



Birth Certificates on FHIR

Team iHealth

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Presentation link

- <https://www.youtube.com/watch?v=O5Oog8ockL8&t=18s>

Global Perspective on Birth Registration

- Certificate is a basic legal document that gives identity to a person
- Accurate, completely, and timely vital statistic is central to public health
- Birth registration is fundamental to the realization of a number of rights and practical needs. These mainly include the following¹:
 - Access to health care
 - Access to immunization
 - Age and access to education
 - Minimum age for employment, and enforcing laws to prevent child labour
 - Protecting young people from under-age military service or conscription
 - Protecting children who are trafficked, and who are eventually repatriated and reunited with family members
 - Getting a passport, opening a bank account, obtaining credit, voting or finding employment.

Ongoing Global Challenges (Humanitarian, Social perspectives)

- Complete, accurate, timely record of all live births
 - Only about 65% of all births are registered globally²

Improved birth registration data acquisition and utilization will continue to broadly influence the global society

References:

- ¹<https://www.unicef.org/newsline/2003/03fsbirthregistration.htm>
- ²<http://hdr.undp.org/en/content/why-birth-and-death-registration-really-are-“vital”-statistics-development>

Current birth certificate process

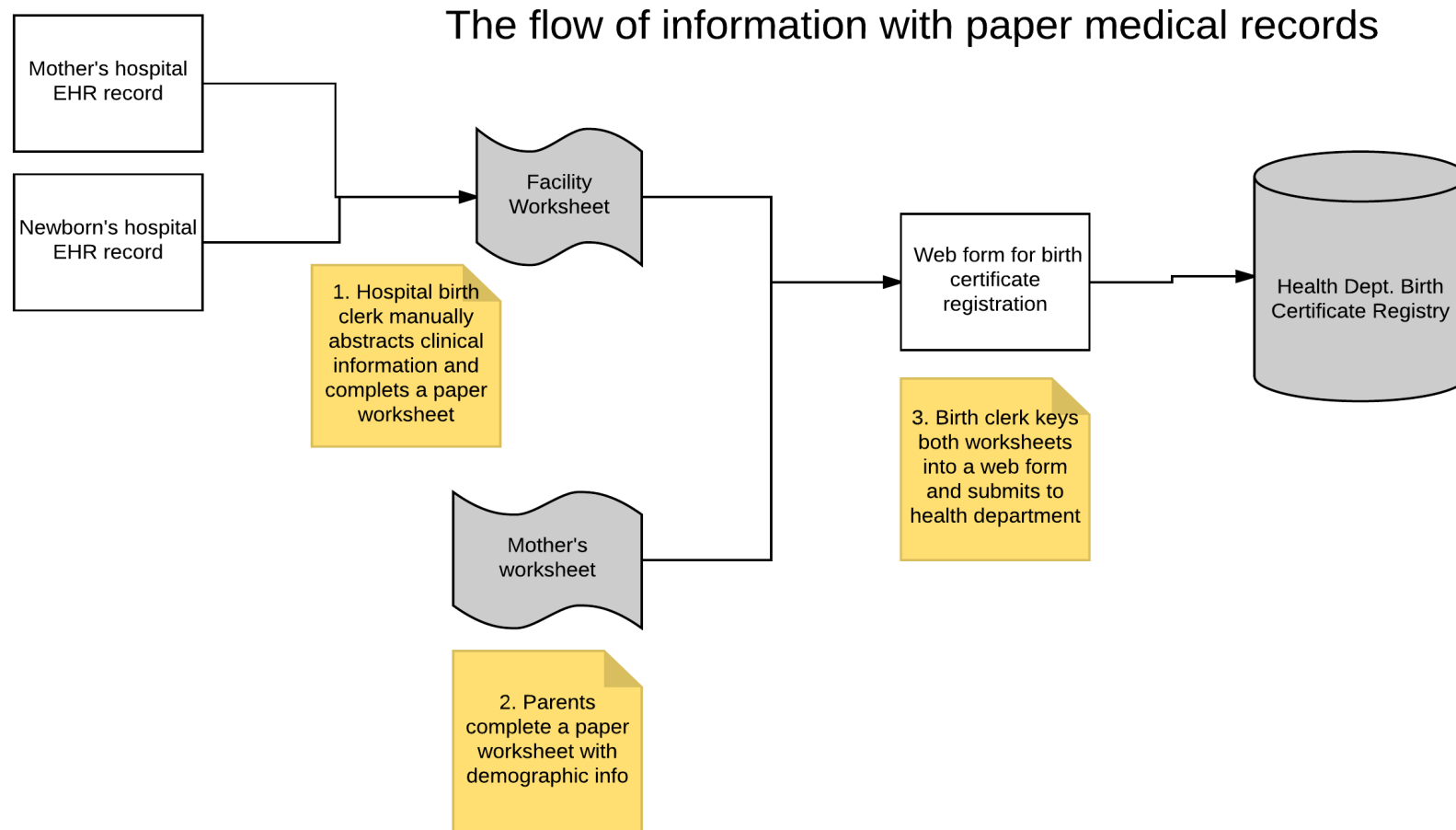


Image was provided by Dr. Ducan

