



Taking digital tech further into care

Opportunities and issues in using technology to support people in their homes and communities

A UKAuthority Briefing Note from Digital Health & Social Care

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1. Introduction

NHS Digital and the Local Government Association (LGA) took another step in late June to promote the cause of digital health and social care in England. They used the UKAuthority conference on the issue to announce a new round of funding for discovery projects - £20,000 each for 12 councils - to improve the digital maturity of the adult social care sector.

It closely reflected the focus of the conference, with an emphasis on what goes on outside doctors' surgeries and hospitals and supporting people in communities to ease the pressure on the NHS.

There was an underlying view in favour of enabling more people live to independently without intense medical care and, if they have to go into hospital, ensure the right arrangements are in place to support them as soon as they are fit to go home. The issue of bed blocking has become a serious problem for the NHS and any progress in reducing this would be seen as a major gain. But there are other benefits in giving people the digital tools for self-care at home: improving their sense of wellbeing, keeping them closer to friends and family, reducing the number of emergencies and easing the financial burden on the health service.

The presentations and discussions at the conference highlighted some of the achievements in the field and where new ground is being broken, but also faced up to some of the difficulties and the issues that will have to be resolved in pressing the agenda.

In the course of the day a handful of key points emerged.

2. A continued emphasis on mobile

Mobile technology is an increasingly prominent part of the landscape. Professionals in health and social care are able to spend more time in communities thanks to the strengthening of secure mobile networks, the spread of tablet computers and development of software applications to record crucial information. Many organisations are breaking down the old reliance on pen and paper with a shift to digital platforms that condense information and provide updates and alerts as needed.

An example of what it can achieve was provided by Paul Hunt of Bradford Council, along with Mark Howes of technology partner Konnektis, in talking about a pilot project that involved six care providers and 150 users. The key findings were that it improved the quality and efficiency of care visits, enhanced the ability of the carers to provide person-centred and proactive care, and provided better safeguarding in terms of immediately alerting the office of when a person urgently needed a specific product or service. In addition, it has made it possible to provide families with better information and saved time and money for the care providers.

The council concluded that digital technology has to be a core part of its business in social care, and it is now aiming to enable families of care recipients to check on relevant information through their own devices. This reflects a trend in which authorities are looking to extend the capabilities of mobile systems to provide more options in care.

Mobile apps are also being created for the public. Jason Kitcat of Essex County Council described its development of Get Me Home, designed to support patients and their carers through discharge from hospital. He said it comes from the council's research showing that people want to take charge of their own care, but don't know where to start and how to prioritise. The app has been designed with users, healthcare and social care professionals to support a conversation, with multiple answers, about what they need, what they should do and how to find support.

The project had gone to beta phase shortly before the event and the council was planning on testing it in collaboration with NHS Digital and developing a chatbot element.

3. Assistive technology

The reach of digital into the home is being extended in the form of assistive technology. The more rudimentary devices such as alarms and basic sensors have been in use for several years, but as more sophisticated devices appear – able to monitor people's physical conditions and factors in the home that could indicate a problem – and the market makes them less expensive, organisations are testing new solutions.

They see benefits for themselves and care recipients in making it safer for them to remain at home: the authorities save money and the individuals can remain active and feel better about themselves. The devices can also provide a stream of data for the automated monitoring of people's physical or home conditions and provide alerts when action is needed. Discussions at the event conveyed the sense that a tipping point is being reached, where the early prototypes and pilots have proved the case and a big increase in deployment is in sight.

A handful of developments have provided support. The increasing use of wearable tech, and its reduction in size, is making more people comfortable with the idea of using devices attached to their bodies. And authorities are learning more about the promise of the internet of things (IoT).

Then there is the growing interest in voice activated technology, with the increasing popularity of systems such as Amazon Alexa and Microsoft Cortana, and an understanding that older people are likely to feel more assured in a spoken rather than written conversation with a supporting system. Overall, there is the sense that devices and networks have matured to the point where they can play a central role in supporting care for people in their homes.

A number of examples were described at the conference.

Geoff Connell of Norfolk County Council spoke of its deployment of assistive technology devices with 7,000 homes with another 2,000 in the pipeline. This includes a combination of basic sensors with more advanced solutions such as Alexa connected to telephones, and geofencing around people's homes to monitor when they go beyond their normal limits.

