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| **ITU-T Focus Group on AI for Health** |
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| **Abstract:** | This document contains the report of the 8th meeting of the ITU-T Focus Group on Artificial Intelligence for Health (FG-AI4H), held in Brasilia, 22-24 January 2020. Revision 1 updates the title of TG-Cardio and corrects affiliation mistakes by the secretariat. |

Executive Summary

Held the 8th ITU/WHO [workshop on AI for health](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/ai4h/202001/Pages/programme.aspx) with an opening by various Brazilian authorities.

Working group updates:

* Established the WG on ethical considerations on AI for health with the ToR in [H-039-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-039-R01.docx) and with Andreas Reis (WHO) as chairman.
* Monique Kuglitsch (Fraunhofer HHI, Germany) is appointed to co-chair the WG-Operations with Markus Wenzel (Fraunhofer HHI, Germany).

Topic group updates:

* TG-Radiotherapy is re-scoped according to the proposal in [H-029](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-029.docx), with Darlington Ahiale Akogo (minoHealth AI Labs, Ghana) as the topic driver. Accordingly, the topic is renamed as AI for radiology (TG-Radiology).
* Agreed to create a new Topic Group on primary and secondary diabetes prediction (TG-Diabetes) based on the proposal in [H-028](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-028.docx), with Andrés Valdivieso (Anastasia.ai, Chile) as Topic Driver.
* Agreed to rename TG Cardio as "*Use of AI in cardiovascular disease management*", to better reflect the sub-topics.
* Agreed to create a sub-TG on Malaria surveillance and detection within the TG-Malaria, coordinated by Helmi Zakariah (AIME, Malaysia). Work will be coordinated with relevant activities within TG-Outbreaks.
* The TG-MCH (Maternal and child health) continues with Raghu Dharmaraju (Wadhwani AI, India) and Alexandre Chiavegatto Filho (University of São Paulo, Brazil) as co-topic drivers.

Prepared two outgoing reply liaison statements:

* SC42 ([FGAI4H-LS-003](https://www.itu.int/net/itu-t/ls/ls.aspx?isn=22583)) and SG13 ([FGAI4H-LS-004](https://www.itu.int/net/itu-t/ls/ls.aspx?isn=22592))

The following output documents were updated:

* [H-102](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-102.docx): Updated call for proposals: use cases, benchmarking, and data
* [H-200](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-200.docx): Updated list of FG-AI4H deliverables

The following documents were reconfirmed:

* [FG-AI4H Whitepaper](https://www.itu.int/en/ITU-T/focusgroups/ai4h/Documents/FG-AI4H_Whitepaper.pdf),
* [D-103](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-D-103.docx): Updated FG-AI4H data acceptance and handling policy
* [C-104](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-C-104.docx): Thematic classification scheme
* [F-105](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-F-105.docx): ToRs for the WG-Experts and call for experts
* [F-106](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-F-106.docx): Guidelines on FG-AI4H online collaboration tools
* [G-107](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-107.docx): Onboarding document
* Templates: TDD ([C-105](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-C-105.docx)), CfTGP ([F-004](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-F-004.docx))

The meeting had [99 participants](#AnnexC) over the various days and reviewed 44 documents (not counting attachments).

A list of the 20 decisions taken at the meeting is found in [Annex E](#AnnexE) of the report.

The next meeting of the FG-AI4H was planned to be in Singapore, 16-20 March 2020.

NOTE – After the meeting in Brasilia, due to the travel restrictions resulting from the 2019-NCor virus outbreak, the FG-AI4H management agreed with the host request that the meeting in March 2020 in Singapore be postponed to a future occasion. Accordingly, the next meeting of the FG-AI4H would be in Geneva, 6-8 May 2020.

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# Opening

The meeting was opened by the FG-AI4H chairman, Mr Thomas Wiegand (Fraunhofer HHI, Germany), who welcomed the participants.

# Approval of agenda

The agenda in [H-001-R1](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-001-R01.docx) (Agenda) was approved and the initial timing in its Annex C was noted. Various updates were issued during the meeting, the final version being found in [H-001-R4](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-001-R04.docx).

# Documentation and allocation

The initial document allocation in [H-001-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-001-R01.docx) was adopted and the initial list of documents in its Annex A was noted. Annex [B](#AnnexB) hereinafter includes the final list of documents for this meeting.

# IPR

The text in [H-001](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-001.docx) Annex A was read and no declarations were made at the meeting.

It was highlighted that the IPR question should be asked periodically under the various TG (e‑)meetings, since many of participants in those may not be attending the FG-AI4H Plenary meetings.

1. TG Drivers are asked to read the IPR call as found in [H-001-R04](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-001-R04.docx) Annex A and collect any declarations of made in return to the IPR question in their meeting minutes.

# Management updates

In view of the recent workload of the working group on operations, the meeting agreed to appoint Monique Kuglitsch (Fraunhofer HHI, Germany) as co-chair of the WG-Operations.

1. Monique Kuglitsch and Markus Wenzel (Fraunhofer HHI, Germany) are the co-chairs of the WG-Operations.

# Approval of Meeting F outcomes and updates

The meeting report of the New Delhi meeting in [G-101](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-101.docx) was approved without comments.

The following four documents were noted by the meeting:

* [G-102](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-102.docx): Updated call for proposals: use cases, benchmarking, and data

* [G-107](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-107.docx%22%20%5Ct%20%22_blank): Onboarding document for the FG-AI4H
* [G-200-R02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-200-R02.docx): List of planned FG-AI4H deliverables
1. The report of the New Delhi meeting in [G-101](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-101.docx) was approved without comments and its three output documents were noted (G-102, G-107 and G-200-R2).

# Outcome of workshops & conferences

[H-002](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-002.docx) (8th ITU/WHO Workshop Summary; Chair)

The 8th ITU/WHO workshop on AI for health on 21 January 2020 started with keynotes from various Brazilian authorities: Leonardo Euler de Morais, President, ANATEL (Telecommunications National Agency), Brazil; Maria Claudia Ferrari de Castro, Director, Department of Technologies for Sustainable and Social Development Programs of the Secretariat of Applied Technologies, Ministry of Science, Technology, Innovation and Communications, Brazil; and Alberto Tomasi Diniz Tiefensee, Director, Department of Monitoring and Assessment, Ministry of Health. Also spoke Maria Almiron, PAHO representative for Brazil, and the FG-AI4H chair. This opening session was followed by three technical sessions exploring fundamentals of AI in health; regulations and country priorities; and applications and use cases of AI in health.

Document [H-002](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-002.docx) with a summary of the Workshop was introduced by the FG-AI4H chairman. The document was noted. All presentations and the recording of the sessions are found at <https://itu.int/en/ITU-T/Workshops-and-Seminars/ai4h/202001/Pages/programme.aspx>.

The following follow-up actions were mentioned during the workshop:

* Messages from authorities in Brazil
* Overview on the FG-AI4H goals and working methods
* Various applications of AI for health were highlighted and the need importance of a common annotation was highlighted.
* Regulations and regulatory agencies are adapting to AI, as well as a sample of new technologies being explored in Latin America
* Overview how WHO sees the ethics issues in Digital Health, including AI for health aspects.
* Planning to create an FG-AI4H WG Ethics at this meeting.

[H-005](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-005.docx) DASH/DAISAM Workshop summary; Chairs

[H-005-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-005-A01.pptx) Att.1: Summary slides – DASH/DAISAM Workshop (Berlin, 8-9 January 2020)

All the notes from the workshop are found in [H-005](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-005.docx). A summarized review is presented under the WG-DAISAM progress report.

[H-026](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-026.docx) (ITU Kaleidoscope 2019 – Papers of interest to FG-AI4H)

The document was noted. FG participants are invited to look into the papers identified in the document.

# Review of incoming liaison statements

## ITU-T SG13

The LS in [H-024](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-024.docx) invites to review the current version of Supplement on Artificial Intelligence Standardization Roadmap and to provide missing/updated information to ITU-T SG13. It was agreed to reply to SG13 informing the work of the FG-AI4H with the draft text in [H-040](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-040.docx).

## JTC1 SC42

In [H-025](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-025.docx), ISO/IEC JTC1 SC42 requests that the organizations listed provide SC42 with the relevant AI use cases by 31 January 2020. This LS is related to [FGAI4H-F-019](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-F-019.docx) and the FG-AI4H reply in [FG AI4H-LS2](https://www.itu.int/ifa/t/2017/ls/fgai4h/sp16-fgai4h-oLS-00002.docx). It was agreed to send a reminder LS (see [H-037](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-037.docx) plus [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-037-A01.docx)) that we already provided them material out of our Zanzibar meeting, which does not seem to have been included.

## ITU-T FG-AI4EE

The LS in [H-027](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-027.docx) provides information on the first meeting of ITU-T Focus Group on Environmental Efficiency for Artificial Intelligence and other emerging technologies (FG-AI4EE), and invites participation and contribution to the work of the FG-AI4EE. The document was noted.

## FG-ML5G (on student engagement)

The LS in [H-033](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-033.docx) reports on FG ML5G pilot project between May and December 2019 to engage university students in its work and lists the benefits of this pilot project for students, ITU and the industry. It also identifies several factors that played a key role in the success of this pilot. The FG chairman asked the TG drivers and WG chairs to look into the recruiting mechanism described in the document and to apply it as appropriate.

1. Agreed to prepared replies to the LSs received from SG13 and JTC1 SC42, as found in [H-040](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-040.docx) and [H-037](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-037.docx) (plus [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-037-A01.docx)), respectively.

# FG-AI4H deliverables

[H-030](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-030.docx): Status of deliverables [TSB]

This document prepared by the secretariat lists the status of deliverables after the early December 2019 deadline for the initial draft submission.

The document was noted.

[H-032-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-032-R01.docx) Editor Updated DEL10: Introduction to the FG-AI4H topic description documents

[H-032-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-032-A01.pptx) Editor Updated DEL10 - Att.1 - Presentation

Eva Weicken presented the document explaining the principles of and expectations for the TDD documents.

WG-DAISAM vice-chair, Luis Oala, introduced slides 12 and 13 of [H-036](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-036.pptx) that provided initial outlines for the future deliverables N°7 *AI4H Evaluation Specification* and N°7.3 *AI Test Metric Specification*, building on the initial text found in [G-207](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-207.docx) and [G-207-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-207-A03.docx) (and the list of deliverables [G-200-R02](https://itu.int/en/ITU-T/focusgroups/ai4h/Documents/listdeliverables.pdf)).

WG-DAISAM vice-chair, Luis Oala shared with delegates the link to a spreadsheet to collect names of volunteers willing to help writing the FG-AI4H deliverables, [https://docs.google.com/‌spreadsheets/d/1ilGtBjH31-8AQX-p\_zZdnpKWywtffazjCYgpb8Xfl1A/edit?usp=sharing](https://docs.google.com/%E2%80%8Cspreadsheets/d/1ilGtBjH31-8AQX-p_zZdnpKWywtffazjCYgpb8Xfl1A/edit?usp=sharing).

The editors of the initial deliverable drafts were asked to update the existing drafts by 5 March 2020, in order to be reviewed at the next FG-AI4H meeting (I), which would be issued as H-series documents.

The chairman stated that the FG management would go over the list of initial editors in Table 1 below and repeat the exercise made in New Delhi and make an adjustment of the list of editors, in particular for the deliverables that have not been progressed.

1. Experts willing to collaborate in the preparation of the various deliverables are invited to add their names to the list at: <https://docs.google.com/spreadsheets/d/1ilGtBjH31-8AQX-p_zZdnpKWywtffazjCYgpb8Xfl1A/edit?usp=sharing>.
2. The editors of the initial deliverable drafts (Table 1 of the report or [H-200](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-200.docx)) to submit update by 5 March 2020 to Eva Weicken (Eva.Weicken@hhi.fraunhofer.de), CC the secretariat (tsbfgai4h@itu.int).
3. FG-AI4H management to review the list of initial draft editors and identify replacements, if needed.

