FHIR Implementations around the world - transforming expectations of healthcare IT

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Origin of FHIR: the state of Healthcare

- Health care has broken processes

- Other industries are being transformed
  - IT enables process transformation

Industry Transformation

- Success factors of the web: SMAC
  - Social Media – Scale up your value faster than cost (Metcalfe's law) (decentralise)
  - Mobile – direct engagement everywhere (disintermediate)
  - Analytics – continuous learning process (aggregate knowledge)
  - Cloud – scalability, reliability (delocalization)

- Integrated C2B and B2B
- Amazon, Google, Facebook, Uber, AirBnb, Webjet..

Origin of FHIR: the state of Healthcare

- Health care has broken processes

- Other industries are being transformed
  - IT enables process transformation

- This process is not happening in healthcare
  - IT standards to integrate B2B and C2B do not exist
  - IT is not properly implemented
  - There are many other blockers (culture, business process, liability, regulation)

FHIR: The web, for Healthcare

Open Community

- Make it easier to exchange healthcare information
- Open Participation - uses web infrastructure (social media)
- Lead by HL7 - deeply connected to world wide health community

Open Standard

- Describes how to exchange healthcare information
- Public Domain (http://hl7.org/fhir)
- A web API - web standards where possible
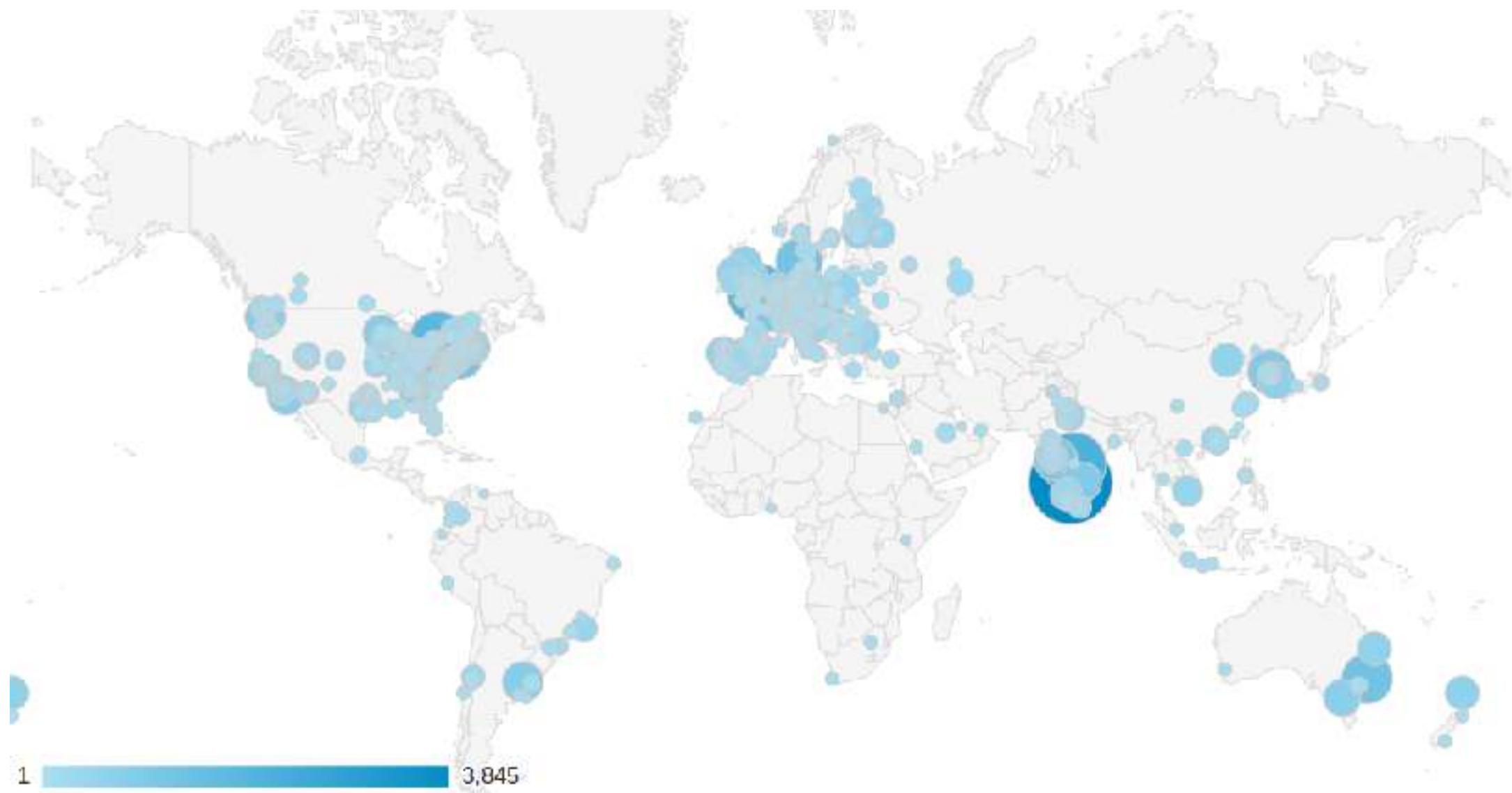- Continuity with existing healthcare standards

