Earlier this year, *International Innovation* attended the fourth annual International Digital Health and Care Congress. Read on for a selection of exclusive interviews and exciting speech extracts from the event.

**WITH A PARTICULAR focus on the use of technology to support people with long-term health conditions as well as other health and social care needs, this year’s International Digital Health and Care Congress attracted record numbers.** Over 500 delegates gathered from across the world to discuss the latest approaches, technologies and research emerging from the world of digital health. Representing researchers, policy makers, practitioners and industry, delegates were given the opportunity to learn about 70 international digital health projects; listen to expert keynote speakers; explore the array of exhibitions and posters; and network.

The International Digital Health and Care Congress was hosted by The King’s Fund, a UK-based charity dedicated to improving health and healthcare across England by ameliorating policy and practice.

[www.kingsfund.org.uk](http://www.kingsfund.org.uk)

@TheKingsFund

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**IN THEIR OWN WORDS**

Many of the delegates at the International Digital Health and Care Congress took to Twitter to voice their ideas, provide feedback and disseminate information learnt at the event. Here, *International Innovation* presents a selection of key highlights from the delegates:

**Anne Cooper**
@anniecoops

I think measures of patient activation may help us to measure impact of technology on citizens #ideas #kfdigital #citizenfocus

11:06 AM - 11 Sep 2014

**Nuno Almeida**
@VtgPoint

Service users already use a lot of digital technology, services are struggling to catchup #kfdigital

11:46 AM - 11 Sep 2014

**Andrew Bickerdike**
@AndyBickerdike

Great buzz around the networking sessions at #k-digital. Either we’ve upped the strength of coffee, or there’s growing momentum

12:24 PM - 11 Sep 2014

**Rhi Williams**
@rhiwilliams91

#kfdigital innovators trying to give leverage to the patient experience through apps and tech. Power to the patient. Fantastic

2:00 PM - 11 Sep 2014

**Ben Taylor**
@bentayloruk

Love the time devoted to questions. You can learn a lot from a presentation, but much is revealed in Q and A. #kfdigital

10:14 AM - 12 Sep 2014

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**A selections of videos from the Congress can be viewed at:**
[www.kingsfund.org.uk/audio-video](http://www.kingsfund.org.uk/audio-video)

**To learn more about the Congress and to access the presentation slideshows, visit:**
Could you provide an insight into your experiences launching the International Digital Health and Care Congress series?

This conference came about through the work that The King’s Fund was doing with the Care Systems Improvement Partnership and the UK Government about four years ago on telehealth and telecare deployment (the Whole System Demonstrators Action Network). We were specifically interested in the ability of new technologies to support self-care, improve health and social care coordination, and enable independent living in the home. We supported a network of innovator sites across England, ran a number of regional roadshows, and created a database of the evidence.

At the same time as these developments in England, there was tremendous interest and investment in telehealth adoption across Europe. In partnership with the International Foundation for Integrated Care, we developed the idea to host an international conference to share global experiences and bring together policy makers, practitioners, industry, researchers and consumers in a space for the type of knowledge sharing and discussion that didn’t exist anywhere else. Something that was very clear four years ago when we held the first International Congress on Telehealth and Telecare (now named the International Digital Health and Care Congress) was that the people who design telehealth and telecare in industry don’t talk much to the people actually buying or using the services. That’s a conversation that needs to be had, otherwise commissioners are potentially buying the wrong products to meet their needs and/or are not co-designing the right sorts of services. At the same time, there was also a lack of understanding of what all the research evidence was saying, and a lot of uncertainty as to the benefits of telehealth in terms of its value for money.

How has the Congress developed over the years?

The first congress was very much focused around traditional telehealth technologies and the transfer of clinical information to medical professionals. Today, within just four years, the technology and the ideas have moved on to mobile applications, cloud-based systems, real-time information sharing, and more user-friendly and affordable technologies that support health and care. Over the years, we have seen technology significantly outpace the ability of health and care systems to reform themselves in such a way that enables effective home-based chronic care management. Unless that begins to change, and change rapidly, then the technology will just go to waste; you need simultaneous innovation of care systems to match the technological change.