Table 1 – Updated list of deliverables (23 January 2020)

| No. | Deliverable | Updated initial draft editor | Availability\* |
| --- | --- | --- | --- |
| 1 | AI4H ethics considerations | Andreas Reis (WHO) | [G-201](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-201.docx) |
| 2 | AI4H regulatory [best practices | considerations] | Pradeep Balachandran (India) and Christian Johner (Johner Institut, Germany) | [G-202](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-202.docx) |
| 3 | AI4H requirements specification | Pradeep Balachandran (India), Tina Purnat (WHO) | [G-203](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-203.docx) |
| 4 | AI software life cycle specification | Pat Baird (Philips, USA), Tina Purnat (WHO) | [G-204](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-204.docx) |
| 5 | Data specification | Marc Lecoultre (Business Investigation, Switzerland) | [G-205](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-205.docx) |
| 5.1 | Data requirements | Gupta Saurabh (AIIMS, India), Manjula Singh (ICMR, India) | – |
| 5.2 | Data acquisition  | Rajaraman (Giri) Subramanian (Calligo Tech, India), Vishnu Ram (India) | [G-205-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-205-A02.docx) |
| 5.3 | Data annotation specification | Shan Xu (CAICT, China), Harpreet Singh (ICMR, India) | [G-205-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-205-A03.docx) |
| 5.4 | Training and test data specification  | Luis Oala (Franhofer HHI, Germany), Pradeep Balachandran (India) | [G-205-A04](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-205-A04.docx) |
| 5.5 | Data handling  | Marc Lecoultre (Business Investigation, Switzerland) | [G-205-A05](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-205-A05.docx) |
| 5.6 | Data sharing practices | Ferath Kherif (CHUV, Switzerland), Banusri Velpandian (ICMR, India), WHO Data Team | [G-205-A06](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-205-A06.docx) |
| 6 | AI training best practices specification | Ma Su Su and Stefan Winkler (AI Singapore) | [G-206](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-206.docx) |
| 7 | AI4H evaluation specification | Markus Wenzel (Fraunhofer HHI, Germany) | [G-207](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-207.docx) |
| 7.1 | AI4H evaluation process description | Sheng Wu (WHO) | [G-207-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-207-A01.docx) |
| 7.2 | AI technical test specification | Auss Abbood (Robert Koch Institute, Germany) | [G-207-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-207-A02.docx) |
| 7.3 | AI technical test metric specification | Luis Oala (Fraunhofer HHI, Germany) | [G-207-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-207-A03.docx) |
| 7.4 | Clinical validation | Naomi Lee (Lancet, UK), Manjula Singh (ICMR, India), Rupa Sarkar (Lancet, UK) | – |
| 8 | AI4H scale-up and adoption | Sameer Pujari (WHO) | – |
| 9 | AI4H applications and platforms | Manjeet Chalga (ICMR, India), Aveek De (CMS, India) | [G-209](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-209.docx) |
| 9.1 | Mobile applications | Khondaker Mamun (UIU, Bangladesh), Manjeet Chalga (ICMR, India) | [G-209-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-209-A01.docx) |
| 9.2 | Cloud-based AI applications | Khondaker Mamun (UIU, Bangladesh) | [G-209-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-209-A02.docx) |
| 10 | AI4H use cases: Topic description docs. | Eva Weicken (Fraunhofer HHI, Germany) | [G-210](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-210.docx) |
| 10.1 | Cardiovascular disease risk prediction (TG-Cardio) | Benjamin Muthambi (Watif Health, South Africa) | [H-006-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-006-A01.docx) |
| 10.2 | Dermatology (TG-Derma) | Maria Vasconcelos (Fraunhofer Portugal) | [H-007-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-007-A01.docx) |
| 10.3 | Diagnosis of bacterial infection and anti-microbial resistance (TG-Bacteria) | Nada Malou (MSF, France) | – |
| 10.4 | Falls among the elderly (TG-Falls) | Inês Sousa (Fraunhofer Portugal) | [H-012-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-012-A01.docx) |
| 10.5 | Histopathology (TG-Histo) | Frederick Klauschen (Charité Berlin, Germany) | [H-013-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-013-A01.docx) |
| 10.6 | Malaria detection (TG-Malaria) | Rose Nakasi (Makerere University, Uganda) | [H-014-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-014-A01.docx) |
| 10.7 | Maternal and child health (TG-MCH) | Raghu Dharmaraju (Wadhwani AI, India) and Alexandre Chiavegatto Filho (University of São Paulo, Brazil) | [H-015-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-015-A01.docx) |
| 10.8 | Neurological disorders (TG-Neuro) | Marc Lecoultre (Business Investigation, Switzerland) | [H-016-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-016-A01.docx) |
| 10.9 | Ophthalmology (TG-Ophthalmo) | Arun Shroff (MedIndia) | [H-017-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-017-A01.docx) |
| 10.10 | Outbreak detection (TG-Outbreaks) | Stéphane Ghozzi (Robert Koch Institute, Germany) | [H-018-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-018-A01.docx) |
| 10.11 | Psychiatry (TG-Psy) | Nicolas Langer (ETH Zurich, Switzerland) | [H-019-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-019-A01.docx) |
| 10.12 | AI for radiology (TG-Radiology) | Darlington Ahiale Akogo (minoHealth AI Labs, Ghana) | – |
| 10.13 | Snakebite and snake identification (TG-Snake) | Rafael Ruiz de Castaneda (UniGE, Switzerland) | [H-020-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-020-A01.docx) |
| 10.14 | Symptom assessment (TG-Symptom) | Henry Hoffmann (Ada Health, Germany) | [H-021-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-021-A01.docx) |
| 10.15 | Tuberculosis (TG-TB) | Manjula Singh (ICMR, India) | [H-022-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-022-A01.docx) |
| 10.16 | Volumetric chest CT (TG-DiagnosticCT) | Kuan Chen (Infervision, China) | [H-009-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-009-A01.docx) |
| 10.17 | Dental diagnostics and digital dentistry (TG-Dental) | Falk Schwendicke and Joachim Krois (Charité Berlin, Germany) | [H-010-A1](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-010-A01.docx) |
| 10.18 | Falsified Medicine (TG-FakeMed) | Franck Verzefé (TrueSpec-Africa, DRC) | – |
| 10.19 | Primary and secondary diabetes prediction (TG-Diabetes) | Andrés Valdivieso (Anastasia.ai, Chile) | – |

\* NOTE: The document numbers indicated reflect the status as of the start of the Brasilia meeting (H). Updates will be issued as H-200 series documents by 5 March 2020, in time for the next meeting (I).

# Horizontal and strategic topics

[H-034](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-034.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-034-A01.pdf) (AI Guideline for Medical Devices; Johner Institute)

**Abstract:** This AI guideline / checklist (available in [H-034-A01](file:///D%3A/Usr/campos/FG-AI4H/2001-H-Brasilia%2821-24%29/Drafts/H-034-A01) and on GitHub, <https://github.com/johner-institut/ai-guideline>) is supposed to serve medical device manufacturers, notified bodies and authorities to:

* gain a common understanding of AI related requirements and best practices
* guide the development, verification and validation as well as the post-market surveillance of medical devices that incorporate machine learning algorithms
* guide the compilation and the review of the respective technical documentation
* guide the adaptation of SOPs, process descriptions and work instructions as well as compliance checks e.g. as part of audits

Christian Johner (Johner Institut GmbH) christian.johner@johner-institut.de presented remotely. The guidelines document is written with a process management perspective aiming to assist medical device manufacturers on the development of AI-based products / services.

It was suggested that some example / sample documentation be developed. Also, general software aspects should be separated from the AI-specific part, and consider checklist items to be included in the topic description documents. Discuss whether checklist becomes part of the AI4H framework. Checklist poses the questions to be answered. Give standardized guidance how to fulfil these checklist items including development of tools to determine compliance.

Could integrate this work with some drafts developed by WG-DAISAM (Pradeep Balachandran in particular). WG-DAISAM will take the lead and check with Christian, plus assign specific tasks.

Tasks:

* Deliver to IMDRF a high-level 5-pager overview document, for discussion at the joint meeting planned for March 2020.
* Compile union of different checklists (Pradeep, Christian, etc.)
* Compile map checklist items to the TDDs.
* Validate results with topic groups and update framework accordingly
* Add priorities for different markets

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Malaysia: Seems to be attuned to larger organizations, that control more aspects to the production process. In different settings, filling the gap e.g. of legacy applications. How does it work? In drafting the checklist, are flexibilities incorporated? Checklist tried to balance between needs of larger organization as well as of start-ups. Checklist currently items are not mandatory, but this may change if included in IMDRF documents. This document was compiled with a European company perspective. Data sciences approach is not necessarily compatible with bio-statistics approach that are used with epidemiologists.

The recommended approach was to have facts first and then opinions, otherwise the group could end up with endless discussions based solely on opinions without having the facts first. Experts were encouraged to be involved, not afraid, and work together to find ways to accommodate as many needs / scenarios as possible.

Pradeep Balachandran (India) and Christian Johner (Johner Institut GmbH) will be the editors of the documents.

1. A high-level overview document (around 5-pages) on Regulatory considerations on the implementation/development of AI software as a Medical Device will be prepared for discussion in the joint meeting with IMDRF (planned in March 2020) and be issued as document H-202. Pradeep Balachandran (India) and Christian Johner (Johner Institut, Germany) will be the editors, volunteers are welcome to aid in its preparation. The remaining documents on regulatory considerations including the mapping of Essential Principles to AI aspects and the long version of the Regulatory considerations on the implementation/development of AI software as a Medical Device will become annexes of H-202.

[H-038-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-038-R01.docx) Proposal for a data labelling standard and a public data labelling tool De Montfort University, Costa Rica Institute of Technology; ADA (Germany)

|  |  |
| --- | --- |
| **Abstract:** | This paper proposes the development of a public web-based fast image ground truth authoring tool (GTAT). Image ground truth authoring tools are key to generate training and validation data for image segmentation and classification systems. This paper provides a short review of similar publicly available GTATs, the features, and the shortcomings, in order to spot the key features missing for a public GTAT to the community. Based on the desired features, we aim to develop a free and open GTAT in the future. This document provides a first draft of a list of requirements for a data labelling standard and the development of a community-based and public web-based ground truth authoring tool. |

Saul Calderon Ramirez (Costa Rica Institute of Technology/De Montfort University) and Henry Hoffmann (Ada Health, Germany) introduced the document. The idea is to identify a collaborative platform that can be used to annotate data. Initially, the requirements will be identified and then then there will be a call for tools. Saul has developed a tool, which can be considered an example (not necessarily the solution). An e-meeting will be organized a few weeks after this meeting.

1. In order to facility the global dialogue on AI for health, the meeting agreed to pursue the development of a data annotation platform under the WG-DAISAM, with Saul Calderon Ramirez (Costa Rica Institute of Technology/De Montfort University) and Henry Hoffmann (Ada Health, Germany) leading the effort.

# Working Group updates

## Data and AI solution assessment methods (WG-DAISAM)

The progress report of WG-DAISAM found in slides 2 to 6 of doc [H-036](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-036.pptx) [WG-DASH, WG-DAISAM and WG-Operations] was presented by its vice-chair, Luis Oala (Fraunhofer HHI, Germany). WG-DAISAM chair, Pat Baird (Philips), joined the meeting remotely.

As noted elsewhere, the workshop in Berlin, January 2020, provided important input towards the work of WG-DAISAM.

## Data and AI solution handling (WG-DASH)

WG-DASH Vice-chair, Ferath Kherif (CHUV, CH), presented an overview of activities of WG-DASH. WG-DASH Chair, Marc Lecoultre (Business Investigation, CH), joined remotely.

## Operations (WG-O)

Luis Oala presented on behalf of the chair of the WG-O, Markus Wenzel (Fraunhofer HHI, Germany), introduced slide 6 of [H-036](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-036.pptx) with an update of the WG activities:

* Outline del. N°7 *AI4H Evaluation Specification*
* Supported editors of several other deliverables
* [Paper](https://www.itu.int/pub/T-PROC-KALEI-2019)/[talk](https://www.itu.int/en/ITU-T/academia/kaleidoscope/2019/Documents/Presentations/S4.1_Markus_Wenzel.pdf) about focus group @ ITU-[Kaleidoscope](https://www.itu.int/en/ITU-T/academia/kaleidoscope/2019/Pages/default.aspx)- Conference ICT for Health: Networks, standards and innovation. GeorgiaTech, Atlanta, Dec 2019. The paper will also be published in a forthcoming IEEE Communications Magazine.
* Worked with ITU on improving <https://itu.int/go/fgai4h/collab>

[H-031](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-031.pptx) - Fraunhofer-HHI FG-AI4H website concept proposal /
[H-031-A01-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-031-A01-R01.pdf) – Example of pages / [H-031-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-031-A02.pptx) - Presentation

Eva Weicken (Fraunhofer HHI, Germany) introduced the concept of a new website in H-031, which was based on a mock-up built with the WordPress web publication platform. The meeting had a majority support the new design. The FG management should discuss offline with ITU how to implement the new design, with the understanding that the current SharePoint-based page would remain static and pointing to the new site.

