

# 2<sup>nd</sup> Meeting of the ITU/WHO/WIPO Global Initiative on AI for Health (GI-AI4H)

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*Meeting Report*

*17-19 March 2025*

*National University Singapore, Singapore*

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## Acronyms

**AI:** Artificial Intelligence

**AIRIS:** AI Regulatory and International Symposium

**ASEAN:** Association of Southeast Asian Nations

**BRICS:** Brazil, Russia, India, China, South Africa

**DMXP:** Data and Model Exchange Protocol

**EHDS:** European Health Data Space

**EHR:** Electronic Health Record

**FG-AI4H:** Focus Group on AI for Health (predecessor to GI-AI4H)

**GDPR:** General Data Protection Regulation

**GI-AI4H:** Global Initiative on AI for Health

**ICD-10:** International Classification of Diseases, 10th Revision

**IP:** Intellectual Property

**ITU:** International Telecommunication Union

**LLM:** Large Language Model

**LMIC:** Low- and Middle-Income Country

**MAAP:** Malnutrition Assessment and Action Platform

**MCH:** Maternal and Child Health

**MeSH:** Medical Subject Headings

**NCD:** Non-Communicable Disease

**OCI:** Open Code Initiative

**RCT:** Randomized Controlled Trial

**SNOMED:** Systematized Nomenclature of Medicine

**TG:** Topic Group

**TM:** Traditional Medicine

**UMLS:** Unified Medical Language System

**WG:** Working Group

**WHO:** World Health Organization

**WIPO:** World Intellectual Property Organization

## Introduction

*This report summarizes discussions at the 2nd GI-AI4H Convening held 17–19 March 2025 in Singapore. Timelines and commitments reflect plans as discussed at the meeting.*

The Global Initiative on AI for Health (GI-AI4H) held its second annual convening in Singapore from 17–19 March 2025, co-organized by the International Telecommunication Union (ITU), the World Health Organization (WHO), and the World Intellectual Property Organization (WIPO). 151 participants joined in hybrid format (40 in-person, 111 remote), representing governments, academia, industry, civil society, and international organizations. The meeting marked a shift from foundational discussions to operational planning, with concrete deliverables and timelines now in place.

### *Key Decisions and Commitments*

The Regulatory Working Group will produce a draft Template Law for AI in health by June 2025, drawing on analysis of over 60 jurisdictions. A five-dimensional assessment framework for comparing national AI regulations is being piloted.

The Data Working Group is advancing the Croissant data format as a global standard for health dataset packaging, with a Data and Model Exchange Protocol (DMXP) under development. This work is aligned with the Open Code Initiative (OCI), a public-good platform providing open-source tooling for data annotation, federated learning, and regulatory review.

The Evaluation Working Group will develop modular, LMIC-adapted toolkits for assessing AI safety, effectiveness, and cost-effectiveness—moving beyond model accuracy to real-world impact assessment.

The IP Working Group will convene in May 2025 to prioritize three key topics and begin developing guidance for policymakers and innovators.

### *Upcoming Milestones*

- May 2025: IP Working Group priority-setting meeting
- June 2025: Draft Template Law for AI in health
- July 2025: GI-AI4H workshop and high-level presentation at the AI for Good Summit, Geneva

### *Cross-Cutting Themes*

Discussions surfaced persistent tensions between innovation and patient safety, the need for evaluation methods suited to non-deterministic AI systems (particularly large language models), and the importance of inclusive participation beyond self-funded experts. WHO confirmed it is seeking funding to broaden stakeholder engagement.

Six Topic Groups presented progress on domain-specific applications: Maternal and Child Health, Falls and Mobility, Traditional Medicine, Malaria, Point of Care diagnostics, and Oral Health. Several are developing benchmarking datasets and implementation pilots for 2025–2026.

Flash presentations showcased innovations from across the globe, including AI-powered cardiac digital twins for arrhythmia treatment, a malnutrition screening platform reaching 100,000 children in India, and research on mitigating hallucinations in health-focused large language models.

This report provides a detailed summary of the discussions, presentations, and working group outputs across the three days.

## Day 1: Monday, 17 March 2025

### 1.1 Opening Remarks & Meeting Objectives

Representatives of ITU, WHO, and WIPO delivered opening remarks. They welcomed participants and acknowledged the diverse expertise present in the room, emphasizing the initiative's strategic relevance in advancing trustworthy, inclusive, and effective AI for health globally.

The session outlined the primary goals of the 2nd meeting of the GI-AI4H. These included:

- Taking stock of the status of the Global Initiative, following its formal transition from the ITU-WHO Focus Group on AI for Health (FG-AI4H).
- Developing a collaborative roadmap for the next 12–18 months, centred around consolidating and forming Working Groups and Topic Groups through interactive panels, presentations, and breakout sessions.
- Encouraging cross-disciplinary collaboration among various stakeholders, including Member States, academic institutions, private sector actors, and civil society organizations.
- Determining the operational plan for key GI-AI4H events in 2025 and 2026, including the AI for Good Summit and the AIRIS 2025 symposium.

The session also highlighted the expected outcomes of the meeting:

- Establishing or refining 2–3 new Working Groups or Topic Groups.
- Ensuring a seamless transition from legacy FG-AI4H Topic Groups into the GI-AI4H structure.
- Defining clear deliverables and detailed short- and mid-term work plans for each group.
- Identifying additional resources and funding mechanisms to ensure sustainability.
- Facilitating documentation and knowledge exchange across participants and stakeholders.

### 1.2 Overview of GI-AI4H Activities

This session provided a historical and structural overview of the GI-AI4H. The GI-AI4H was officially launched in July 2023, jointly by ITU, WHO, and WIPO, as a successor to the ITU/WHO Focus Group on AI for Health, which was established in 2018. Since its inception, GI-AI4H has convened over 500 experts from government, academia, industry, and civil society to collaboratively develop governance frameworks, technical benchmarks, and policy guidance for the application of AI in health.

Key focus areas of the initiative include:

- Setting global standards and governance mechanisms to support the safe, effective, and ethical use of AI technologies in health.
- Building trust and transparency, ensuring that AI solutions meet rigorous quality and ethical standards.
- Bridging knowledge gaps by developing educational resources and facilitating peer-to-peer knowledge exchange for policymakers, developers, and end users.

The GI-AI4H is structured around a multi-tier governance model, including:

- A steering committee
- A Secretariat (ITU, WHO, WIPO)
- Specialized Working Groups and Topic Groups

## 1.3 Working Group Breakout Sessions

Following the morning’s plenary discussions, participants broke into four dedicated Working Groups—Data, Evaluation, Intellectual Property, and Regulatory Considerations—to refine their mandates, define deliverables, and establish practical work plans. Each group convened in a hybrid format, supported by note-takers and facilitators, using a shared template to guide structured discussions. The breakout sessions were a key step in translating the GI-AI4H’s strategic vision into coordinated, actionable outputs for 2025 and beyond.

### 1.3.1 WG-Data

The Data Working Group convened to consolidate its technical and strategic direction around data standardization, discoverability, and secure exchange for AI in health. The session was structured around an existing body of work developed through the FG-AI4H and Open Code Infrastructure (OCI) communities, with an emphasis on operationalizing these efforts within the GI-AI4H framework.

#### *Framing and background*

Key contributors from the WHO and ITU ecosystem led the session, including developers and researchers closely involved in previous iterations of the initiative’s technical workstreams. The discussion focused on using the Croissant format—a standard way to describe datasets, allowing computers to find and utilize them efficiently. It is based on a shared vocabulary (schema) developed by major web platforms to help computers understand the meaning of data, such as whether a value is a date, diagnosis, or dosage. Croissant is already integrated by major data vendors such as Hugging Face, Kaggle, and Dataverse, indexing over one million datasets.

Key framing included:

- Shared data representations are needed to reduce friction and transaction costs in health AI.
- A global health data index is desired to support discoverability, accessibility, and responsible reuse.
- The importance of maintaining a resource-sensitive roadmap, striking a balance between ambition and feasibility.

#### *Four-tiered objectives*

Participants reviewed a pre-drafted Terms of Reference and collaboratively refined four goals, structured by increasing resource intensity:

1. Basic Data Sharing and Community Support
  - Disseminate the Croissant format as a best practice for dataset packaging.
  - Provide informal guidance to users on adoption.
  - Facilitate matchmaking between data providers and consumers.
2. Index Development and Ontology Mapping
  - Create a meta-index aggregating health-relevant datasets from major repositories (e.g., Sage Bionetworks, PhysioNet).
  - Implement ontology harmonization, particularly linking Croissant to:
    - WHO’s ICD-10 classification
    - UMLS and other multilingual vocabularies
    - SNOMED and MeSH
  - Enable knowledge graph compatibility to support semantic querying across domains.

