary Care Home model, which went on to spread through a community of practice nationally. Combined with a structure of developing a model around 30-50K population size bringing together an integrated and multi-professional workforce and aligned clinical and financial outcomes, the model is underpinned on population health principles.

When we take a step back and see why we developed the model and worked with sites to help them to flourish in this way, we remember that the Primary Care Home model was developed to be the home of finding the best way to integrate providers so that resources could be allocated across a population more effectively, to align everyone to the needs of communities and allow innovation to foster.

We talk more about our emerging methodology for selecting and implementing technologies aligning to population health outcomes later, in the chapter 'The NAPC Approach'



Our values.

Our values and objectives at NAPC have not changed – what is changing is that through the NAPC Digital Programme we are bringing our colleagues around a refreshed agenda around technology. To choose the right technologies and digital applications and to accelerate their adoption, we still need the same ingredients that we collaborated upon for the Primary Care Home delivery model which was centred around service innovation. We know that these principles can be taken across communities and populations, and a misnomer is that they are limited to outcomes in primary care. But we believe by approaching this from a population health outcomes lens, all out-of-hospital providers, secondary care and social care can benefit.

Locking in the benefits.

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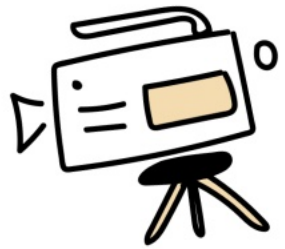

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In their words.

How do we lock in the benefits?

Matt Walker

NAPC Director of Strategy

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Lifting the barriers to adoption.

As previously discussed, the barriers to adopting technology run deep. Deep in respect to how our health systems are structured, in our evidence-based culture within healthcare, in the way patients and their carers view technology, and in how we access innovation at the frontline.

Moreover, from listening to our participants in the programme, there is also a clear feeling that there is either not enough funding for technology, or organisational leaders do not know where to find funds or how to mobilise them through commissioning routes.

In geographies where we are seeing good progress, we have also seen the development of infrastructure, and capacity and leadership aligned to the resources to select, deliver and measure the impact of health technologies. However, these examples are few and far between.

In parallel, digital health expertise is growing around certain common topics such as digital health platforms for long-term conditions, connected devices and remote consulting. And this is in line with how prolific these technologies are coming to the market. But we are far from understanding the potential of deep tech and how to regulate it, and how we put the right safeguards in place without slowing innovation down.

As our programme partner, the legal firm DAC Beechcroft, outline in the next section, we see that the Covid-19 pandemic has pushed even legislative and regulatory boundaries, lifting some of the barriers to technology adoption, albeit temporarily. As they explain, the sentiment to innovate across the NHS has been there.

In their words.

How does working with the NAPC help technology integration?

Paul Stevens

Digital Health Leader

OMRON

Continuing our long association with NAPC, Dorset was keen to continue working together and to embrace the opportunity to develop our digital strategy for primary care. Despite Covid-19, we continued to work towards a new care model for hypertension that included a digital platform, which we are about to launch in eight PCNs.

With Omron as our main supplier, we will now break new ground in terms of remote ways of working to support improved outcomes for patients with hypertension.

Dr Karen Kirkham

Assistant Clinical Chair, Dorset CCG

Locking in the benefits.

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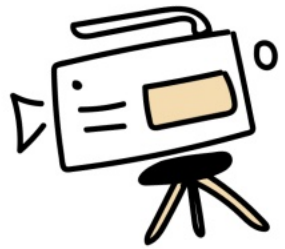

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On the case.

Whilst it is absolutely critical to ensure that innovation and adoption of new technology is properly regulated and safe, the nervousness around 'new' is starting to shift.

Virtual appointments in primary care are a good example of how quickly adoption has been taken up in very short order, with what we understand to be excellent levels of patient satisfaction.

DAC BEACHCROFT

As lawyers advising clients in the health and social care sector, we've been deeply involved in the response to the pandemic.

This has included advising commissioners, providers and tech companies on the procurement, adoption and roll out of solutions and innovations to allow for health and care services to be provided in the context of the pandemic.

We have seen a range of legal issues arising during this time. For example:

- Many commissioners could, for a period, legitimately rely upon the urgency exemption in the procurement legislation to contract with suppliers.
- Emergency powers put in place for the NHS and a level 4 incident declared requiring NHS England National Command and Control to coordinate the NHS response in collaboration with local commissioners, in turn accelerating “system working”.
- More collaboration between NHS organisations, local authorities, third and independent sector providers in sharing staff and assets to ensure services can continue to be provided to patients, both through formal and informal collaboration arrangements.
- Clear guidance from the Information Commissions Office (ICO) and NHSX relating to information sharing in the context of the pandemic, and a statement on the ICO’s approach to regulatory enforcement.
- Technology suppliers seeking to understand their regulatory obligations, including whether their software would be regulated as a medical device, and/or whether the activities they are engaged to provide would be regulated by the Care Quality Commission.

Necessity is the mother of invention.

We have noted in discussions with many clients that there is a desire to ensure the NHS preserves the pace of adoption of technology and innovation that we have seen in response to the challenges that the pandemic has presented, and the **NHS Reset** movement ties in neatly to this.

In our view, the pace of adoption will continue as health and care systems will look to ensure resilience is maximised, both in response to the current circumstances, but also in preparation for any other similar events that may arise in the future.

It is often not necessarily the legal framework that is the blocker to adoption of technology, but the risk appetite in particular scenarios to make certain decisions against the 'do nothing' option.

Hamza Drabu and Charlotte Burnett, DAC Beechcroft.

DAC BEACHCROFT

Hamza Drabu

Charlotte Burnett

Locking in the benefits.