Which elements of this year’s event were you especially excited about?

There’s a lot in this event around mobile health technologies and ways of using real-time information to support clinical decision making and share information. I was especially interested to see some of the examples from abroad, such as the Connecting Care projects from the US Department of Veterans Affairs, which seems to be tackling the unresolved question of how to connect patients’ experiences with their outcomes, alongside an understanding of what aspects of the care system are affecting those outcomes. They’ve developed some really interesting ways in which they can use those data effectively, whereas in the UK we’re struggling a little trying to connect and use patient and clinical data as a means to support quality improvements.

I also enjoyed the sessions that looked at assisted living and how we can use technologies to support people to live well with their long-term care needs, rather than technologies acting primarily in a surveillance model that focuses on the progression of illness for the benefit of clinical professionals.

Looking to the future, what problems still need to be overcome to realise the potential of eHealth?

When we start talking about the future one must recognise that ageing populations are leading to more and more people living with multiple health and social care needs – so technology needs to adapt to cope with increasing case complexity. One important aspect of that is how to bring together all the data; it is really difficult, not just because of the different care systems, but because we record information differently. What I would like to see in the future is the development of ICT systems that not only connect people in these different organisations and more effectively overcome the difficulties associated with data sharing and governance, but actually use those data in terms of risk ratification or understanding population health needs, so that we can put better interventions in place. Next year, case examples in that area would be very welcome; if people are working in that field, they should come and present. Or, alternatively, they can attend the 15th International Conference on Integrated Care in Edinburgh in March 2015. It’s supported by NHS 24 and the Digital Health Innovation Unit, and will look at digital health innovations and integrated care, as well as how we tackle comorbidities, co-produce care with local communities, and better integrate health and social care.

www.integratedcarefoundation.org
@goodwin_nick
Dr Paul Rice, Head of Technology Strategy for NHS England, tells *International Innovation* about the organisation’s goal to move from paper-based to digital information by 2018 and tackle important privacy concerns

**Can you describe what your role entails?**

My job concentrates on supporting the NHS in England to move away from care processes that are dependent wholly or partly on paper towards a reliance on digital communication and information technology, with a particular focus on the role of the care record. If you walk the corridors of most hospitals, you see rows and rows of paper-based notes that clinicians have to access when caring for patients. We need to move to a place where all of that information is available at the touch of a button.

Of course, it’s not just about digitising what we’ve always done, but about radically rethinking what we should be doing and then understanding how moving to digital allows us to deliver that new model. It’s futile to just digitise mountains of paper and continue to work in a way in which 14 forms exist for the same process.

The NHS in England aims to be paperless by 2018. How far is it from achieving this target?

The 2018 target is appropriately aspirational. It depends on what we mean by ‘paperless’. I have concentrated on the care record, but there are significant programmes of change going on around booking and online transactions, electronic prescribing, access to medicine through NHS Choices, and access of information. In relation to where we’ve come from, you could argue that primary care is 98 per cent of the way there in terms of capability, and now it’s about exploiting that capability more effectively. If you look across other care settings, the picture is much more diverse.

In terms of how near we are to achieving a paperless system, on a scale of one to 10, I’d say we are at a solid 4.5. This is partly because the ambition is huge, partly because the primary care box is ticked but not optimised, and partly because, as the settings of care change and develop, we need to make sure that any significant actionable data and intelligence are captured in those care settings – including, crucially, those offered by patients and carers – and are available for use.

**What kind of feedback are you getting from the public concerning the digitisation of care?**

For the most part, the general public is astounded and frustrated that it isn’t more digitised already. Of course, data security, confidentiality and privacy are all really important concerns. People need to feel that their information is being used wholly for the purposes that they understand it to be used for, and we need to work with people to explain why and where we would be looking for information that wasn’t immediately and directly related to their care.

**Have you been learning from other countries that have digitised their health services?**

Yes, but I think we could learn more. Events like the International Digital Health and Care Congress are vital in this sense because these are truly international forums that bring together people with different experiences and from different backgrounds. I think there are universal lessons as well as points of view that are native to an environment. It’s not an issue of picking something up and using it wholesale; it’s about understanding the problem in its original context, understanding our context, and not reinventing the wheel!

