DIGITAL HORIZONS

Spring 2017

The future of healthcare

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Arden&GEM

NHS
Arden and Greater East Midlands
Commissioning Support Unit

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Introduction

Welcome to the latest edition of Digital Horizons. Our aim is to keep you informed about the exciting developments in digital technologies which are essential to help you deliver sustainable healthcare.

Arden & GEM is establishing an increasingly strong profile as a capable delivery partner and thought leader on digital transformation for healthcare.

With a unique set of partners we can access and offer disruptively innovative solutions that tackle the challenges set out in the Five Year Forward View.

In this newsletter we will talk about some of the exciting developments we are working on but will also look more broadly at innovation happening now around the world as well as what is coming over the horizon.

We are always keen to share our thinking and understand your ambitions, so wherever you plan to head with the power of digital healthcare solutions, please contact us and let's set up an exploratory discussion.

The NHS faces probably greater challenges than any time in its history but we firmly believe that digital transformation is the most important element of the solution. Join us on the journey!

Adrian Smith
Head of Digital Transformation
at Arden & GEM CSU

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Next steps after Wachter

Twelve months ago, the treasury approved an additional investment of £4.2 billion for NHS technology to support Jeremy Hunt's ambition for a 'paperless' NHS. Six months later the Wachter review "Making IT Work: Harnessing the Power of Health Information Technology to Improve Care in England" outlined a clear vision and approach to achieving this ambition.

The review re-shaped priorities and timescales and led to the appointment of two critical new roles - system-wide CIO and CCIO. It also recommended that the best route towards paperless was through accelerating existing good-practice in key providers and so was born the Global Digital Exemplar (GDE) programme.

NHS England announced that "A global digital exemplar will be an internationally recognised NHS care provider delivering exceptional care, efficiently, through the world-class use of digital technology and information flows, both within and beyond their organisation boundary. It will also be a reference site to other care providers."

Essentially, 'digital exemplars' are the vanguards of the digital transformation agenda. Originally, the programme covered twelve NHS Hospital Trusts which has since been extended to sixteen. Mental Health Trusts have also been added to the programme and there are set to be more organisations identified as digital exemplars across the full range of NHS services.

Exemplars are a crucial element in ensuring that digital solutions can underpin a sustainable future for the NHS in line with the Five Year Forward View. As with the development of new models of care, NHS England has set out a programme which includes establishing a baseline so that the NHS as a whole can understand the starting point for these Trusts, as well as commissioning an ongoing external support programme to monitor and evaluate their progress. This should provide a clear insight into which technologies, systems and approaches have the biggest impact so that benefits can be fast-tracked across the wider NHS.

Further updates on this programme of work, including the broader initiatives arising from the new funding and the wider impact of the Wachter Review will be included in future issues of digital horizons.

Arden & GEM awarded Global Digital Exemplar Baseline Evaluation Programme

Arden & GEM is delighted to have been awarded the contract to carry out the baseline assessment for the initial tranche of sixteen NHS Hospital Trusts. This work is intended to help the exemplars, and NHS England, understand exactly where they are on their digital journey and provide the baseline for a subsequent four year support programme.

In line with our market -leading approach and drawing on our experience of supporting vanguard sites in developing new models of care, Arden & GEM has partnered with the Oxford Academic Health Science Network and Optimity Advisers to assemble a team with a unique set of skills and experience.

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Always Connected mobile services -

how the UK Space industry is transforming emergency and screening services using satellite technology.

One of the expectations of the drive towards the paperless NHS is improved interoperability between the wide range of service providers across health and social care. The ability to transfer a rich range of high quality data is a fundamental part of this ambition.

For example, in relation to emergency care, high quality information (including video images) can be used to support enhanced care at an incident scene, provide more effective 'pathway decisions', improve care in transit and enhance handover of care.

To deliver reliable and timely access to this information requires equally reliable and robust connectivity. The UK is a world leader in the use of satellite technology and the communications capabilities which satellites can provide are helping to transform healthcare delivery. Satellite technology is a part of the mix alongside other networks. It's a secure channel that often is the only reliable choice particularly in remote rural areas.

In Scotland, projects such as the Satellite Ultrasound for Rural Stroke (SURS) are already enabling significant improvements in emergency healthcare provision in remote rural environments.