Paul Goulden of Age UK talked about an AI powered solution that uses the screen device for Alexa, Amazon Show, to help people book health appointments and activities, make payments and video calls. It can also provide alerts and even be equipped with tools to help its user cope with dementia. It is currently going through a pilot in some Hanover Housing schemes and Goulden said that more uses can be developed.

Andrea Baker of the East Midlands Academic Health Science Network outlined the Falls Prevention Programme, involving the development of a system to be used with an array of devices to provide alerts on data and old people in their homes. It includes a self-care portal currently used by 5,000 people and is prompting forecasts in excess of £20 million over five years for the region's NHS.

Helena Zaum of Microsoft spoke of how a digital system can interact with devices in a person's home to monitor signs such as their sleep patterns, process the data to detect causes for concern and pass on information to families, carers and healthcare professionals. Combining it with a chatbot lays the ground for a dialogue with the person in which they can be advised of potential issues and steps to take care of themselves.

The discussions raised the fact that all this comes with concerns. One is that there could be a perception among the public that assistive technology is effectively providing care on the cheap. It was acknowledged that it is a real issue, and it could be a challenge for politicians, but contributors pointed to a handful of factors that can overcome it:

Authorities can make clear it is about using technology to augment, not replace the role of people in providing care.

Older people are often open to using technology if you talk through how it works and what it can do for them. If you spend a little time on taking out the fear they will embrace it.

The rapid development of artificial intelligence (AI) is making it possible for voice activated systems to respond to regional accents or different choices of words. The ability to understand is growing.

People are generally becoming more comfortable with interactive technologies, and if care authorities do not harness them they will be seen as having failed to keep up with the public.

There is also the question of whether people would accept non-human companions. It prompted references to reports that people have proved comfortable in dealing with Alexa, and that the main element of the technologies is that they keep people in contact with others. Making this clear from early on should soon overcome any reservations.

4. Emerging technologies

While assistive tech is already building a strong presence, the conference revealed an increasing interest in what emerging technologies using different types of data and artificial intelligence (AI) can do for care.

It was reflected in some of the projects to receive support from the NHS Digital and the LGA. They include: an initiative led by Isle of Wight Council to explore public attitudes to robotics in care; Wirral Council looking at the role of biometrics in exempting care needs; and Shropshire Council's use of predictive analytics, machine learning and data modelling to understand demand for services and inform commissioning plans.

There were also references to the potential to use augmented and virtual reality to support healthcare. The former – which involves imposing data on top of the vision seen through a camera or glasses – could be used in the diagnosis and treatment of conditions; and in mobile apps to help

people manage their own care. The latter could be used in training for clinicians, or to help patients whose conditions affect their perception of the world, such as helping people with autism overcome phobias.

Participants were generally aware of Southend-on-Sea Council's pilot for using a child-size robot for some activities in social care¹, and of the Department of Health and Social Care's review into how NHS staff can be trained to use AI and robotics.² It reflects the growing appreciation that the technologies can be used for some of the more mundane tasks currently handled by human carers and give them more scope for the complex and emotionally testing elements of their jobs.

Helena Zaum said there is a tremendous opportunity for extending the use of data and AI in the space, but pointed to an issue with information being locked into legacy systems that are not easy to access. Organisations looking to take early steps with the emerging technologies need to ensure they can access any relevant data and that it is possible to build in the necessary interoperability.

But there are ethical considerations that are still being explored. Questions were raised around how effectively sensitive data on individuals – which is generally necessary to build a good predictive model – can be anonymised. The health service has had its troubles with patient data – as in the meltdown of the care.data programme³ – and has to find a delicate balance between taking it into new areas while respecting privacy.

As organisations adopt machine learning and AI they also have to establish the limits of the decisions made by the technologies. There is a growing consensus that they should be used to augment rather than replace human decision-making when it has a major impact on the subject – a potential minefield in social care. Organisations might develop their own positions on where the line stands, which could create uncertainty and stir up tensions, and it would need strong governance to preserve public trust.

There is also the question of whether people will accept non-human companions. Paul Goulden pointed to the rapid spread of Alexa as an early sign that they are open minded; but it becomes more complex when there are issues of safeguards and the person's mental capacity. Also, any sign of it undermining the care recipient's sense of control could be a cause of alarm.

