

Internet of Things
in Healthcare.

Roundtable 2
Summary Report

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creating a new conversation

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About the Series

HISA is delivering a new thought leadership series - *Innovating Health. Creating a New Conversation.*

Through a series of roundtable events and other activities, we aim to lift and support the digital health innovation agenda in healthcare. To create a new conversation, we seek to bring together health leaders with industry experts, challenge current thinking with new and different perspectives, harness our collective knowledge and ideas, and ultimately share topics and discussion with others to stimulate sector change. The series is in collaboration with and supported by Accenture.

Never has there been a time of such pressure on the healthcare system. The need to transform is vital.

Conjointly, the conditions and promise of innovative change are tangible through the development and application of new digital technologies, rapidly changing business models, Government policy reforms, the rise of health consumerism, and service led reform.

“Many of the ways we go about improving health and care were designed in a different mindset for a different set of circumstances.

Given the radical and complex nature of our transformational challenge, these 'tried and tested' methods increasingly won't deliver what we need to deliver for patients.”

Helen Bevan and Steve Fairman NHS UK

Event 2 – “The Internet of Things” - Brisbane - 29th June 2016

Overview

What role will the Internet of Things play in the innovative transformation of healthcare?

David Jonas Head of Health Market Quality R&D Program and Chief Operating Officer of the Capital Market CRC (CMCRC) led a discussion in Brisbane with HISA members, health and industry leaders to understand the opportunity presented from the emergence of the Internet of Things and how healthcare can benefit. The CMCRC Health Market Quality will soon be releasing a report “Flying Blind” that examines the imperative for improved data usage (including IoT) within the healthcare system.

The Internet of Things (IoT) is the rapidly advancing technology environment which allows everyday devices (‘things’) to collect and share data seamlessly. In healthcare terms, the possibilities of utilising IoT to the benefit of consumers and clinicians are promising. Although the IoT is relatively new, we are already seeing applications including the monitoring of health conditions via vital signs and medical devices, collecting personal biometric and tracking data via wearable devices, opportunities for real-time monitoring, smart home technologies, devices that can provide feedback for physical and mental health conditions etc. It includes sensors and internet enabled devices including smartphones, that are interconnected, and intelligent with the ability for algorithm based decision making.

When the opportunities of the IoT are placed against current health services data and the increasing growth in genomics, there is significant potential for getting a 360-degree view of healthcare systems, personalised medicine, and individuals enabled to better manage their own personal health and wellness.

The roundtable discussion was wide ranging and included an exploration of IoT against progress with shared electronic health records. These discussion points highlighted the continuing challenges of digitally connecting the health system. However, this should not limit our thinking in taking opportunities for innovation and service reform through societal change and emerging technologies which IoT brings. A few quotes from the discussion were captured.

Opportunities for the Internet of Things in Healthcare

Opportunity areas discussed included:

1. **Enabling consumer health** – irrespective of the challenges and issues, the IoT will enable the rise of the consumer in healthcare. Information enabled markets are finally coming to healthcare and enabling the potential for consumers to become “the kings and queens” in the system. As technologies and their applications continue to advance this will become increasingly apparent, and health services and practitioners will be required to engage and innovate with new business and care models.

The pace of investment and change in the IoT in healthcare is significant with the market predicted to grow 56% p.a. until 2020. Health services that are early adopters and engage with new and emerging technologies that enable patients and consumers to better manage their health and interact with their services will arguably see more sustainable business models, as well as improved clinical and research outcomes.

“How to grapple with the speed of innovation? Your legacy systems will never catch up.”

2. **Improving health system performance** – the health system measures its performance in terms of cost, quality, and effectiveness. The IoT allows new ways to gather and collect health data for monitoring care and conditions. If these technologies can be used to enable people to better manage their own health and wellness it will have significant impact on the current contact points people have with the health system, and therefore cost. Enabling technologies have the ability to reduce the need to see doctors and health practitioners for low value interventions, remove waste of unnecessary and duplicate diagnostics, and reduce the potential of adverse events.

It was noted in a recent Accenture Global Patient Engagement survey that only 17% of doctors thought that patients should have access to their electronic health records and only 16% would recommend the use of wearables. This is in contrast to almost 80% of patients believing they should have access to their records. Clearly there is significant difference in expectations and opinions between medical professionals and patients.

In addition, combining what IoT brings to improving health system performance with other electronic health records is still in its infancy, but all agree that that there will be a day when data captured through devices will be included with other data as a combined health record.

“80% of patients believe they should have access to their health records.”