**What parts of this event did you find most valuable?**

I have always found this event to be really useful in terms of enabling me to follow up with people afterwards if I don’t manage to catch them at the event itself. For example, although I was not available to formally attend seminars, I was able to look at all of the online resources and ask members of my team to follow up with relevant people.

I very much enjoyed the dinner, because in my experience sitting down with colleagues over a meal and talking about these issues a bit more fully and extensively is usually very rewarding. Trying to catch people for a few minutes with a coffee cup balanced on your knee is always a challenge.

[www.england.nhs.uk](http://www.england.nhs.uk)
[@paulricenhs](http://twitter.com/paulricenhs)
Ray Hammond, an acclaimed futurologist who has written extensively about the future impacts of technology on society, was invited to give the closing speech at the International Digital Health and Care Congress. Here, International Innovation presents highlights from his riveting portrait of how healthcare may look in the decades to come.

Healthcare’s Readiness to Embrace Technology

“Medicine, by its nature, is conservative and careful. That is the duty of good medicine. Yet the opportunities, the apparent breakthroughs, are seen to be at odds with such conservatism. While we may read almost every day about important new discoveries, treatments and ways of tackling challenges, getting them into clinical practice is no easier than it has ever been – and in my opinion, nor should it be. But the tension is increasing.”

DNA Profiling

“DNA is perhaps one of the most useful tools we have to arrive at personalised medicine. [...] The issues of privacy are enormous – for example, insurance companies would like to get their hands on DNA data. There are massive implications which we haven’t thought out yet. Nevertheless, in perhaps just 10-15 years time, DNA profiling is going to be one of the most useful and central tools in medicine.”

Stem Cell Research

“It looks like stem cell research may be the penicillin of the 21st Century. It may actually be the most exciting therapy that we’re going to have. [...] Stem cells are already being used experimentally. They won’t become mainstream for a while yet but the implications of stem cell therapy are deeply profound. It means, for those who want it, not just treatments to deal with an ailment but rather the ability to regenerate tissue, cartilage, and even organs.[...] These are issues that are going to be facing us in a couple of decades: people with money will, if they choose, not just have regeneration going on – they’ll be able to grow backup organs. Now, you won’t grow them in advance because you can’t keep them easily (although you might be able to in 20-30 years), but you’ll grow on demand, assuming you’ve got the time. This actually puts a very different slant on the future of healthcare and medicine. If we’ve got privileged people who are able to buy themselves a very long lifespan, what’s that saying when we’re reaching 9 or 10 billion people on the planet?”
**DIGITAL HEALTH**

“Apple have decided that [the Apple Watch] is the beginning of their step into healthcare. They’re approaching healthcare from the consumer standpoint; saying, ‘We want patients to get into the fashion of being fit’. They’re approaching it from a style, technology and fitness – not illness – perspective. The outcome is that more people do learn about their health because what we’re really talking about is an ambulatory data recorder and transmitter.

Now, if I were a physician who was concerned about a patient, would I want my patient to happily wear a device that was feeding back in real-time the patient’s body performances? Of course I would! Much of the ambulatory data would be streamed in via wireless networks, stored and managed, and you would be alerted only when you needed to be. That’s where we’re going. That’s digital health. However, it’s not just the watch; it’s going to be a body network and it’s going to include many measurements of all different sorts. Technology will be connected to many parts of the body and will have, in time, some semi-invasive techniques attached to it.

Apple is betting that people are starting to be prepared for this. […] Apple is betting on making this cool, and if it’s cool and fashionable it’s going to work. Google has got the same idea; the next iteration of Google Glass includes health functions, and the health functions are sent from an on-body monitor to the glass. Samsung is also extraordinarily keen – they believe that health monitoring and recording ambulatory data tracking is going to be massive. This is where telemedicine has come to, and we’re going to be in a situation soon where everyone who cares at all will have most of the simple tests done on our bodies regularly. We’ll be monitoring those things that matter to us, such as how far we walk or run, but the other stuff will just be recorded and uploaded for use when required. The body network is where we’re headed.”