- Integrate search functionality with possible reliance on tools such as Google Dataset Search.
3. Transaction Protocols and Attribution
- Develop a Data and Model Exchange Protocol (DMXP) that includes:
    - Digital signatures for data authenticity (e.g., via device-manufacturer signing or hash-based chain of custody)
    - Provenance tracking
    - Licensing metadata and intended use fields (e.g., restrictions on commercial applications)
    - Authentication workflows compatible with local access rules
  - Evaluate compatibility with existing industry proposals such as Anthropic’s Model Context Protocol (MCP).
  - Explore alignment with WIPO and IP Working Group efforts on licensing frameworks.
4. Federated Testing and Real-World Implementation
- Pilot cross-border and cross-sectoral exchanges using the developed protocol.
  - Simulate end-to-end use cases such as federated benchmarking of AI models in real-world health systems.
  - Consider integration with initiatives led by groups such as MIT (e.g., PhysioNet) and Meta’s synthetic pathology data evaluation efforts.

### **Technical considerations**

- **Synthetic data:** Participants agreed that synthetic data should be treated cautiously and include metadata describing its generation method. While synthetic data can support model pretraining or experimentation, it must be evaluated for representational fidelity and legal risk.
- **Embeddings:** A distinction was drawn between predictive embeddings (prone to instability and regulatory issues) and numerical embeddings (deterministic, stable, and better aligned with policy frameworks). Embedding-related search mechanisms were seen as complementary to knowledge graph approaches.
- **Authentication and integrity:** Various mechanisms for data signing were discussed, including:
  - Hashing and digital signatures by device manufacturers.
  - Maintaining audit trails through format-preserving transformations.
  - Trust frameworks, such as the Data & Trust Alliance’s attribution standards, should be included.
- **Privacy and storage:** The group endorsed a “lazy infrastructure” model, where datasets remain on original servers and are indexed via Croissant. Storage concerns were considered minimal unless specific use cases (e.g., a centralized benchmarking platform) required centralized hosting.

### **Deliverables and next steps**

- Finalize and circulate an updated Terms of Reference reflecting community input.
- Continue collaborative work to refine the data index and initiate the development of DMXP.
- Schedule regular Working Group meetings to maintain momentum and track progress across the four goal tiers.
- Coordinate with the Regulatory and IP Working Groups on intersecting themes (e.g., licensing, data access, legal interpretation of commercial use).

The Data Working Group highlighted the importance of sustained engagement, practical guidance, and openness to evolving standards. Participants committed to co-developing meaningful outputs that could be adopted across technical, legal, and institutional contexts.

### 1.3.2 WG-Evaluation

The Evaluation Working Group convened to refine its scope, define its long-term value proposition, and set the foundation for a structured and collaborative work plan. The group focused on the challenges and opportunities in evaluating the safety, effectiveness, and real-world impact of AI tools in health. Particular attention was given to practical frameworks for implementation, cross-country applicability, and support for under-resourced health systems.

#### *Core objectives and motivations*

Participants reiterated key reasons for establishing the group:

- Support global collaboration on evidence-based AI integration in health.
- Enable fair and informed allocation of medical resources.
- Improve health equity and access through practical evaluation tools.
- Provide countries and stakeholders with modular, adaptable evaluation frameworks.
- Address regulatory, clinical, and economic evaluation gaps, particularly in settings where guidance or technical capacity is lacking.

#### *Thematic priorities and strategic framing*

Several high-level themes emerged from the discussion:

1. Clarifying the purpose of evaluation:
  - Evaluation is distinct from certification, though related.
  - Governments require guidance on evaluating AI tools for health, particularly in terms of safety, effectiveness, integration, and cost-effectiveness.
2. Defining the use cases:
  - The group agreed to avoid technology-based definitions (e.g., evaluating a chatbot or LLM) and instead focus on need-based use cases, such as clinical decision support, patient triage, or remote monitoring.
  - Emphasis was placed on understanding how and by whom the evaluation framework would be used (e.g., ministries of health, procurement agencies, regulators).
3. Flexibility and realism in framework design:
  - The framework must be modular and scalable, allowing use in resource-constrained settings.
  - It should provide prescriptive guidance on essential elements and offer advisory material that countries can adapt based on capacity.
  - The goal is to “meet countries where they are”, enabling progressive uptake and capacity building.
4. Incorporating evaluation of Large Language Models (LLMs):
  - Participants flagged the need to consider LLM-specific challenges, particularly their non-deterministic behaviour and difficulty validating outcomes.

- Evaluation methods must evolve to remain relevant in the context of rapid model iteration and deployment.
- 5. Types of evaluation considered:
  - The group explored a typology of evaluation:
    - Integration assessment – readiness for use in clinical settings.
    - Effectiveness assessment – whether the tool achieves its goals.
    - Financing assessment – cost-benefit or value-for-money evaluations.
- 6. Challenges of evaluation in practice:
  - Lack of randomized controlled trials (RCTs) for AI models.
  - Difficulties in identifying and measuring both the unintended positive and negative consequences.
  - Limited local capacity for ongoing monitoring and iterative evaluation.
- 7. WHO's role and the Working Group mandate:
  - The group is not positioned to certify or evaluate specific tools but to equip governments and stakeholders with toolkits and models that can be useful to them.
  - WHO participants emphasized the importance of aligning with existing WHO guidance and providing globally relevant tools that can be tailored to local needs.

### ***Immediate deliverables and planning***

A three-stage approach was proposed to organize the Working Group's activities:

1. Stage 1 – Group formation:
  - Establish a core team of contributors, including technical, clinical, and policy expertise.
  - Begin meeting on a fortnightly basis to maintain momentum.
2. Stage 2 – Scope and prioritization:
  - Define a few priority product areas or use cases to focus on initially.
  - Begin work on a first iteration of the evaluation framework, drawing on existing WHO materials where relevant.
3. Stage 3 – Workplan and subgroup formation:
  - Form subgroups aligned with thematic areas (e.g., clinical, economic, health systems).
  - Develop an update to the evaluation checklist, a usability assessment strategy, and peer-reviewed journal publications.

Additional proposed deliverables included:

- An initial toolkit for country-level implementation.
- A training model for capacity building.
- Metrics or indicators to assess uptake and institutional readiness.

### ***Funding and resource considerations***

Discussion turned to the challenge of securing funding and institutional support:

- Participants agreed that a clear work plan and defined outputs are essential to attract funding.
- Members will explore possible donors, including foundations, research councils, national governments, and multilateral bodies.

- Funding proposals should emphasize the practical utility and non-technical impact of the evaluation framework, such as its benefits in improving procurement decisions, enhancing clinical safety, and enhancing health system performance.

### **Coordination and next steps**

- A mailing list will be created to facilitate ongoing coordination.
- The co-chairs will follow up with all participants to finalize subgroup memberships and set the agenda for the subsequent virtual meetings.
- Participants suggested nominating individuals with diverse expertise, including those from legal, clinical, economic, and digital backgrounds, and ensuring regional and gender balance.
- The group may explore integration points with other Working Groups, including Regulation, IP, and Data.

### **1.3.3 WG-Intellectual Property**

The Intellectual Property (IP) Working Group convened for its inaugural meeting to explore the intersection of AI innovation in health and intellectual property rights. The group aimed to identify concrete deliverables and a strategic direction for the next 12–24 months.

#### **Core objectives and motivations**

The session opened with a welcome by WIPO representatives, who underscored the significance of the group’s work in shaping the broader GI-AI4H framework. They acknowledged the initiative’s roots in earlier work launched during the prior GI-AI4H meeting held in Riyadh in 2023. They emphasized its inclusive and multi-stakeholder nature, with participation from WHO, ITU, and WIPO, and new actors from the frontier technologies space.