Additional considerations were suggested to the design: words from the management on the objectives of the group; simplify the admin tasks to be done by users (e.g. reset a password).

1. The FG-AI4H asked ITU to look into the resources need to implement the new design for the FG-AI4H website.

## Ethical considerations on AI for health (WG-Ethics)

[H-039](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-039.pptx) Editor WG-Ethics: Draft ToR

|  |  |
| --- | --- |
| **Abstract:** | This is the initial draft of the terms of references (ToR) for the Working Group on Ethical Considerations (WG-Ethics). Digital technologies, machine learning and Artificial Intelligence (AI) are revolutionizing the fields of medicine, research and public health in an unprecedented manner. While holding great promise, this rapidly developing field raises a number of ethical, legal, and social concerns. There is an urgent need to develop harmonised ethics guidance for the design and implementation of AI in global health. Moreover, to secure AI benefits at the global scale, a new collaborative research agenda should be established. WG-Ethics will address these ethical concerns and provide guidance to the users of AI. This revised version includes the updates agreed on 22 January 2020 at the FG-AI4H meeting. |

Andreas Reis (WHO) introduced [H-039](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-039.pptx) with the draft ToR for the ToR of the new WG on ethical considerations on AI for health.

A key objective of this WG is not to duplicate the effort with the WHO expert group on ethics, working hand-in-hand. There is a good complementarity between the two activities.

FG members can attend the WHO group as observers.

It was agreed that sharing the draft of the two groups would be useful. A collaboration page will be created.

After discussions, small amendments made to the ToR and the updated text is found in [H-039-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-039-R01.docx).

The meeting agreed to creating the WG on ethical considerations on AI for health (WG-Ethics), with Andreas Reis (WHO) as chairman.

1. Established the WG on ethical considerations on AI for health (WG-Ethics) with the ToR in [H-039-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-039-R01.docx) and Andreas Reis (WHO) as chairman.

## Regulatory considerations on AI for health (WG-RC)

The chair of the WG-RC, Naomi Lee (Lancet, UK), presented remotely a status update.

This WG was created recognizing that regulation is an important area and that there is a gap between advances in regulation and in technology.

First meeting 19-20 March alongside IMDRF, back to back with the FG-AI4H meeting. Judith of WHO is sending the invites. Need to set a way for FG-AI4H participants to register for the event as observers. Naomi will coordinate with the organizing group how to put this into place.

## Clinical evaluation (WG-CE)

Naomi Lee (Lancet, UK) presented remotely a status update on the clinical evaluation WG. Optimal assessment from a clinical setting, instead of a performance with data. Aspects like randomized trials that do not work well for digital health need to be revisited, reimagined. Assembling a team Equator Network (Consort AI, tripod ML, AI for diagnostics). Applied for funding. First meeting aimed for April/May. Two physical meetings, then reporting. Things work well on data, how to convince people that they work well also on real conditions.

Lancet Commission, policy and human rights aspects of AI4H.

Nature paper on diagnostics of cancer as a reference reading.

# Updates and new proposals for existing TGs

The following TGs received no updates at this meeting:

* TG-Bacteria (Diagnoses of bacterial infection and anti-microbial resistance)
Last updates: No initial documentation. Proposed at meeting F.
* TG-DiagnosticCT (Volumetric chest computed tomography)
Last updates: Meeting F. Proposed at meeting D.
* TG-Histo (Histopathology)
Last updates: Meeting E. Proposed at meeting B.
* TG-MCH (Maternal and child health)
Last updates: Skeleton TDD produced after meeting G. CfTGP not available. Proposed at meeting D, re-started at meeting F, then meeting G.
* TG-Radiotherapy (Radiotherapy)
Last updates: No initial documentation. Proposed at meeting D and re-scoped at meeting H as TG-*Radiology*. See §13.1 for the latter.
* TG-FakeMed (AI-based detection of falsified medicine)
Last updates: CfTGP in meeting F, TDD not yet available. Proposed at meeting F.
* TG-Derma (Dermatology)
Last updates: Meeting E. Proposed at meeting B.
* TG-Snake (Snakebite and snake identification)
Last updates: Meeting G. Proposed at meeting B.
* TG-TB (Tuberculosis)
Last updates: TDD at meeting G, CfTGP at meeting E. Proposed at meeting C.
1. It was agreed to remind TG Drivers that an update of their activities is expected at each FG meeting.

Drivers for the new topic groups are requested to submit at the next meeting a topic description document and call for topic group participation using the current templates:

* [C-105](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-C-105.docx) (TDD)
* [F-004](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-F-004.docx) (CfTGP)

Further observations concerning TGs with subtopics:

* TG-Cardio: Needs TDD content for subtopic on cardiac image analysis. Current version only covers the cardiovascular risk prevention.
* TG-Neuro: Needs update for subtopic Parkinson's Disease
* TG-Outbreaks: Needs update for subtopic Dengue Surveillance
* TG-Malaria: Needs update for subtopic Malaria Surveillance
1. TG Drivers are requested to work with sub-topic drivers for creating the missing content and report back at the next FG meeting (Meeting I).

## TG-Cardio (Cardiovascular Risk Prediction)

TDD: [H-006-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-006-A01.docx) - [H-006-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-006-A03.pptx)

CfTGP: [H-006-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-006-A02.docx)

Contributions: N/A

The progress report in [H-006-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-006-A03.pptx) was presented by the topic driver, Benjamin Muthambi (Watif Health, South Africa).

This TG has two sub-topics:

* Clinical predictions – Cardiovascular disease (CVD) risk prediction using AI. Led by Benjamin Muthambi (Watif Health, South Africa)
* Cardiac image analyses – Coronary CT Image Processing/Image Recognition for Coronary CT angiography (CCTA) in coronary artery disease (CAD) diagnosis. Led by Ning (Nathan) Guo (Shukun, China)

The TG Driver sees that two additional sub-topics could be considered, one on use of AI-enabled robots for minimally invasive surgeries, and another one on individualized medicine.

The TG Driver suggested renaming the TG to *Use of AI in cardiovascular disease management*.

The TDD currently reflects only the Cardiovascular disease (CVD) risk prediction using AI aspect. The TG Driver suggests that TDDs be prepared per sub-topic, instead of one single TDD.

The topic driver requested the creation of two mailing lists, per subtopic. See §15.

1. Create two mailing lists for the TG-Cardio, one for the sub-TG on clinical predictions and one for the sub-TG on cardiac image analyses
2. Rename TG-Cardio as "Use of AI in cardiovascular disease management".

## TG-Derma (Dermatology)

TDD: [H-007-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-007-A01.docx)

CfTGP: [H-007-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-007-A02.docx)

Contributions: N/A

The TG-Derma Driver is Maria Vasconcelos (Fraunhofer Portugal). No progress report was provided at this meeting.

The CfTGP and TDD were last updated at meeting E and are reproduced for this meeting as [H-007-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-007-A02.docx) and [H-007-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-007-A01.docx), respectively, for easier reference.

## TG-Bacteria (Diagnoses of bacterial infection and anti-microbial resistance, AMR)

TDD: N/A

CfTGP: N/A

Contributions: N/A

The TG Driver, Nada Malou (MSF, France), did not join this meeting and initial CfTGP and TDD documents were not provided. (NB – [H-008](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-008.docx) is a placeholder document.)

## TG-DiagnosticCT (Volumetric chest computed tomography)

TDD: [H-009-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-009-A01.docx)

CfTGP: [H-009-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-009-A02.docx)

Contributions: N/A

The TG Driver, Kuan Chen (Infervision, China), did not join the meeting and no updates were provided. The CfTGP and TDD were last updated at meeting F and are reproduced for this meeting as [H-009-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-009-A02.docx) and [H-009-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-009-A01.docx), respectively, for easier reference.

## TG-Dental (Dental diagnostics and digital dentistry)

TDD: [H-010-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-010-A01.docx) - [H-010-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-010-A03.pptx)

CfTGP: [H-010-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-010-A02.docx)

Contributions: N/A

The TG is led by Falk Schwendicke and Joachim Krois (Charité Berlin, Germany). The latter introduced [H-010-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-010-A03.pptx), remotely.

Dental health is highly relevant, a lot of resources are allocated to treating dental diseases. Use of AI could improve early detection of dental issues. Many types of images are available. ML models developed to use NILT (infrared to assess caries), bitewing radiographs (caries detection and analysis of teeth structures), tooth segments (periodontal bone loss).

One of the objectives of the TG is to build a community around the topic.

Planning participation in various symposia and conferences.

Next steps: continue the organization / structuring of the TG Dental.

Onboarding – interesting experience. Complex process, not easy to understand the infrastructure and process. Thanked Eva, Markus, Henry for guidance in the process. Thomas invited comments on how to make the onboarding effort. Concepts, ideas, decisions more transparent.

1. Joachim Krois and Eva Weicken to work together to improve the onboarding document ([G-107](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-107.docx)) and other related materials based on the recent experience of the topic drivers in establishing the TG Dental working methods and documentation.

## TG-FakeMed (AI-based detection of falsified medicine)

TDD: H-011-A01 (reserved but not produced)

CfTGP: [H-011-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-011-A02.docx)

Contributions: N/A

The TG- FakeMed is Franck Verzefé (TrueSpec-Africa, DRC). No progress report was provided at this meeting.

The initial draft of the CfTGP was issued after meeting F and is reproduced for this meeting as [H‑011-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-011-A02.docx). H-011-A01 was reserved for the TDD, but it was not made available during the meeting.

## TG-Falls (Falls among the elderly)

TDD: [H-012-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-012-A01.docx) - [H-012-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-012-A03.pptx)

CfTGP: [H-012-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-012-A02.docx)

Contributions: N/A

The TG-Driver, Inês Sousa (Fraunhofer Portugal) provided an update of the activities in the TG-Falls using the presentation in [H-012-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-012-A03.pptx).

New members joined the group, Bologna (Italy), Ireland.

Three datasets available: Fraunhofer Portugal (400 samples, annotated/enriched with risk factor info);

There is an NDA associated with one of the datasets.

Next steps:

* A systematic assessment of all solutions and studies regarding fall risk assessment is missing;
* Quality levels and standards for algorithm evaluation should be defined;
* Most datasets available are heterogenous and consider different variables and functional tests, may include data from sensors or not.
* Action Points:
* Systematize information regarding available solutions for fall risk assessment;
* Continue the discussion of the variables to be considered, and methods/best practices for algorithm evaluation;
* Discuss with the TG how should the benchmarking framework deal with heterogenous datasets.

Biggest obstacle to make progress? Lack of agreement on the best assessment in clinical practices to detect falls. E.g. which variables should be measured? (Existing protocols are lacking.)

## TG-Histo (Histopathology)

TDD: [H-013-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-013-A01.docx) - [H-013-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-013-A03.pptx)

CfTGP: [H-013-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-013-A02.docx)

Contributions: N/A

The TG Driver, Frederick Klauschen (Charité Berlin, Germany), did not join the meeting and no updates were provided.

The CfTGP and TDD were last updated at meeting E and are reproduced for this meeting as [H-013-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-013-A02.docx) and [H-013-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-013-A01.docx), respectively, for easier reference.

## TG-Malaria (Malaria detection)

TDD: [H-014-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-014-A01.docx) - [H-014-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-014-A03.pptx)

CfTGP: [H-014-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-014-A02.docx)

Contributions: [H-035](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-035.docx) (TG-Malaria new sub-topic: Malaria surveillance; Malaysia)

The progress of the TG was presented by the TG Driver, Rose Nakasi (Makerere University, Uganda). Accuracy is 0.99, various factors affect like camera resolution. She also presented a recap of the use case (from the Zanzibar meeting; see [H-014-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-014-A03.pptx)), for the benefit of new participants.