**THE FUTURE OF NANOSCALE MEDICINE**

“What’s coming is the development of medicines that can be manipulated molecule by molecule to overcome problems such as side effects or unwanted interactions. That is going to give us undreamed-of therapies within 10 years. Even before we get there, the impact of DNA profiling and nanoscale coatings for medicine is rejuvenating our old and tired drug stock. Stuff we’ve been using for decades gets a new lease of life when you can deliver it more effectively.”

**THE RISE OF ROBOTICS**

“You’re all familiar with high-precision robots in an operating surgery, helping to do very fine pieces of work, but that’s not what I’m talking about. I’m talking about soft robots which are safe to be around humans, which can pick up an elderly person and pop them into a bath and help them out again. How far are we away from those robots? Not more than 10 years. Soft robots are already in the workplace, and they’re relatively low-cost. They’re working alongside human beings and they are so well manufactured that they don’t have the physical strength to do damage even if something goes wrong. Now, a robot that can lift a human clearly has some strength, but it isn’t a violent strength, it’s a very slow strength, and this is the key to robots becoming useful for elderly healthcare. What about robots as companions for the elderly? As robots become more and more intelligent, might they be able to actually fill in a lot of these gaps we have in care?

‘Nothing replaces a human,’ I hear you think. Probably not, but is there anything that can be as useful? Will robots replace any part of doctors’ work? Yes, of course. One of the things it is incredibly difficult to know about, for example, are drug interactions. When you’re thinking about prescribing for somebody, you’ve automatically got to check the possible implication with the other therapies and drugs that the person is taking. As the drug arsenal increases, this becomes more difficult. Can robots do that much quicker, better and more reliably than a human? Oh yes; but I believe that a very large part of being a doctor is the personality of the healer and the relationship with the patient. A huge part of that to me is inherently human, and I do not see that being replaced within a conceivable timeframe that we can talk about today. There are, however, many elements of what doctors do that can and should be automated; it will be a benefit to every single person if they are.”
Looking Forward

International Innovation caught up with Ray Hammond after his speech to ask him a few choice questions about his unusual career

First of all: what is a futurologist?

A futurologist looks at the big trends that are happening in the present – for example, climate change, globalisation and medical science – and tries to develop a framework that allows people to think about the future more meaningfully.

We try to do that because humans aren’t very good at thinking about the future. There has been no evolutionary need for people to develop that skill. Until very recently, human life was very short, very nasty and a bit brutish, and our lives were almost invariably like our parents’ lives. There was no advantage, even a few hundred years ago, for anybody who could think analytically about the future. There was no gain because the future was much the same as the past. Since technological development has reached critical mass, however, all of a sudden it’s become an enormous advantage to be able to plan for the future. Of course, that is a very recent development, which means that humans in general – myself included – have not got any inbuilt facility to talk or think about the future; you have to hone the skills. What I do is find ways to encourage people to think imaginatively and logically about the future.

What is your basis for making predictions for the future?

When I’m saying something will happen in 2030, I’m not saying ‘this specific thing will happen’ – I’m talking about the conditions that will shape life. I am discussing big trends: population growth, climate change, the energy crises and globalisation, for example. I am not saying that there will be an earthquake in November 2030, but I am discussing the trends that may occur, and the rough direction in which we are (probably) going.

How did you become a futurologist?

I certainly never woke up one day and thought, ‘I want to be a futurologist’. When I first started work, I trained as a journalist. In 1974, I set up a publishing business and, after selling all my shares in 1979, found myself with the time to do what I really wanted to do all along, which was to write books. This led to me producing a series of books about the impact I thought technology was going to have on our society. For example, I wrote a book called Computers And Your Child.

It was in about 1985 that I attended a book launch in San Diego, USA, where I discovered I had been billed as a futurologist. I said to the organisers, “No, I’m an author,” to which they replied, “No, we have seen your work – you’re a futurologist.” I thought about this, and also met a few futurologists, and thought: yes! That was my interest and it made sense.

Having worked in this field for several decades, have you made any predictions that have been incorrect?