#### **Thematic priorities and strategic framing**

Key themes of the session included:

- Mapping the impact of IP on health AI innovation: Participants discussed the dynamic role of intellectual property in the development, scaling, and governance of AI tools in healthcare, particularly in emerging areas such as traditional medicine and cross-border data use.
- Proposed objectives: A participant recommended that the Working Group structure its work around two primary stakeholder groups:
  1. IP policymakers – who would benefit from tailored *guidelines, policy briefs, and practical IP guidance on AI for health*.
  2. Innovators and IP users – who require *toolkits* for product development, rights management, and licensing strategies.
- Analysis of existing frameworks: Consideration of the European Health Data Space (EHDS): A suggestion was made to draw from newly adopted EU regulations, particularly in how patient data can be used for both primary (clinical) and secondary (AI system development) purposes. This was identified as a potentially valuable precedent for global frameworks on AI and IP in health.
- Development of practical tools: WIPO confirmed its readiness to lead the collation and drafting of proposed tools and guidelines, emphasizing the importance of ensuring inclusivity and validation through broad consultation with Working Group members.

- Planning for future engagements: The group flagged the upcoming ITU AI for Good Summit (July 2025, Geneva) as a potential venue for hosting a panel or seminar. Topics could include IP and trade secrets in AI for health, encouraging further dialogue across sectors.

### **Next steps**

The group agreed on the next steps, including:

- Convening in early May 2025 to prioritize three key topics.
- Beginning work on training and awareness-raising materials tailored to diverse stakeholders.
- Identifying synergies with other Working Groups, particularly on regulatory and data issues.
- Real-world use cases (e.g., traditional medicine) as testbeds for future outputs.

### **1.3.4 WG-Regulatory Considerations**

The Regulatory Considerations Working Group (RC-WG) brought together global experts from regulatory bodies, academia, the legal sector, and technical developers to advance international dialogue and collaboration around the governance of AI in health. The session, co-chaired by a diverse leadership team, focused on strategic framing and detailed deliverables.

#### **Overview and framing**

The Working Group is organized around four thematic workstreams:

1. Regulatory Landscape Mapping – Cataloguing national and regional AI health regulations and identifying gaps.
2. Template Law – Developing a flexible legal framework that countries can adapt.
3. Training and Knowledge Sharing – Building core regulatory competencies across stakeholders.
4. Use Case-Based Implementation Toolkit – Designing step-by-step guidance to move AI solutions from lab to deployment, tailored to country readiness and sector needs.

Each stream has designated leads and contributors from diverse geographic and sectoral backgrounds.

#### **Use cases and practical insights**

- One participant drew on their experience in Malaysia to highlight the multi-year advocacy required to integrate international guidelines into domestic systems, emphasizing the importance of engaging with national power structures.
- Another participant shared the development of national AI research guidelines and a draft certification process for AI in healthcare in Qatar, with a focus on region-specific data use and research and development requirements.
- Participants agreed that regulatory toolkits must accommodate both bottom-up adaptation and localization, rather than relying solely on top-down standardization.

#### **Challenges discussed**

1. Informed consent and patient transparency:
  - Physicians often lack clarity on how to disclose the use of AI to patients. Their understanding of whether disclosure is necessary or ethical differs in different contexts.

- Proposals were made to integrate AI-related content into existing patient Bills of Rights, enhancing transparency at the point of care.
- 2. Siloed regulatory structures:
  - In Indonesia, for example, there is fragmentation between ministries, and limited technical literacy among regulators.
  - A clear institutional designation of regulatory authority for AI in health is needed.
- 3. Over/under-regulation:
  - Participants raised concerns about “catching up” with rapidly evolving technologies. Emphasis was placed on designing future-proof regulatory frameworks that focus on principles and human outcomes rather than technology-specific rules.
- 4. Professional standards:
  - Calls were made to ensure that AI augments but does not replace professional judgment, with concerns raised about the inappropriate use of tools like LLMs.
- 5. Operationalizing principles:
  - Numerous interventions focused on moving from ethical frameworks to actionable regulatory workflows that can be implemented in real-world settings.

### **Proposed deliverables**

The group proposed a multi-tiered approach to its deliverables:

- International-level:
  - A proposal to eventually develop a Regulatory Approvals Cooperation Treaty (ACT) to facilitate the mutual recognition of AI health approvals was acknowledged as ambitious. Still, it was agreed that this could serve as a long-term aspiration.
  - Emphasis on aligning with core medical ethics principles (e.g., an “AI Hippocratic Oath”) is widely accepted across jurisdictions.
- Regional-level:
  - Support for regional harmonization frameworks (e.g., ASEAN AI Principles), especially where mutual recognition could reduce duplicative validation processes.
- Country-level:
  - A Regulatory Maturity Assessment Tool, potentially as part of the implementation toolkit, to help countries assess readiness and adapt existing legal frameworks.
  - National examples (e.g., Canada’s adaptation of 1998 legislation, Singapore’s digital health regulations) were cited as models for using existing legal infrastructure instead of developing entirely new laws.
- Toolkit:
  - The toolkit was conceptualized as a “field manual” with practical guidance for both regulators and developers, encompassing:
    - Data governance,
    - Validation methods,
    - Monitoring and evaluation,
    - Stakeholder communication and transparency workflows.
  - The toolkit will also aim to provide templates for data sharing agreements and guidance for localizing international standards.

### **Training and capacity building**

- WHO shared that member states have requested an AI-related curriculum in medical training. This is not yet widespread but is a key priority.
- Discussions highlighted the need for:
  - AI governance content in law and ethics electives in medical schools.
  - CPD (continuing professional development)-based AI training for clinicians and lawyers.
  - Align training materials with the group's guidance documents to ensure common language and standards.

### **Next steps**

- Participants were encouraged to share institutional affiliations and potential funding sources.
- The group will continue refining its deliverables, particularly the toolkit and Template Law, and coordinate across workstreams to ensure consistency.
- A point was made to explore further the balance between the bottom-up and top-down approaches to AI regulation, with a consensus that both are needed in balance.

## **1.4 Closing Plenary: Working Groups Report Back and Discuss**

The final session of Day 1 brought together all participants for a structured report-back from the four working groups: Data, Intellectual Property (IP), Regulatory Considerations, and Evaluation. Each group presented its progress, emerging themes, proposed deliverables, and next steps. The session included follow-up questions and highlighted synergies across groups.

### **1.4.1 WG-Data**

The Data WG presented four sequential goals, arranged by increasing complexity:

- **Sharing and Matchmaking:** Promote adoption of the Croissant metadata format and support simple matchmaking between data providers and users.
  - Anticipate finalization of the Croissant format specifications for healthcare by mid-2025.
- **Index Development:** Create a searchable, ontology-linked health data index that integrates existing repositories (e.g., Sage Bionetworks, PhysioNet). Ontologies mentioned include ICD-10 and SNOMED.
- **Transaction Protocols:** Develop a Data and Model Exchange Protocol with authentication, licensing verification, and access control. Collaboration with WIPO was flagged as essential here.
- **Federated Testing and Implementation:** Test the developed tools in real-world, multi-stakeholder settings.

### **Additional comments**

- The WG emphasized the importance of reducing transaction costs associated with data access, especially in healthcare contexts.
- Work is already underway, with weekly technical meetings continuing from the previous phase and monthly alignment meetings planned.
- Challenges include unclear resource commitments; however, the group is making progress through in-kind contributions and volunteer efforts.

### ***Comments from participants***

- Emphasis was placed on developing concrete deliverables (e.g., data annotation guidance) with a clear timeline and schedule.
- WHO encouraged broader global participation and emphasized the need to define specific, user-oriented products.

### **1.4.2 WG-Intellectual Property**

The IP WG held its inaugural meeting earlier that day, with participation from academics, innovators, industry representatives, and the Africa CDC.

#### ***Four key areas were identified***

- Mapping AI trends in health: e.g., R&D, med-tech software, data management.
- Identifying IP implications: Topics include AI inventorship, rights in health data, and licensing practices.
- Facilitating collaboration: Across healthcare, AI, and IP domains—especially on licensing, data access, and tech transfer.
- Developing tools & guidance: WIPO will support the preparation of policy briefs, toolkits, checklists, and training resources.

#### ***Next steps***

1. Convene again in early May to prioritize three topics for the next 12–24 months.
2. Assess member contributions—both institutional and individual—to determine feasible outputs.
3. Produce resources for policymakers, innovators, and regulators.
4. Engage with other Working Groups (particularly Data and Regulatory Considerations) to ensure coherence across overlapping areas.

#### ***Discussion points***

- Participants encouraged the group to add awareness-raising and training as core deliverables.
- WHO noted the potential for synergies with its IP for the Medical Manufacturing Centre of Excellence.
- Suggestions were made to integrate IP expertise more systematically into other WGs, and vice versa.