There could be a fine line between enabling the technology to take over routine care tasks – such as ordering food deliveries or alerting people to take medication – and dictating to them. There are going to be grey areas around this and organisations will find it difficult to draw those lines clearly. In response, Geoff Connell pointed out that the crucial point is that the technology facilitates contact with other people, and that organisations will have to find what works best for specific groups or individuals.

Nobody claims that dealing with these ethical issues will be a clear cut process, but there was a sense that they should not be an excuse for retreating from the potential.

¹ <http://www.ukauthority.com/UKA-Local-Digital/entry/7608/southend-on-sea-to-use-robot-in-social-care>

² <http://www.ukauthority.com/health-care/entry/8138/nhs-to-review-staff-training-in-ai-and-robotics>

³ <http://www.ukauthority.com/health-care/entry/6322/government-drops-caredata>

5. Demands on data

It almost goes without saying that people still see scope to make more use of data in providing care. The ability to draw on information from different sources to identify problems or where there are solutions can do a lot to cope with the challenges in integrating health and social care.

Geoff Connell highlighted this in pointing to the use of a bed vacancy tracking app in Norfolk, which has been made available through the council's website and identifies available care home beds around the county and has helped social services teams place people more quickly.

The event also demonstrated the appreciation of harnessing big data and analytics to examine the interrelated factors in health and social care, spot the long term trends and support planning to shift the emphasis to prevention and self-care.

But nobody underestimated the challenges. Peter Davies of machine data specialist Splunk said the underlying need is to derive actionable intelligence from data, and that while there is a seemingly endless supply, organisations often do not know what type they need to deliver a desired outcome. There are blind spots, and data management systems can often only handle specific types in a certain way. And it is coming in higher volumes and velocities with more variants.

One of the priorities, he said, is to make machine data more accessible and usable, and for organisations to learn how to dictate the management of data in terms of the outcomes it wants to achieve. For example, this can focus on issues such as bed blocking or identifying people who continually turn to emergency care when it is not necessary.

There is also a big issue in obtaining data from legacy systems that have often not been designed to make it accessible, and which could be subject to supplier contracts that only make it available at a price. It is not easy to overcome in the short term, but the view emerged that organisations have to take it into account in future procurements.

Everybody was also familiar with the need for the balance between data sharing between organisations and respecting the privacy of individuals, especially given the sensitivity of care data. The recently implemented General Data Protection Regulation (GDPR) has created some uncertainty around what is permissible, but Dawn Monaghan, head of data sharing and privacy at NHS England, said it should not be seen as a barrier.

She said information governance rules for an organisation should not say you cannot share, but that you should do so with safeguards in place. It is not always necessary to get consent to share; in fact under GDPR it is not needed in the great majority of cases. But it does require consent when sharing confidential patient information that is not de-identified for purposes that are not part of direct care.

Monaghan identified four requirements to make sure of in sharing data: to have the legal power to do so; having scheduled conditions for processing; satisfying the duty of confidence; and considering responsibilities under the Human Rights Act.

She also recommended that a group of organisations sharing data on a regular basis should have an information governance lead in place. They should have some expertise in the subject, negotiating

skills to ensure the organisations collaborate with the data, and be ready to take accountability for the policy and legal requirements.

6. Culture and risk

The event was underpinned by a consensus on the need for new digital solutions, and a greater integration of the technology and processes in health and social. There was also a growing appreciation that many of the solutions are already available, and that technology is advancing at a pace that will open up many more opportunities in the next year or two. But there was also a recognition that in many organisations there is a resistance to their adoption.

This is a familiar problem for all of the public sector, largely because of the perception it will adversely affect employees' jobs and involve major organisational change. There is no easy answer, but the point was raised that it needs a strong supporting effort by an organisation's leadership, with a sustained effort to convince employees and the public of the long term benefits.

It was also suggested that if employees receive the right training and skills it can do a lot to overcome the cultural resistance. Most are already using digital technology every day in their personal lives, and they are increasingly likely to empathise with the drive towards eradicating paper in the NHS and social care. Their attitudes are changing, and it needs the leaders to push them towards the more pervasive use of digital.

It also needs investment and to overcome the perceptions of risk. There is something of a trend for people in the services to acknowledge the need for wholesale change then highlight the risk in individual changes. This is going to demand a series of business cases for incremental progress, focused on achieving specific outcomes while ensuring the technology choices fit within an interoperability framework. It is important that the step-by-step approach provides a way of managing the risk effectively; although it also needs a degree of boldness to keep the momentum going.