Birth registration data as a basis for making public policies

- Civil registration records of births are needed to estimate population size¹
- Local authorities decide how much and what type of essential services to provide
- Birth records together with the death data are vital for pinpointing the diseases and injuries
 - **Data needs to be accurate, complete and capture in a timely fashion**
 - **Timely capture data in a standardize format**
 - **Storage in a database, and allow for exchange for all healthcare providers**

Fast Healthcare Interoperability Resources (FHIR)

- A draft standard for data formatting, element, and application programming interface (API), for exchanging electronic health data ^{2,3}



Reference

¹<http://hdr.undp.org/en/content/why-birth-and-death-registration-really-are-“vital”-statistics-development>

²https://en.wikipedia.org/wiki/Fast_Healthcare_Interoperability_Resources

³<https://www.extrahop.com/company/blog/2015/what-is-fhir-hl7-fast-healthcare-interoperability-resources/>

Current challenges and solutions in FHIR

Challenges

- A manual component from a human user (clerk) is needed, where the clerk manually keys in medical information into a web form
- Different information systems exist, and matching of patients with their birth data across different systems needs to be performed in an accurate, timely, and efficient way.

Solutions

Need to aggregate or analyze data meaningfully

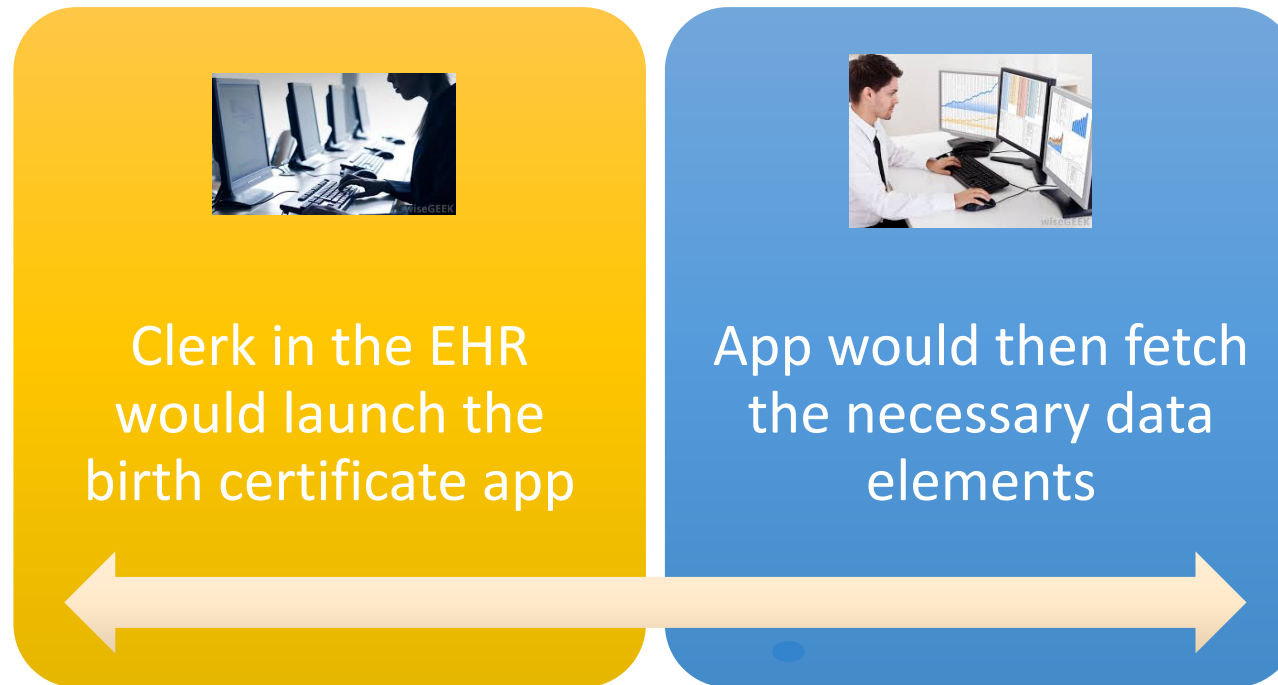
- Need to replace manual abstraction with a **smart-on-FHIR process**.