### **1.4.3 WG-Regulatory Considerations**

#### ***Central themes***

- The need to move beyond narrow, technology-specific rules to principle-based governance grounded in ethics, health outcomes, and professional accountability.
- The importance of bottom-up and top-down approaches, and how to balance the two.
- Recognition of fragmented regulatory responsibilities and differing regulatory maturity across countries.
- Proposed outputs:
  1. Regulatory landscape mapping
  2. Implementation toolkit
  3. Template law (renamed from “Template Law” to avoid misconceptions)
  4. Training module for regulators and legal professionals

The WG has been active for several months and meets monthly across four workstreams. A formal package of deliverables will be presented in September at the AI International and Regulatory Symposium in The Republic of Korea.

### **Discussion**

- Participants proposed adapting international IP structures (e.g., WIPO's PCT system) to regulatory contexts.
- The need for cross-WG coordination was underscored, particularly in areas such as data protection, liability, and the balance of rights (e.g., GDPR vs. IP).

### **1.4.4 WG-Evaluation**

The Evaluation WG is newly re-forming and is building on the previous FG-AI4H evaluation framework.

Goals include supporting:

- Clinical, economic, and systemic evaluations.
  - LLM-specific assessment strategies.
  - Adaptation to LMICs and real-world implementation needs.
- Key planned deliverables:
  - A one-page value statement.
  - A gap analysis of WHO Member States to identify needs.
  - A modular toolkit for implementation.
  - Usability testing with intended audiences (e.g., ministries of health).
  - Engagement with stakeholders via workshops, test cases, and integration with other GI-AI4H initiatives.
- Coordination:
  - Meetings are expected every two to three weeks.
  - Proposal to hold an inaugural workshop to co-design the roadmap and goals.

### **Discussion**

- Emphasis was placed on avoiding duplication across WGs, especially evaluation elements embedded in Topic Groups.
- Participants emphasized the importance of aligning the framework with the WHO's implementation metrics (e.g., the number of countries adopting the framework).

## **1.5 Reflections and Wrap-Up**

Main points:

- WHO and ITU called for enhanced cross-pollination among Working Groups to avoid duplication and leverage synergies (e.g., IP and Regulation, Data and Evaluation).
- Participants were encouraged to refine outputs for presentation to Topic Groups on 19 March.
- Expressions of interest in joining WGs were welcomed, pending conflict-of-interest vetting by WHO, ITU, or WIPO.

## Day 2: Tuesday, 18 March 2025

Day 2 was structured as a workshop. Following the opening session, two keynote speeches were provided. Day 2 also featured two panels: one provided a high-level overview of the implementation of AI in health, and another explored the intersections among AI, IP, and health. Two sessions featuring flash presentations that illustrated innovative use cases of AI for health.

### 2.1 Opening Session

**Moderator:** Dean Ho, Director of the Institute for Digital Medicine (WisDM), Head of Department of Biomedical Engineering, National University of Singapore (NUS)

**Speakers:**

- Simão Campos (ITU)
- Sameer Pujari (WHO)
- Siddhartha Prakash (WIPO)

The session began with welcome remarks from Dean Ho, setting a collaborative and action-oriented focus for the day. Following introductions, representatives from ITU, WHO, and WIPO provided opening remarks outlining their vision for AI in healthcare.

**Simão Campos (ITU)** emphasized the transformative impact of AI in healthcare, noting how AI-powered diagnostics, treatment planning, and virtual assistants are revolutionizing the care process. He emphasized ITU's role in developing technical standards crucial for interoperability and the adoption of ethical AI across healthcare systems. Simão stressed the importance of international collaboration in promoting standards that ensure privacy, security, and innovation.

**Siddhartha Prakash (WIPO)** highlighted WIPO's mission to support innovation through intellectual property (IP) systems. He discussed how AI is accelerating healthcare innovation by improving clinical trials, drug discovery, and personalized medicine. Siddhartha presented several case studies of AI-driven healthcare innovations from around the world, including non-invasive cardiovascular monitoring in Sri Lanka, ultrasound enhancement in Turkey, and personalized bone implants in Thailand. He emphasized the necessity of integrating IP considerations into national AI strategies from the outset to create balanced ecosystems that foster both innovation and access.

**Sameer Pujari (WHO)** closed the opening remarks by shifting the focus to action. He called on participants to think beyond meetings and identify tangible steps to advance the deployment of AI in healthcare. Highlighting WHO's commitment, he emphasized the urgent need for point-of-care AI technologies and national programs targeting major diseases, such as diabetes. Sameer's message was clear: collaboration is vital, and each participant has a role in moving AI for Health from discussion to implementation.

Dean Ho concluded the session by reiterating the need for evidence-based, scalable solutions and invited participants to engage actively throughout the day.

## 2.2 Keynote Speakers

**Moderator:** Sameer Pujari (WHO)

**Speakers:**

- Dean Ho (National University of Singapore)
- Kidong Park (WHO Western Pacific Regional Office)

### Keynote 1: Dean Ho – Shaping the Future of Healthcare Through Digital Innovation

Dean Ho's keynote provided a deep dive into how digital innovation, particularly through digital twins and AI, is reshaping the future of healthcare. Building on his remarks from the opening session, he emphasized that healthcare must move beyond static, snapshot-based treatment models to dynamic, evolving models that reflect how patients change over time.

Key themes included:

- **Precision and personalized medicine:** Ho illustrated how traditional healthcare decisions are often based on a single blood test or medical snapshot, ignoring how a patient's needs evolve over time. His team's work aims to adjust treatment over time for each patient dynamically.
- **Prospective validation and small data:** Unlike models built solely on large datasets, his institute specializes in *prospective trials* — real-world, live adaptation of AI-driven treatment models for actual patients, without relying on pre-existing datasets.
- **Clinical impact:** He showcased success stories, such as a patient with a rare cancer who was treated with dynamically adjusted drug dosing, achieving stable disease and a reduction in treatment costs of over \$10,000 over 39 months.
- **Digital twins:** Solid cancer patients are being treated using AI-driven digital twins that continually adjust therapy based on real-time data, creating personalized care pathways.
- **Behavioural change and health span:** Ho presented insights from his own "DELTA Trial," a longitudinal self-experimentation project where he combined fasting, fitness, and detailed health monitoring. Ho demonstrated how gamifying biomarker changes, rather than simply gathering more data, can drive long-term behavioural improvements.
- **Future role of generative AI:** He concluded with a glimpse into how generative AI could support behavioural change by reinforcing positive habits using dynamic, personalized visualizations.

The overall message was that the future of healthcare will be defined not by how much data we collect, but by how meaningfully we use and adapt it to improve individual lives.

### Keynote 2: Kidong Park – AI for Public Health: Perspectives and Strategic Directions in the Western Pacific

Kidong Park, speaking remotely, provided a strategic overview from the World Health Organization's (WHO) Western Pacific Regional Office.

Key points included:

- **Regional diversity and challenges:** The Western Pacific region includes small island nations and vast Asian economies. Challenges such as high NCD burdens, infectious disease outbreaks, and vulnerability to climate change are common across the region.

- **AI applications in public health:** Park highlighted successful use cases where AI is already making an impact:
  - *Diabetes screening models* integrating large language models and deep learning.
  - *GPT-based assistants* to relieve burnout and enhance patient interaction.
  - *Disease surveillance apps*, such as DiWA in the Philippines and *Mindline.sg* in Singapore, utilize AI to enhance public mental health and epidemic forecasting.
- **Governance and responsible innovation:** Park emphasized the need for responsible and equitable deployment of AI. The WHO Regional Health Innovation Strategy focuses on:
  - Road mapping priority use cases
  - Strengthening public sector capacity (technical literacy, operational know-how)
  - Cultivating enabling ecosystems through regulatory harmonization and research collaboration.
- **Future initiatives:** Park invited stakeholders to upcoming forums, such as:
  - The *Leadership Forum at PPHA 2025* in Malaysia
  - The *AI Regulatory and International Symposium (AIRIS) 2025* in Korea.

He concluded with a call to action for collective research, implementation pilots, and capacity-building efforts, with a particular focus on resource-limited settings.

### Summary of the Keynotes

Dean Ho and Kidong Park's presentations provided complementary perspectives: Ho emphasized *patient-centred, prospective innovation* at the clinical level. At the same time, Park highlighted *system-wide strategies* to harness AI for public health across diverse countries. Together, they framed a compelling vision of AI in healthcare that is both personalized and scalable, innovative yet responsibly governed.

