Open Digital Health Summit

Track 1 Program: Building with FHIR and joint sessions

Day 1 | Day 2 | Day 3 | Break-out sessions descriptions

Version 5.0, Last updated: 16th December, 2024

Day 1: Sunday Dec 1, 2024

Time	Room	Track	Session	Speaker | Org
08:00 - 09:00			*Registration with coffee / light breakfast*	
09:00 - 09:15	Victoria Ballroom	Joint	Welcome and Opening Remarks	HELINA, KeHIA, GAVI and WHO
09:15 - 09:45	Victoria Ballroom	Joint	**Opening keynote:** How open standards, Full-STAC approach and DPIs accelerate digital transformation in health and beyond	Garrett Mehl (WHO) Hani Iskander (ITU)
09:45 - 10:30	Victoria Ballroom	Joint	**Plenary:** FHIR for Leaders | Why FHIR matters, intro to the spec and key concepts	Carl Fourie (PATH) Jing Tang (Google Health)

10:30 - 11:00			*Break*	
11:00 - 11:30	Kifaru	Track 1	**Talk:** Accelerating digital health on FHIR with Open Health Stack	Fred Hersch (Google Health)
11:30 - 13:00	Victoria 3	Track 1	Building with FHIR **Lightning Talks** | Set of 5 x 15 min lightning talks 1. **Authoring FHIR artifacts: Introduction to FSH, Profiling and StructureMaps** *Jose Costa Teixeira (PATH)* 2. **Mobile Data collection on FHIR: Questionnaires, SDC Specification and the Android FHIR SDK** *Francis Otieno (Ona), Jing Tang (Google Health)* 3. **Security on FHIR: Key concepts and intro to the FHIR Info Gateway** *Bashir Sadjad (Google Health)* 4. **Approaches to integrating with FHIR | Introduction to Mapping** *Richard Langford (Jembi), Aisha Hassen (OpenFn)* 5. **Analytics on FHIR: Approaches and intro to FHIR Data Pipes** *Patric Prado, Moses Mutesasira (UoW DIGI)*	
13:00 - 14:00			***Lunch break***	
14:00 - 16:00			Breakout sessions: **"Open Technologies" for building with FHIR** *(These hands-on learning sessions will be running in parallel tracks and **participants will join one**)*	
		Track 1	Building a FHIR native, offline-capable app with the Android FHIR SDK *Room: Ndovu*	Google, Ona and IntelliSOFT
			FHIR Mapping and tooling for integrating between non-FHIR and FHIR systems	Medic, OpenFn and

			Room: Nyati	Jembi Systems
			Analytics and visualizations over FHIR data with OHS FHIR Data Pipes _Room: Victoria 3_	Google, UoW DIGI
16:00 - 16:30			_Break_	
16:30 - 17:30	Victoria Ballroom	Joint	Talks and panel discussion: **GenAI for Global Health** Hear from innovators and researchers on the opportunities and challenges for leveraging GenAI for Global Health. This session will open with short talks from Jacaranda Health and mDoc sharing experiences of building GenAI based solutions. This will be followed by a moderated panel discussion with closing remarks from Alain Labrique (WHO) _Panelists: Annie Hartley (Yale, LiGHT), Vaishnavi Menon (University of Birmingham), Nneka Mobisson (mDoc), Sam (Digital Umuganda), Jay Patel (Jacaranda Health), Alain Labrique (WHO)_ **Moderated by: Bilal Mateen (PATH)**	
17:30 - 18:00	Victoria Ballroom	Joint	Day 1 recap and closing	Garrett Mehl (WHO) + Track 1 (TBC) & Dilip Hensmann (Track2)
18:00 - 19:30			_**After hours social session	GenAI showcase**_	