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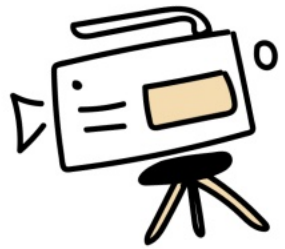

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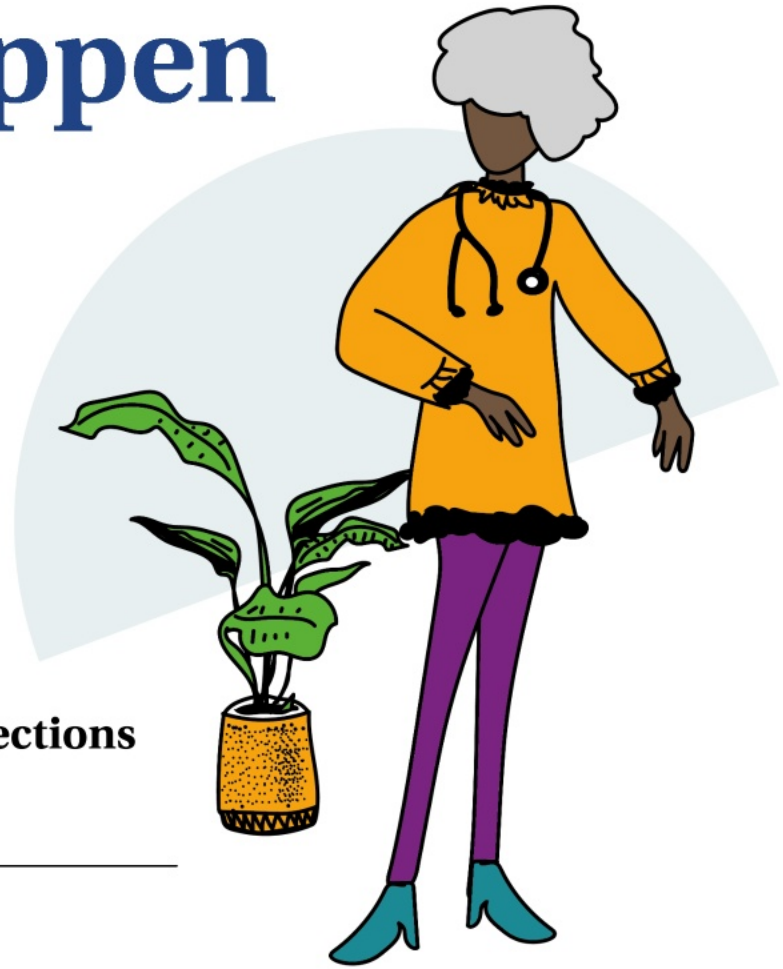
No Better Time to Make Health Tech Happen



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5. Final reflections

The NAPC approach to health technology adoption.

NAPC | National Association of Primary Care

1. Leading the charge to create change
2. The importance of being flexibly adaptive
3. The NAPC way in navigating the digital highway
4. Facing digital exclusion head on
5. Designing a tech ecosystem
6. Redefining estates strategy

Leading the charge.

Is adopting technology across our health systems any different to any other service charge? The answer is yes, and no.

The adoption of technology needs the same level of leadership, championship, time and head space as any complex health service charge. And a similar level of expertise. However, adopting technology in healthcare systems is also different.

The way each person perceives and will accept technology varies greatly between individuals, and this is true of healthcare professionals, patients and their carers.

Furthermore, the introduction of patient and clinician-facing technologies (beyond electronic healthcare records) is relatively novel. As time goes on, the evidence will get stronger and our own expertise will grow alongside this.

An added complexity when it comes to healthcare adoption, is that this is a product integrating with a service. This is more difficult than simple product adoption, like buying a new style of phone. That said, many patients expect progress in how they access care, as technology features so prominently in other aspects of their life.

Finally, the stakes are much higher. The cost of moving to a different way of doing things and it not working out, potentially has more impact than in other fields or industries. And so it should be. After all, this is ultimately about how we care for our patients and communities.

But as we've seen through the pandemic, harm can also be caused by not innovating fast enough, and by not embracing alternative ways to reach patients and improve diagnostic and treatment capability.

> **We realised that by not innovating quickly, we would harm patients. We've never thought like that before.**

Working it out together.

Creating opportunities for health tech companies and NHS teams to listen and collaborate is a core function of our programme, and our curation process is designed to select companies who are keen to listen to NHS representatives.

Technologies are often developed without a detailed understanding of the nuances of accessibility and behaviours for different types of patients and clinicians.

It is important that the health service, clinicians and managers play a real role in working with health tech companies to create the right insights into how to develop technology for different settings, and to create better accessibility for different types of patients. This was a key issue raised by participants on our programme who deal with populations with diverse needs.

Bringing technology into how we care for patients has and will undoubtedly be an iterative and measured process, and as we will see in the rest of this chapter, requires us to set the right environment and infrastructure to bring this change about.

"Clinicians and managers play a real role in working with health tech companies to create the right insights."

Whatever our past experiences may have been in bringing technology to our services, we are leaders at what we do. By international standards, the UK primary care system is considered highly innovative for being paperless and to some extent now starting to create a nationally shared care record, with automated upload of pathology tests and some population level data through our QOF registers.

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Finding an implementation style that is flexibly adaptive.

While we may rank highly on the world stage when it comes to health tech, when it comes to increasing the pace of adopting technology, we must understand the different implementation and behavioural approaches which work, and set ourselves up with a method to deliver and repeat.

The NAPC Digital Programme has found that, while some technologies in the past may not have been user-friendly or take into account the complexity of delivering care, there is cutting-edge technology coming through.

More and more, the solutions that product designers and founders are offering are based on better evidence and more collaboration, resulting in better user experiences. It is important then to review the challenge that perhaps our implementation approach is not thought through enough.

Many participants from the programme acknowledged that they were often overwhelmed with the options in the market, and had little time to understand and communicate the differences. We acknowledged that good implementation takes time for leadership AND time to deliver, and that good project management requires support with some capacity to review and iterate.

Lack of interoperability remains another good reason why it can be difficult to adopt some technologies which should interface with the electronic care record. However, more and more companies were either in the process of developing interoperability, or were willing to consider this, agreeing that it could increase the efficiency and safety of their platforms.

Implementation science for health tech.

Implementation science for healthcare innovation, and more specifically health technologies, is closely studied across the world, including in the UK.