## 2.3 Flash Presentations: Part 1

**Moderator:** Harlon Yang (NUS)

**Presenters:**

- Lei Li (NUS)
- Romita Ghosh (RevolutionAlze, India)

### Lei Li – AI-powered Cardiac Digital Twins for Personalized Cardiac Arrhythmia Treatment

Lei Li presented her cutting-edge research on using AI to create cardiac digital twins for personalized treatment of cardiac arrhythmias, particularly atrial fibrillation (AF) and myocardial infarction (MI).

Key points:

- **Concept of a digital twin in healthcare:** Digital twins are digital replicas of physical entities. In healthcare, they allow continuous, personalized simulation and analysis of a patient's condition.
- **Clinical motivation:**
  - Standard treatments for atrial fibrillation, like radiofrequency catheter ablation, have high recurrence rates. A digital twin could enable clinicians to simulate and refine treatment plans virtually before applying them in the real world.

- In myocardial infarction patients, risk stratification for sudden cardiac death is currently crude (e.g., relying on ejection fraction). Digital twins offer a more nuanced approach.
- **Methodology:**
  - *Anatomical twinning*: Building 3D anatomical models from multi-view cardiac MRI scans.
  - *Functional twinning*: Simulating electrophysiological behaviour based on personalized parameters.
- **Role of AI:**
  - AI dramatically accelerates processes like torso reconstruction. Lei Li's model reduced reconstruction time from 30–35 minutes (using conventional methods) to about 2 seconds.
  - Her research integrates topology-informed AI models to accurately localize electrodes and simulate cardiac electrical activity.
- **Impact and future directions:**
  - Although AI has significantly advanced anatomical twinning, functional twinning (which simulates cardiac function) remains more complex and is still in its early stages.
  - Lei Li invited collaboration through a workshop she is organizing at MICCAI 2025 on digital twins for healthcare.

### Q&A: Highlights

- Collaborations with institutions like Oxford, Imperial, and King's College London are ongoing.
- Accuracy is assessed not just by model fidelity but by the improvement in real-world treatment outcomes.
- Future research will focus on broader personalization, faster model building, and practical deployment.

### Romita Ghosh – AI for Public Health Nutrition Monitoring: The MAAP project

Romita Ghosh introduced MAAP, an AI-powered platform designed for the early detection and monitoring of malnutrition among children in India.

Key points:

- **Problem addressed:**
  - Malnutrition affects millions of children, especially in underserved areas.
  - Traditional growth monitoring (height and weight tracking) is error-prone, manually intensive, and often falsified at the ground level due to a lack of resources.
- **Solution:**
  - Using a single photograph, MAAP estimates a child's height with high accuracy, eliminating the need for unreliable manual height measurements.
  - Weight is still manually measured because of technical and practical constraints.
  - The application correlates growth data with dietary inputs and WHO growth standards to monitor stunting, wasting, and overall nutritional status.

- **Impact:**
  - MAAP has already screened over 100,000 children and is expanding to 500,000 across several Indian states, including Gujarat, Maharashtra, Rajasthan, and Madhya Pradesh.
  - It empowers community healthcare workers, facilitates real-time intervention, and provides data for targeted public health action.
- **Technological edge:**
  - Two proprietary machine learning algorithms.
  - Secure, tamper-proof, scalable platform with a gamified interface for ease of use.
  - Designed to integrate into India's digital health ecosystem and contribute to public health data infrastructure.
- **Vision:**
  - MAAP aims to impact 100 million children by 2030 and expand into other regions, including Africa.

#### **Q&A: Highlights**

- MAAP uses manual weight collection but is exploring future enhancements.
- The team is mindful of government health initiatives and seeks to complement existing nutrition programs.
- Future possibilities include AI-driven nutritional advice based on detected malnutrition patterns.

#### **Summary of Flash Presentations: Part 1**

Both presentations demonstrated how AI can address particular but critical health challenges: Lei Li focused on personalized clinical interventions through digital twinning. At the same time, Romita Ghosh addressed large-scale public health monitoring in low-resource environments using impactful, accessible AI tools.

## **2.4 High-Level Panel: AI for Health Implementation**

#### **Moderators:**

- Simão Campos (ITU)
- Sameer Pujari (WHO)

#### **Panellists:**

- Rose Nakasi (Makerere University, Uganda)
- Abdulmalik Bin Kulaif (Saudi Food and Drug Authority)
- Yue Qiu (Tsinghua University, China)
- Barry Solaiman (HBKU Law, Qatar)

The session began with introductions by Simão Campos and Sameer Pujari, who emphasized that the discussion would prioritize field experiences and lessons learned regarding the implementation of AI in healthcare.

Each panellist was then invited to introduce their work:

- **Rose Nakasi** described her work developing low-cost, AI-based tools for malaria diagnosis, aiming to address the lack of skilled microscopists in low- and middle-income countries (LMICs).
- **Abdulmalik Bin Kulaif** shared Saudi Arabia's approach to proactively building regulatory frameworks for AI in the pharmaceutical sector, emphasizing the importance of early regulatory engagement.
- **Yue Qiu** discussed her research on integrating AI into China's healthcare system, citing successful examples of digital screening programs in primary care settings.
- **Barry Solaiman** focused on healthcare law and bioethics, particularly questions of liability and governance in AI-assisted medical decision-making.

The panel then examined the critical challenges in implementing AI for health:

- **Nakasi** emphasized the challenges faced by LMICs, including inadequate data infrastructure, limited awareness of AI, weak digital health policies, and the need for locally tailored, evidence-based solutions. She advocated for integrating AI into existing healthcare workflows in a way that respects sociocultural contexts, data privacy, and ethical norms.
- **Bin Kulaif** emphasized that regulation must be flexible and proactive, allowing developers to understand regulatory requirements early and harmonizing standards internationally.
- **Qiu** highlighted the pivotal role of doctors' acceptance in successfully implementing AI tools and shared an example from Hainan Province, China, where government funding and clinical training significantly boosted adoption rates.
- **Solaiman** explained that, under current legal regimes, doctors remain liable even when AI is used; however, future shifts, where AI sets new standards of care, will require legal adaptation.

### **Q&A: Highlights**

The audience Q&A focused heavily on liability questions, with discussion around how to handle AI models that update over time, the role of adaptive algorithms, and concerns about trust when AI, rather than humans, makes decisions. Panellists agreed that careful governance, clear disclosure, and an evidence-driven approach will be critical to building trust and ensuring safe adoption.

There was also discussion about national regulation adapting to global standards, with Bin Kulaif emphasizing the importance of flexible oversight and proportional regulation based on risk.

The session concluded with key takeaways: the importance of early regulator involvement, the significance of local context in LMICs, the centrality of doctors' adoption, and the urgent need for ethical and transparent AI systems.

## **2.5 Panel: GI-AI4H – Intellectual Property, AI, and Health**

**Moderator:** Siddhartha Prakash (WIPO)

**Speakers:**

- Soner Hacıhaliloğlu (PONS, Turkey)
- Kirti Gunasekera (Jendo Innovations, Sri Lanka)
- Amos Heng (formerly FathomX, Singapore)
- Sofonias Kifle Tessema (Africa CDC)
- Ayelet Berman (National University of Singapore)
- Ryan Abbott (University of Surrey)

- Vitor Ido (University of São Paulo)

The session began with presentations by innovators who shared real-world experiences of using AI in health alongside intellectual property (IP) strategies.

- **Soner Hacihaliloglu** showcased PONS' AI-driven ultrasound navigation and tissue characterization technologies, which are designed to make high-quality imaging accessible outside hospitals, particularly for early-stage cancer detection.
- **Kirti Gunasekera** described Jendo Innovations' non-invasive, AI-based cardiovascular screening system, highlighting their successful patenting efforts in the U.S. and Japan. Amos Heng explained how FathomX strategically leveraged IP—from research collaboration agreements to grant applications—to support the commercialization and regulatory approval of their AI-based breast cancer screening tool.

The inventors reflected on the IP challenges they faced, including a limited early understanding of IP value, difficulties navigating patent drafting without external help, and negotiating licensing in competitive landscapes. They emphasized that early education, better access to IP landscape tools, and standardized licensing guidelines would have significantly helped their journeys.

The panel then broadened to include policy and regional perspectives.