Day 2: Monday Dec 2, 2024

Time	Room	Track	Session	Speaker	Org
08:00 - 08:45			_Breakfast and networking_	

08:45 - 09:00	Victoria Ballroom	Joint	Welcome back and plan for day 2	Fred Hersch (Google)
09:00 - 09:15	Victoria Ballroom	Joint	Welcome Address ● WHO Representative, Kenya ● Ministry of ICT and Digital Economy, Kenya ● Ministry of Health, Kenya	Dr Abdourahmane Diallo Dr Margaret Ndung'u Dr Deborah Barasa
09:15 - 09:20	Grass Lawn		Group Photo	All
09:20- 10:00	Victoria Ballroom	Joint	Panel: **Global Digital Health … All FHIR'ed Up!** Discussion on the current state of FHIR adoption in the Global Digital Health landscape with relevant perspectives from actors in the ecosystem **Panelists:** Steven Wanyee (HELINA), Jean Philbert Nsengimana (Africa CDC), Amarynth Sichel (USAID), Grahame Grieve (HL7 FHIR), Mat Berg (Ona) **Moderated by:** Natschja Nash-Mendez (WHO)	
10:00 - 11:00	Victoria 3	Track 1	**FHIR foundations #1**: *Series of talks from FHIR experts* Covers fundamentals of the FHIR specification and topics specifically relevant for digital health developers	Grahame Grieve, Diego Kaminker (HL7)
11:00 - 11:30			*Break*	
11:30 - 12:30	Victoria 3	Track 1	**FHIR foundations #2**: *Series of talks from FHIR experts* Covers fundamentals of the FHIR specification and topics specifically relevant for digital health developers	Grahame Grieve, Diego Kaminker (HL7)
12:30 - 13:00	Victoria 3	Track 1	**Talk:** Intro to the WHO Global Digital Health Certification Network (GDHCN) and FHIR IPS use-cases	Carl Leitner (WHO)
13:00 - 14:00			*Lunch Break*	

14:00 - 16:00		Track 1	Breakout sessions: **Hands-on with GenAI for Health -** _see section below for more details_ _(Note: These hands-on learning sessions will be running in parallel tracks and participants **will join one**)_	
			Intro to GenAI, writing good prompts and getting hands-on with Gemma _Room: Victoria 3_	Google Developer Expert, Jing Tang (Google Health)
			Hands on evaluating models with the AfriMedQA data-set _Room: Kifaru_	AfriMedQA consortium partners
			Training Meditron and the MooVE evaluation platform _Room: Nyati_	LiGHT / EPfL team
16:00 - 16:30			_Break_	
16:30 - 18:00	Victoria Ballroom	Joint	**Building with FHIR Implementer's Showcase** Series of lightning talks from implementers on how they have used FHIR throughout their solutions to solve specific problems	10 partner organizations presenting
18:00 - 18:30	Victoria Ballroom	Joint	Day 2 recap and closing	Fred Hersch (Google) & Track 1 (TBC) & Ryan Dos Santos (Track 2)
18:30 - 20:30			**_Gala dinner for all participants_**	

Day 3: Tuesday Dec 3, 2024

Time	Room	Track	Session	Speaker	Org
08:00 - 08:30			_Breakfast and networking_	
08:30 - 08:45	_Victoria Ballroom_	Joint	Welcome back and plan for day 3	

08:45 - 09:15	*Victoria Ballroom*	Joint	Welcome Address ● Ministry of ICT and Digital Economy, Kenya	Dr Margaret Ndung'u
09:15- 10:00	*Victoria 3*	Track 1	**Talk: [WHO SMART Guidelines for developers](#)** WHO SMART Guidelines, are an example of the "Open Content". In this talk, you will learn what is a "SMART Guideline" and why they are being developed, what goes into a SMART Guidelines (i.e. the technical components) and how developers should be thinking about them when working with MoH.	Natschja Nash-Mendez (WHO), Jose Costa Teixeira (PATH)
10:00 - 11:00	*Victoria 3*	Track 1	[Bringing SMART Guidelines to life: **Deep dive into the Clinical Guidelines IG and Use in existing Global Goods software**](#) Go deeper into the Clinical Guidelines Implementation Guide which is the underlying architecture of SMART Guidelines and hear how implementers are bringing these to life through different Global Goods. This session will also explore the emerging opportunities for GenAI to make it easier for developers to work with Clinical Guidelines content.	Bryn Rhodes (Smile and HL7) Grace Potma (OpenMRS) Jing Tang (Google Health) Matt Berg (Ona)
11:00 - 12:30	Victoria Ballroom	Joint	**Extended lunch break and "Ask Me Anything" sessions** ● Ask your "burning questions" to FHIR experts (HL7 FHIR team) ● ["Best of Both Worlds"](#) - Patterns for integrating FHIR and non-FHIR systems (Google, Jembi) ● Climate and Health discussion (PATH) ● Gender-related DH programming (health.enabled) ● Hajj Health Card, ICVP and GDHCN (WHO, Ministry of Health Malaysia)	
12:30 - 14:30		Track 1	Breakout sessions: **Open Architectures and Content -** *[see section below for more details](#)* *(Note: These hands-on learning sessions will be running in parallel tracks and participants will join one)*	
			IPS deep dive and playground *Room: Nyati*	Google, Jembi, IntelliSOFT,