Many people aren't close to this research and therefore haven't incorporated it into the way tech adoption is viewed. This is key area where the NAPC can bridge gaps and help on the path to implementation.

From the experts...

Professor Trish Greenhalgh and Chrysanthi Papoutsi (2019)[1] discuss that past implementation science has been rooted in traditional quality improvement approaches, which ground the implementer in the evidence base, and then rely on consistency and standardisation in order to deliver, scale and spread the service change.

But the authors argue that implementation science is maturing, and that the healthcare context is complex and so needs a less structured approach. Instead, those implementing health tech need to:

"Think flexibly, understand and respond to local context, use qualitative methods to explore processes and mechanisms, and adapt intervention to achieve best fit with different settings."

The authors remind us of the complexity of healthcare systems and how they are subject to uncertainty and ongoing change.

"[Health care systems] adapt through...

self organisation (such as continuous adaptations initiated by frontline staff to allow them to complete tasks given local contingencies and availability of resources),

attention to interdependencies (how the parts of the system fit together),

and sensemaking (the process by which people, individually and collectively, assign meaning to experience and link it to action)."
(Lanham et al, 2013)[2]

1. Trisha Greenhalgh, Chrysanthi Papoutsi. Spreading and scaling up innovation and improvement (bmj.com); 2. Lanham HJ, Leykum LK, Taylor BS, McCannon CJ, Lindberg C, Lester RT. How complexity science can inform scale-up and spread in health care: understanding the role of self-organization in variation across local contexts. Soc Sci Med 2013;93:194-202. 10.1016/j.socscimed.2012.05.040 22819737

From the experts...

Although the following advice from Lanham et al (2013)[2] around managing complexity in healthcare innovation is not specifically about health tech, it can be applied here.

Acknowledge unpredictability. Designers of interventions should contemplate multiple plausible futures; implementation teams should tailor designs to local context and view surprises as opportunities.

Recognise self organisation. Designers should expect their designs to be modified, perhaps extensively, as they are taken up in different settings; implementation teams should actively capture data and feed it into the adaptation process.

Facilitate interdependencies. Designers should develop methods to assess the nature and strength of interdependencies; implementation teams should attend to these relationships, reinforcing existing ones where appropriate and facilitating new ones.

Encourage sensemaking. Designers should build focused experimentation into their designs; implementation teams should encourage participants to ask questions, admit ignorance, explore paradoxes, exchange different viewpoints, and reflect collectively.

Greenhalgh and Papoutsi (2019)[1], would further add:

Develop adaptive capability in staff. Individuals should be trained not merely to complete tasks as directed but to tinker with technologies and processes and make judgments when faced with incomplete or ambiguous data.

Attend to human relationships. Embedding innovation requires people to work together to solve emergent problems using give-and-take and “muddling through.”

Harness conflict productively. There is rarely a single, right way of tackling a complex problem, so view conflicting perspectives as the raw ingredients for multifaceted solutions.

1. Trisha Greenhalgh, Chrysanthi Papoutsi. Spreading and scaling up innovation and improvement (bmj.com); 2. Lanham HJ, Leykum LK, Taylor BS, McCannon CJ, Lindberg C, Lester RT. How complexity science can inform scale-up and spread in health care: understanding the role of self-organization in variation across local contexts. Soc Sci Med 2013;93:194-202. 10.1016/j.socscimed.2012.05.040 22819737

We say...

The NAPC Digital Programme identified that these latter three principles were the most important to leaders bringing health technologies into services.

We believe it is the 'non-scientific' elements of leading change (and paying close attention to these elements) that perhaps, on reflection may seem obvious, but are often not done so well; either because there is no focused thought, time to reflect and communicate, or resources to help this.

On our programme, as a result of revisiting this research and advice, we are reminding teams to build in resilience to implementation by being 'flexibly adaptive' and encouraging their teams to do so.

This principle is embedded in our NAPC approach.

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In this section, we will set our approach to selecting health technologies and implementation.

We should say that this is a formative piece of work, and we know it will evolve over time. But through listening and discussing with both our NHS participants and health tech suppliers we have brought through the programme, we are developing a simple and 'easy-to-get-started' way of delivering tech to change services.

Our approach is laid out in six steps.

1

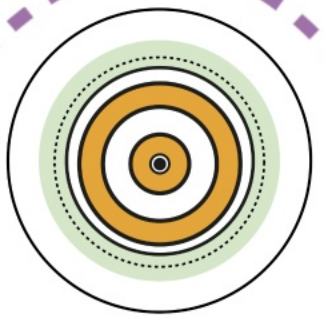
Set the **intent** with the team you can get going with. Bring your **nearest** stakeholders along.

2

Analyse your population with a digital health and **technology lens**. Find **meaningful segments** and groups to support.

3

Impact assess various types of tech against population groups with similar needs and **select** accordingly.

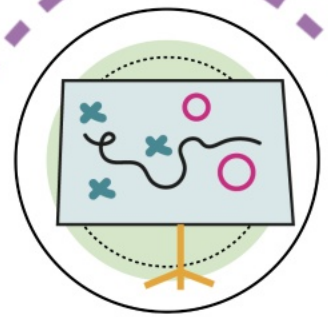


4

Focus on **one** area and develop the **tech ecosystem** which will help redesign the model of care for this group.

5

Think of the **building blocks** and **resilience measures** you need in place to do this well and **mobilise effectively**.