- **Sofonias Kifle Tessema** from the Africa CDC highlighted how AI could address workforce shortages and improve outbreak detection in Africa, but warned that access and equitable IP frameworks are essential.
- **Ayelet Berman** discussed data governance issues in global health security and questioned how IP protection for AI-derived innovations could affect rapid sharing of pathogen data during pandemics.
- **Ryan Abbott** explored the emerging complexities surrounding AI-generated inventions, explaining that different jurisdictions (e.g., Germany vs. the US/UK) are evolving different rules regarding whether AI can be recognized as an inventor.
- **Vitor Ido** emphasized that IP should be leveraged to promote responsible, ethical AI deployment through improved disclosure, fair licensing practices, and safeguarding access to healthcare technologies.

#### Q&A: Highlights

- How can IP offices better support startups (e.g., patentability training, assistance programs)?
- Should public funding for healthcare AI projects mandate open licensing or equitable access provisions?
- How can future policy strike a balance between incentivizing innovation and ensuring global access during health emergencies?

Panellists emphasized the need for improved IP education, flexible yet rigorous policy frameworks, and a more strategic approach to IP to bridge innovation and access gaps.

## 2.6 Flash Presentations: Part 2

**Moderator:** Harlon Yang (NUS)

**Presenters:**

- Yueming Jin (NUS)

- Lakshmi Supriya (WIPO)
- Kehan Wang (China Academy of Information and Communication Technology, China)
- Yiyuan Yang (NUS)
- Brenda Tanyi Tal (Lord's Foundation, UK)

### Yueming Jin – Large Foundation Model Empowered Intelligent Digital Medicine

Yueming Jin presented a comprehensive overview of her lab's recent work on applying large foundation models (LFMs) to enable intelligent digital medicine across the entire clinical workflow. Her work addresses the limitations of traditional AI models in healthcare, which require large, task-specific datasets and lack generalizability.

Key contributions included:

- **Multi-modal AI integration:** Her research spans medical imaging (CT, MRI, ultrasound), surgical videos, language-based medical reports, and omics data.
- **Foundation model adaptation:** Jin's team developed adapters to successfully adapt general-domain models, such as SAM (Segment Anything Model), for specific medical imaging tasks, achieving strong results with minimal fine-tuning.
- **"One-prompt" model:** They proposed a prompt-based system capable of segmenting unseen medical images without retraining, using only a single annotated example and general instructions.
- **Agentic reasoning for diagnosis:** She introduced MedAgent-Pro, a system that mimics a reasoning workflow to generate evidence-based diagnoses by combining multimodal inputs and clinical guidelines.
- **Surgical AI:** Jin's lab also developed SurgRAW, a multi-agent chain-of-thought reasoning model for surgical scene understanding that outperforms standard zero-shot methods.

The work demonstrates a shift from narrow AI models to flexible, generalizable systems that support surgeons and physicians in real time.

### Lakshmi Supriya – Patent Landscape of Generative AI in Health

Lakshmi Supriya, WIPO's Patent Analytics Officer, shared insights from WIPO's latest global patent landscape analysis of generative AI, with a focus on life sciences applications.

Highlights:

- **Explosive growth:** Since the release of transformer models in 2017 and ChatGPT in 2022, GenAI-related patent filings have surged by over 800%. In 2023 alone, 25% of all known GenAI patents and nearly half of related scientific publications were filed or published.
- **Life sciences as a key sector:** Of 54,000+ GenAI-related inventions, over 5,000 apply to life sciences, making it the second-largest application category after software.
- **Patent data value:** Supriya explained how patent data provides standardized, open, and often novel technical disclosures not found in academic papers, crucial for tracking innovation trends and R&D investment.
- **Ownership trends:** Chinese corporations (e.g., Ping An) lead in GenAI patents, followed by US firms like IBM. Universities also play a growing role in GenAI-related life sciences patents.
- **Tools and access:** WIPO offers publicly accessible analytics tools and training to help stakeholders understand, analyse, and engage with patent trends.

Supriya emphasized that while GenAI's promise is undeniable, navigating its legal, ethical, and strategic implications will require careful monitoring and data-driven insights.

### **Kehan Wang – Evaluating and Mitigating Hallucinations in LLMs for Public Health**

Kehan Wang presented a framework for identifying, evaluating, and reducing hallucinations in large language models (LLMs) when applied to public health contexts.

Key points:

- **Types of hallucinations:** Wang categorized hallucinations into factual, faithfulness, instruction-based, and logical inconsistencies—each with potentially dangerous implications for public health advice.
- **Examples:** He illustrated risks such as an LLM incorrectly stating that airborne viruses spread via water, potentially leading to harmful health behaviours.
- **Preferred approach:** His team favours retrieval-augmented generation (RAG) over prompt engineering or fine-tuning, using authoritative WHO guidelines to anchor model responses.
- **Evaluation benchmarks:** The framework utilizes tools such as TruthfulQA, HaluEval, and FACTScore to evaluate model reliability and accuracy.
- **Broader context:** CAICT also operates an AI benchmarking centre and serves as a WHO Collaborating Centre on Digital Health. It leads initiatives on LLM evaluation and standards through collaboration with BRICS AI.

Wang concluded that hallucination control must become an integral part of AI deployment in healthcare, especially in sensitive areas such as epidemic management and clinical decision support.

### **Yiyuan Yang – Intelligent Neuro-Device Systems for Neuroscience and Disorder Regulation**

Yiyuan Yang presented his early-stage research on using AI-enabled neuro-devices to improve the study and treatment of neurological disorders. His work centres on increasing ecological validity and efficiency in neuroscience.

Highlights:

- **Challenge:** Most neuroscience studies are confined to laboratory environments and rely on isolated variables, thereby limiting their practical applicability in real-world settings.
- **Vision:** Yang proposed conducting neuroscience in freely behaving animals using wireless, battery-free optogenetic implants and AI for real-time signal decoding.
- **Innovation in devices:** He demonstrated subdermally implantable, wirelessly powered optogenetic tools capable of modulating brain activity in mice. Synchronization of stimulation was shown to influence social interaction patterns.
- **AI in epilepsy treatment:** Yang's team developed a video-based AI system to detect seizures and deliver real-time optogenetic intervention. Plans include integrating wireless EEG/EMG and developing closed-loop therapies.
- **Next steps:** He envisions expanding studies using VR, multisensory data collection, and AI to decode complex neurological dynamics in real-world settings.

This work aims to enable more comprehensive, scalable, and ethical brain research with potential future applications in clinical neuromodulation.

## Brenda Tanyi Tal – Accelerating Digital Health and AI Impact in LMICs

Brenda Tanyi Tal, a medical doctor and consultant, shared insights from her fieldwork in Cameroon and across sub-Saharan Africa, exploring how digital and AI tools can improve healthcare access in low- and middle-income countries (LMICs).

Key points:

- **On-the-ground realities**, including infrastructure limitations (e.g., lack of electricity, poor internet), tech illiteracy, patient mistrust, and a lack of regulatory frameworks, severely hinder digital health adoption in LMICs.
- **Case study, Waspito (Cameroon & Côte d'Ivoire)**: A teleconsultation and mobile lab platform enabling remote care, insurance services, and a digital health marketplace. Despite serving over 6 million users, Waspito struggles with patient misinformation, low digital literacy, and the absence of national digital health legislation.
- **Other innovations** include projects like the Mothers Matter App, which supports obstetric emergency training through gamified, mobile modules. Other efforts include AI-based TB prediction tools and early AI education for school children.
- **Challenges**: Short-term venture funding models, unstable infrastructure, and a need for long-term investors committed to impact rather than fast returns.
- **Recommendations**: Standardize and localize tools, scale implementation research, embed equity in design, and pair digital solutions with strong capacity-building strategies.

Tanyi closed with a call to recognize and support grassroots innovation and to match policy efforts with on-the-ground realities.

## Summary of Flash Presentations: Part 2

These five presentations highlighted the vast breadth of current innovation in AI for health, from neural implants and surgical intelligence to policy analytics and grassroots tech for underserved communities. Each offered practical solutions and insights for advancing the safe, equitable, and impactful deployment of AI globally.

## Day 3: Wednesday, 19 March 2025

### 3.1 Recap and Introduction

The morning opened with brief reflections on the previous day and an outline of the Day 3 schedule. Representatives from WHO, ITU, and WIPO reaffirmed the initiative's structure and goals, emphasizing alignment across topics and Working Groups. Plans were shared for inter-group integration and the formalization of governance structures, including clearer pathways for grant eligibility and recognition of groups.