3. **Interoperability of systems and data** – there has been significant work done over the last decade on building interoperability of systems and data in healthcare. Standards continue to be refined and many electronic health systems are becoming increasingly interoperable. The introduction of medical device and personal wearable data are additional elements to incorporate into system and data interoperability in order to maximise the efficacy for the health professional and consumer.

There were strong points of view that we should enable current system interoperability in readiness for the next wave of IoT type data. Others commented that our e-health systems and the MyHealthRecord program prioritised business to consumer linkages, where we should have gone from business to business system enablement as a first stage of systematic change.

“We must link our systems and connect.”

4. **Focus on analytics based approaches to innovation** – A mindset shift toward analytics as a basis of innovation in healthcare was considered important. This includes combining health service and patient record data with other external data sources including environmental data, genomic, social media and IoT data such as sensor and personal wearables data. This creates the opportunity for big data analytics, real-time data capture and decision making, monitoring public health trends, and enabling personal precision medicine by bringing together genomic, IoT and health service data.

The proliferation and volume of data that we can expect from the IoT and other sources will be significant, however no different to other sectors. Additional questions were posed in the discussion: -

- Whilst having the ability to access and analyse vast amounts of data, does this also create inherent risks?
- Are we ready for machines to seamlessly relay information about our health to other devices and those devices to make decisions?
- Finally, in regards to health services data, there are still large data quality issues which would be problematic in any strategic analysis activity.

“Healthcare requires an analytics based approach to innovation.”

5. **Targeted clinical engagement** – the group discussed the best way to engage medical practitioners and other clinicians on implementing changes that involve IoT. With clinicians who have many and varied roles and high levels of responsibility, it is difficult to design and develop solutions for a one size fits all. Barriers include medico-legal issues and traditional methods of workflow that don't easily adapt to new methods of data collection and analysis. Suggestions provided by the group were to target these innovation ideas to where there is disruption such as health and wellness areas, or on a special clinical service to contain, trial and build an evidence base.

“If it is not practically useful for a clinician they are not going to use it.”

Conclusion - HISA Reflection on the Event

The level of engagement and participation at our second Innovating Health Roundtable was great to see and we thank the attendees for their participation. We also thank David Jonas for his guidance and experience through the discussion.

Our key take-away as participants and observers at the event were:

- There was a consensus that IoT and information platforms are moving ahead fast
- Healthcare is becoming increasingly consumer focused due to rising consumer expectations and consumer accessibility to digital tools and information
- IoT is a significant opportunity for healthcare, but it needs to be balanced against new risks and challenges of connected health
- Barriers to advancing IoT in healthcare include lack of interoperability with legacy systems, medico-legal concerns and workflow design
- IoT is the data collection and integration process – the innovation value in healthcare is in the insights gained from data analytics and changes in business / service models that IoT enables
- There needs to be targeted clinical engagement and well-designed systems to progress IoT from the health practitioners point of view

We look forward to our next event in series in Melbourne – **Balancing Innovation and CyberSecurity in Health.**

Innovating Health – Health Leaders in attendance:

- David Jonas, Head of Health Market Quality R&D Program & COO Capital Market CRC (Roundtable Discussion Guide)
- Dr David Hansen, CEO Australian eHealth Research Centre
- David Tibby, Director of Nursing / Clinical Informatics Lead Digital Hospitals Program
- David Bunker, Executive Director, Queensland Genomics Health Alliance
- Glenys Webby, Director Strategy BlueCare
- Tracey De Angelis, General Manager Commissioning, Metro South PHN
- Dr Monica Trujillo, Chief Clinical Information Officer, NeHTA
- Victoria McCreanor, Researcher, QUT
- Dr Deborah Kuchler, Chair Hospital IP Group
- Dr David Evans, Deputy Medical Director PAH
- Grant Hawgood, General Manager Service Design and Improvement, Relationships Australia
- Norman Thurecht, Partner, Pitcher Partners
- Tracey Kay, CEO, Axiomatic
- Anne Maree Liddy, CEO CheckUp
- Emma Hossack, President MSIA
- Joe Griffiths, Health Informatician / Consultant
- Dr Mal Thatcher, Healthcare Executive / CIO
- Dr Suresh Duraiswamy, General Practitioner, IPN
- Michael Draheim, CIO Metro South HHS
- Pablo Borrás, Client Executive Accenture Australia
- Ian Manovel, Principal Innovation Accenture Australia
- Dr Louise Schaper, CEO HISA
- Greg Moran, HISA Host

Innovating Health Series website resources – www.innovatinghealth.org.au/roundtables/iot