There is a short window of time for patients to receive the appropriate treatment if they've suffered a suspected stroke. The geography of the Scottish Highlands means it is very challenging to get to the key hospital in Inverness in time, never mind get through the system and provide treatment.

Working with the Satellite Applications Catapult and commercial partners, the SURS project explored and demonstrated ultrasound technologies along with unique tools to manage the availability of network bandwidth. Satellite technology allows a stream of images from a remote area to be sent back to the clinician in Inverness.

The success of this work in Scotland has led to other powerful satellite-enabled solutions from remote monitoring of diabetic foot ulcers to capsule endoscopy (also explored in a later article in this issue).

But reliable connectivity isn't just important for emergency care. In an innovative breast screening project satellite connectivity also enables automatic and instantaneous image transfer to HQ picture archiving and communication system or PACS.

Integrated software solutions enhance the paperless booking and management of appointments, improving attendance and enabling key cancer targets to be met - all at a reduced cost compared to traditional methods. Although the service has begun with breast screening the approach can be applied to other screening services.

Arden & GEM is now involved in shaping possible use of this connectivity capability to support ambulance and urgent care applications in England. If you are interested in these or related projects, drop us a line at contactus@ardengemcsu.nhs.uk

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Guest Article

View from The Hill - Catalysing Digital Innovation

Dr Nick de Pennington, Director, The Hill Oxford

In a world of decreasing health spending and increasing user expectation, innovation has become a mantra for health leaders worldwide. Whilst it is easy to say, delivering meaningful changes to established healthcare systems has proved more challenging.

Partly this has been due to entrenched processes and long lead times in the development of new therapies. In contrast the increasing prominence of digital health seems to offer a panacea - rapid development cycles, led by frontline users, producing globally scalable impact.

Of course, things are not so simple. Whilst the hype suggests that everyone can be a tech entrepreneur, the barriers in healthcare remain high. Fast development requires technical skills and focused commitment. Few healthcare users (either patients or professionals) have the capacity or capability to do this without significant support. The threshold for a clinician to depart from their established career path is significantly greater than most professions. Patients have the stresses of their medical conditions to manage alongside their own livelihoods. Healthcare typically exists within its own closed ecosystem which limits access for those outside this bubble.

To support tech innovation existing methodologies have been transplanted wholesale into healthcare settings. Hackathons to generate ideas, incubators to fast-track development and accelerators to create viable companies are increasingly commonplace in large healthcare centres.

The Hill is the Oxford healthcare system's attempt to deliver the promises of digital health innovation. It has been created to serve two synergistic needs: Firstly, to support grassroots innovation from healthcare users (patients and professionals), who we believe are the people best placed to identify important needs and novel solutions. Secondly, to provide a clearly defined pathway for external innovators to bring their disruptive ideas into the healthcare system.

We will do this through an open programme of teaching, training and support events that enable innovation to occur 'in-situ'. Just as in vascular surgery – where it is futile to remove a blockage if you don't deal with the downstream narrowing - so our model also creates a commercial outflow for ideas through seed funding and diverse external experts-in-residence.

A multidisciplinary community, Digital Health Oxford (DHOx), is at the base of The Hill. But the organisation is part of the Oxford Academic Health Science Centre (AHSC) - the partnership of Oxford's two secondary care providers (Oxford University Hospitals NHS Foundation Trust and Oxford Health NHS Foundation Trust) and universities (the University of Oxford and Oxford Brookes University). The Hill is linked to the Oxford Academic Health Science Network (AHSN) and has strong relationships with the Oxford Clinical Commissioning Group (CCG).

This geographically tight 'full-stack' health network and our relationships allow us to provide robust governance and academic partnerships to support thorough evaluation. We hypothesise that the combination of access and oversight will enable a safe 'fail fast' culture to develop. Healthcare users are consumers, and have come to expect the highly evolutionary development that occurs with digital products outside healthcare. Only when this is in place will we have succeeded.

The Hill's programmes will formally launch in April 2017.

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NHS Healthy New Towns programme -

how digital technology is being integrated into future housing developments

In February this year the government announced its intention to support and stimulate the market in order to build a million new homes.