### 3.2 Topic Group Presentations

#### 3.2.1 TG-Maternal and Child Health (MCH)

**Presenter:** Alexandre Chiavegatto Filho (University of São Paulo, Brazil)

Alexandre presented the work of the TG-MCH, which focused on using machine learning to predict neonatal mortality using routinely collected birth data. He explained that even with just WHO's five minimum perinatal indicators—maternal age, place of delivery, mode of delivery, birth weight, and gestational age—the model achieved high predictive accuracy (AUC 0.91), identifying over 90% of actual neonatal deaths in the highest-risk 5% of cases.

Key challenges:

- **Data availability in remote regions:** Algorithms are often trained in large urban centres, but their predictive performance drops significantly when applied to rural or underrepresented populations.
- **Generalizability and fairness:** The group is exploring transfer learning, which involves fine-tuning global models on local data to enhance accuracy without exacerbating inequity.
- **Precision public policy:** Alexandre introduced the use of AI for targeted, resource-efficient interventions, with models predicting who will benefit the most from them.

The group used data from the Global Network's Maternal Newborn Health Registry (500,000 pregnancies across eight countries) to evaluate model performance across multiple geographies.

Findings suggested that models trained on diverse international data outperformed those trained on data from a single country, making a case for shared, global health data collaborations.

Next steps involve formalizing collaboration with the sexual and reproductive health (SRH) unit at WHO. WHO confirmed plans to merge TG-MCH and SRH efforts under a unified structure, ensuring grant support, strategic guidance, and continuity.

#### 3.2.2 TG-Falls and Mobility

**Presenter:** Pierpaolo Palumbo (University of Bologna, Italy)

Pierpaolo presented an in-depth update on the TG-Falls and Mobility, proposing an expansion to a broader focus on mobility and healthy aging. The group has built a comprehensive database of 48 datasets from 23 countries related to fall prediction in older adults, Parkinson's, stroke, and multiple sclerosis patients.

Highlights:

- **Quality criteria** were established to ensure datasets had robust, prospective fall tracking and sensor-based mobility features.
- Twenty-two datasets were included in an individual participant data meta-analysis to evaluate sensor-based models for predicting fall risk.
- **Data diversity:** The datasets include lab-based assessments (e.g., walk test, Timed Up and Go) and real-world monitoring over 6–60 months.
- **Research applications:** Beyond risk prediction, the group aims to support the personalization of interventions and decision support tools.

Palumbo proposed shifting the group title to "Mobility and Healthy Aging" to reflect its broader relevance. WHO expressed support for keeping falls as a key stream within a future Healthy Aging structure and will follow up to formalize workstreams and connect the group with technical focal points.

### 3.2.3 TG-Traditional Medicine

**Presenters:** Tanuja Nesari (Ministry of Ayush, India) and Goh Cheng Soon (Ministry of Health, Malaysia)

The TG-Traditional Medicine (TM) is a well-established group under the WHO Global Traditional Medicine Centre, co-led by India and Malaysia. The group focuses on the safe, ethical, and effective use of AI in traditional medicine systems.

Key workstreams:

- **A technical brief on AI in traditional medicine** will be developed based on reviews of over 150 documents covering medical, technological, policy, and indigenous knowledge themes.
- **Identification of four core user groups:** policymakers, practitioners, patients, and digital technology experts.
- **Highlighting potential uses of AI** in ontology building, predictive analytics, EHRs for TM, patient monitoring, and drug discovery.

Milestones include:

- Literature mappings and consultations since 2018.
- Strategic workshops in Jamnagar and New Delhi.
- Co-developed policy briefs and AI applications with WHO and GTMC support.

The discussion emphasized the importance of integrating oral and undocumented Indigenous knowledge, especially from LMICs. The group plans to work with national digital libraries, NLP tools, and video/audio documentation techniques to preserve and incorporate traditional practices while respecting IP rights.

WHO reaffirmed its support, noting alignment with a forthcoming global strategy for traditional medicine. The group has a clear governance structure and will continue collaborating with other Working Groups on IP, Ethics, and Data.

### 3.2.4 TG-Malaria

**Presenter:** Rose Nakasi (Makerere University, Uganda)

Rose Nakasi presented updates on a powerful AI-powered initiative aimed at overcoming diagnostic limitations in malaria-endemic regions. Her team developed a smartphone-based microscopy system, utilizing a 3D-printed adapter to transform any standard microscope into a digital one, capable of capturing high-quality images and analysing them with computer vision algorithms. The models showed extremely high diagnostic accuracy (AUC = 0.97–1.00).

The TG-Malaria group aims to:

- **Standardize benchmarking** of AI solutions for malaria detection using platforms like Codabench.
- **Scale** the model across endemic countries.
- **Build capacity** by training personnel and setting up data repositories.
- **Expand into surveillance**, integrating spatio-temporal modelling for real-time disease monitoring.

To align with GI-AI4H's three pillars, the group plans to:

- **Enable:** Develop technical guidance and IP toolkits.
- **Facilitate:** Build a collaborative global network (CAIMDAS).
- **Implement:** Train local teams and integrate solutions into national health workflows.

### 3.2.5 TG-Point of Care

**Presenter:** Johan Lundin (University of Helsinki / Karolinska Institutet)

This session focused on deploying AI directly in low-resource clinical settings to address gaps in diagnostics for diseases like cervical cancer and parasitic infections.

Lundin shared outcomes from years of field studies across Kenya and Tanzania:

- Cervical cancer screening with AI-based image analysis showed 96–100% sensitivity and high specificity.
- AI for detecting soil-transmitted helminths in schoolchildren reached near-perfect accuracy across multiple species.
- The system operates with minimal infrastructure, comprising mobile scanners, laptops, and 3G/4G networks.

The TG's objectives include:

- **Scaling** AI-based diagnostics in underserved communities.
- **Promoting** task-shifting in primary care.
- **Aligning** with the WHO, ITU, and WIPO to develop guidance, standardization, and equitable IP practices.

Challenges include domain adaptation across clinics and the need for post-diagnosis treatment pathways. However, the TG's work has shown that AI-supported diagnostics are feasible and impactful at the point of care.

### 3.2.6 TG-Oral Health

**Presenter:** Falk Schwendicke (Charité Universitätsmedizin Berlin)

Falk Schwendicke provided an expansive view of AI's role in oral health, from predictive analytics to clinical decision support and public health surveillance. He highlighted the immense global burden: 3.5 billion cases of caries and 180,000 lip/mouth cancer deaths annually.

The TG has focused on:

- **Data governance and standards** (in cooperation with ISO).
- **Accessibility and interoperability** for oral health data systems.
- **Evaluation** and implementation of AI tools across care delivery settings.

Notable deliverables include:

- A white paper on best practices for dental AI.
- Core education curricula to boost AI literacy among dental professionals.
- Proposed benchmarks for AI in oral diagnostics and care.

The group plans to develop public-facing communication tools, expand training for LMIC partners, and advocate for the integration of AI tools in national oral health strategies.

#### *Oral Cancer*

**Presenters:** Deepika Mishra and Varun Surya (AIIMS, New Delhi)

India carries the world's highest burden of oral cancer, and Deepika Mishra's team is addressing this with a full-spectrum AI strategy—from community screening apps to AI-enhanced imaging and histopathology.

Highlights include:

- Use of the Aarogya Aarohan App for real-time screening and tobacco cessation support.
- Screening campaigns that reached thousands, identifying high rates of pre-cancerous conditions.
- An integrated approach involving frontline health workers, cloud-connected remote specialists, and national programs.

AI is used in oral cancer for:

- Image analysis and lesion classification.
- Multimodal spectroscopy.
- Population-level monitoring and early intervention.

The initiative emphasizes public health equity, with a focus on integrating it into India's broader cancer and tobacco control efforts. A strong emphasis is also on creating open, standardized datasets to power continued research and development.

### 3.3 Working Group Final Updates

#### 3.3.1 WG-Data

**Presenters:** Luis Oala (DotPhoton, Switzerland) and Marc Lecoultre (ML Labs, Switzerland).

The Data Working Group shared its roadmap for reducing the high transaction costs that hinder AI adoption in healthcare settings. Their work focuses on making healthcare data machine learning-ready, standardized, and accessible through a secure, federated model.

The key planned deliverables are:

- Development of the Bio and Health Croissant format for unified data structures.
- A catalogue meta-index to help users browse and load datasets across vendors, with ontology mapping to standards like SNOMED and ICD.
- Transaction protocols covering data authentication, usage rights, and privacy-preserving sharing.
- A plan for real-world testing with data vendors and users across resource settings.

Luis emphasized that in-kind contributions support current progress, but additional funding will be necessary for scaling up. Their work is tightly aligned with the Open Code Initiative (OCI), which was then presented in more detail.