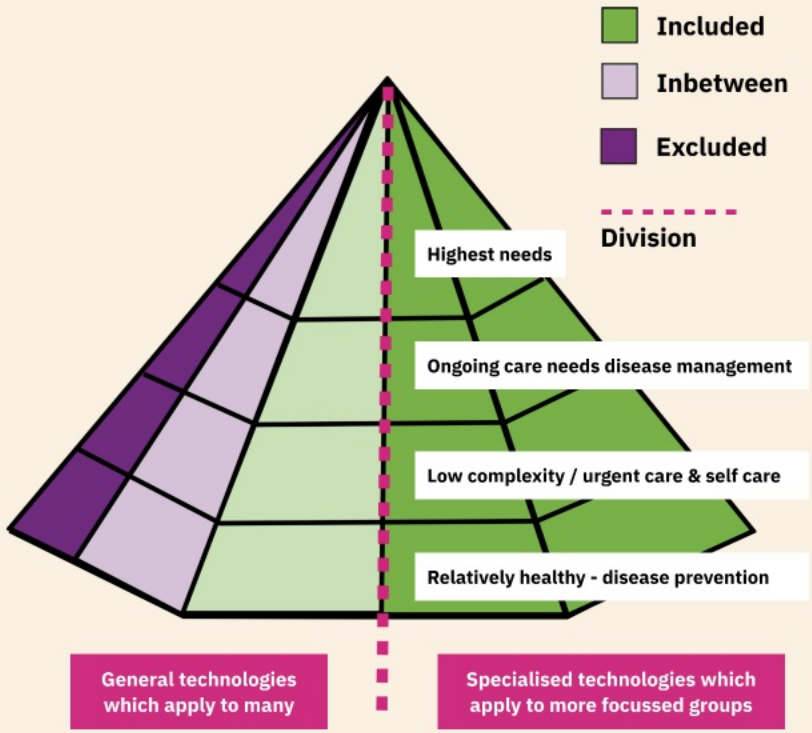


6

Process mapping before and after. Execute through a **100 day plan**. Save the 1000 day plan until later.

Population thinking with a health tech lens.

Segmentation methods only work if we consider social and situational factors alongside health factors / status.



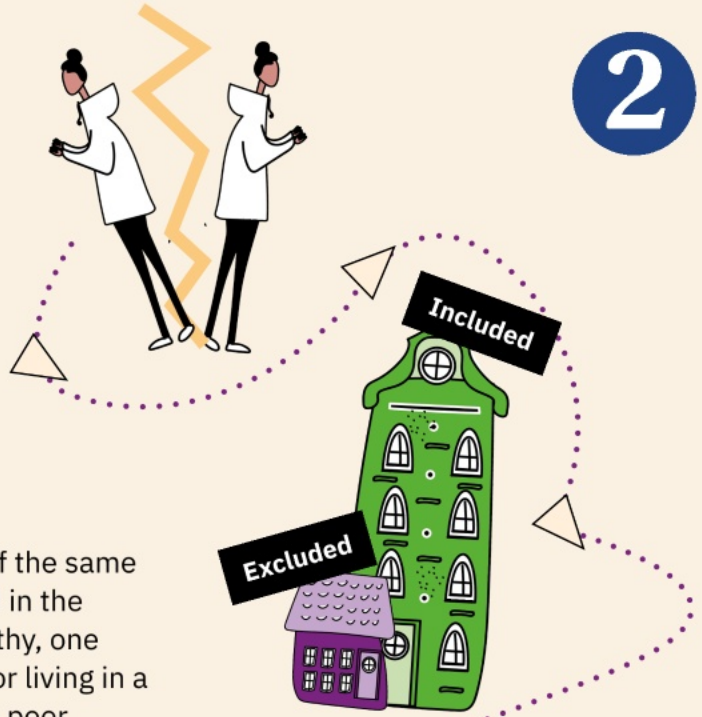
The thing about triangles? They make excellent points. Here are three points we must consider:

1

So, we're all familiar with the population healthcare triangle. However, what is often forgotten (but is essential to population health thinking), is that patients should not only be segmented by health need, but also by social determinants of health as well as social and environmental circumstances.

For example, whilst two women of the same age and ethnicity may be grouped in the lowest segment as relatively healthy, one could be a smoker, unemployed, or living in a multigenerational household with poor health literacy. Her health outcomes could be different from a non-smoking employed female, living in uncrowded accommodation with good health literacy, and the ability to navigate to services and pay attention to factors of wellbeing and prevention.

So when considering how we can integrate population health thinking with the emergence of health tech, we then take our triangle and look at it from a digital and technology lens, and there are two further dimensions to consider.



2

The first is looking at our populations from the perspective of digital inclusion, particularly during Covid-19 and some of the patient access initiatives we have deployed.

What we find is that for a number of reasons, the population becomes immediately divided into those who we can call digitally included **(green)** and those who are not, excluded **(purple).** We see a new health inequality emerging.

3

But what we should also consider, is that if we address some of the issues for the digitally excluded, some of these patients will eventually become digitally included. Even when a patient themselves may not be able to be digitally included themselves, by including their carer or family member, digital inclusion by proxy can be created.

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Facing up to digital exclusion.

Digital exclusion has been a key topic of discussion in our programme, and NHS participants have cited a number of reasons that cause digital exclusion.

These include:

- Lack of digital literacy and ability to engage with technology.
- Lack of smartphone devices or stable internet connectivity.
- Health issues which prevent engagement with technology, from dementia to severe enduring mental health illness.
- Poor experience with technology, leaving a reluctance or mistrust.

Overall, participants have been surprised with the extent to which patients embraced technology and coped with the new access measures during the pandemic, with many of the participants feeling grateful that patients were able to adapt with very little support and additional resources.

For the many, for the few.

The second way in which we consider population health with a technology lens, is dividing what will be useful as general technologies and apply to many, and what may be specialised around certain needs, or in many cases specific medical issues and illnesses.

By looking through this lens, we can also identify the impact of a technology on different population groups. The health tech market is still maturing and on the one hand it is very helpful that a lot of expert input goes into developing disease specific technologies. But on the other hand, they may only be engaging for a smaller group of patients without taking into account some of the social and situational factors which can reduce uptake or engagement with a technology.

Overall, by using this population perspective for designing and selecting an ecosystem of technologies around a patient group's holistic needs (that is, their medical issues in the context of their accessibility and their social determinants and situational factors), we can better deliver the intended impact of novel technologies.

Key takeaways are:

- Segment your demographic to understand population health needs.
- There will always be a portion of the population that are digitally excluded; however, we can still include them by including their carers and HCPs.
- Social, situation and the environment are all factors the influence population health. What are your local challenges?
- Different technology ecosystems may be required.
- Technology can be used across the spectrum, to support both reactive and preventative care.