James Palmer, programme head of social care at NHS Digital, said there is often a need to remind people of how specific changes can help to change the big picture and create a more positive outlook for the service as a whole. It should also be emphasised that there is a greater risk in not moving forward than in any individual change.

He also provided an optimistic perspective that reflected the general mood of the event, predicting that by 2021 there will be a step change within the care sector on attitudes to digitisation. Leaders and employees will have a much clearer understanding of the return on investment, in financial and societal terms, and an established framework of benefits.

"We'll have really put together a framework of core capabilities, particularly for provider Its, so we can start to influence the entire sector and marketplace. We can ask people to do data sharing and have the conversations around vocabulary and terminology that can take things to the next level."

7. Speakers and their content

[Visit the UKAuthority Event Hub for all speaker videos and presentations](#)



Norfolk's digital development plans for adult social care: Geoff Connell, CIO Norfolk County Council / immediate past president of Socitm



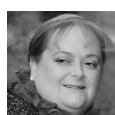
Information sharing – friend or foe: Dawn Monaghan, Head of Data Sharing and Privacy (NHS England), Head of Strategic IG (NHS Digital) and Director Information Governance Alliance



Using technology to add life to years:
Paul Goulden, Chief Executive, Age UK London



Harnessing data to provide answers:
Peter Davies, UK&I Public Sector Account Director - Emergency Services & Healthcare, Splunk



Preventing and managing frailty and falls in the ageing population: Andrea Baker, STP and LA Engagement Lead, East Midlands Academic Health Science Network



Supporting the digital maturity of social care in England, challenges, solutions and partnerships: James Palmer, Programme Head Social Care, NHS Digital



Social Care Digital Innovation Programme: Ed Humphreys, Care & Health Programme, Local Government Association



Rebooting health and social care: the potential gains of using tech in health and social care: Helena Zaum, CityNext Lead, Microsoft UK & Tim Gregson, CTO and Local and Central Government Digital Advisor, Microsoft UK



Design thinking and adult social care in Essex County Council: Jason Kitcat, Executive Director - Corporate Development, Essex County Council



Digital care records: Paul Hunt, Contract and Quality Assurance Manager, City of Bradford Metropolitan District Council



Overview and welcome to UKAuthority Digital Health & Social Care: Helen Olsen Bedford, Publisher, UKAuthority

8. Digital Health & Social Care 2018 – Our Partners



Microsoft is best known for its key role in the computing revolution. Less well known is the role Microsoft plays today in the health industry, but a similar revolution is underway and once again the company is at the centre. As the potentially transformative power of AI and data become more evident, health and social care organisations in the UK and worldwide are considering how these tools could be brought to bear to deliver care which is more responsive to the needs of the individual and allows for a more efficient service.

Technology can help deliver better administration and decision making allowing for more focused human intervention where it is most needed. However, moving beyond digitisation into true service transformation requires new ways of thinking and working, and an open approach from those serving the sector.

To find out more about transformation in action in the UK, please take a look at our Smart Places & Connected Communities booklet here: <https://aka.ms/enterprise-citynext>



Splunk was founded to pursue a disruptive new vision: make machine data accessible, usable and valuable to everyone. Machine data is one of the fastest growing and most valuable parts of big data - generated by every component of IT infrastructures, applications, mobile devices, website clickstreams, social data, sensors and more.

Splunk is the leading software platform for machine data that enables customers to gain real-time Operational Intelligence. Our company's mission is to address the challenges and opportunities of managing massive streams of machine-generated big data. More than three quarters of the Fortune 100 and thousands of enterprises, universities, government agencies and service providers use Splunk software to harness the power of their machine data for application management, IT operations, security, web intelligence, customer and business analytics and more.

Splunk helps customers solve problems in ways they could never dream before. With Splunk, all you need is a browser and your imagination. Visit <https://www.splunk.com/> for more information.