Ethics: big distinction – study protocol, or implementation of a methodology? This makes significant difference from the ethics point of view, should be clarified.

Data representing bad acquisition conditions should be included in the training (trembling, low light, focus, etc.).

[H-035](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-035.docx) - TG-Malaria new sub-topic: Malaria surveillance; Malaysia

|  |  |
| --- | --- |
| **Abstract:** | This document contains an outline of a sub-group topic description document on AI-based surveillance and predictive modelling of Malaria (TG-Malaria). |

The document was introduced by Helmi Zakariah and proposes establishing a sub-TG for Malaria surveillance and prediction. Would like to contribute 4000 malaria images to have improvement of the engine.

Relationship with outbreaks? Author thinks there is more connected with TG-Malaria, and if there are synergies to be explored with TG-Outbreaks, those will be managed.

PAHO sees TG-Malaria as an important due to the issues in malaria-prone regions in the Americas, also including the high turn-over of professionals, and would like to contribute to the TG. Detection of malaria in three continents.

Should combine the tool development with field trial, to have a more effective development.

The meeting agreed with the proposed way forward, highlighting the importance of coordinating this sub-topic work with the relevant activities within TG-Outbreaks.

1. Creation of a sub-TG on Malaria surveillance and detection within the TG-Malaria, coordinated by Helmi Zakariah (AIME, Malaysia). Work will be coordinated with relevant activities within TG-Outbreaks.

## TG-MCH (Maternal and child health)

TDD: [H-015-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-015-A01.docx)

CfTGP: N/A

Contributions: N/A

No updates were provided at this meeting by the topic drivers, Raghu Dharmaraju and Hafsa M. Mwita. The initial TDD was prepared after the New Delhi meeting and issued as G-043, then reissued at this meeting as [H-015-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-015-A01.docx). The CfTGP has not yet been developed for this TG.

Hafsa Mwita (University of Zanzibar, Tanzania) has informed that she cannot continue as TG co-driver, due to work priorities. The FG thanked her for her efforts and contribution, and hope she will continue to be involved in the TG.

Two presentations at the workshop are related to the maternal and child health topic area, and their presenters agreed to join the TG-MCH and help progress the work:

* Alexandre Chiavegatto Filho, Laboratory of Big Data and Predictive Health Analysis (LABDAPS) of FSP / Universidade de São Paulo, Brazil – [[WS Presentation](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/ai4h/202001/Documents/A_Filho.pdf)] – as a co-topic driver with Raghu.
* Mario Barbe Abrigo, Clinica Alemana de Santiago, Chile: Evaluation of an automated bone age estimation method [[WS Presentation](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/ai4h/202001/Documents/Mario_Barbe_Abrigo_Presentation.pdf)]
1. TG-MCH (Maternal and child health) continues with Raghu Dharmaraju (Wadhwani AI, India) and Alexandre Chiavegatto Filho (University of São Paulo, Brazil) as co-topic drivers

## TG-Neuro (Neurological disorders)

TDD: [H-016-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-016-A01.docx) - [H-016-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-016-A03.pptx)

CfTGP: [H-016-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-016-A02.docx)

Contributions: N/A

The TG-Neuro co-Driver, Ferath Kherif (CHUV, Switzerland), updated the meeting on the activities of the TG-Neuro using the slides in [H-017-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-017-A03.pptx). The TG Driver, Marc Lecoultre (Business Investigation, Switzerland), could not join this meeting.

Early stage detection and classification of neurological diseases using clinical scores, diagnostics, cognitive indicators, etc. Data available is so far Euro-centric. Defined a data taxonomy for the TG work.

Tool will be useful if it tells the clinicians something that they do not already know – other than reducing cost and time.

Nest steps include bringing onboard new proposals in the TG.

## TG-Ophthalmo (Ophthalmology)

TDD: [H-017-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-017-A01.docx) - [H-017-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-017-A03.pptx)

CfTGP: [H-017-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-017-A02.docx)

Contributions: N/A

The TG-Ophthalmo Driver, Arun Shroff (MedIndia), updated the meeting on the activities of the TG-Ophthalmo using the slides in [H-017-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-017-A03.pptx).

Diseases covered: diabetic retinopathy, age related macular degeneration, glaucoma, pathological myopia, red eye (conjunctivitis being one of its mild forms).

Classifications defined for each disease.

Four available datasets were identified, and their use is being explored.

Next steps:

* Complete missing sections of the TDD:
* Ethical considerations
* Undisclosed test data set collection
* Benchmarking methodology and architecture
* Reporting methodology
* Dataset procurement: Follow-up with DR-Net, EyePACs, Moorefields, Open Eye, Aravind Eye Hospital for undisclosed datasets for testing
* Outreach / Community Building: Increase engagement from members and get more experts on board and involved.

## TG-Outbreaks (AI for Outbreak Detection)

TDD: [H-018-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-018-A01.docx) - [H-018-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-018-A03.pptx)

CfTGP: [H-018-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-018-A02.docx)

Contributions: N/A (see also discussion on [H-035](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-035.docx) under TG-Malaria, §12.9)

TG-Outbreaks co-chair Auss Abbood updated the meeting on the activities of the TG-Outbreaks using the slides in [H-018-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-018-A03.pptx). Co-driver Stéphane Ghozzi joined remotely.

Need to use synthetic data to test algorithms, since one does not know how outbreaks will roll out.

Running models would be based on docker images.

Each country has a way to collect data, this makes the task more challenging and the solutions identified need to be sufficiently flexible to handle the variability in data format.

Idea is at least initially not using open data. Data would need to be retained nationally. First worry is the quality of the algorithm, instead of quality of the data.

Next steps:

* have a summary of the various benchmarking approaches for outbreak detection that have been published (based on original contributions and reviews of TG members)
* report a somewhat stable initial group composition with corresponding roles
* expand and rank list of deliverables for the group (minimal / desirable/ nice to have)
* propose broad tasks and milestones for 2020

## TG-Psy (Psychiatry)

TDD: [H-019-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-019-A01.docx) - [H-019-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-019-A03.pptx)

CfTGP: [H-019-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-019-A02.docx)

Contributions: N/A

The TG-Psy topic driver, Nicholas Langer (ETH Zurich, Switzerland), provided remotely an update of the progress of the group.

The work has progressed. Co-morbidity is observed, and it was in fact a motivation to start the study. This is one of the aspects to be described in the TDD.

Next steps:

* Infrastructure for data handling & management (OSF)
* Two groups (ETH Zurich) are working on the challenge (first benchmark results expected at the end of the year) (more results soon)
* Call for group participation (advertising on social media: Twitter)
* New contributor: Alpha Tom Kodamullil (Fraunhofer Institute for Algorithms and Scientific Computing, SCAI)
* Work on TDD ([H-018-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-018-A01.docx))
* Quantify uncertainty

## TG-Snake (Snakebite and snake identification)

TDD: [H-020-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-020-A01.docx)

CfTGP: [H-020-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-020-A02.docx)

Contributions: N/A

The TG-Snake is Rafael Ruiz (University of Geneva). No progress report was provided at this meeting.

The CfTGP and TDD were last updated at meeting E and are reproduced for this meeting as [H-020-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-020-A02.docx) and [H-020-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-020-A01.docx), respectively, for easier reference.

## TG-Symptom (Symptom assessment)

TDD: [H-021-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-021-A01.docx) - [H-021-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-021-A03.pptx)

CfTGP: [H-021-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-021-A02.docx)

Contributions: N/A

The progress report for TG-Symptoms was presented by its Driver, Henry Hoffmann (ADA Health, Germany). The group acknowledged the excellent progress of the TG, and it is helping identify questions that could have an impact on other TGs, for example the use of synthetic data. Some running demos are available:

* Model: [https://docs.google.com/spreadsheets/d/111D40yoJqvvHZEYI8RNSnemGf0abC9h‌QjQ7crFzNrdk/edit#gid=980125545](https://docs.google.com/spreadsheets/d/111D40yoJqvvHZEYI8RNSnemGf0abC9h%E2%80%8CQjQ7crFzNrdk/edit#gid=980125545)
* Demo: <https://demo-who2019.air.babylontech.co.uk:5005/>

Next steps:

* Continue MMVB 2.0
* Switch to the Berlin model
* Ontologies, reporting dimensions, health-checks
* Robustness scores, informative scores, error handling
* Dedicated frontend app (filtering, case viewer, statistics, …)
* Case Annotation Guidelines
* Discuss country level annotation guidelines
* Contribute to FG Annotation Platform Discussion
* TDD & Outreach
* Discuss Ethics section with corresponding WG
* Metrics
* Regulatory Considerations
* More systematic approach to fill the missing elements

## TG-TB (Tuberculosis)

[Manjula Singh]

TDD: [H-022-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-022-A01.docx) - [H-022-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-022-A03.pptx)

CfTGP: [H-022-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-022-A02.docx)

Contributions: N/A

The TG-TB topic driver is Manjula Singh (ICMR, India). No progress report was provided at this meeting.

The CfTGP and TDD were last updated at meeting E and are reproduced for this meeting as [H-022-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-022-A02.docx) and [H-022-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-022-A01.docx), respectively, for easier reference.

## TG-Radiotherapy (Radiotherapy)

TDD: [H-023-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-023-A01.docx) - [H-023-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-023-A03.pptx)

CfTGP: [H-023-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-023-A02.docx)

Contributions: N/A

The TG Driver, Zhenzhou (Joe) Wu (Biomind, China), did not join the meeting. No TDD or CfTGP documentation is yet available for this TG (NB: placeholder document [H-023](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-023.docx)).

As discussed in §13.1, the TG will be re-purposed as per [H-029](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-029.docx) with Darlington Ahiale Akogo (minoHealth AI Labs, Ghana) as the topic driver. Accordingly, the topic is renamed as Radiology (TG-Radiology). The initial CfTGP under the new scope is found in [H-041](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-041.docx).

# Proposals for new topic areas

## Radiography

[H-029](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-029.docx) A standardized radiograph-agnostic framework and platform for evaluating AI radiological systems (same as G-023) [Darlington Ahiale Akogo, minoHealth AI Labs]

|  |  |
| --- | --- |
| **Abstract:** | Radiology has been essential to accurately diagnosing diseases and assessing responses to treatment. The challenge however lies in the shortage of radiologists globally. As a response to this, a number of Artificial Intelligence solutions are being developed. The challenge Artificial Intelligence radiological solutions however face is the lack of a benchmarking and evaluation standard, and the difficulties of collecting diverse data to truly assess the ability of such systems to generalise and properly handle edge cases. We are proposing a radiograph-agnostic platform and framework that would allow any Artificial Intelligence radiological solution to be assessed on its ability to generalise across diverse geographical location, gender and age groups. This document is the same as G-023. |

Ghana: only 34 radiologists. Kenya: 200. Global shortage of radiologists.

Benefits: support for radiologists; less stress, fatigue. Help identifying urgent users. Help increase skills of less experienced radiologists.

Current focus on breast cancer. Why some groups have resistance to malaria and others don't.

Already have a TG on radiology, but it has been inactive. It was agreed to purpose the topic area within the already created TG-Radiology, with Darlington Ahiale Akogo (minoHealth AI Labs, Ghana) as the topic driver. The TG can be renamed, if needed.

The initial call for topic group participation (CfTGP) is found in [H-041](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-041.docx).

1. TG-Radiotherapy is re-scoped according to the proposal in [H-029](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-029.docx), with Darlington Ahiale Akogo (minoHealth AI Labs, Ghana) as the topic driver. Accordingly, the topic is renamed as AI for radiology (TG-Radiology).

## Diabetes prediction

[H-028](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-028.docx) Deep learning model profiling and risk score for diabetes mellitus type 2 and pre-diabetes and their complications [Andrés Valdivieso, Anastasia.ai & Tecnigen]

|  |  |
| --- | --- |
| **Abstract:** | This document proposes a new topic group on a deep learning model in diabetes mellitus and pre-diabetes diagnostics and DCSI score range with a focus on the identification and distribution of scoring of it complication for kidney and heart problem improving the scales and decision trees that are used today for diabetes and pre-diabetes in real-time and in an aggregate way for population health. |

[H-028-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-028-A01.pptx) was presented by Andrés Valdivieso. Diabetes mellitus type 2 and pre-diabetes is a chronical disease with increasing occurrence. Diabetic patients can have different profiles and need different protocols to be properly treated and reduce complications. Tool can detect early diabetes and reduce overall costs. Use lab test results instead of medical records, because they were too unreliable. Develop interventions to reduce risk of complications due to disease.