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Designing a tech ecosystem around a new model of care.

Ecosystem of technologies to serve people with the same health needs and similar social determinants of health.

An Example;

Individuals with three or more Long Term Health Conditions.

In a given geography with similar characteristics

- Smokers/obese
- Social factors of deprivation
- Common LTCs
- Concurrent low-level mental health problems
- Crowded accommodation

Connected devices

POC tests

Digital therapeutics

Team collaboration platforms

LTC condition platforms

The building blocks to support successful implementation.

Leadership & expertise

Multi-professional team

Funding and other resources

Analytics/ Evaluation support

Workforce and patient digital skill building

Operational & innovation thinking support

Adaptations to estate/ hardware

Patient engagement through social prescribing

Release time/capacity for population level planning

100 day planning; mapping processes and communication.

Day 1

Build digital resilience

Explore unintended consequences

Track marginal gains

Be open to iterate according to your needs

Track and identify resources needed to iterate

Day 100

Review workforce models & patient pathways

Technology implementation and adoption is different to system change

Review processes every 100 days. You may need to adapt certain practices

Review what has worked for you and how to overcome any new challenges

Day 1000

Reflect on unintended consequences and learnings throughout the process

All too often in the NHS, we spend a long time planning and look quite far ahead. But for health tech adoption, we need to be more agile. On our programme we suggest that you only plan what happens from day 1 to 100, and that you map out and agree how the tech is embedded into clinical and administrative workflows.

TOP TIP!

Put a whiteboard up where the team can see it and map how the process will change with the tech introduced. As parts of the process change through initiation and experimentation, update the process map, and then COMMUNICATE this to the everyone who needs to know.

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Redefining the use and technology infrastructure of estates.

Covid-19 has been a powerful force for Primary Care and estates to cement real transformational change. In the future, it is expected that the split between face-to-face and digital consultations may be 50/50.*

In collaboration with Community Health Partnerships (CHP), the NAPC developed a guide in early March 2020 entitled 'Primary care networks: critical thinking in developing an estate strategy'. In this publication, we outlined the need for practices to: (i) come together to build a picture of current services and estate across the PCN and wider community (ii) design future models of care and support with an outline of future estate requirements (iii) begin to form an estates strategy.

The dramatic shift to telephone triage and virtual consultation over the pandemic has shown us what is possible in terms of the rapid adoption of technology and the need to quickly repurpose buildings in order to accommodate social distancing. This has highlighted the limitations of some of the legacy estate.

Reducing emissions by 5050.

In addition, in October 2020, the NHS released its report Delivering a 'Net Zero' National Health Service, which set out the ambition to reach net zero carbon emissions by 2050 with estates being a major plank of this work. While the Primary Care estate contributes less than 10% of the emissions of the Secondary Care estate, there are still significant reductions that are targeted through better use of existing buildings and upgrading the existing estate. There is also the contribution to reductions made by bringing healthcare close to home, within the range of walking or cycling rather than a car journey.**

The impact of this, and the aspiration to extend beyond these access tools to integrate technology as part of acute and routine healthcare services, undoubtedly shifts our expectations in relation to 'future estates requirements'.

As the picture is evolving, writing an estates strategy is currently challenging and existing estate strategy assumptions now have much more uncertainty around them as the system understands what will retrench and what will be sustained in terms of non-face to face provision of services.

* Pre Covid-19, face-to-face consultations were at 90% - as quoted by CHP.
**https://www.england.nhs.uk/greenernhs/wp-content/uploads/sites/51/2020/10/delivering-a-net-zero-national-health-service.pdf

The digital transformation in primary care is significant and is redefining patient and staff experiences. CHP is actively looking at how this impacts the primary care estate and sees this as a huge opportunity to develop a sustainable model for healthcare buildings of the future. It is vital that digital transformation is planned in collaboration across the estate and services, rather than in isolation.

Dr Sue O'Connell, Chief Executive

Community Health Partnerships

chp

Behavioural and leadership approaches to adopting tech well.

If there has been a single resounding theme from businesses and organisations across all sectors when discussing the impact of the pandemic on their processes and ways of working it has surely been, 'Why didn't we do more of this before?'.

The necessary haste, but surprisingly successful adoption of technology as a response to the extraordinary circumstances, has left many debating how the benefits of these might be embedded when the restrictions are no longer required. So, why didn't we do more of this before?

Creatures of habit.

As psychologists, we know very well that change is far less about designing and refining the technology/skills/processes that represent that change. The lion's share of impact rests on the far less tangible and conquerable challenge of changing people's attitudes and behaviours.

It enables us to predict our environment and short-cut effort in navigating systems and processes that might be unfamiliar or time-consuming to learn. It allows us to focus on what we deem most important and valuable. These forces, in a system that is perceived to working (at least well enough), act as a magnet to hold us in the comfort zone of the familiar.

The pandemic has shifted everything.
Even the most resistant of us have had to take notice and embrace alternative approaches to deliver what we hold most dear.

Just as we have shown that we can speed up the development and testing of a vaccine when it promises to be such a game-changer, we have demonstrated that we can speed up the development and adoption of a whole raft of exciting and innovative technology solutions.

Solutions that many of us believe will continue to benefit us, albeit in a considered and blended way, for a long time to come.

Enforcers of change.

So, what does this all mean for leaders who, as well as navigating these rapid changes themselves, seek to support and engage others through these extraordinary times.

Again, psychology has plenty to offer here. The implementation of any change benefits massively from a leadership style that remains curious and open. To opportunity, challenge and feedback. Seeking to understand others' concerns and resistance whilst demonstrating optimism and compassion in equal measure.

Leaders that can unite us around a shared goal and purpose, tapping into our core values, can enable us to tackle change collectively. Feeling supported and understood rather than exposed or left behind. Technology that enables us to deliver our jobs more effectively, to those that need it most, when they need it most and in a way that is sustainable during, and after, this pandemic will still need a concerted and thoughtful effort in order to resist the pull back to the deeply held habits that are sure to resurface.