9. Participants at Digital Health & Social Care

9.1 Where they came from

Local Government Shared Services, Coventry City Council, Genomics England, Cambridgeshire County Council, Kent County Council, City of Bradford Metropolitan District Council, Southwark Council, East Midlands Academic Health Science Network, Leeds City Council, Central Bedfordshire Council, City of Bradford Metropolitan District Council, Wiltshire Council, Bracknell Forest Council, NHS England, NHS Digital and Information, Governance Alliance, Local Government Association, Norfolk County Council, New Zealand Trade And Enterprise, University of Warwick, NHS Digital, Essex County Council, London Borough of Hammersmith and Fulham, Hampshire County Council, London Borough of Tower Hamlets, Department of Health & Social Care, London Borough Hammersmith & Fulham, Oxfordshire County Council, Department of health and social care, Adults Social Care, Bradford Council, North Lincolnshire Council, Bracknell Forest Council, Imperial College, Devon County Council, Dorset County Council, Marie Stopes International, CIPFA, London Borough of Newham, Department of Health, Brighton and Hove City Council, North Yorkshire County Council, Bristol City Council, City of Bradford MDC, Royal National Orthopaedic NHS Trust, City of Bradford Metropolitan District Council, Age UK London, Midlands Partnership NHS Foundation Trust, Dorset County Council, Central Bedfordshire Council, Rutland County Council, Norfolk County Council, Norfolk County Council, Hampshire County Council, Newcastle City Council, City of Bradford Metropolitan District Council, Leicestershire County Council, Havering BC, NHS Digital, Upper Lea Valley CCG, Dental Services for Leicester, Leicestershire and Rutland, Nottinghamshire County Council, Marie Stopes International, Microsoft, Konnektis, Splunk

9.2 What they do

Business Systems Strategist, Business systems manager (ASC), Data Architect, Digital Business Analyst, Technology Commissioning and Strategy, Project Officer, Telecare Co-ordinator, STP and LA Engagement Lead - Falls Programme, IG Professional Lead for Change and Initiatives, Operations Manager Hospitals & Community Pathways, Project Officer, Portfolio Manager, Public Health Programme Manager, Head of Data Sharing and Privacy, Head of Strategic IG and Director, Care & Health Programme, Chief Information Officer, Business Development - Health, Postdoctoral Research Fellow, Programme Head - Social Care, Executive Director - Corporate Development, Assistive Technology Coordinator, Enterprise Architect, Assistive Technology Officer, Assistant Operational Researcher, Relationship Manager - IT, Deputy Director Customer Experience, Data Science Leader, System One Project Officer, Service Manager, Adult Social Care, Health & Housing, ICT Business Partner, ICT Business Partners, Quality Governance and Strategy Executive, Senior Trainer, Data Scientist, Social Care Data Scientist, Performance Lead, Technology & Change, Business Partner, Project Manager, Service Manager, Community Care, eMedical Records Manager, Contract and Quality Assurance Manager, CEO, Director, IM&T Development, Business Innovation & Systems Manager, Business Intelligence & Performance Analyst, Health and Social Care Integration Manager, Promoting Independence Project Manager, Business Development Manager, Senior Design Consultant, Service Improvement Lead, Project Manager, Strategic I&T Business Partner, Assistant Director, Transformation, Information Analysis Manager (Social Care), Patient Rep on Primary Care Commissioning Committee, Dental Services, Transformation Manager, Data and Reporting, CityNext Lead, Senior Sales Engineer, UK&I Public Sector Account Director - Emergency Services & Healthcare, Account Director, UK Local Government, CTO Local and Regional Government

10. Forthcoming events

Advances in the internet of things, big data and artificial intelligence are creating immense potential for better public services; but they all come with new risks, especially with the growing array of internet connected devices and new sources of data. Join us on the 20 September 2018 for the Public Sector Cyber Forum at 15 Hatfields, Waterloo, London, SE1 8DJ.

[Reserve your place at the Public Sector Cyber Forum 2018 here](#)

To discuss speaker and sponsor opportunities contact Helen Olsen Bedford: helen@ukauthority.co.uk



Post GDPR and with the new Data Protection Act, how can we use Data for Good in the public sector? Join us on the 16 October 2018 for the Data4Good 2018 at 15 Hatfields, Waterloo, London, SE1 8DJ.

[Reserve your place at the Data4Good 2018 here](#)

To discuss speaker and sponsor opportunities contact Helen Olsen Bedford: helen@ukauthority.co.uk



The March of the Bots, AI and machine learning in public services continues. Join us on 23rd November for March of the Bots 2018 at 15 Hatfields, Waterloo, London, SE1 8DJ.

[Reserve your place at March of the Bots 2018 here](#)

To discuss speaker and sponsor opportunities contact Helen Olsen Bedford: helen@ukauthority.co.uk