After discussions on possible ways forward, it was agreed to create a new topic group on primary and secondary diabetes prediction based on the proposal in [H-028](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-028.docx), with Andrés Valdivieso (Anastasia.ai, Chile) as Topic Driver.

It is noted that synergies could be explored with TG-Cardio, as well as TG-Ophthalmo (DR aspect).

1. Agreed to create a new Topic Group on primary and secondary diabetes prediction (TG-Diabetes), with Andrés Valdivieso (Anastasia.ai, Chile) as Topic Driver.

# Review / reconfirmation of previous output documents

As noted at the previous meeting, consideration should be given to update the [FG-AI4H Whitepaper](https://www.itu.int/en/ITU-T/focusgroups/ai4h/Documents/FG-AI4H_Whitepaper.pdf), since it is about 1 year old and the FG work has evolved. Information about the FG-AI4H deliverables could be added to the document.

The following document should be updated (editorially) after this meeting:

* [G-102](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-102.docx): Updated call for proposals: use cases, benchmarking, and data.
It will be issued as [H-102](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-102.docx).

As noted in §9, [G-200](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-200.docx) with the list of deliverables needs to be renewed. It will be issued as [H-200](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-200.docx) (to be available shortly after the meeting).

The following documents are reconfirmed without any updates:

* [D-103](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-D-103.docx): Updated FG-AI4H data acceptance and handling policy
* [C-104](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-C-104.docx): Thematic classification scheme
* [F-105](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-F-105.docx): ToRs for the WG-Experts and call for experts
* [F-106](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-F-106.docx): Guidelines on FG-AI4H online collaboration tools
* [G-107](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-107.docx): Onboarding document
* Templates: TDD ([C-105](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-C-105.docx)), CfTGP ([F-004](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-F-004.docx))

It was noted that the **TDD template** in [C-105](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-C-105.docx) could be updated to include a business case section. The WG-O co-chairs were invited to prepare a revised version of the template for the next FG meeting, also considering the proposal in [D-022](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-D-022.docx) to include sub-topics in the TDD structure.

# Working methods

It was agreed to create a collaborative site for the new WG-Ethics (now found at <https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/wg/SitePages/WG-Ethics.aspx>).

It was also agreed to create a public-facing page for WG-DAISAM and WG-DASH. The chairs of WG-DAISAM and WG-DASH will provide a draft of the pages to TSB for implementation.

It was agreed to create the following mailing lists:

| Description | List |
| --- | --- |
| FG-AI4H Topic Group Cardio (TG-Cardio), specific discussions for sub-topic on clinical predictions | fgai4htgcardiocp@lists.itu.int |
| FG-AI4H Topic Group Cardio (TG-Cardio), specific discussions for sub-topic on cardiac image analyses | fgai4htgcardiocia@lists.itu.int |

NOTE – [Annex D](#AnnexD) hereinafter contains the agreed procedures for online approval of document as well as for organizing e-meetings.

# Outcomes of this meeting

## WG updates

* New WG on ethical considerations on AI for health – ToR: [H-039-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-039-R01.docx); Chairman: Andreas Reis (WHO)
* WG-Operations – Co-chairs: Monique Kuglitsch and Markus Wenzel (Fraunhofer HHI, Germany).

## TG updates

New TG/sub-TG:

* Agreed to create a new Topic Group on primary and secondary diabetes prediction (TG-Diabetes) based on the proposal in , with Andrés Valdivieso (Anastasia.ai, Chile) as Topic Driver.
* Agreed to create a sub-TG on Malaria surveillance and detection within the TG-Malaria, coordinated by Helmi Zakariah (AIME, Malaysia). Work will be coordinated with relevant activities within TG-Outbreaks.

Leadership / scope updates:

* TG-Radiology is re-scoped according to the proposal in [H-029](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-029.docx), with Darlington Ahiale Akogo (minoHealth AI Labs, Ghana) as the topic driver.
* The TG-MCH (Maternal and child health) continues with Raghu Dharmaraju (Wadhwani AI, India) and Alexandre Chiavegatto Filho (University of São Paulo, Brazil) as co-topic drivers

## Output liaison statements

Two OLSs were prepared:

* JTC1 SC42: [H-037](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-037.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-037-A01.docx) 🡪 Issued and dispatched as [FGAI4H-LS-003](https://www.itu.int/net/itu-t/ls/ls.aspx?isn=22583)
* SG13: [H-040](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-040.docx) 🡪 Issued and dispatched as [FGAI4H-LS-004](https://www.itu.int/net/itu-t/ls/ls.aspx?isn=22592)

## Output documents

The following updated output documents were agreed:

* [H-102](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-102.docx): Updated call for proposals: use cases, benchmarking, and data
* [H-200](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-200.docx): Updated list of FG-AI4H deliverables (to be available shortly after the meeting)

# Future work

## Schedule of future FG meetings and workshops

The schedule of meetings in [H-003](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-003.docx) was reviewed and updated as found in its [Rev.1](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-003-R01.docx).

Format of the March 2020 meeting planned in Singapore is to have a workshop in the first day, followed by a two-day meeting of the FG-AI4H, and then a two-day meeting of the WG-RC together with IMDRF participants. The latter will follow the WHO accreditation rules, details will be circulated in the FG-AI4H mailing list.

The days for the subsequent FG-AI4H meeting, in Geneva collocated with the 2020 AI for Good Summit, were clarified to be 6-8 May 2020.

Updates will be done for future meetings, in particular for meetings K and beyond, and announced in the reflector or at the next FG-Ai4H meeting.

Table 2– Schedule of future FG meetings (as of 2020-01-24)

| Meeting | Date | Venue | Notes |
| --- | --- | --- | --- |
| I\* | 16-20 March 2020 | Singapore | Co-located with IMDRF |
| J\* | 6-8 May 2020 | Geneva | Co-located with AI for Good |
| K | 1-4 September | Northern California | TBD |
| L | 17-20 November | Bangladesh | TBC |

\* NOTE – Due to the travel restrictions connected with the 2019-NCor virus outbreak, the FG-AI4H management agreed with the host request that the meeting in Singapore, 16-20 March 2020 be postponed to a future occasion. Accordingly, the next meeting of the FG-AI4H would be in Geneva, 6-8 May 2020.

## Work plan and timeline

Update drafts of the deliverables in Table 1 (see §9) are expected to be available by 5 March 2020.

## Interim activities (online)

TGs and WGs will continue their activities between this and the next FG meeting. Communications on planned e-meetings will be announced in the TG-specific and/or general mailing lists (see [Annex D](#AnnexD)) with at least one-week notice.

# Promotion and outreach

A press release would be prepared after the meeting.

Also, PAHO published a note on their website about the meeting ([PT](https://www.paho.org/bra/index.php?option=com_content&view=article&id=6097:oms-opas-e-uit-discutem-uso-de-inteligencia-artificial-na-saude-durante-workshop-no-brasil&Itemid=812) |EN).

The Kaleidoscope keynote paper on the FG-AI4H is available in the Proceedings of the [2019 Kaleidoscope Conference](https://www.itu.int/en/ITU-T/academia/kaleidoscope/2019) proceedings (<https://itu.int/pub/T-PROC-KALEI-2019>), and will also be issued in a forthcoming special issue of the IEEE Communications Magazine.

# A.O.B.

None.

# Closing

The FG-AI4H chairman thanked PAHO for hosting the meeting and the dedication of the staff for the excellent facilities and arrangements provided for a smooth and efficient meeting. He thanked all participants for having come to the meeting, in particular those submitting contributions and engaged in the discussions. The chairman also thanked the vice-chairs, WG chairs/co-/vice-chairs, and topic drivers who joined the discussions. Finally, he expressed his appreciation for the essential work performed by the secretariat, in particular Simão Campos, Bastiaan Quast, Ayda Dabiri and Kaoru Mizuno.

The meeting was closed on Thursday 23 January 2020 around 1610 hours (Brasilia time).