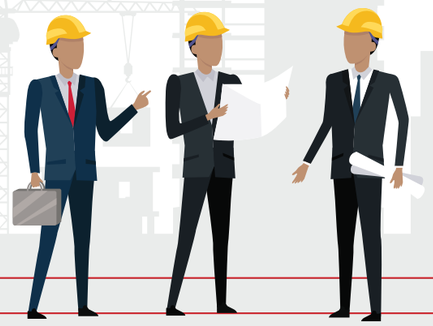
The NHS recognises the importance of the built environment to healthy living and lifestyles and in 2016 began working with ten housing developments to shape the health of communities, and to rethink how health and care services can be delivered.

As NHS England states, the Healthy New Towns (HNT) programme "offers a golden opportunity to radically rethink how we live - and takes an ambitious look at improving health through the built environment."

Arden & GEM is pleased to be part of an important feasibility study that is a crucial element of the HNT initiative. Working with Harwell HealthTec in a project funded jointly by NHS and Science and Technology Facilities Council (STFC) we are helping to define:

- How obesity and diabetes challenges can be tackled through changes to the built environment
- How the health impact of different built environments can be measured and evaluated
- How air quality mapping and monitoring can be used to help individuals manage their own wellbeing
- The nature of school education programmes that can help underpin sustainable behaviour change
- The role of competitive group initiatives in broader digital therapeutic strategies

This is an important project which we believe could have a major impact on millions of people's lives. The first phase of work will deliver clear recommendations in March and April and we will continue to update you on the developments around this important programme.



Structured education for diabetes -

why digital solutions are the only way forward

Education is a critical enabler in driving the sustainable behaviour changes required to tackle the major global problem of diabetes.

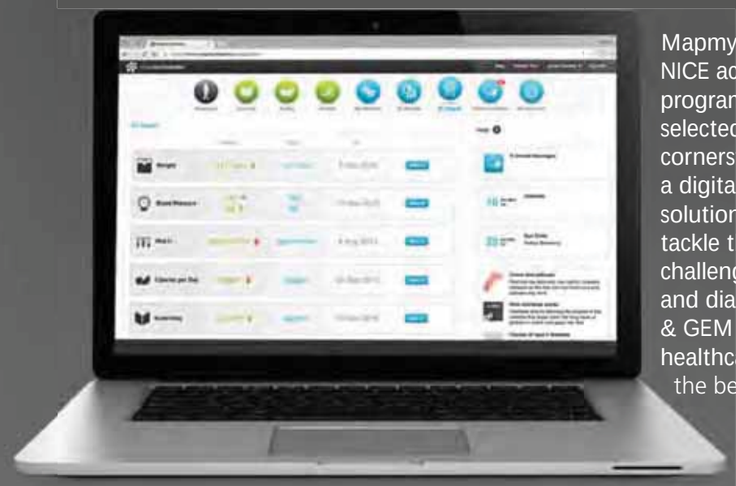
The scale of the problem is such that digital solutions provide the only scalable route to long term self-management and sustained behaviour change.

In this country, if you are diagnosed as diabetic one of the first things your GP will do is 'prescribe' a structured education programme. Historically the waiting list has hovered around nine months and the take-up has been generally less than 5 percent. Little wonder then that education isn't having the behavioural change impact that it should.

There are lots of factors that impact the poor take-up of education. The waiting time is a factor, as is the worktime delivery times which make the programmes inaccessible for many people. But if the take-up were 100 percent, this would cause another major challenge - the cost and practicalities of delivery would simply prevent this scale of implementation.

Digital delivery of structured education is the only cost-effective scalable solution. It works too. Outside healthcare, digital learning delivery has been proven to change behaviours and the NHS doesn't need to re-invent this proof in the clinical environment. It's not just the anytime, anywhere element of digital delivery that works for people or the ability to access learning in bite-sized chunks - although both these factors help. It's also the fact that digital support has 'lifelong' availability. Face to face training is often followed by poor long-term retention.

Against this background we have been working with Mapmyhealth to offer their leading Mapmydiabetes solution to CCGs and individual GP practices.



Mapmydiabetes remains the only NICE accredited structured education programme for diabetes and was selected by NHS England as the cornerstone of its 'test bed' for a digital diabetes coach. Digital solutions are available now to tackle the ever-increasing challenges around obesity and diabetes and Arden & GEM can help the healthcare system reap the benefits.