Leadership will make the difference between the short knee jerk response to an extreme situation, and the embedded learning and benefits that we have a unique opportunity to grasp just now.

Silvermaple

Dr Karen Janman

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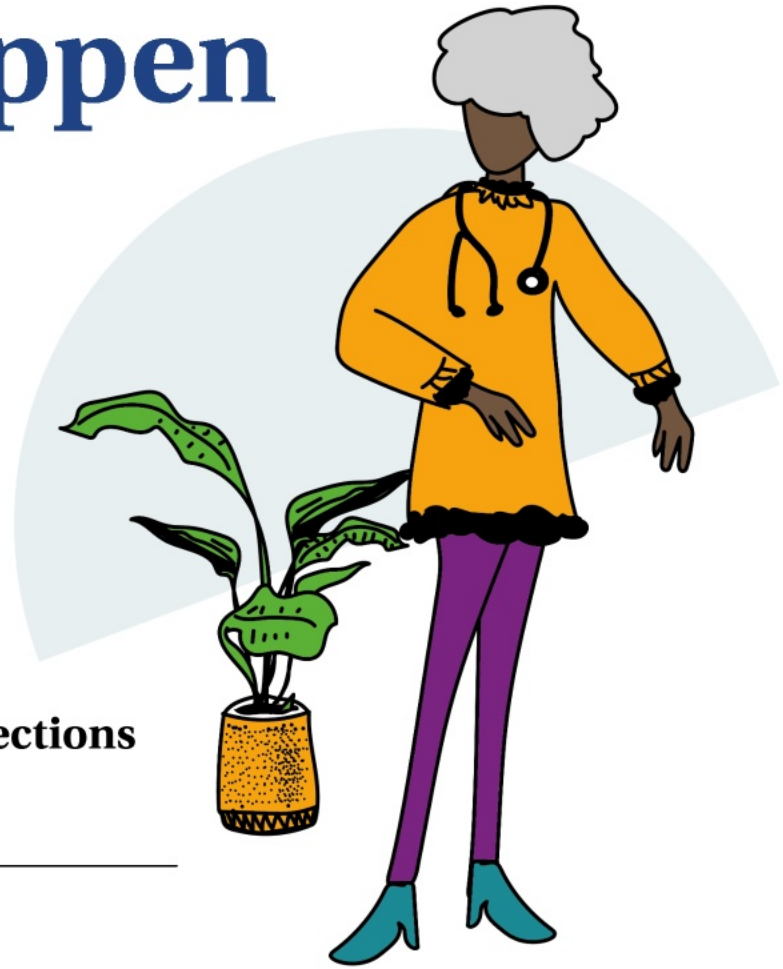
No Better Time to Make Health Tech Happen



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2. Locking in the benefits
3. The NAPC approach
4. Digital survey results
5. Final reflections

Finding answers: digital survey results.

NAPC | National Association of Primary Care

1. Our programme survey
2. Results from clinicians and our service users
3. Key takeaways and considerations

Our programme survey.

Since the start of the Covid-19 pandemic, we've had to look at new ways to consult with patients. Many of us are now using technology such as video conferencing for remote (non-face-to-face) consultations. However, as recognised in the previous chapter, this can adversely affect those that don't have the skills or access to the technology required to give them the same opportunities to communicate with their practitioner.

Finding answers.

As an authoritative and thought-leading voice on the digitisation of healthcare, in November 2020, the NAPC carried out a survey to better understand how patients are accessing digital health services and find out more about those that are digitally excluded.

We wanted to...

Identify the differences.

The differences between those patients who would always be unable to access digital services, versus those who may be able to access digital services in the future given the right support, training or resources for themselves, their family or their carers.

Understand the issues in order to influence policy.

We believe there is much that can be done at a local, regional and a national level to provide the resources required to get more patients, families and carers access to digital help, support and equipment.

Give people a voice.

We wanted to give survey participants a chance to turn their experiences into data, and provide an anonymous place to voice their opinions: to start an open dialogue on health inequalities and to share those results to foster understanding and force change.

We had an overwhelming response from the patients and their carers that we surveyed.

The NAPC would like to thank Salix & Co. and
The Self Care Forum for their support.

Finding answers: digital survey results.

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Service users said...

72%

were aware of patients or carers who were unable to access their practice due to lack of skills or resources.

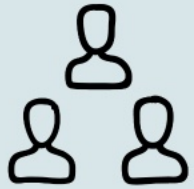
Clinicians said...

20%

of their patient list may not have had the skills or access to equipment to access the practice online.