				PharmAccess, WHO
			Publishing a FHIR Implementation Guide; example of a SMART Guideline *Room: Kifaru*	Smile Digital Health, PATH, WHO
			Architectural deep dive on using FHIR for achieving interoperability between different systems *Room: Victoria 3*	Jembi, KaiKai
14:30 - 15:00		*Break*		
15:00 - 15:45	Victoria Ballroom	Joint	**Panel:** How countries are adopting FHIR and DPIs into national architectures and blueprints During this session, we will hear from two panelists about how standards are being adopted into national architectures. The presentations will highlight specific policy initiatives, how they are being implemented and any experiences on how these are being adopted ● Dr Job Nyangena (Safaricom, Kenya) ● Dr Pradheep and Dr Uditha (Ministry of Health, Sri Lanka) **Moderated by:** Anne Stake, Medtronic Labs	
15:45 - 17:00	Victoria Ballroom	Joint	Putting it together | **Examples of bringing the Full-STAC and DPIs Approach to life** (3 talks with Q&A) ● **Malaysia:** Example of leveraging FHIR and DPIs to enable national personal health record (Dr Mahesh Appanan, Malaysia) ● **Global:** Team Based Care - Leveraging FHIR for a patient centered approach for improved immunization service delivery (Matt Berg, ONA) ● **Kenya:** Experience of adapting SMART Guidelines for Immunizations in Kenya: National Vaccine Immunization Program (Dr Rose Jalango), IntelliSOFT team	

			Moderated by: Garrett Mehl (WHO)	
17:00 - 17:30	Victoria Ballroom	Joint	*Closing Remarks and end of inaugural summit*	Alain Labrique (WHO) Harry Kimutai (PS, Ministry of Health Kenya)
17:30 - 17:35	Grass Lawn		Group Photo	All
17:35 - 19:00	*Casual networking session*			

Break-out sessions

On each day there is a 2 hour break-out session block where three different "workshops" will be run. These will generally involve hands-on skills building:

- For each day, participants will attend 1 of the 3 sessions.
- Preferences will be sought in the final week before the summit

We will do our best to ensure that everyone gets at least 1 of their first preferences

Day 1, Sunday Dec 1: *"Open Technologies" for building with FHIR*

14:00 - 16:00

D1-O1: Building a FHIR native, offline-capable app with the Android FHIR SDK
Google, Ona and IntelliSOFT

The Android FHIR® SDK is a set of Kotlin libraries for building offline-capable, mobile-first healthcare applications using FHIR resources on Android. In this hands-on session we will explore how to use the core SDC and FHIREngine Libraries of the Android FHIR SDK to build a sample real world application that will include offline data collection and processing as well as synchronization with a HAPI FHIR server.

This session assumes beginners' knowledge of Android app development and FHIR Questionnaires (which will be covered in the earlier Lightning Talks). We will also introduce participants to more advanced concepts of StructureMaps through some hands-on activities. To complete this workshop, you will need the latest version of Android Studio. **To maximize the workshop time, please have your machine set-up with the requirements.**

Knowledge Level: Basic knowledge of Android development and Kotlin. Suitable for beginner to intermediate level of FHIR knowledge

Requirements:

- A recent version of Android Studio (v4.1.2+) - https://developer.android.com/studio/install
- Android Emulator or a physical Android device connected to your computer
- Docker client (optional for creating a local FHIR store)

D1-O2: FHIR Mapping and tooling for integrating between non-FHIR and FHIR systems
Medic, OpenFn and Jembi Systems

In this session, learn about different FHIR mapping approaches and tooling for transforming data into FHIR resources. Through a set of hands-on exercises, participants will learn about the mapping process, gain exposure to existing global goods, and see how to transform data from non-FHIR to FHIR and FHIR to FHIR.

Knowledge level: There will be activities that will cover beginner to intermediate to advanced knowledge!

Technical requirements: Rest client installed (e.g. Postman)

D1-O3 Analytics and visualizations over FHIR data with OHS FHIR Data Pipes
Google, UoW DIGI

Running Analytics over FHIR data is a very common use case for building dashboards and generating reports. OHS [FHIR Data Pipes](#) is a collection of tools for transforming FHIR resources and running analytics services on top of that data using commonly used SQL query engines (such as SparkSQL, Postgres, DuckDB) and existing packages for data visualization (such as Apache SuperSet or Metabase).

During this workshop, we will deep-dive into the design of FHIR Data Pipes, highlighting the horizontal scalability for both pipelines and query engines, and show how this translates into performance benefits even on a single-node set-up. We will then walk through different approaches for generating a view layer (including via support for the [SQL-on-FHIR-v2 spec](#)) that can be materialized into either relational database tables or Parquet files, and lastly how to use open source visualization tools for building a dashboard.

