**Challenges encountered during FHIR Profiling and Connectathon 3**

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|  | **Challenges** | **Examples** | **Suggestions/ Potential Solutions** |
| 1. Prior to FHIR Profiling | Identify the potential stakeholders |  |  |
|  | Collaboration between the stakeholders |  |  |
|  | Identify Use cases and workflows |  |  |
|  | Selection of Resources |  |  |
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| 2. Creation of FHIR Profiles | Identify the tools required for FHIR profiling |  |  |
|  | Decide on extensions/ slices |  |  |
|  | Decide on cardinality and binding |  |  |
|  | Deciding on ValueSets and CodeSystems | Different ValueSets used in common HHIMS and LRH HHIMS |  |
|  | Profiling of Resources |  |  |
|  | Terminology mapping in OCL online | Certain concepts do not have the corresponding mappings in SNOMED GPS |  |
| 3. Adoption of FHIR by EMR | Mapping the data to the FHIR path | Duration of drug Prescription captured in 1 field in the EMR (e.g. 5 days), but in the FHIR path it has 2 separate elements as duration which is of decimal data type and durationUnit which is a UCUM code |  |
|  | EMR users not selecting from the given dropdown and going for free text. | Instead of selecting cough in the dropdown, EMR users tend to enter as “C” into the system, thus these go as uncoded to the NEHR |  |
|  | Certain elements captured as free text | Allergies are captured as free text in EMR, whereas AllergyIntolerance.code is a codeable concept in FHIR |  |
|  | Cardinality of FHIR elements | AllergyIntolerance.encounter is profiled as mandatory, whereas the EMR is capturing the Allergy history at the time of registration of the patient and not in relation to an encounter |  |
|  |  | Patient.name.given and Patient.name.family are made mandatory in the LK NEHR Ias names PS IG, whereas the CloudHIMS capturing the name in 1 field.  And in LRH HHIMS the name is captured as name, and other names |  |
|  |  | Practitioner.name.given and Practitioner.name.family are made mandatory in the LK NEHR Ias names PS IG, whereas the CloudHIMS capturing the name in 1 field. |  |
|  | Change in StructureDefinition | Change in StructureDefinition will increase the workload related to coding in EMR | Need to balance value addition against increased workload to EMR vendors. Hence discuss with the EMR vendors before making further changes to Structure  definition. |
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| 4. Maintenance of FHIR Profiles | Updating the ValueSets and CodeSystems |  |  |
|  | Maintenance of terminology services |  |  |
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**Requirements**

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| Capacity building in FHIR | Capacity building for the Interoperability TWG with regards to concepts of FHIR, profiling and the use if FHIR profiling tools |
|  | Capacity building of the EMR vendors with regards to key concepts of FHIR and mapping to FHIR path |
| Awareness of FHIR | Administrators, Program managers and Clinicians should be given an introduction to FHIR, so that they can contribute to the decisions related to FHIR profiling activities |
|  | Build a module on Fundamentals of FHIR that could be used for Awareness |
| Collaboration with the Stakeholders |  |
| Regularly review the FHIR profiles |  |
|  |  |
| Regularly update the ValueSets and CodeSystem |  |
| Maintenance of the terminology Services (OCL Online) |  |
| Update the terminology mapping |  |
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**CloudHIMS - 18-03-2024**

Issue

1. Unable to see the Client of the Transaction Log in the OpenHIMS
2. All the information not shown in the Open IPS viewer
3. Patient is not getting updated

**OpenMRS - Updates on 18-03-2024**

**CloudHIMS - 20-03-2024**

Issues raised

1. When a transaction fails in the OpenHIMS, and when we try to push it again, will a new transaction created?

answer: Since the transaction ID is there, it won.t get duplicated.

1. Concerns pertaining to the Firewall

November 2024 target

1. Near production-ready NEHR data store and supportive components
2. All the EMRs submitting identified encounters to the NEHR
3. Client registry used for patient demographic information retrieval and submission
4. Patients have access to their own records through a functioning patient portal
5. High-level dashboards for NEHR data and usage
6. Secondary data usage promoted from the NEHR repo

Scope

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|  |  | Current scope | Gap | Scale |  |
|  | CloudHIMS | Patient Demographics  HLC Summary  (Patient demographics and HLC summary as one bundle) | Patient search/create workflow for new patients  Historical data | Single instance   Daily submissions  885 records  2.3 million records (Empanelled patients)  1.2 million records (CVD risk assessments) | When to start sending the historical data to the Production? |
|  | HHIMS (LRH) | Patient registration and OPD encounters (prescriptions, lab requests, procedure requests)  Clinic encounter summaries  Ward admissions and discharge  Ward Lab requests | Lab results  Discharge with ICD-10 coding  Imaging request status???  Historical data | 5700 days for current encounters  2x5700 for lab results  Historical data:  300,000 Patient Registration  415,000 OPD Encounters  160,000 ward Admissions  3.3 Million Lab results  166,000 Imaging requests  6500 Clinic visits |  |
|  | HHIMS | Patient registration and OPD encounters (prescriptions, lab requests, procedure requests)  Clinic encounter summaries | Lab results  Imaging  Discharge with ICD-10 coding | (LGN connected 35)  In 5 hospitals 800,000 registrations and 2 million encounters) |  |
|  | OpenMRS | Patient Registration | Need to do Profiling for the Minimum dataset | Historical data  3929 Patient Registration |  |
|  | Diabetes Compass |  | Community screening summary using OpenSRP  DM Clinic data from the OpenSRP app.  Need to do Profiling for the Minimum dataset | Estimate 25 community health workers - 10 per day for 2 days per week (5000 per week) |  |
|  | Swastha |  |  |  |  |
|  | Smart Vaccine certificate  (COVID-19) | Vaccination data | Need to do Profiling for the Minimum dataset | 15 million records? |  |

Points to Ponder

Privacy issues

Mechanisms to identify hacking (number of data retrieved at a time)

Analytics requirements [poornaavanthi@gmail.com](mailto:poornaavanthi@gmail.com)

**EMR integration best practices**

* Modularise the data exchange codebase
* Implemented a queue for data exchange for summaries
* Retry attempts
* Admin panels for the visualisation of integration messages and failures
* Ability to resend data to new fhir store
* ID creation and retention at the EMR
  + The primary key in the EMR can be optimised for local search
  + UUIDs to be created and stored or store the FHIR store-generated IDs
    - UUID standard (v4)
    - UUID standard (v5) - Adopt a strategy to ensure no duplicates are created when creating UUIDs
* Bidirectional data exchange with EMR-supported
* To support the deletion/retirement of objects maintain a list of Resource type and resource ID.  
  (Can send delete commands after assessing the impact on other existing references)
* Values to be saved as, code system, code and text

Log the transaction responses in the EMR

How the duplicate commit is handled the the OpenHIM/FHIR repo (If the Resource ID are the same, no duplicate records are created)

How to filter the transactions log  
Are the lag periods recorded? (Yes)