Scope of FHIR

- Administrative information
- Diagnostic Information (+ user generated data)
- Clinical Status Information
- Care planning, decision making process
- Billing and payment information
- Clinical Knowledge
- Clinical Research / Public Health

What makes FHIR worth it?

- Web API (capability based)
- Use of common content model across the entire spectrum
- Open License
- Internal philosophy: pragmatism
- Open community
- Public Tooling/Testing Infrastructure
- Continuity with existing healthcare standards

3 Laws of Interoperability

- Interoperability is all about the people

- Complexity – you can move it around, or externalise it, but you can't make it go away

- Flexible, Interoperable, Cheap: you can't have all three

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FHIR Activities around the World

- US
  - Argonaut – National EHR sharing
  - Structured Data Capture
- Australia
  - National Personal Health Record
  - National Terminology Service
- Netherlands
  - National project
  - MedMij project

USA: Argonaut

- JASON Report
  - Proposed that healthcare efficiency could be improved if health records become active via APIs (What format? How secured? What policy rules?)
- ONC gave industry 2 years to define an API for this
  - Common Clinical Data Set (already defined)
- "Argonaut Project":
  - Vendors + Provider Organizations: set priorities for data sharing

Argonaut Project

- Security Validation (Consumer Focused)
- Personal Health API (Patient focused)
- Provider Directory sharing
- Security Validation (Backend focused)
- *Bulk Data Exchange (Sharing data with providers) (current)*
- *Clinical Documentation / Assessment exchange (current)*

- In production, though everyone wants more
- Ultimate goal: build an app eco-system to fill out functionality around a stable core

Other US projects

- Commonwell
- Blue Button Initiative (benefits summary)
- CMS Quality Measures (prototype)