The workshop will include running through a series of hands-on activities that will show how to deploy FHIR Data Pipes, transform the data and apply different view layer approaches to generate dashboards using the open source version of Metabase.

This will be a good session for data engineers and data scientists.

Knowledge level: Beginners to intermediate.

Technical requirements: Web browser

Day 2, Monday Dec 2 | Hands on with GenAI for Health

14:00 - 16:00

D2-O1: Intro to GenAI, writing good prompts and getting hands-on with Gemma
Google Developer Expert, Google

In this session, we will delve into the rapidly evolving world of GenAI. Learn about foundation models and LLMs and through practical examples and hands-on tutorials, explore the art of writing good prompts. In the second half of this session, get hands-on working with Gemma2 recipes that explore different use cases from on-device to RAG approaches and how to fine-tune a model.

Expertise level: Beginner to more technically savvy

Requirements: Laptop and browser

D2-O2: Hands on evaluating models with the AfriMedQA data-set
AfriMedQA consortium partners

The AfriMedQA dataset consists of 15,000 rigorously curated question-answer pairs spanning 32 clinical specialties, developed through contributions from over 1,000 African clinicians across 15 countries and 60+ medical schools. This dataset serves as a new benchmark to evaluate the performance of more than 20 open-source and closed LLMs, providing valuable insights into the capabilities and limitations of AI in addressing Africa-specific healthcare needs.

The AfriMedQA Consortium is excited to formally launch the AfriMedQA dataset through a 2-hour workshop that will provide an interactive, step-by-step, hands-on experience for participants to explore the practical applications of Large Language Models (LLMs) in the African healthcare context. The project is supported by Google Research, PATH, and the Bill and Melinda Gates Foundation.

Expertise level: No prior Generative AI experience is required.

Requirements: Laptop and access to a browser

D2-O3: Building a medical LLM from scratch: From Gemma to Meditron
LiGHT / EPfL team

In this session, learn the steps involved in tuning a base model for the healthcare domain. The goal of the session will be to show how to go about creating a Gemma based version of the OpenMeditron, an open source medical LLM. At each step of the making of an expert model you will learn about the data-requirements, scale, type and tuning / training processes that are involved.

Participants will walk away with a greater appreciation for what goes into tuning a base model for a specific use-case / task with an emphasis on the healthcare domain.

Expertise level: Beginner to more technically savvy

Requirements: Laptop, or phone with browser

Day 3, Monday Dec 3 | Open Architectures and Content

D3-O1: IPS deep dive and playground

HL7, WHO, PharmAccess, Jembi, Google

The [International Patient Summary IG](#) is a part of the FHIR specification aimed at facilitating patient-mediated and cross-border sharing of select health data. In the first half of this session, we will dive deeper into FHIR IPS, learn about different use-cases and hear how different groups leverage IPS in their work.

The second part will focus more on the technical implementation of IPS and participants will get some hands-on experience working through an end-to-end demo of a patient-mediated IPS based workflow. This will include optional use of an Android FHIR SDK demo app which can be installed on an Android phone.

Expertise level: Beginner to more technically savvy

Requirements:

- Laptop, or phone with browser.
- [Optional] Android phone for installing IPS demo app (as an APK)
- [Optional] A recent version of Android Studio (v4.1.2+) - https://developer.android.com/studio/install

D3-O2: Publishing an Implementation Guide - example of a SMART Guideline
Smile Digital Health, HL7, PATH

During this session, participants will walk through the steps involved in publishing an Implementation Guide. In the first hour, we will cover key FHIR concepts related to profiling, publishing and IG and the tools used (e.g. FSH, IG publisher). This will include some simple hands-on exercises. The second hour will dive deeper into the process, tools and SoPs for updating and publishing a SMART Guideline and will include a hands-on exercise.

FHIR Knowledge level: Beginner to Intermediate

Requirements:

- Java JDK 11+ installed to run the IG publisher
- Your favorite editor (VSCode will be used in the session)

Additional information: IG Publisher documentation is here

D3-O3: Architectural deep dive on using FHIR for achieving national scale interoperability
Jembi, KaiKai

Achieving interoperability is more than just leveraging standards in projects. In this break-out session, intended to be interactive, we will delve into the real-world challenges of achieving interoperability, the role of standards - in particular Implementation Guides and Profiles - and how to go about ensuring conformance to these. This session will explore different architectural approaches with the goal of creating blueprints that will be made available after the event.