67%

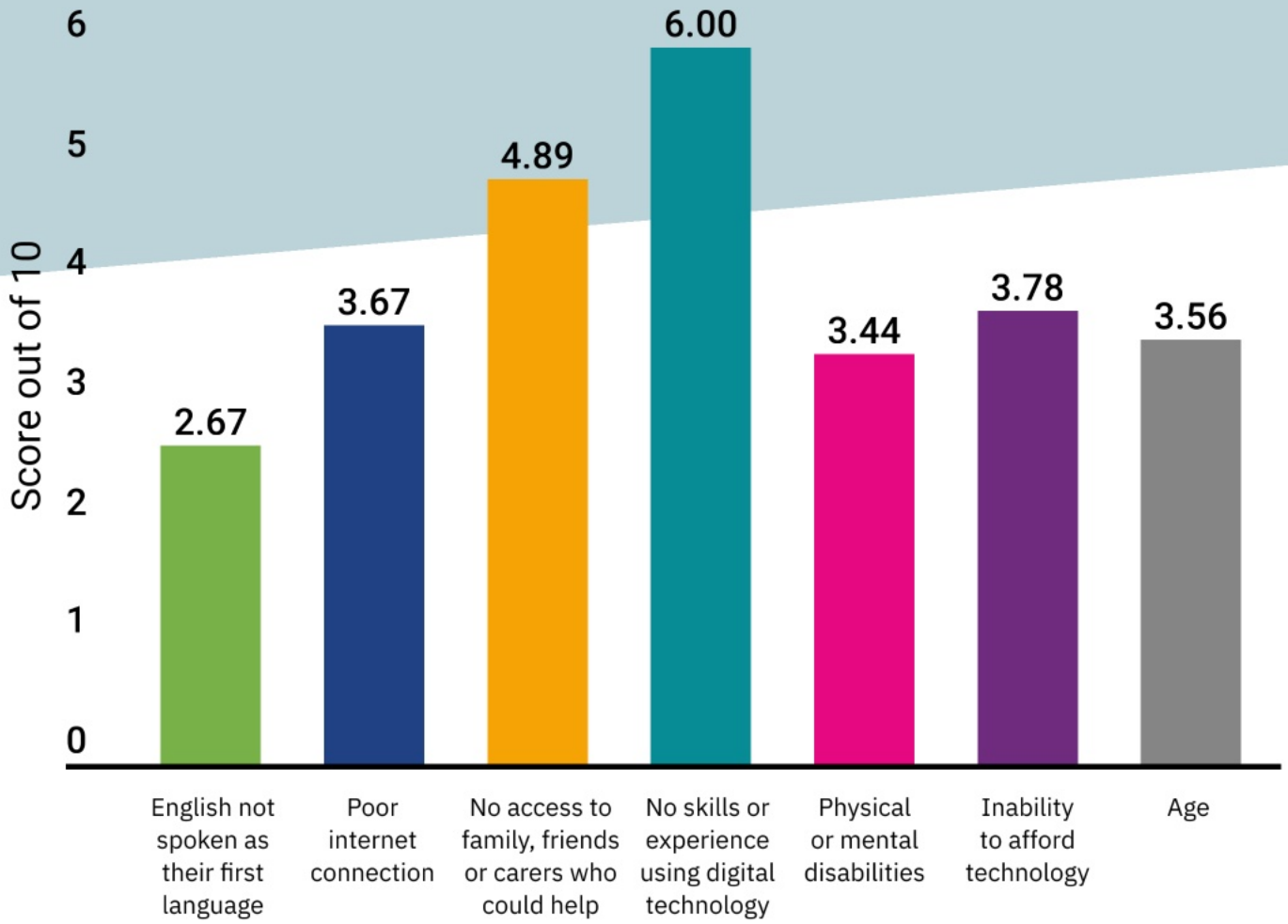
could identify who those patients were.



Digital health coaches + **Community Shared Devices**

were seen at the best ways for practices to support their digitally excluded patients.

The main factors of digital exclusion were identified as...



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Key takeaways.

Clinicians we surveyed and spoke to were very aware of the scale of digital health exclusion, and put measures in place by either phone, letter or text to ensure their patients remained connected.

The single biggest measures respondents thought would help in terms of skills or access to technology, were digital health coaches (over 34%), followed by shared community devices (over 17%).

Considerations and recommendations.

Technology is moving fast, and it takes time to catch up. Technologies that seemed like tomorrow's world, already happened yesterday.

Innovation that many of us thought we didn't want, we now can't live without. For example, self-checkouts at supermarkets.

Due to the speed and impact of Covid-19, some technologies went straight to market and therefore bypassed that crucial marketing and consumer buy-in stage.

It takes time, investment and often a user's first interaction with new technology in order to understand what we're doing and why we are doing it.

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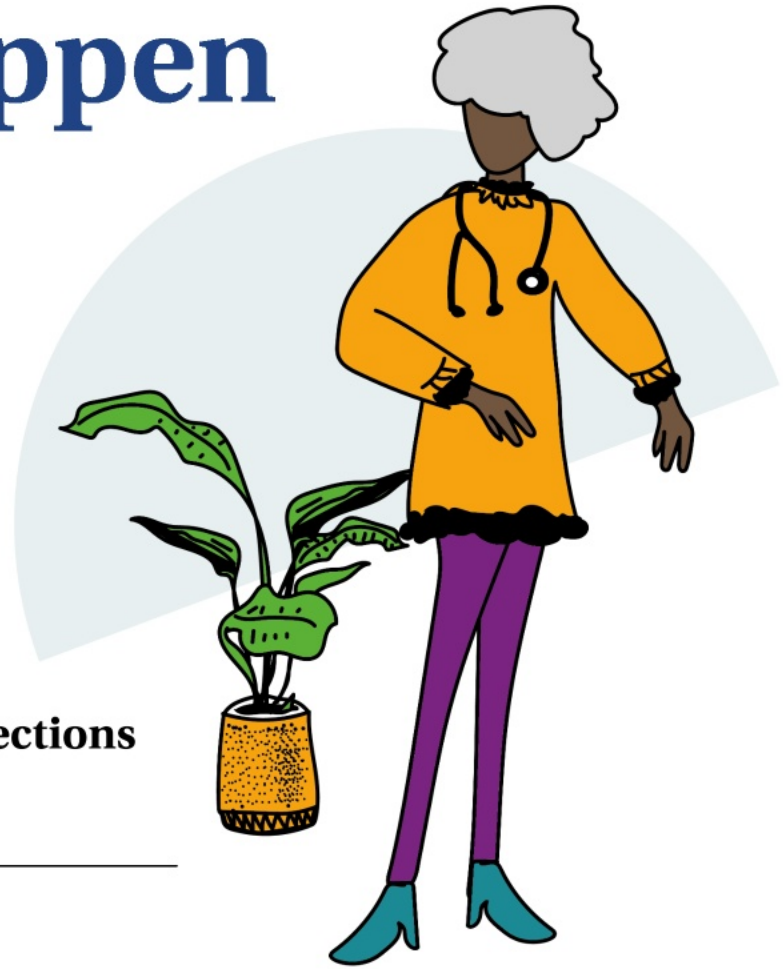

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Our final reflections.

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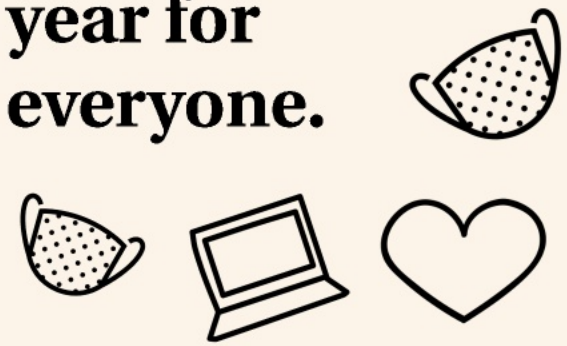
1 The future of health tech

2 Contact us

2020 was an unimaginable year for everyone.