In the early 1980s, I wrote that by the year 2000 there would be no cash in society. Boy, was I wrong there! I was looking at the technology, and it seemed to me that with credit cards and so on, all the cash would disappear. Why on Earth would we carry cash? The reason this prediction was wrong is because I focused on the technology and not on the people. People like the security of having a little money in their pocket just in case they should need it, and this is why cash hasn’t disappeared.

Conversely, which of your predictions have proven correct?

One of the examples I’m most proud of is something I wrote in 1984, in my book The On-line Handbook. I stated that the internet would be vitally important and would change everything; that the most important part of the internet would be the ability to search; and, indeed, that all advertising would be related to search – I was right!

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Using mobile technology to simplify access to healthcare

International Innovation presents the keynote speech given by Dr Ali Parsa, Founder and Chief Executive of Babylon – the smartphone app that aims to put ‘a virtual health service in your pocket’

I AM OPTIMISTIC about the future of healthcare. […] Why? Because I think four things are happening all at once that, for the first time in history, will reconstruct healthcare into something completely new. […]

What are those four fields? Firstly: diagnostics. […] Soon, we will have the same capabilities about our bodies that we have about our cars. We will be able to look at ourselves and diagnose ourselves all the time, freely and easily.

Secondly: information. It is already free for everyone; all of us have access to the entire knowledge of humankind via the internet and, importantly, that knowledge is becoming easier to access. […] This is just the beginning of what is happening with information technology. We are moving towards machine intelligence. In 2011, Watson, IBM’s most powerful computer, beat two Jeopardy! masters at the game, and will be challenging oncologists to a similar game in 2015. […] For those who think this is awful and that it might replace doctors, I don’t think that will happen any time soon. For those who have nothing, however – the 70 per cent of the population who have no access to doctors – it provides a free or cheap option.

Thirdly: for the first time, we have a platform to distribute diagnostics and information widely. Mobile phones are doubling their capability every year. […] It’s not just about mobile phones anymore; it’s about embeddable devices, available in every aspect of our lives, that will enable us to collect, analyse and use information.

Fourthly and finally: […] we are intervening with diseases in ways that have never been done before. Whether you are an evolutionist or a creationist, for the first time we have to agree that, through synthetic biology, we can create new forms of life. We can recreate organs and build things that we have never built before. […]

All of this might sound like it belongs in the future but, as an entrepreneur, I’m interested in what it enables us to do today. At Babylon, we began with the very basic fact that 90-95 per cent of our healthcare requirements are for simple consultations and diagnostics. […] We decided to see how much of these day-to-day consultations and diagnostics we could deliver through people’s phones. […]

Many patients say they just want to ask a medical professional about something small that’s been nagging at them, so we created a platform where you can go in and ask any question you like. You can include a photo if necessary. You send it and our doctors and nurses look at it and get back to you with a diagnosis.

However, most of the time this is not what you want to do – you want to actually talk to a doctor. Why should that be any more difficult than hailing a taxi? Through Babylon, you are able to quickly book an appointment at a time that suits you, with a GP or a specialist, and at the agreed time the doctor will call you on a completely decoded line, perhaps using video, and you can have a conversation. […] As soon as the consultation is finished, all of the patient’s notes are on your phone and, if you need a prescription, you can arrange to have it sent to your home or choose a pharmacy nearby to pick it up at. […]

There are a couple of other neat things we’re looking at introducing too. […] We are putting in a store so that you can equip your home with diagnostic devices like those found in an average GP surgery. All these devices are connected, so our GPs can read your signs as you take them. I’m also excited about the work we’re doing in monitoring. […] Our aim is to be able to bring you in for a consultation with a doctor before you know you need one.

That’s what we’re doing at Babylon. I’m telling you this to illustrate just how much can be done today. Of course Babylon doesn’t do everything; there is much that we still cannot do, but that is a reason for not doing what we can today? Absolutely not.

www.babylonhealth.com
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Next year’s International Digital Health and Care Congress will take place on 16-17 June. To learn more, visit: http://bit.ly/2015DigitalHealthandCareCongress