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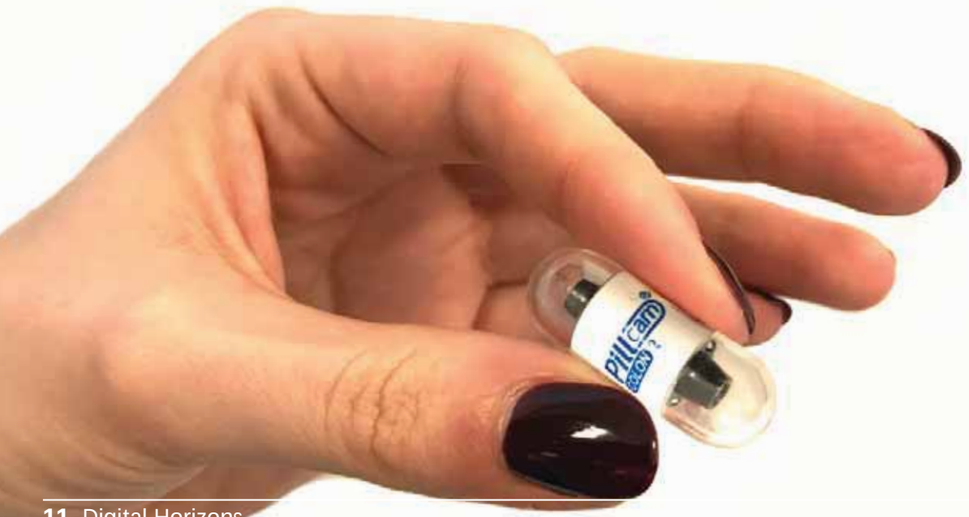
Capsule Endoscopy - a look inside!

Diseases of the gastrointestinal tract place a high burden on our population: Some 5-7% of all people will be diagnosed with bowel cancer during their lifetime and most of these diagnoses will occur over the age of 50. Not as deadly, but often more enduring, are inflammatory bowel diseases (IBD) such as Crohn's. This can start in teenage years and lead to endless suffering, with over 20,000 people in England hospitalised for Crohn's disease each year.



Upper and lower endoscopies (i.e. colonoscopies) are normally the procedure of choice for initial diagnosis and ongoing surveillance of GI diseases. No invasive procedure however comes without risk, high cost, and much discomfort to the patient.

An alternative has been available for over 15 years and continuous to be proven in numerous clinical trials: Capsule Endoscopy - a vitamin-pill-sized capsule that wirelessly transmits its images as it travels through the whole length of the GI tract.

Even though this minimally invasive procedure appears to be an obvious choice for diagnostics, its adoption is limited by rigid clinical processes and lack of robust workflow management. So while more than 600,000 endoscopies are conducted every year in England, only some 10,000 of those are capsule endoscopies - and nearly all of them are used for the small bowel, not the colon.

To improve upon this practice, the GI specialists at NHS Highlands in Inverness decided to tap into experience with capsule endoscopy gained in Denmark and Germany. There, healthcare start-up CorporateHealth International (CHI) centrally analyse capsule videos with specially trained nurses and doctors. This approach manages the flow of the patients in or outside the hospital and operates a fully digitized workflow.

In the new Highlands Capsule Program (HICAP), NHS Highland team members from Raigmore Hospital in Inverness, Ullapool GP surgery and Skye are brought together with CorporateHealth, Highlands & Islands Enterprise, and Satellite Applications Catapult to provide patients with an alternative to the perilous trip to Inverness while under the bowel prep regimen. For an initial or repeat GI diagnosis the patient can stay at the local GP surgery to conduct capsule endoscopy, which is remotely analysed by CorporateHealth and transmitted for final diagnostic to Raigmore.

This seamless process has been built with scalability in mind and can be performed on the Western Isles or in Central London. It is cost effective to deploy, reduces waiting times, and offers the least discomfort to the patient (a bowel prep is still needed). The reluctance of people to get a GI investigation can be more easily overcome. IBD-patients can therefore be more directly monitored for their treatment success or failure; anybody at risk of colorectal cancer has a better chance that their polyps are detected before they even turn into cancer. All while decreasing costs and increasing capacity. Who wouldn't want that?

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