#### *Open Code Initiative (OCI)*

The Open Code Initiative (OCI) was introduced as a public good platform supporting transparent, safe, and equitable AI for health. It offers end-to-end open-source tooling for data collection, annotation, training, evaluation, and regulatory review — all framed around [FG-AI4H DEL1](#), which emphasizes ethical principles for AI in health.

Features:

- Support for data annotation, federated learning, privacy-preserving architecture, and decentralized consent.
- Full audit trails and robust governance systems.
- A platform tailored for developers, clinicians, regulators, and other health stakeholders.

The Data WG is already utilizing the OCI to host benchmarking tools and provide a secure environment for sharing datasets. It is designed to meet global regulatory expectations while encouraging open collaboration and innovation.

#### 3.3.2 WG-Evaluation

**Presenters:** Eva Weicken (Fraunhofer HHI, Germany) and Cassandra Karpathakis (Gates Foundation, USA).

The Evaluation WG aims to build a unified approach to evaluating clinical, economic, and implementation outcomes of AI in health. Their mandate is to go beyond model accuracy and assess real-world impact.

Key objectives:

- Tailor frameworks to low- and middle-income countries (LMICs) and the unique challenges of large language models (LLMs).
- Provide tools such as checklists, study protocols, and guidance documents for ministries of health, developers, and clinical partners.
- Facilitate the “road testing” of frameworks in the field through real-world pilot evaluations.

They are actively coordinating with other WGs and Topic Groups to ensure alignment and integration. The group also plans to develop a “toolkit for evaluation,” supported by partners such as the Wellcome Trust, the Botnar Foundation, and the WHO.

### 3.3.3 WG-Ethics

**Presenter:** Andreas Reis (WHO)

Andreas presented the ongoing work of WHO’s expert group on AI ethics, noting that their 2021 guidance has since expanded to include:

- New documents on LLMs, pharmaceutical AI, and gender ethics.
- A relaunch of the WHO online course, now reaching nearly 30,000 learners globally.
- A casebook on ethical implementation, and workstreams exploring neurotechnology, chatbot ethics, and research governance.
- Plan to release guidance on chatbots and neurotech

Recent regional workshops and TU Delft’s designation as a WHO Collaborating Centre for AI Ethics highlight growing institutional engagement. The WG also supports the development of ethical oversight guidance tailored for LMICs and high-stakes AI systems in clinical use.

### 3.3.4 WG-Regulatory Considerations

**Presenters:** Prathiba M. Singh (Delhi High Court, India) and Peiling Yap (Health AI, Switzerland)

The Regulatory WG has thus far been operating in two complementary tracks:

#### Track 1: Comparative mapping

This work involves a five-dimensional assessment framework designed to map and compare AI regulations globally. It examines the legal foundation, regulatory content (e.g., ethics, transparency), health-specific governance, implementation, and development processes. A pilot implementation is underway to validate the approach before a wider rollout.

#### Track 2: Template Law drafting

Prathiba Singh’s group presented a draft Template Law structure based on analysing over 60 jurisdictions across the WHO regions. The model covers liability frameworks, data privacy, technical standards, and incentives for innovation. Key insights include:

- No one-size-fits-all: economic and legal diversity affects how countries approach risk, certification, and enforcement.
- There is a need for a balance between innovation and patient safety.
- Aim to produce a draft law by June 2025, supported by a comparative law database to help countries assess readiness and gaps.

Both tracks aim to equip governments with adaptable and trustworthy legal frameworks to support the safe and equitable adoption of AI in health systems.

### 3.4 Closing the Second Convening of the GI-AI4H and Next Steps

The final segment of the three-day meeting included a Q&A session and an open discussion across various Topic Groups and Working Groups.

Key themes included:

- There is a need to **better integrate outputs across groups**, especially evaluation, ethics, and regulatory frameworks.
- The importance of **inclusive participation** – which includes the private sector – extends beyond self-funded experts, with WHO confirming it is seeking funding to support broader stakeholder inclusion.
- Plans are in place for the AI for Good Summit in July 2025, which will include a confirmed 2–3-hour workshop and a 15-minute high-level pitch slot.

The Secretariat outlined the following steps:

- Finalizing onboarding processes and internal governance.
- Setting up cross-group collaboration mechanisms
- Confirming format and participants for the July 2025 AI for Good Summit.
- Scheduling follow-up meetings for newly aligned or merged groups.
- Publishing an onboarding document and a harmonized application/review template for new TGs and WGs.

The meeting concluded with acknowledgments to participants and hosts, as well as a reaffirmation of the Global Initiative’s vision: to ensure that AI in health serves the public good, is rigorously evaluated, and is equitably adopted worldwide.

## Conclusion

The 2nd GI-AI4H meeting demonstrated the momentum and maturity of a truly global initiative. It underscored the importance of aligning technical, regulatory, ethical, and implementation strategies to ensure AI supports public health outcomes across all regions and settings.

The meeting achieved the following:

- **Catalysed new collaborations** across Working Groups and Topic Groups.
- **Generated technical and policy insights** from both high-resource and low-resource contexts.
- **Initiated practical tools** and roadmaps for Member States, developers, and civil society.

Looking forward, GI-AI4H will build on this foundation to:

- **Finalize** toolkits, template laws, and evaluation guides in 2025.
- **Expand** cross-regional collaboration, especially for emerging themes like generative AI and traditional medicine.
- **Engage** more inclusively by supporting broader participation beyond self-funded attendees.

With continued coordination and a focus on transparency, the initiative remains committed to developing trustworthy, inclusive, and impactful AI applications for global health.

## Appendix: Participant List (151)

(Includes physically present and remote participants)

Name	Institution	Country
<b>ABAALKHAIL, Emad</b>	King Abdulaziz City for Science & Technology	Saudi Arabia
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<b>ADAMY, Hasduna Putri</b>	World Intellectual Property Organization	Switzerland
<b>AL ALI, Hussain</b>	King Abdulaziz City for Science and Technology	Saudi Arabia
<b>AL ZAYER, Ali</b>	King Abdulaziz City for Science & Technology	Saudi Arabia
<b>ALBABTAIN, Reem</b>	Princess Nourah Bint Abdulrahman University PNU	Saudi Arabia
<b>ALI, Rabia Jafri</b>	King Saud University	Saudi Arabia
<b>ALI, Zahid</b>	TECHMEDO Inc.	Pakistan
<b>ALMUHAIMED, Abdullah</b>	King Abdulaziz City for Science & Technology	Saudi Arabia
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<b>ALSALAMAH, Shada</b>	World Health Organization	Switzerland
<b>ANAND, Vikas</b>	National Institute of Pharmaceutical Education and Research	India
<b>ANJOS, Andre</b>	Ecole Polytechnique Fédérale de Lausanne	Switzerland
<b>AWUNGIA TAZINYA, Alexis</b>	Waspito	Cameroon
<b>BALACHANDRAN, Pradeep</b>	Engineering Consultancy	India
<b>BANSAL, Hargovind</b>	HNNOIX India Private Limited	India
<b>BASUALDO ALLENDE, Andrea</b>	Entidad Acreditadora	Chile
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<b>BIN KHULAYF, Abdulmalik</b>	Ministry of Health	Saudi Arabia
<b>BRINZ, Janet</b>	Ludwig-Maximilians-University	Germany
<b>BYRNE, Paul</b>	Medical Council of Ireland	Ireland
<b>CAMARA, Ousmane Mbalia</b>	Ministère des Postes, des Télécommunications et de l'Economie Numérique	Guinea
<b>CAMPBELL, Paul</b>	HealthAI	Switzerland
<b>CAROLAN, Jane Elizabeth</b>	PricewaterhouseCoopers CH	Switzerland
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<b>CHAURASIA, Akhilanand</b>	King George's Medical University	India
<b>CHAWLA, Radha</b>	24x7 Learning	India
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Name	Institution	Country
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<b>GOH, Cheng Soon</b>	A1 Communications	Malaysia
<b>GOYAL, Naman</b>	Ministry of Ayush	India
<b>GUAN, Ziyang</b>	Ministry of Industry and Information Technology (MIIT)	China
<b>GÜTTER, Zdenek</b>	Ministry of Industry and Trade	Czech Republic
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<b>JIA, Wu</b>	China Unicom	China
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Name	Institution	Country
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<b>MENSAH, George Benneh</b>	Africa Online Ghana	Ghana
<b>MINE, Yuichi</b>	Hiroshima University	Japan
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Name	Institution	Country
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