Australian National Personal Health Record

- "MyHR"
- Repository of CDA documents (IHE XDS) with health and event summaries + Government payment records (very inaccurate)
- Patient Controls Access to record
- FHIR interface allows mobile app access to patient's record
- More FHIR development planned
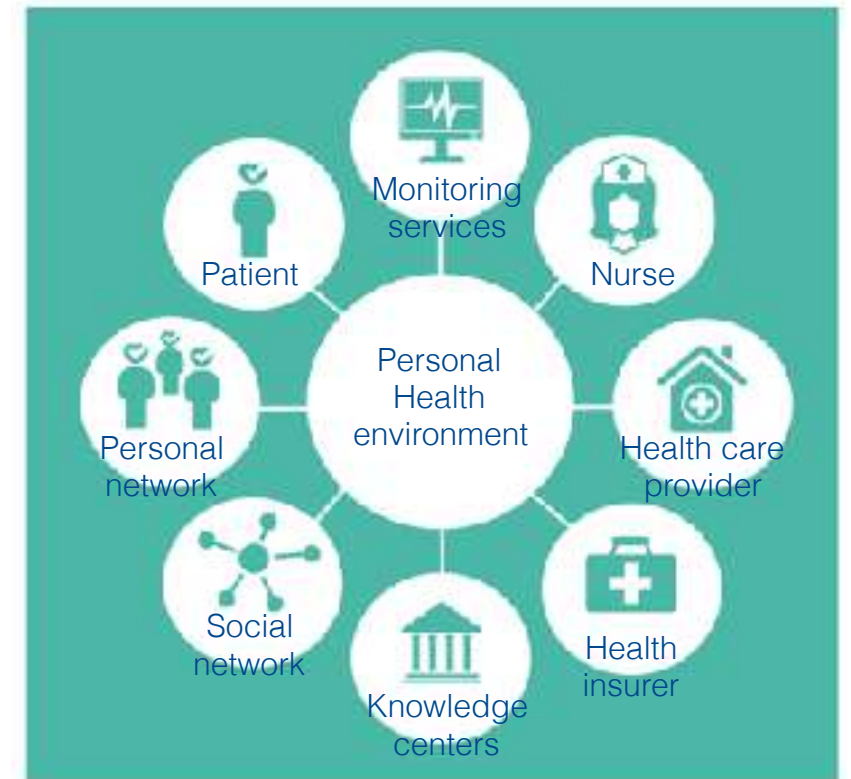
Australian Terminology Service

- FHIR Terminology service: consumer orientated services
- Implementation of FHIR terminology service
  - with deployment and distribution agreements as well
- In production for 12 months, but slow take up
- Same software starting to roll out in other countries (UK..)

Australian Vendors

- Oridashi: Common FHIR server for all GP solutions (support decision support)
- Telstra: extensive use of FHIR internally to integrate different solutions

Netherlands: MedMij

- **MedMij -** Personal health data in the palm of your hand
- Mobile access to all medical data over life time
- MedMij covers legal, organizational, financial, semantic and technical aspects
- 4 year initial project – 2016 - 2020

IT Platform Providers

- Apple Health
  - Use Argonaut API to access health data
  - Exciting from a business perspective
- Google Health
  - Direct contract as covered entity
  - Sweep up all data and convert to FHIR resources
  - Use all their big data tools (AI / Text processing)
  - Derive data about
- Others coming…

Other Programs around the world

- Lithuanian National EHR – core clinical data
- UK: National Renal Clinical Repository
- Chile – several prototype projects
- Lots of clinical / disease registry projects
- Several prototype national health record projects (e.g. Vietnam)

Transforming Expectations: Health IT

- Market expects open standards based APIs
  - Starting to appear in RFPs
  - Starting to appear in legislation
- Niche companies entering the market expecting interoperability
  - App vendors
  - Data analytics vendors
- Not just in using FHIR (other approaches are copying)

Transforming expectations: Health

- Empowering Patients
  - Data accessible to/from Patients, Patient controls data sharing
  - Creating a single common patient record
  - Services not Data are empowering
- Coordinated Care
  - Distributed care plan with virtual review
  - Inter-institution scheduling
  - Integrated Home care (including medications management)
- Learning Health care system
  - Interoperability of knowledge about the system, decision support, analytics

FHIR is not a Silver Bullet

- FHIR is a nice technology
- The FHIR specification only captures what everyone will agree to
  - "Platform" on which to build agreements
- People still have to agree about everything else
  - Countries
  - Domains
  - Terminologies
  - Business Agreements / workflows

Getting involved

- FHIR is an idea:
  - Open source community knowledge is treasure we can build on
  - Open community is the best way to develop common infrastructure
- Part of a web of open communities
  - Localised FHIR communities (e.g. country/language)
  - Domain specialties, other open communities
- Get involved!
  - FHIR Open Community: http://wiki.hl7.org/index.php?title=FHIR
  - Spanish language: https://chat.fhir.org/#narrow/stream/espa.C3.B1ol
  - Create your own community