



## FHIR and the Future of Interoperability in Australian Healthcare

An elite group of health professionals that comprise some of Australia's most senior decision makers gathered to attend InterSystems' FHIR – the Future of Interoperability roundtable in Sydney to hear critical insights on the trends and developments facing the health sector. A particular focus was placed on the critical innovations emerging from FHIR – Fast Healthcare Interoperability Resources – and its potential to enable the sought-after single source of truth in patient data.

Special guest speakers at the exclusive gathering included Grahame Grieve – the world's foremost authority on interoperability in healthcare, and the brains behind the acclaimed FHIR standard. Grieve was joined by international guest speaker, Dr Russel Leftwich – a US-based MD and Adjunct Assistant Professor of Biomedical Informatics at Vanderbilt University School

of Medicine, and board member of the prestigious HL7 International and InterSystems' Senior Clinical Advisor for Interoperability. Together, they led a robust discussion that highlighted the challenges Australian health CXOs will need to overcome in order to move interoperability forward, and how health professionals can derive significant value from FHIR.

**Top row, left to right:** Dominic Green, InterSystems' Service Manager, APAC; Scott Beattie, Healius' Group Executive of Commercial Solutions, Peter Joseph, Sonic Healthcare's Chief Information Officer; Steven Issa, Australian Digital Health Agency's Chief Digital Officer; Grahame Grieve, Health Intersections' Principal; David Ballantyne, Health Infrastructure's Executive Director of Development and Planning; Jon Straker, South Eastern Sydney Local Health District's Deputy Chief Information Officer; André Jenkins, Clinical Excellence Commission's Director of Information Management. **Front row, left to right:** Kerry Stratton, InterSystems' Managing Director APAC; Andrew Aho, Intersystems' Country Sales Manager ANZ; Dimitry Tran, Ramsay Health Head of Innovation; Dr Russell Lefwich, InterSystems Senior Clinical Advisor of Interoperability; Andrew Dimech, NSW Ambulance's Director of Digital Health; James Patterson, NSW Health Pathology's Chief Information Officer; Zoran Bolevich, eHealth NSW's Chief Executive Officer.

Building interoperability between healthcare software systems has been proven to reduce clinical and medication errors and give patients a more effortless path through the healthcare system. But while interoperability standards and supporting technology are maturing, there is still much work to be done in building support that will lead to widescale implementations.

Attendees at InterSystems' FHIR – the Future of Interoperability roundtable forum described how the plethora of clinical information systems in Australian hospitals and the need to transfer data between them continued to impose a significant challenge, especially as some critical information was not flowing in real time. They also agreed, however, that numerous barriers still existed, with healthcare authorities having been reluctant to give high priority – and hence funding – to interoperability initiatives.

The senior clinical advisor on interoperability for InterSystems, Dr Russell Leftwich, described the core of the problem as being how the number of facts a clinician might call on when making decisions had grown rapidly in the past 20 years. He said the situation

Attendees agreed that interoperability was a necessity within Australia's healthcare sector for three reasons, with the first being to eliminate errors which could ultimately prove to be fatal, such as medication errors – which one attendee noted was a clear symptom of poor interoperability.

They also agreed that interoperability would enable a smoother journey through the healthcare system for patients and deliver better continuity of care when a patient moved from one provider to another. Interoperability was also noted as offering strong potential for solving larger societal problems by providing the basis for sharing of data from clinical systems for research purposes, improving processes and ultimately boost population health.

The promotion of FHIR is being driven by Graham Grieve, an Australian HL7 member and experienced consultant in the health informatics space who has been a driving force behind the creation, development and adoption of FHIR.

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had reached a point where it was difficult to make informed decisions without recourse to the information held in various clinical systems.

"We really can't provide the decision support that physicians and other clinicians obviously need if we don't have an absolutely flawless level of interoperability," Dr Leftwich said. "Not only are there more facts, but those facts are scattered around in many different systems."

Patient information files had grown significantly, from a few pages to dozens, and this problem was only likely to grow as internet-of-things style devices become more prevalent in the medical industry, generating more data.

Critical to the uptake of interoperability solutions is the FHIR (Fast Healthcare Interoperability Resources) standard, which provides a specialised application programming interface (API) for exchanging electronic health records. FHIR was created by the Health Level Seven International (HL7) healthcare standards organisation as a solution to connect the wide range of different systems now employed by hospitals and other healthcare providers (up to 80 different systems in the case of some US hospitals) in real time.

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He was critical of the state of uptake of interoperability in Australia, which he described as not keeping pace with other parts of the world. This was due in part to a lack of leadership around the concept, and also to the MyHR electronic health record project, which had served to divert interest from interoperability.

"It's frustrating for me to travel around the world to see really interesting prototype systems building towards production that will be transformative around the patient clinical system boundary or clinical system-to-clinical system boundaries," Grieve said. "We don't yet have the same kind of community transformation that's happening in other countries happening here in Australia."

One attendee noted that while governments were willing to invest billions of dollars in physical healthcare infrastructure, they were less keen to support further standards development and ICT initiatives.

"How do we change the perception around these types of initiatives and strategies to be appealing to audiences? It's unfortunate we may have had missed



opportunities in our investment pipeline, so maybe we won't have the benefits in 20 years' time that we could have if we had some strategies in place."