Project Objectives

- Map birth certificate data elements to FHIR specification for subsets of birth data, e.g. prenatal info, risk factors, labor and delivery, newborn info.
- Create a FHIR interface to report part or all of birth certificate.

Project Overview

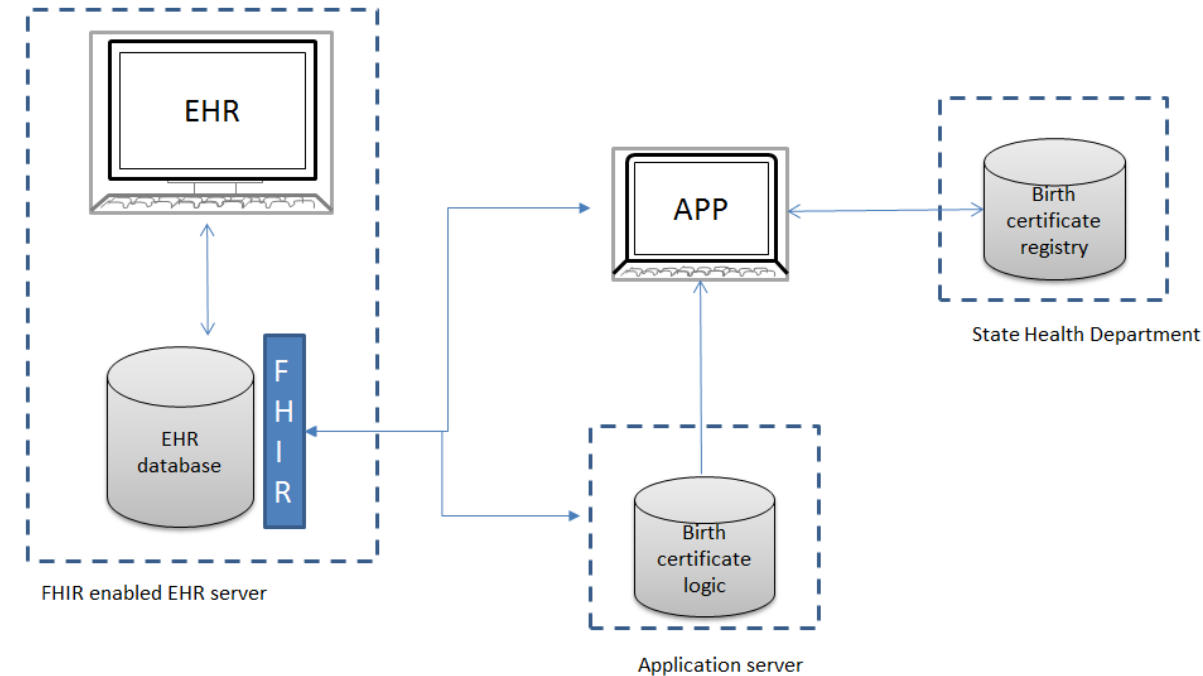
- The scope of this project would be to develop the FHIR resource mappings and birth certificate logic to support a SMART-on-FHIR application for birth certificate clerks



