# FHIR: Why a New Approach to Healthcare Interoperability Standards?

**HL7: Need for a fresh approach**

HL7 is known as the 800lb Gorilla of the healthcare standards business, and has a history of producing widely adopted standards. The most important of these is “HL7 V2” – an EDI messaging messaging standard used ubiquitiously within healthcare institutions, and also for diagnostics and referrals throughout Australia.

More recently, HL7 has invested heavily in “v3” – a much richer, more rigorous and complex standard. This has been implemented by some national programs at considerable expense, but the benefits have been slow to realise, and it seems unlikely that this will get any further adoption. However a simpler more accessible offshoot from v3, known as “CDA” is getting widespread adoption as the most common way to represent clinical content. However CDA suffers from several problems: it’s a static document not a record exchange format, it’s intentionally limited in scope, and it’s too complicated for average developers to use effectively.

HL7 has also worked with OMG to define common services used throughout healthcare. These services present yet another paradigm for exchanging content in healthcare, one that is not consistent with either v2 or CDA.

Market feedback to HL7 was clear and strong: Although each of the different approaches worked tolerably well, they didn’t work together, and none of them were seen as a compelling offering able to support the kinds of integration that HL7’s current and future customer base would need going forward. In response, HL7 created a fresh look taskforce to examine the best ways it could create interoperability solutions, with no pre-conditions on what those solutions might be.

**Leveraging web technologies in healthcare exchange**

The web as it exists today is a stunning example of successful integration on a scale not dreamed of even a decade ago when it was already clear what was coming. Any attempt to take a new look at how healthcare integration works has to start with a web-centric focus, leveraging the new infrastructure in place around the Web 2, and the convergence known as “Social | Mobile| Cloud”.

The fresh look taskforce searched for markers of integration success, and all roads lead to REST APIs, and specifically, a CRM application from 37Signals (<http://37signals.com/>) called Highrise. The API documentation for Highrise was rewritten to support a healthcare application as a concept demonstration for the kind of interoperability specification HL7 could produce.

This prototype was immediately popular with a core group of HL7’s members, and has rapidly grown to become a full blown healthcare interoperability specification known as Fast Health Interoperability Resources (“FHIR”). The specification is available at <http://hl7.org/fhir>. This is a web centric specification that uses existing web technologies as a base for exchanging the information using the deep healthcare knowledge that HL7 has built over the last few decades.

FHIR is not just a specification that describes how to expose health information to the web for Personal Health Records, though it is the most appropriate specification for this purpose. FHIR goes beyond this, and uses a simple widely understood web technologies to exchange content across all aspects of the enterprise.

**FHIR will drive down the costs of integration**

FHIR will drive down the costs of interoperability and integration compared to similar standards for a number of reasons:

* The specification is simple and directly consumable by implementers
* The underlying technology is based on widely available and understood skills and libraries
* The need for specialist knowledge and techniques is much reduced
* Live test systems and “connectathon” days test the specification to ensure it is both simple and fit for purpose
* The specification is free and unencumbered
* The RESTful API approach caters for a lot of leveraging from a common interface
* A single common information model across the enterprise from front to back will set information free

The effect of FHIR will begin to be felt from early next year, when the first draft standard for trial use (DSTU) is released, and will gradually become more evident over the 2 year period when the full standard should become available.

**Market Consequence of Changes in Standards**

The Healthcare standards market is a big market with a large investment into existing standards. Even large national programs face stiff market resistance to the implementing solutions based on new standards, and this has been quite evident through the implementation of the pcEHR.

For the same reasons, the existence of FHIR has created resistance and concern – it’s a new standard, a new paradigm, and uses an entirely new technical base that doesn’t directly leverage the existing standards. Existing standards participants, standard adoption programs, vendors and institutions have each needed to review FHIR themselves to come to understand why it has taken a new approach.

The circle of enthusiasm for FHIR has grown rapidly, from a few insiders at HL7, through the whole standards community, to the interface engine vendors, and now large EHR vendors and national programs are seriously evaluating its use in next year’s solutions.

In particular, the PHR space will be where FHIR has the strongest initial impact; the PHR market in USA is crowded with many different PHR providers, each needing to connect to as many healthcare record providers as they can. At the moment, each PHR provider has their own proprietary interface, and the market desperately needs to commoditise this interface. Here in Australia, the PCEHR is large program that is coming towards the end of the first phase of integration. FHIR may impact future development, and is being evaluated for its suitability.

FHIR specification: <http://hl7.org/fhir> - #FHIR - Australian Connectathon: <http://ihic2013.org.au/>  
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