While the uptake of interoperability in Australia remains in its early stages, Dr Leftwich noted that this was not significantly different to the situation in other parts of the world. While numerous examples existed of projects using FHIR as the basis for exchanging information within specific organisations, he was yet to see it widely adopted as a mechanism for exchanging information between organisations or across healthcare communities. However, this was something he believed would be coming next.

"It require some work to create information models that we agree upon, particularly in the way particular data sets are represented and shared across the community, across the world," Dr Leftwich said. "That's the challenge of helping those clinicians deal with the thousand facts per decision."

Hence, he said it was important that InterSystems had made a commitment to supporting FHIR it within its products, as well as backing efforts to accelerate its implementation. InterSystems' technology already underpinned the four largest health information exchanges in the US, handling data on more than 10 million patients, as well as many more around the world.

While adoption of FHIR is not yet widespread, attendees discussed numerous potential projects which would be embracing interoperability in areas such as pathology and child health. This gave hope that momentum was building around the broader concept.

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One attendee described an urgent need within their organisation to reduce the cost of building integrations to the numerous external systems that consumed its data.

"Our FHIR strategy is around making the data available and presented so that the consuming systems can come and get it. We don't want to be sending massive streams of millions of messages to system A and B and C and D and doing subtle changes at our end to each of those messages, when actually the budget for the projects sits on the consumer side. It's quite difficult for us to keep up with those requests."

Another healthcare provider described the problem of ensuring communication of patient information across multiple aging systems, and hence were investigating the development of a FHIR-based alternative that could



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also bridge the gap that existed between hospitals and general practitioners.

FHIR was also seen to be a much simpler way for healthcare providers to report in to registries and other bodies.

Numerous challenges were described, however, that were potentially holding back the adoption of interoperability.

At the highest level, Grieve said greater cooperation was still needed across different levels of government as well as local health systems. He described a disconnect

between the federal vision and the execution and between the states, with progress also being hindered by the lack of a working digital health standards process in Australia.

“That’s really hurting us and it’s getting more hurtful over time,” Grieve said. “There are things happening with that, but they’re slow and it’s truly a challenge. How can we possibly talk about progress in Australia when we can’t talk about basic standards to actually lock the progress in?”

Attendees also sought greater certainty from vendors and other players that the solutions they were considering would not generate new problems of interoperability further into the future.

“You can go easily wrong with data interchange. We’re cautious about making those next steps without knowing that there’s going to be systems there that they can exchange information securely and protect the patient privacy, and yet make that information available for treatment.”

It was also noted that vendors themselves needed to be more enthusiastic about enabling interoperability, as in many cases they had no strong commercial imperative to do so. Grieve said this was essential in making interoperability useful.

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“Merely building an information set about the patient doesn’t do anything for the patient,” Grieve said. “You need to offer services to the patient to make it meaningful.”

Grieve said in some cases hospitals had also proven resistant to the exchange of patient information, as this made it easier for patients to go elsewhere. He said this would only change if hospitals underwent a cultural change in relation to improving customer service.

Interoperability alone was not seen as the panacea to solve all of the problems described. Data itself still needed to be curated to ensure it was useful, including the elimination of duplicated or irrelevant information. Dr Leftwich said this situation was the direct result of clinical workflows having not changed in 50 years or more.

“There needs to be a transformation in the way we practice as well as the technology that we use in practice,” he said.

Grieve also noted that from a broader perspective the topic of interoperability was actually a discussion of data and how it was acquired, managed as well as utilised. He related how recent concerns regarding the privacy of personal data had led to significant work within the FHIR community around how data is collected, tracked and protected, to ensure that healthcare organisations met existing regulatory requirements and were prepared for future changes.

As for how the uptake of interoperability might move forward, attendees discussed how better articulation of the benefits of interoperability was needed to build interest. These benefits applied not just to hospitals and primary care providers, but extended into the realm of social care, which is the well-being of the citizen. It was also suggested that better engagement with the broader community would help people understand those benefits and further build support.

However, Dr Leftwich said that any discussion of benefits would require some understanding of what the actual success factors were, and this was still being worked out.

“Measuring success obviously depends on what are the success factors and we don’t have a good way to measure it,” he said. “We talk about outcomes but we usually are limited to defining those as end points, and I don’t think we have a good way of measuring quality of life improvement.”

External factors might also serve to drive the utilisation of interoperability, particularly as consumer-facing companies such as Apple came to play a greater role in the health of their customers. Grieve said Apple had played a key role in stimulating interest in FHIR in the US by announcing it would use the standard within its health service offerings, which had prompted many hospitals to also begin utilising the standard within their systems.



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Ultimately, however, activity around interoperability would not accelerate without stronger leadership. Grieve said that federal and state health department needed to create and publish a blueprint for where the industry should be going, and then seek community endorsement of that as the vision for the health care information system.

“That would give us a framework for saying ‘we can invest in steps in that direction’,” he said. “The wider discussion is how do we move information exchange forward and what are the policy blockers and the leadership blockers, and what can we do about them. Interoperability is not a technology problem, it’s a people problem.”

Hence, he said he would continue his work in community-building as significant progress in interoperability would be hard to achieve if it was only driven by individual efforts and projects.

“Creating a community, writing down the findings of the community, and publishing them as open community treasure is fundamentally the process that we’re using to float everyone’s boat up and enable everyone to leverage off that common knowledge,” Grieve said. “Doing it as a team is way more effective than doing it individually, and so hopefully we can grow more community.”