Implementing standards-based health data commons

PHARMACCESSGROUP

PharmAccess FOUNDATION
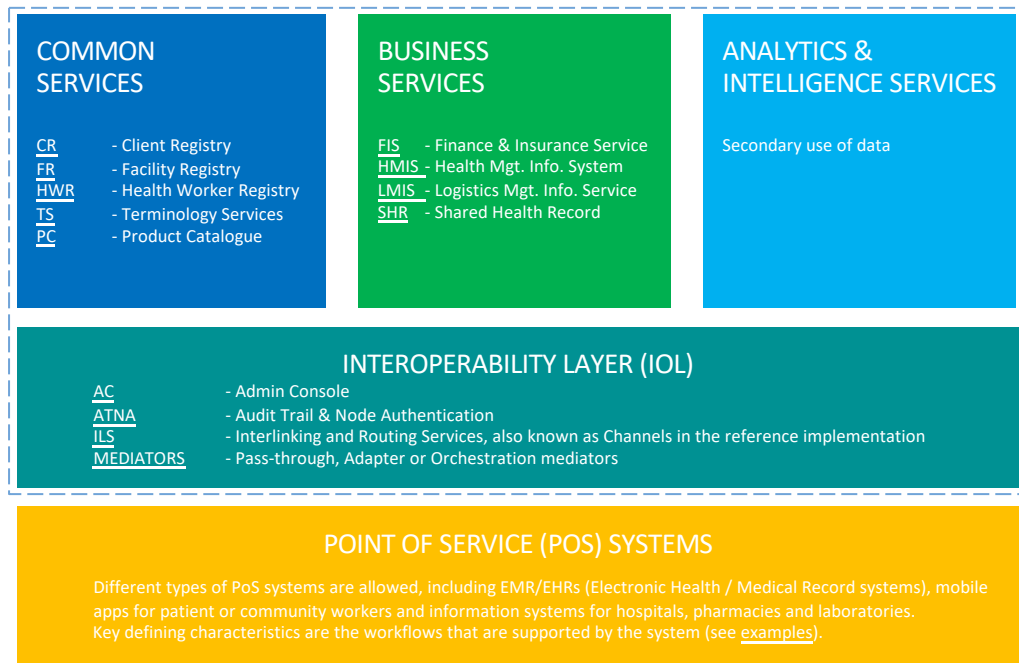
Health Insurance Fund

MEDICAL CREDIT FUND AFRICA

SafeCare HEALTHCARE STANDARDS

This document provides background information for GPITG pertaining to the NCD project with PharmAccess. It describes the principles of a **standards-based health data commons**.

In addition, it lists a number of question specific to the project at hand.

Framework for a standards-based health data commons based on OpenHIE

COMMON SERVICES

CR   - Client Registry
FR   - Facility Registry
HWR   - Health Worker Registry
TS   - Terminology Services
PC   - Product Catalogue

BUSINESS SERVICES

FIS   - Finance & Insurance Service
HMIS - Health Mgt. Info. System
LMIS - Logistics Mgt. Info. Service
SHR   - Shared Health Record

ANALYTICS & INTELLIGENCE SERVICES

Secondary use of data

INTEROPERABILITY LAYER (IOL)

AC   - Admin Console
ATNA   - Audit Trail & Node Authentication
ILS   - Interlinking and Routing Services, also known as Channels in the reference implementation
MEDIATORS - Pass-through, Adapter or Orchestration mediators

POINT OF SERVICE (POS) SYSTEMS

Different types of PoS systems are allowed, including EMR/EHRs (Electronic Health / Medical Record systems), mobile apps for patient or community workers and information systems for hospitals, pharmacies and laboratories.
Key defining characteristics are the workflows that are supported by the system (see examples).
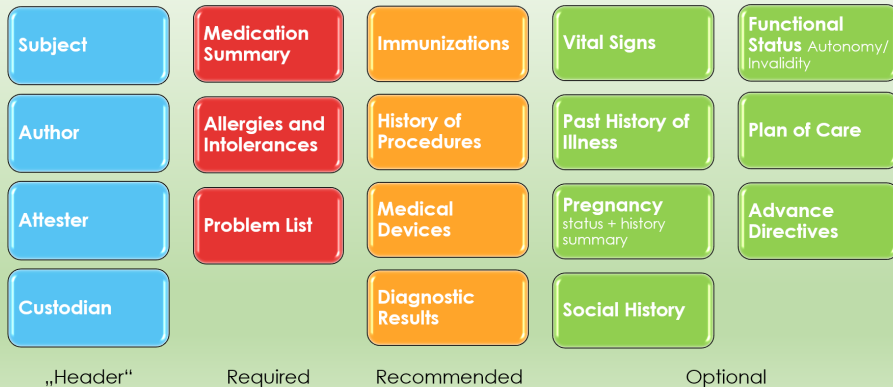
Why OpenHIE?