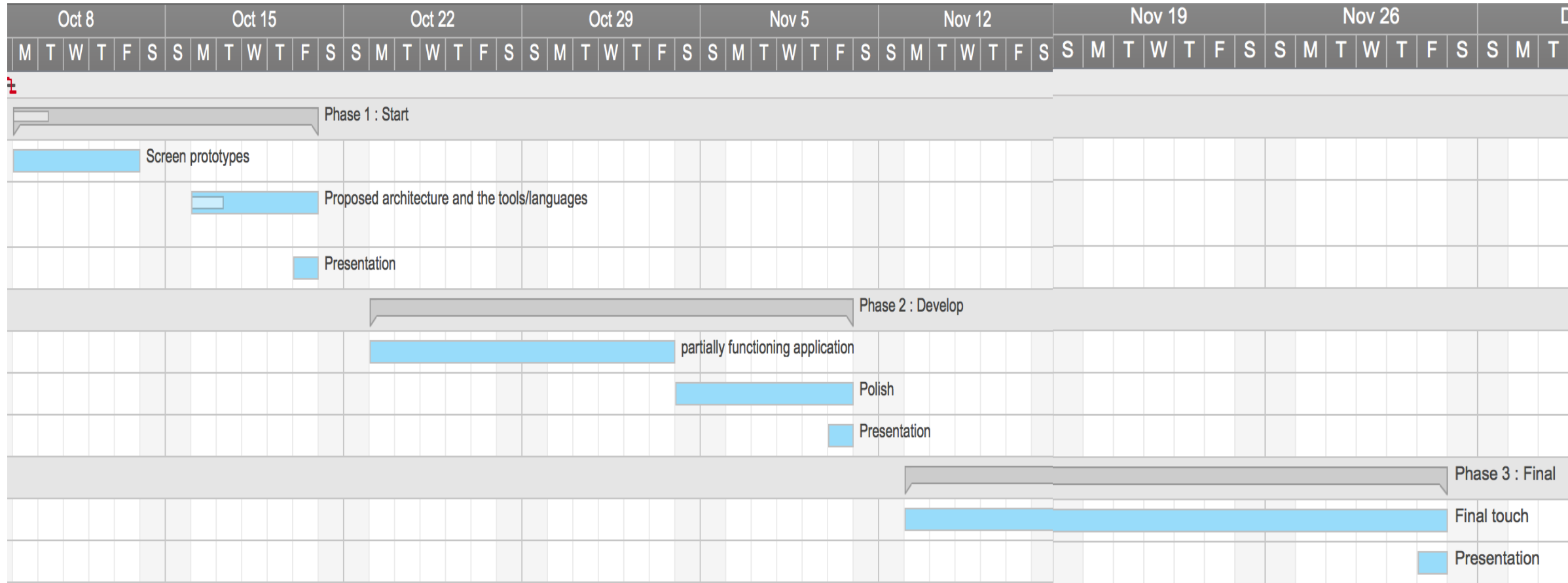
Project Overview

Steps:

1. Choose a subset of birth certificate information after reviewing the standard birth certificate.
2. Map birth certificate data elements for each discrete subset identified in (1) to FHIR resource definitions.
3. Develop logic for the application to translate EHR values to birth certificate values.
4. Develop a SMART-on-FHIR module with logic specific to the subset that will either pre-populate the birth form or otherwise provide the birth clerk with decision support.



Gantt chart



Thank you!