Annex A
Agenda

|  |  |  |
| --- | --- | --- |
|  |  | Related Documents |
| 1 | Opening |  |
| 2 | Approval of agenda | [H-001-R04](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-001-R04) (Agenda); Initial timing: Annex C |
| 3 | Documentation and allocation | [H-001](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-001.docx) (Allocation); Annex B (Documentation) [AnnexB](#AnnexB) |
| 4 | IPR | H-001 Annex A[AnnexA](#AnnexA) |
| 5 | Management updates |  |
| a | Vice-chairs |  |
| b | WGs |  |
| 6 | Approval of Meeting G outcomes and updates | [G-101](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-101.docx): Meeting Report[G-102](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-102.docx): Updated call for Proposals: use cases, benchmarking, and data[G-107](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-107.docx): Onboarding document for the FG-AI4H |
| 7 | Outcome of workshops & conferences | [H-002](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-002.docx) (8th ITU/WHO Workshop Summary; Chair)[H-005](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-005.docx) (DASH/DAISAM Workshop summary; Chair)[H-026](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-026.docx) (ITU Kaleidoscope 2019 – Papers of interest to FG-AI4H) |
| 8 | Review of incoming LSs |  |
| a | ITU-T SG13 | [H-024](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-024.docx) |
| b | JTC1 SC42 | [H-025](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-025.docx) |
| c | ITU-T FG-AI4EE | [H-027](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-027.docx) |
| d | FG-ML5G (on student engagement) | [H-033](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-033.docx) |
| e | Others? |  |
| 9 | FG-AI4H deliverables | [H-030](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-030.docx): Status of deliverables [TSB][H-032](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-032.docx): Updated List TDDs (G210) [Eva] |
| 10 | Working Group updates |  |
| a | Data and AI solution assessment methods (WG-DAISAM) [Pat Baird; Luis Oala] | [H-036](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-036.pptx) |
| b | Data and AI solution handling (WG-DASH) [Marc Lecoultre; Ferhat Kerif] | [H-036](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-036.pptx) |
| c | Operations (WG-O) [Markus Wenzel/Monique Kuglitsch] | [H-036](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-036.pptx); [H-031-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-031.pptx): [Website design] + [A01-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-031-A01-R01.pdf) |
| d | Regulatory considerations on AI for health (WG-RC) [Naomi Lee] | – |
| e | Clinical Evaluation (WG-CE) [Naomi Lee] | – |
| f | Ethics (WG-Ethics) [Andreas Reis] | [H-039-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-039-R01.docx) [ToR] |
| 11 | Horizontal and strategic topics | [H-034](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-034.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-034-A01.pdf) (AI Guideline for Medical Devices; Johner Institute), [H-034-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-034-A02.pdf) |
| 12 | Updates to TGs and new proposals |  |
| a | Template updates: TDD, CfTGP |  |
| b | TG-Cardio (Cardiovascular Risk Prediction) [Benjamin Muthambi] | TDD: [H-006-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-006-A01.docx) - [H-006-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-006-A03.pptx)CfTGP: [H-006-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-006-A02.docx)Contributions: N/A |
| c | TG-Derma (Dermatology) [Maria Vasconcelos] | TDD: [H-007-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-007-A01.docx) CfTGP: [H-007-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-007-A02.docx)Contributions:  |
| d | TG-Bacteria (Diagnoses of bacterial infection and anti-microbial resistance - AMR)[Nada Malou] | TDD: N/ACfTGP: N/AContributions: N/A |
| e | TG-DiagnosticCT (Volumetric chest computed tomography) [Kuan Chen] | TDD: [H-009-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-009-A01.docx) <https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-009-A03.pptx>CfTGP: [H-009-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-009-A02.docx)Contributions: N/A |
| f | TG-Dental (Dental diagnostics and digital dentistry)[Falk Schwendicke, Joachim Krois] | TDD: N/ACfTGP: [H-010-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-010-A02.docx)Contributions: N/A |
| g | TG-FakeMed: AI-based detection of falsified medicine[Franck Verzefé] | TDD: [H-011-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-011-A01.docx) - [H-011-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-011-A03.pptx)CfTGP: [H-011-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-011-A02.docx)Contributions: N/A |
| h | TG-Falls (Falls among the elderly) [Inês Sousa] | TDD: [H-012-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-012-A01.docx) - [H-012-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-012-A03.pptx)CfTGP: [H-012-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-012-A02.docx)Contributions: N/A |
| i | TG-Histo (Histopathology) [Frederick Klauschen] | TDD: [H-013-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-013-A01.docx) CfTGP: [H-013-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-013-A02.docx)Contributions: N/A |
| j | TG-Malaria: Malaria detection[Rose Nakasi] | TDD: [H-014-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-014-A01.docx) - [H-014-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-014-A03.pptx)CfTGP: [H-014-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-014-A02.docx)Contributions: [H-035](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-035.docx) (TG-Malaria new sub-topic: Malaria surveillance; Malaysia) |
| k | TG-MCH: Maternal and child health[Raghu Dharmaraju, Hafsa M. Mitwa] | TDD: [H-015-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-015-A01.docx)CfTGP: [H-015-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-015-A02.docx)Contributions: N/A |
| l | TG-Neuro: Neurological disorders[Marc Lecoultre] | TDD: [H-016-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-016-A01.docx) - [H-016-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-016-A03.pptx)CfTGP: [H-016-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-016-A02.docx)Contributions: N/A |
| m | TG-Ophthalmo (Ophthalmology) [Arun Shroff] | TDD: [H-017-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-017-A01.docx) - [H-017-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-017-A03.pptx)CfTGP: [H-017-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-017-A02.docx)Contributions: N/A |
| n | TG-Outbreaks (AI for Outbreak Detection)[Stéphane Ghozzi, Auss Abbood] | TDD: [H-018-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-018-A01.docx) - [H-018-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-018-A03.pptx)CfTGP: [H-018-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-018-A02.docx)Contributions: N/A |
| o | TG-Psy (Psychiatry) [Nicholas Langer] | TDD: [H-019-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-019-A01.docx) - [H-019-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-019-A03.pptx)CfTGP: [H-019-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-019-A02.docx)Contributions: N/A |
| p | TG-Snake (Snakebite and snake identification) [Rafael Ruiz] | TDD: [H-020-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-020-A01.docx) CfTGP: [H-020-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-020-A02.docx)Contributions: N/A |
| q | TG-Symptom (Symptom assessment) [Henry Hoffmann] | TDD: [H-021-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-021-A01.docx) - [H-021-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-021-A03.pptx)CfTGP: [H-021-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-021-A02.docx)Contributions: N/A |
| r | TG-TB (Tuberculosis) [Manjula Singh] | TDD: [H-022-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-022-A01.docx) - [H-022-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-022-A03.pptx)CfTGP: [H-022-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-022-A02.docx)Contributions: N/A |
| s | TG-Radiotherapy (Radiotherapy) [Zhenzhou (Joe) WU] | TDD: N/A<https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-023-A03.pptx>CfTGP: N/A<https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-023-A02.docx>Contributions: N/A |
| 9 | Proposals for new topic areas |  |
| a | A standardized radiograph-agnostic framework and platform for evaluating AI radiological systems | [H-029](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-029.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-029-A01.pptx) (same as G-023) [Darlington Ahiale Akogo, minoHealth AI Labs] |
| b | Deep learning model profiling and risk score for diabetes mellitus type 2 and pre-diabetes and their complications | [H-028](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-028.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-028-A01.pptx) [Andrés Valdivieso, Anastasia.ai & Tecnigen] |
| 10 | Review / reconfirmation of previous output documents | [FG-AI4H Whitepaper](https://www.itu.int/en/ITU-T/focusgroups/ai4h/Documents/FG-AI4H_Whitepaper.pdf)[G-102](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-102.docx): Updated call for proposals: use cases, benchmarking, and data[D-103](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-D-103.docx): Updated FG-AI4H data acceptance and handling policy[C-104](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-C-104.docx): Thematic classification scheme[F-105](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-F-105.docx): ToRs for the WG-Experts and call for experts[F-106](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-F-106.docx): Guidelines on FG-AI4H online collaboration tools[G-107](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-107.docx): Onboarding documentOthers? |
| 11 | Outcomes of this meeting | a) Outgoing liaison statements JTC1 SC42: [H-037](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-037.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-037-A01.docx) SG13: [H-040](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-040.docx)b) Call for proposalsc) Output documentsd) Updated list of planned deliverables |
| 12 | Future work |  |
| a | Schedule of future FG meetings and workshops | [H-003-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-003-R01.docx) |
| b | Format of the March 2020 meeting |  |
| c | Work plan and timeline |  |
| d | Interim activities (online) |  |
| e | Extension of the FG |  |
| 13 | Promotion and outreach |  |
| a | Promotional activities |  |
| b | Press communication |  |
| c | Funding and partnerships |  |
| 14 | A.O.B. |  |
| 15 | Closing |  |