- One of the most widely used architectural frameworks for implementing health data exchange

- Standards-based, modular and with increasing number of implementations
  More info: OpenHIE documentation

- Many African countries have adopted it or use similar frameworks (Nigeria, Kenya, Tanzania, review HIE in Africa)

How do we want to use this?

- Digital technologies have matured in the past decade, creating opportunities for more effective and efficient implementation of openHIE components using modern open source component

- We specifically add Analytics & Intelligence services as an important domain for improving healthcare

We use Fast Healthcare Interoperability Resources (FHIR) International Patient Summary (IPS) as the semantic standard for data exchange

IPS Composition

"Header"	Required	Recommended	Optional	
Subject	Medication Summary	Immunizations	Vital Signs	Functional Status Autonomy/Invalidity
Author	Allergies and Intolerances	History of Procedures	Past History of Illness	Plan of Care
Attester	Problem List	Medical Devices	Pregnancy status + history summary	Advance Directives
Custodian		Diagnostic Results	Social History	

Details: FHIR IPS

Additions:

- Questionnaire

- QuestionnaireResponse

- ServiceRequest (for referral)

High-level overview of solution design for NCD Kilimanjaro project
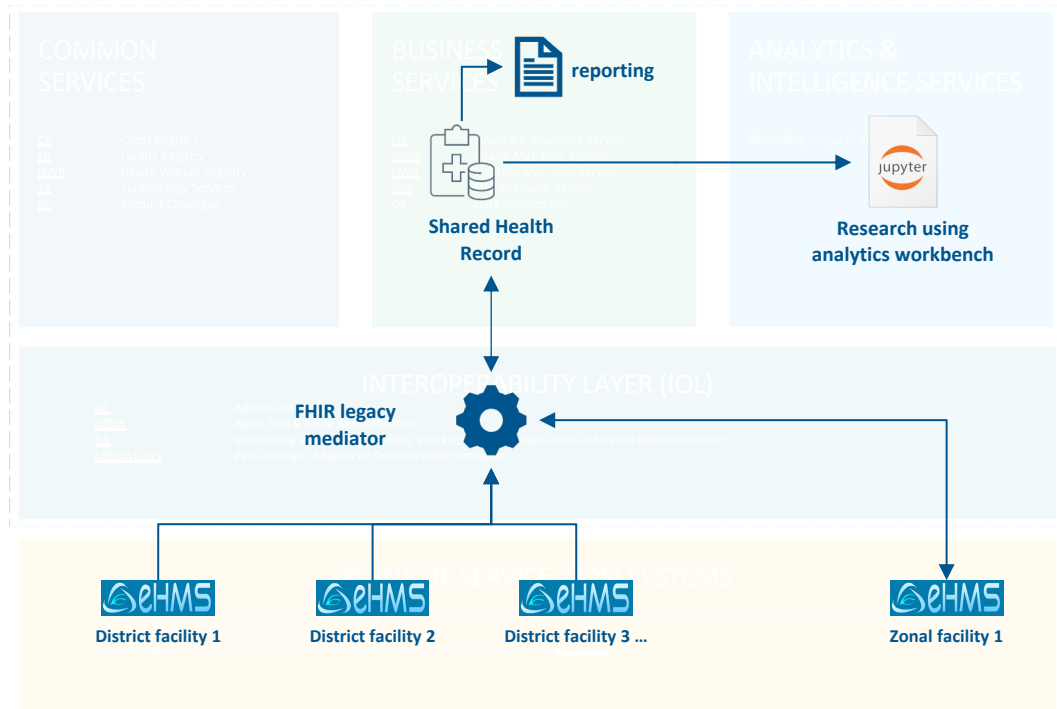
- All instances of eHMS exchange data via the interoperability layer (IOL)
- IOL provides mediation services, including translation of data from eHMS to and from the FHIR standard
- A persistent copy of all data is store in the Shared Health Record (SHR)
- Reporting, for example at district level, is done using the SHR
- Secondary use, for example for research, is support through the analytics workbench

Questions for GPITG

- Please provide 50 example records of patients (anonimyzed) such that we can perform a first scan how the data can be transformed into the FHIR IPS standard

- Please provide technical details how the IOL can interact with the eHMS system
  - What type of APIs are supported, for reading and writing?
  - Please refer to the OpenHIE architecture specification for more details for the various options to achieve interoperability

- Please provide screen-shots of the relevant parts of eHMS that are used by the doctors during an encounter with a NCD patient