That includes everyone working in the NHS, councils, voluntary services and in public health. We realised that to care for our patients appropriately in a pandemic, we needed to find a new way to interact with each other, and to communicate with and treat patients. Most patients and their families have understood that, and some have even liked the changes we've made. We realised that health technology, from video consulting to home testing, had to be the key to how we cared for patients. But of course there's more to do.

As a health system we have been as resilient as we can be, but everyone can agree that health technology played a big role in allowing us to do that. As many experts are vocalising, at NAPC we believe that health technologies, that is digitising all or part of clinical pathways combined with innovative and modern diagnostics and medical devices, will be the future of healthcare.

The truth however is, that whilst the country looks forward to ways out of the direct effects of the pandemic and getting people back to normal life, we in the NHS await, prepare and deal with the full aftermath of Covid-19.

What we have shown through innovating during the pandemic, is that we can innovate faster if we are clear on the end goal, both invention and implementation are incentivised to come together and that innovation is appropriately funded, complimented by a sense of urgency and collaboration culture. There will be many challenging memories of the pandemic, but we can celebrate innovation through the success of the vaccination programme, whilst reflecting on what it took to get here.

Through our NAPC Digital Programme, we have explored opportunities around:

- **Demand management platforms**
- **Long term health applications**
- **Mental health platforms**
- **Digital therapeutics and self-management tools**

In addition, we have:

- **Discussed the health tech regulatory landscape**
- **The procurement and commissioning challenges**
- **Innovation adoption methods, culture and leadership**

Plus, we have shown how this links back to population health principles and meeting the needs of communities and those with similar health, social, economic, cultural and behavioural characteristics.

NAPC's strategy and previous programmes have been built on population health principles, which inevitably seek to address health inequalities across populations that share these similar characteristics. As we all now know, Covid has shone a light on health inequalities across multiple domains, discussed in detail in the Marmot Review Ten Year's On (2020). The stark reminder from Marmot and the team's work, is that we've done worse in the last 10 years at addressing inequalities than ever before and the economic, social and health effects of the pandemic will have made that worse.

Our programme identified that technology can bring as much good as it can create further inequalities in health, but only IF we don't address these inequalities. Such as allowing a divide to develop, and when we assume that all patients, their carers and professionals have the same opportunity to use and adopt technology in the same way or pace. As we all know, that simply isn't true.

Through our work on the programme and exploring an emerging methodology around implementation, **we have learnt that some can and will adopt technology well, others will need support, and some high need minorities in our population will not. For them access to services embedded in technology may not be right – but through technology implemented elsewhere, we can free up more time and resources to support these individuals and communities differently.**

So now we need to 'lock in the benefits'...

And use this to bring the adoption of technology fast forward. At NAPC, we have been supporting innovation for a long time, and side-by-side with the frontline. We know that doing new things is difficult, needs courage and the right leadership and needs us to be your voice in the NHS and broader group of stakeholders across health and social care systems. That's why we set up our digital programme. We wanted you to have more of a say in how health technology is brought to our communities and our patients. We look forward to growing our programme out further over the coming months and years.

Our final reflections.

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1 The future of health tech

2 Contact us

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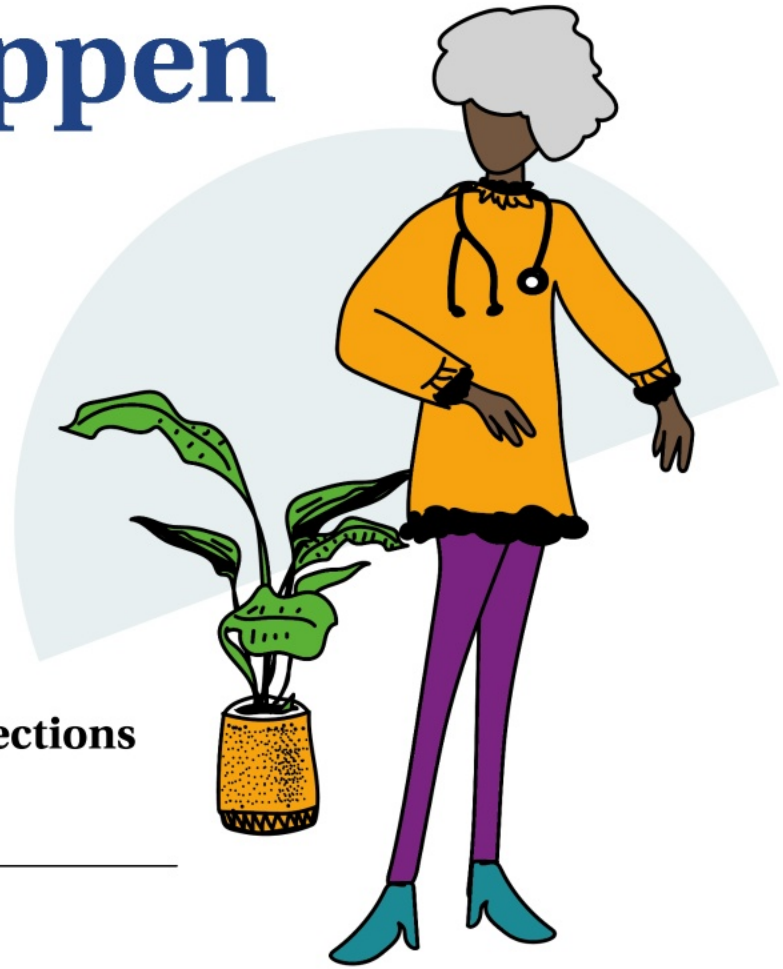
No Better Time to Make Health Tech Happen



1. A new era for health technology
2. Locking in the benefits
3. The NAPC approach
4. Digital survey results
5. Final reflections