Annex B:
Documentation

| Namehttps://extranet.itu.int/_layouts/15/images/blank.gif?rev=40 | Titlehttps://extranet.itu.int/_layouts/15/images/blank.gif?rev=40https://extranet.itu.int/_layouts/15/images/blank.gif?rev=40https://extranet.itu.int/_layouts/15/images/blank.gif?rev=40 | Sourcehttps://extranet.itu.int/_layouts/15/images/blank.gif?rev=40https://extranet.itu.int/_layouts/15/images/blank.gif?rev=40https://extranet.itu.int/_layouts/15/images/blank.gif?rev=40 | Note |
| --- | --- | --- | --- |
| [FGAI4H-H-001-R04](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-001-R04.docx) | Agenda and documentation of the FG-AI4H meeting (Brasilia, 22-24 January 2020) | Chairman FG-AI4H |  |
| [FGAI4H-H-002-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-002-R01.docx) | Summary notes – 8th ITU-WHO Workshop on Artificial Intelligence for Health (Brasilia, Brazil, 21 January 2020) | ITU-T Focus Group on AI for Health |  |
| [FGAI4H-H-003-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-003-R01.docx) | Schedule of future FG meetings (as of 2020-01-23) | FG-AI4H Chairman |  |
| [FGAI4H-H-004](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-004.docx) | FG-AI4H Travel Grant Criteria | FG-AI4H Secretariat |  |
| [FGAI4H-H-005](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-005.docx) | Summary – DASH/DAISAM Workshop (Berlin, 8-9 January 2020) | TSB |  |
| [FGAI4H-H-006](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-006.docx) | Updates for Cardiovascular disease risk prediction (TG-Cardio) | TG-Cardio Topic Driver |  |
| [FGAI4H-H-006-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-006-A01.docx) | Att.1 – TDD update (TG-Cardio) | TG-Cardio Topic Driver |  |
| [FGAI4H-H-006-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-006-A02.docx) | Att.2 – CfTGP (TG-Cardio) | TG-Cardio Topic Driver |  |
| [FGAI4H-H-006-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-006-A03.pdf) | TG-Cardio Update - Att.3: Presentation | TG-Cardio topic driver |  |
| [FGAI4H-H-007](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-007.docx) | Updates for Dermatology (TG-Derma) | TG-Derma Topic Driver |  |
| [FGAI4H-H-007-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-007-A01.docx) | Att.1 - TDD update (TG-Derma) [Meeting E] | TG-Derma Topic Driver |  |
| [FGAI4H-H-007-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-007-A02.docx) | Att.2 – CfTGP (TG-Derma) [Meeting E] | TG-Derma Topic Driver |  |
| [FGAI4H-H-008](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-008.docx) | Updates for Diagnosis of bacterial infection and anti-microbial resistance (TG-Bacteria) | TG-Bacteria Topic Driver |  |
| [FGAI4H-H-009](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-009.docx) | Updates for Volumetric chest CT (TG-DiagnosticCT) | TG-DiagnosticCT Topic Driver |  |
| [FGAI4H-H-009-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-009-A01.docx) | TG-DiagnosticCT - Att.1 – TDD update | TG-DiagnosticCT Topic Driver |  |
| [FGAI4H-H-009-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-009-A02.docx) | TG-DiagnosticCT - Att.2 – CfTGP update | TG-DiagnosticCT Topic Driver |  |
| [FGAI4H-H-010](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-010.docx) | Updates for Dental diagnostics and digital dentistry (TG-Dental) | TG-Dental Topic Driver |  |
| [FGAI4H-H-010-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-010-A01.docx) | TG-Dental - Att.1: TDD update | TG-Dental Topic Driver |  |
| [FGAI4H-H-010-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-010-A02.docx) | TG-Dental - Att.2: CfTGP update | TG-Dental Topic Driver |  |
| [FGAI4H-H-010-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-010-A03.pptx) | TG-Dental - Att.3 – Presentation | TG-Dental Topic Driver |  |
| [FGAI4H-H-011](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-011.docx) | Updates for falsified medicine (TG-FakeMed) | TG-FakeMed Topic Driver |  |
| FGAI4H-H-011-A01 | Reserved but unavailable: TG-FakeMed - CfTGP | – |  |
| [FGAI4H-H-011-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-011-A02.docx) | TG-FakeMed - Att.2: New CfTGP | TG-FakeMed Topic Driver |  |
| [FGAI4H-H-012](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-012.docx) | Updates for Falls among the elderly (TG-Falls) | TG-Falls Topic Driver |  |
| [FGAI4H-H-012-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-012-A01.docx) | Att.1 – TDD update (TG-Falls) | TG-Falls Topic Driver |  |
| [FGAI4H-H-012-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-012-A02.docx) | Att.2 – CfTGP (TG-Falls) | TG-Falls Topic Driver |  |
| [FGAI4H-H-012-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-012-A03.pptx) | Att.3 – Presentation (TG-Falls) | TG-Falls Topic Driver |  |
| [FGAI4H-H-013](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-013.docx) | Updates for Histopathology (TG-Histo) | TG-Histo Topic Driver |  |
| [FGAI4H-H-013-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-013-A01.docx) | Att.1 - TDD Update (TG-Histo) [Meeting E] | TG-Histo Topic Driver |  |
| [FGAI4H-H-013-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-013-A02.docx) | Att.2 – CfTGP (TG-Histo) [Meeting E] | TG-Histo Topic Driver |  |
| [FGAI4H-H-014](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-014.docx) | Updates for Malaria detection (TG-Malaria) | TG-Malaria Topic Driver |  |
| [FGAI4H-H-014-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-014-A01.docx) | TG-Malaria - Att.1 – TDD update | TG-Malaria topic driver |  |
| [FGAI4H-H-014-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-014-A02.docx) | Att.2 – CfTGP (TG-Malaria) | TG-Malaria topic driver |  |
| [FGAI4H-H-014-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-014-A03.pptx) | TG-Malaria update - Att.3: Overview of the topic area | TG-Malaria Topic Driver |  |
| [FGAI4H-H-015](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-015.docx) | Updates for Maternal and child health (TG-MCH) | TG-MCH Topic Driver |  |
| [FGAI4H-H-015-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-015-A01.docx) | Att.1 – TDD update | TG-MCH topic driver |  |
| [FGAI4H-H-015-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-015-A02.docx) | Att.2 – CfTGP (TG-MCH) | TG-MCH Topic Driver |  |
| [FGAI4H-H-016](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-016.docx) | Updates for Neurological disorders (TG-Neuro) | TG-Neuro Topic Driver |  |
| [FGAI4H-H-016-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-016-A01.docx) | Att.1 – TDD Update (TG-Neuro) [Meeting F] | TG-Neuro Topic Driver |  |
| [FGAI4H-H-016-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-016-A02.docx) | Att.2 – CfTGP Update (TG-Neuro) [Meeting E] | TG-Neuro Topic Driver |  |
| [FGAI4H-H-016-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-016-A03.pptx) | TG-Neuro - Att.3: Presentation | TG-Neuro Topic Driver |  |
| [FGAI4H-H-017](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-017.docx) | Updates for Ophthalmology (TG-Ophthalmo) | TG-Ophthalmo Topic Driver |  |
| [FGAI4H-H-017-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-017-A01.docx) | Att.1 – TDD update (TG-Ophthalmo) | TG-Ophthalmo Topic Driver |  |
| [FGAI4H-H-017-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-017-A02.docx) | Att.2 – CfTGP (TG-Ophthalmo) | TG-Ophthalmo Topic Driver |  |
| [FGAI4H-H-017-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-017-A03.pptx) | TG-Ophthalmo (Ophthalmology) Update - Att.3 - Presentation | TG-Ophtalmo topic driver |  |
| [FGAI4H-H-018](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-018.docx) | Updates for Outbreak detection (TG-Outbreaks) | TG-Outbreaks Topic Driver |  |
| [FGAI4H-H-018-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-018-A01.docx) | TG-Outbreaks - Att.1 – TDD update | TG-Outbreaks topic driver |  |
| [FGAI4H-H-018-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-018-A02.docx) | TG-Outbreaks - Att.2 – CfTGP update | TG-Outbreaks Topic Driver |  |
| [FGAI4H-H-018-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-018-A03.pptx) | Att.3 – Presentation (TG-Outbreaks) | TG-Outbreaks Topic Driver |  |
| [FGAI4H-H-019](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-019.docx) | Updates for Psychiatry (TG-Psy) | TG-Psy Topic Driver |  |
| [FGAI4H-H-019-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-019-A01.docx) | TG-Psy - Att.1 – TDD update | TG-Psy Topic Driver |  |
| [FGAI4H-H-019-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-019-A02.docx) | TG-Psy - Att.2 – CfTGP update | TG-Psy Driver |  |
| [FGAI4H-H-019-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-019-A03.pptx) | TG-Psy - Att.3 – Presentation | TG-Psy Driver |  |
| [FGAI4H-H-020](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-020.docx) | Updates for Snakebite and snake identification (TG-Snake)  | TG-Snake Topic Driver |  |
| [FGAI4H-H-020-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-020-A01.docx) | TDD update: TG-Snake (Snakebite and snake identification) [Meeting G] | TG-Snake topic driver |  |
| [FGAI4H-H-020-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-020-A02.docx) | Call for Topic Group Participation: Standardized benchmarking of “AI for Snakebite and Snake Identification” [Meeting G] | TG-Snake Driver |  |
| [FGAI4H-H-021](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-021.docx) | Updates for Symptom assessment (TG-Symptom) | TG-Symptom Topic Driver |  |
| [FGAI4H-H-021-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-021-A01.docx) | Att.1 – TDD update | TG-Symptom Topic Driver |  |
| [FGAI4H-H-021-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-021-A02.docx) | Updated call for topic group participation: Standardized benchmarking of "AI-based symptom assessment" | TG-Symptom Driver |  |
| [FGAI4H-H-021-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-021-A03.pptx) | TG Symptom Meeting H update slides draft | TG-Symptom topic driver |  |
| [FGAI4H-H-022](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-022.docx) | Updates for Tuberculosis (TG-TB) | TG-TB Topic Driver |  |
| [FGAI4H-H-022-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-022-A01.docx) | Att.1 - TDD update (TG-TB) [Meeting G] | TG-TB Topic Driver |  |
| [FGAI4H-H-022-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-022-A02.docx) | Att.2 – CfTGP (TG-TB) [Meeting E] | TG-TB Topic Driver |  |
| [FGAI4H-H-023](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-023.docx) | Updates for Radiotherapy (TG-Radiotherapy) | TG-Radiotherapy Topic Driver |  |
| [FGAI4H-H-024](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-024.docx) | LS on invitation to review Artificial Intelligence Standardization Roadmap and provide missing or updated information | ITU-T SG13 |  |
| [FGAI4H-H-025](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-025.docx) | LS on request for relevant AI use cases [FG-AI4H-LS02] (from JTC1 SC42) | ISO/IEC JTC1 SC42 |  |
| [FGAI4H-H-025-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-025-A01.docx) | Attachment 1 to H-025 ISO/IEC JTC 1 SC 42 Artificial Intelligence – Working Group 4 Use Case Submission Form | ISO/IEC JTC1 SC42 |  |
| [FGAI4H-H-025-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-025-A02.pdf) | Attachment 2 to H-025 ISO/IEC JTC1 SC42 Use cases and applications  | ISO/IEC JTC1 SC42 |  |
| [FGAI4H-H-026](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-026.docx) | ITU Kaleidoscope 2019 – Papers of interest to the ITU-T Focus Group on Artificial Intelligence for Health (FG-AI4H) | TSB |  |
| [FGAI4H-H-027](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-027.docx) | LS on the first meeting of ITU-T Focus Group on Environmental Efficiency for Artificial Intelligence and Other Emerging Technologies [from FG-AI4EE] | FG-AI4EE |  |
| [FGAI4H-H-028](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-028.docx) | Proposal for new topic group: Deep learning model profiling and risk score for diabetes mellitus type 2 and pre-diabetes and their complications | Anastasia.ai & Tecnigen |  |
| [FGAI4H-H-028-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-028-A01.pptx) | TG Diabetes proposal - Att.1: Presentation | Anastasia.ai & Tecnigen |  |
| [FGAI4H-H-029](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-029.docx) | Proposal for new topic group: A standardized radiograph-agnostic framework and platform for evaluating AI radiological systems | minoHealth AI Labs |  |
| [FGAI4H-H-029-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-029-A01.pptx) | Proposal for new topic group: A standardized radiograph-agnostic framework and platform for evaluating AI radiological systems - Att.1: Presentation | minoHealth AI Labs | Late |
| [FGAI4H-H-030](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-030.docx) | FG-AI4H deliverables: updated list (Brasilia, 22-24 January 2020) | TSB |  |
| [FGAI4H-H-031](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-031.docx) | FG-AI4H website concept proposal | Fraunhofer-HHI |  |
| [FGAI4H-H-031-A01-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-031-A01-R01.pdf) | FG-AI4H website concept proposal - Att.1 Template website design  | Fraunhofer-HHI |  |
| [FGAI4H-H-031-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-031-A02.pptx) | FG-AI4H website concept proposal - Att.2: Presentation | Fraunhofer HHI |  |
| [FGAI4H-H-032-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-032-R01.docx) | Updated DEL10: Introduction to the FG-AI4H topic description documents | Editor |  |
| [FGAI4H-H-032-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-032-A01.pptx) | Updated DEL10 - Att.1: Presentation | Editor |  |
| [FGAI4H-H-033](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-033.docx) | LS on how to engage students in ITU’s work? Lessons learnt from FG ML5G (Focus Group on Machine Learning in future networks including IMT-2020) [from FG ML5G] | FG ML5G |  |
| [FGAI4H-H-034](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-034.docx) | AI guideline for medical devices | Johner Institute (Germany) | Late |
| [FGAI4H-H-034-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-034-A01.pdf) | AI guideline for medical devices - Att.1: Guideline document | Johner Institute | Late |
| [FGAI4H-H-034-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-034-A02.pdf) | AI guideline for medical devices - Att.2: Meeting notes | Johner Institute |  |
| [FGAI4H-H-035](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-035.docx) | TG-Malaria: Proposal for sub-topic: Malaria surveillance and predictive modelling | Artificial Intelligence in Medical Epidemiology (AIME) and Sarawak State Health Department, Malaysia | Late |
| [FGAI4H-H-036](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-036.pptx) | Working group updates and deliverables N°7 AI for Health Evaluation Specification and N°7.3 AI Test Metric Specification | WG-DASH, WG-DAISAM and WG-Operations | Late |
| [FGAI4H-H-037](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-037.docx) | Draft LS/r on request for relevant AI Use Cases (SC42-WG4-LS04) [to JTC1 SC42] | FG-AI4H chairman |  |
| [FGAI4H-H-037-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-037-A01.docx) | Draft LS/r to SC42 - Att.1: FGAI4H-LS2 (request for relevant AI Use Cases (ISO/IEC JTC1/SC42-20190531) [to JTC 1/SC 42]) | FG-AI4H Chairman |  |
| [FGAI4H-H-038-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-038-R01.docx) | Proposal for a data labelling standard and a public data labelling tool | De Montfort University, Costa Rica Institute of Technology; ADA (Germany) |  |
| [FGAI4H-H-038-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-038-A01.pdf) | A proposal for a data labelling standard and a public data labelling tool - Att.1 – Paper | Costa Rica Institute of Technology, De Montfort University | Late |
| [FGAI4H-H-039-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-039-R01.docx) | ToR Draft: Working group on ethical considerations (WG-Ethics) | Editor |  |
| [FGAI4H-H-040](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-040.docx) | Draft LS/r on invitation to review Artificial Intelligence Standardization Roadmap and provide missing or updated information (SG13-LS118) [to ITU-T SG13] | FG-AI4H Chairman |  |
| [FGAI4H-H-041](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-041.docx) | TG-Radiology: Initial Call for topic group participation on the AI For radiology Topic Group | TG-Radiology Driver |  |
| [FGAI4H-H-101](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-101.docx) | Report of the 8th meeting (Meeting H) of the Focus Group on Artificial Intelligence for Health (Brasilia, 22-24 January 2020) | FG-AI4H |  |
| [FGAI4H-H-102](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-102.docx) | Updated call for proposals: Use cases, benchmarking, and data | FG-AI4H |  |
| [FGAI4H-H-200](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-200.docx) | Updated list of planned FG-AI4H deliverables | FG-AI4H |  |

