Interoperability in South Africa

Evolving a national interoperability framework

Thomas Fogwill
About me

• Principal Architect and Research Group Leader at the CSIR
  
  • science council doing directed and multidisciplinary research, technological innovation and industrial and scientific development to improve the quality of life of the country’s people.

• Technical background (software and data), interested in
  
  • building complex software systems
  
  • open architecture, open source, interoperability and standards
South African Health System

• Stats:
  • Population of 54m\(^1\)
  • Life expectancy: 59.1 (male) and 63.1 (female)\(^1\)
  • Infant mortality rate of 34.4/1000\(^1\)
  • ~50% of national healthcare spend is private, which serves only 16.2% of population\(^2\)

• Thus, despite relatively high spend on health (8.5% of GDP vs WHO recommendation of 5% for middle income countries), health outcomes are relatively poor\(^2\)

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2. RSA National Department of Health, "National Health Insurance in South Africa: policy (green) paper"
South African Health System

• Reform of health system
  • Extension of primary care through community outreach teams
  • Greater focus on prevention
  • National health insurance
  • Improved planning and efficiencies

1. RSA National Department of Health, "National Health Insurance in South Africa: policy (green) paper"
The dream: integrated care

• Integrated care = coordinated care = seamless care
  → continuity of care

• Patient has 1 view of the health system
• Patient is “known by” the health system
• Clinician has up-to-date view of patient
• Care is coordinated
• Incorporate non-clinical elements: social services, preventative care, lifestyle management
Integrated care

• Improve healthcare services
  • Access
  • Quality
  • User satisfaction
  • Efficiency
• Response to fragmented nature of historical healthcare delivery
Integrated care

• According to WHO\(^1\), it is enabled by:
  • Coordination across primary, secondary and tertiary levels of care
  • Continuity of information → shared records
  • Provider continuity

\(^1\) World Health Organisation, "Trends in Integrated Care – Reflections on Conceptual Issues"
Case for interoperability

• Integrated care requires the sharing of health records
• Non-interoperability is a leading cause of Health IT failure
• Required for NHI
• Enable exchange of information:
  • Reduce inefficiencies (e.g. duplication, waiting times)
  • Improve effectiveness (e.g. integrated care, continuity of care)
  • Support better public health monitoring and planning
oh, so you are also implementing eHealth?
“Historically, health information systems in South Africa have been characterised by fragmentation and lack of coordination, prevalence of manual systems and lack of automation, and where automation existed, there was a lack of interoperability between different systems.”

Minister of Health
Dr Aaron Motsoaledi
eHealth Strategy South Africa (2012)
South Africa: 10 strategic priorities

1. Strategy and Leadership
2. Stakeholder Engagement
3. Standards and interoperability
4. Governance and Regulation
5. Investment, Affordability and Sustainability
6. Benefits realisation
7. Capacity and workforce
8. eHealth foundations
9. Applications and Tools
10. Monitoring and Evaluation

eHealth Strategy South Africa (2012)
Priority 3: Standards & Interoperability

- Standards for interoperability
- Authority to maintain standards
- Mechanism for testing and accreditation
HNSF

• Normative Standards Framework for eHealth in South Africa (HNSF)

• Purpose:
  • set the foundational basis for interoperability at a national level
  • limited to eHealth services sharing person-centric health information
  • not prescriptive regarding infrastructure or technology stack that a HIS employs
HNSF: approach

- Landscape analysis of existing HIS
HNSF: approach

• Focus on exchange of data for specific use cases
• Selection of existing standards – largely based on IHE

Global eHealth base standards
- Health Level 7 (HL7) V3
- ISO 13606
- Integrating the Health Enterprise (IHE)

Selection Criteria
Scalability, Implementability, testable, cost, maturity, extendibility, flexibility

Health System Requirements
- NIDS
- NHI
- Burden of disease scenarios
- Continuity of care

Health Functions
- Identification, authentication and authorisation
- Search or retrieve patient record
- Lookup or update patient record
- Admission, discharge and transfer
- Scheduling
- Generate metrics
- ...
HNSF: what else is required?

• Ongoing maintenance and refreshing of the framework
• Support for implementation:
  • Foundational infrastructure and registries
  • Interoperability specifications (detail and localisation)
  • Architectural guidance for interfacing at national scale
• Procurement guidelines
• Compliance testing facility
• Governance and regulatory framework
Thank you

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