Annex C:
List of participants

| Given name | Family name | Entity | Country | 21-Jan | 22-Jan | 23-Jan |
| --- | --- | --- | --- | --- | --- | --- |
| Adla | Marques | Health Ministry | Brazil | Remote |  |  |
| Adriana | da Silva e Sousa | Health Ministry | Brazil | X |  |  |
| Alberto | Pomaz | Health Ministry | Brazil | X |  |  |
| Alberto | Tomasi Diniz Tiefensee | Ministry of Health | Brazil | X |  |  |
| Alejandro | Lopez Osornio | University of Buenos Aires | Argentina | X | X | X |
| Alexandre | Chiavegatto Filho | University of Sao Paulo | Brazil | X | X | X |
| Alexandre | Cuenat | Wellcome Trust | United Kingdom | Remote | Remote | Remote |
| Ally | Salim Abdulla | Inspired Ideas | Tanzania |  | Remote | Remote |
| Ana | Riviere Cinnamond | PAHO | United States | X | X | X |
| Andrea | Romaoli Garcia | Consultant | United States | Remote |  | Remote |
| Andreas | Reis | World Health Organization (WHO) | – | X | X | X |
| Andrés | Valdivieso | Anastasia | Chile | X | X | X |
| Arun | Shroff | Xtend.AI | United States |  | Remote | Remote |
| Atila | Rodrigues | Health Ministry | Brazil | X |  |  |
| Auss | Abbood | Robert Koch Institute | Germany | X | X | X |
| Ayda | Dabiri | International Telecommunication Union (ITU) | – | Remote |  |  |
| Bastiaan | Quast | International Telecommunication Union (ITU) | – | X | X | X |
| Benjamin | Muthambi | IEPH (Consultant to WatifHealth) | United States |  | Remote |  |
| Carmen | Mota | Health Ministry | Brazil | X |  |  |
| Carolina | Carvalho | PAHO | Brazil | X |  |  |
| Celia | Ralha | Telecommunications Research and Development Center (CPqD) | Brazil | X | X | X |
| Christian | Johner | Johner Institut | Germany |  |  | Remote |
| Darlington | Akogo | minoHealth AI Labs | Ghana | X | X | X |
| Edson | Hung | University of Brasilia | Brazil | X | X | X |
| Enrique | Perez | PAHO | USA | Remote |  |  |
| Erica | Mallmann | Health Ministry | Brazil | X |  |  |
| Eva | Weicken | Fraunhofer HHI | Germany | X | X | X |
| Ferath | Kherif | CHUV | Switzerland | X | X | X |
| Fernando | Gebara Filho | Agência Nacional de Telecomunicações - ANATEL | Brazil | X |  |  |
| Foti | Sofiadellis | Royal Australasian College of Surgeons | United Kingdom |  |  | Remote |
| Francisco Iran | Barbosa | Brazilian Health Regulatory Agency (ANVISA) | Brazil | X | X | X |
| Gitau | Eric | Development Dynamics Consultancy | Kenya | Remote |  |  |
| Harsha | Jayakody | MyDoctor | Sri Lanka | X | X | X |
| Hélio | Macêdo | Brazilian Health Regulatory Agency (ANVISA) | Brazil | X |  |  |
| Henrique | Nixon | DATASUS/Ministry of Health | Brazil | X |  |  |
| Henry | Hoffmann | Ada Health GmbH | Germany | X | X | X |
| Ianna Karlla | Andrade | Ministério do Saúde | Brazil | X |  |  |
| Inês | Sousa | Associação Fraunhofer Portugal Research | Portugal |  | Remote |  |
| Jackie | Ma | Fraunhofer HHI | Germany |  |  | Remote |
| Jhonatan | Tirado | Universidad Nacional Mayor de San Marcos | Peru | X | X | X |
| Joachim | Krois | Charité - Universitätsmedizin Berlin | Germany |  | Remote |  |
| Jose Luis | Nuño Ayala | Unima | Mexico | X | X | X |
| Juan Sebastian | Beleño Diaz | 1DOC3 | Colombia | Remote | Remote | Remote |
| Juliana | Pereira de Souza Zinader | Health Ministry | Brazil | X |  |  |
| Juliano | Tesser | Brazilian Health Regulatory Agency (ANVISA) | Brazil | X |  |  |
| Kaoru | Mizuno | International Telecommunication Union | Switzerland | Remote | Remote | Remote |
| Karina | Vidal | Ministry of Science, Technology, Innovation and Communications (MCTIC) | Brazil | X |  |  |
| Karla | Ferreira | Brazilian Health Regulatory Agency (ANVISA) | Brazil | X | X | X |
| Kester | Quist-Aphetsi | CRITAC | Ghana | Remote | Remote | Remote |
| Lara Alonso | da Silva | Brazilian Health Regulatory Agency (ANVISA) | Brazil | X | X |  |
| Leonardo Euler | de Morais | Telecommunications National Agency (ANATEL) | Brazil | X |  |  |
| Lina Elizabeth | Porras Santana | 1DOC3 SAS | Colombia | X | X | X |
| Luana | Gelves | Health Ministry | Brazil | X |  |  |
| Lucas | Moura Gomes | University of Brasilia | Brazil | X | X |  |
| Luis | Oala | Fraunhofer HHI | Germany | X | X | X |
| Luiz Fernando | Ferreira da Silva | ICT & IR Consulting | Brazil | X | X | X |
| Marc | Lecoultre | Business Investigation SA | Switzerland | Remote | Remote | Remote |
| Marcelo | d'Agostino | World Health Organization | Switzerland | Remote |  |  |
| Marcos | Lacayo | Estacion Vital | Nicaragua | X | X | X |
| Maria | Almiron | PAHO | Brazil | X |  |  |
| Maria Claudia | Castro | MCTIC | Brazil | X |  |  |
| Maria Claudia | Ferrari de Castro | Ministry of Science, Technology, Innovation and Communications (MCTIC) | Brazil | X |  |  |
| Maria Fernanda | Gonzalez Alvarez | 1DOC3 | Mexico | Remote | Remote | Remote |
| Marilia | Barandas | Fraunhofer Portugal | Portugal | X | X | X |
| Mario | Barbe Abrigo | Clínica Alemana de Santiago | Chile | X | X | X |
| Martina | Fischer | Ada Health GmbH | Germany | X | X | X |
| Mauricio | Farez | Entelai | Argentina | X |  |  |
| Mauricio | Novelo | CREN | Brazil | X | X | X |
| Maximiliano | Martinhao | MCTIC | Brazil | X |  |  |
| Mazharul | Islam | United Nations Institute for Training and Research | Switzerland | Remote |  |  |
| Milan | Didara | Eniax | Chile | X | X | X |
| Mohd Helmi bin | Zakariah | Aime Healthcare | Malaysia | X | X | X |
| Monique | Kuglitsch | Fraunhofer HHI | Germany | X | X | X |
| Naomi | Lee | The Lancet | UK |  |  | Remote |
| Nevena | Didara | Eniax | Chile | X |  |  |
| Nicolas | Langer | University of Zurich | Switzerland |  |  | Remote |
| Nicolás | Durán | 1DOC3 | Colombia | Remote |  |  |
| Odnaime | Sousa | Health Ministry | Brazil | X |  |  |
| Pat | Baird | Philips | USA | Remote |  |  |
| Patrick Newton | Bondo | Outreach Social Care Project (OSCAR) | South Africa | X | X | X |
| Pierpaolo | Palumbo | University of Bologna | Italy | Remote | Remote |  |
| Pradeep | Balachandran | Consultant | India | Remote | Remote | Remote |
| Prata | Lucas | Health Ministry | Brazil | X | X |  |
| Rachel | Lowe | London School of Hygiene and Tropical Medicine | UK | Remote |  |  |
| Ricardo | Vianna | Health Ministry | Brazil | X | X |  |
| Rose | Nakasi | Makerere University | Uganda | X | X | X |
| Sandro | Dolghi | Brazilian Health Regulatory Agency (ANVISA) | Brazil | X | X |  |
| Santoyo | Renata | Telecommunications National Agency (ANATEL) | Brazil | X |  |  |
| Saul | Calderon Ramirez | Instituto Tecnológico de Costa Rica | Costa Rica | X |  |  |
| Selma | Sollero | Health Ministry | Brazil | X |  |  |
| Sendy | Rojas Silva | Universidad Enrique Guzman y Valle | Peru | X | X |  |
| Shan | Xu | Ministry of Industry and Information Technology (MIIT) | China | Remote | Remote |  |
| Simão Ferraz | de Campos Neto | International Telecommunication Union (ITU) | – | X | X | X |
| Stephane | Ghozzi | Robert Koch Institute | Germany |  | Remote | Remote |
| Thiago | Rocha | PAHO | Brazil | X | X | X |
| Tiago | Segato | Telecommunications Research and Development Center (CPqD) | Brazil | X | X | X |
| Vasili | Sofiadellis | Visions 2 Ventures | South Africa |  |  | Remote |
| Wiegand | Thomas | Fraunhofer HHI | Germany | X | X | X |
| Zdenek | Gütter | Ministry of Industry and Trade | Czech Republic |  | Remote |  |

Annex D
Summary of FG-AI4H resources and electronic working methods

Working groups

| Working Group | Leadership |
| --- | --- |
| Data and AI solution assessment methods (WG-DAISAM) | Chair: Pat Baird (Philips)Vice-chair: Luis Oala (Fraunhofer HHI, DE) |
| Data and AI solution handling (WG-DASH) | Chair: Marc Lecoultre (Business Investigation, CH)Vice chair: Ferhat Kerif (CHUV, CH) |
| Operations (WG-O) | Co-chairs: Markus Wenzel and Monique Kuglitsch (Fraunhofer HHI, Germany) |
| Regulatory considerations on AI for health (WG-RC) | Chair: Naomi Lee (The Lancet, UK)Vice-chairs:* Paolo Alcini (European Medicines Agency, EU)
* Chandrashekar Ranga (CDSCO, India)
* Khair ElZarrad (FDA, USA)
* Wolfgang Lauer (Federal Institute for Drugs and Medical Devices, Germany)
* Peng Liang (National Medical Products Administration, China)
 |
| Ethical considerations on AI for health (WG-RC) | Chair: Andreas Reis (WHO) |

Topic Groups

| Topic group | Acronym | Leader | References | Created |
| --- | --- | --- | --- | --- |
| 1. Cardiovascular disease management
 | TG-Cardio | Benjamin Muthambi (Watif Health, South Africa) | [G-006](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-006.docx) (general); [H-006-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-006-A01.docx) (risk prediction) | C |
| 1. Dermatology
 | TG-Derma | Maria Vasconcelos (Fraunhofer Portugal) | [H-007-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-007-A01.docx) | B |
| 1. Diagnosis of bacterial infection and anti-microbial resistance
 | TG-Bacteria | Nada Malou (MSF, France) | Proposal: [F-033](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-F-033.docx) (MSF, France) | F |
| 1. Falls among the elderly
 | TG-Falls | Inês Sousa (Fraunhofer Portugal) | [H-012-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-012-A01.docx) | B |
| 1. Histopathology
 | TG-Histo | Frederick Klauschen (Charité Berlin, Germany) | [H-013-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-013-A01.docx)\* | B |
| 1. Malaria detection
 | TG-Malaria | Rose Nakasi (Makerere University, Uganda) | [H-014-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-014-A01.docx) | F |
| 1. Maternal and child health
 | TG-MCH | Raghu Dharmaraju (Wadhwani AI, India) and Alexandre Chiavegatto Filho (University of São Paulo, Brazil) | [H-015-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-015-A01.docx) Earlier refs: [FGAI4H-D-013](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-D-013.docx) (Yutu Healthcare, China); [WS presentation](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/ai4h/201911/Documents/S5_Raghu_Dharmaraju_Presentation.pdf) (Raghu Dharmaraju), New Delhi | D; G |
| 1. Neurological disorders
 | TG-Neuro | Marc Lecoultre (Business Investigation, Switzerland) | [H-016-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-016-A01.docx)\* | B |
| 1. Ophthalmology
 | TG-Ophthalmo | Arun Shroff (MedIndia) | [H-017-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-017-A01.docx) | B |
| 1. Outbreak detection
 | TG-Outbreaks | Stéphane Ghozzi (Robert Koch Institute, Germany) | [H-018-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-018-A01.docx) | E |
| 1. Psychiatry
 | TG-Psy | Nicolas Langer (ETH Zurich, Switzerland) | [H-019-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-019-A01.docx) | C |
| 1. Radiology
 | TG-Radiology | Darlington Ahiale Akogo (minoHealth AI Labs, Ghana) | Proposal: [H-029](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-029.docx) (minoHealth AI Labs, Ghana). Initial CfTGP:  | D; H |
| 1. Snakebite and snake identification
 | TG-Snake | Rafael Ruiz de Castaneda (UniGE, Switzerland) | [H-020-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-020-A01.docx)\* | B |
| 1. Symptom assessment
 | TG-Symptom | Henry Hoffmann (Ada Health, Germany) | [H-021-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-021-A01.docx) | B |
| 1. Tuberculosis
 | TG-TB | Manjula Singh (ICMR, India) | [H-022-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-022-A01.docx)\* | C |
| 1. Volumetric chest CT
 | TG-DiagnosticCT | Kuan Chen (Infervision, China) | [H-009-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-009-A01.docx)\* | D |
| 1. Dental diagnostics and digital dentistry
 | TG-Dental | Falk Schwendicke and Joachim Krois (Charité Berlin, Germany) | [H-010-A1](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-010-A01.docx) | G |
| 1. Falsified Medicine
 | TG-FakeMed | Franck Verzefé (TrueSpec-Africa, DRC) | [H-011-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-011-A01.docx)\* | G |
| 1. Primary and secondary diabetes prediction
 | TG-Diabetes | Andrés Valdivieso (Anastasia.ai, Chile) | Proposal: [H-028](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-028.docx), (Anastasia.ai & Tecnigen, Chile) | H |

Mailing lists

| Description | Mailing list | Archive |
| --- | --- | --- |
| General mailing list | fgai4h@lists.itu.int | <https://itu.int/ml/lists/arc/fgai4h> |
| TG-Ophtalmo | fgai4htgophthalmo@lists.itu.int | <https://itu.int/ml/lists/arc/fgai4htgophthalmo> |
| TG-Outbreaks | fgai4htgoutbreaks@lists.itu.int | <https://itu.int/ml/lists/arc/fgai4htgoutbreaks> |
| TG-Symptoms | fgai4htgsymptom@lists.itu.int | <https://itu.int/ml/lists/arc/fgai4htgsymptom> |
| TG-Cardio, specific discussions for sub-topic on clinical predictions | fgai4htgcardiocp@lists.itu.int | <https://itu.int/ml/lists/arc/fgai4htgcardiocp> |
| TG-Cardio, specific discussions for sub-topic on cardiac image analyses | fgai4htgcardiocia@lists.itu.int | <https://itu.int/ml/lists/arc/fgai4htgcardiocia> |

Working methods (Ref: [E-101](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-E-101.docx), report of Meeting E)

Decision making by correspondence

Decisions should preferably be taken in physical meetings of the FG. However, in order to allow the FG to work more efficiently, an online decision-making process would be useful.

The FG agreed to an online approval process for taking decisions (e.g. appointments and documentation). The initial procedure is as follows:

* Decisions are taken by consensus. (Note: consensus is declared by the chairman and it does *not* imply unanimity.)
* The general FG mailing list (fgai4h@lists.itu.int) is used to announce the decision being taken, provide links to relevant documents.
* Specify a commenting period, typically two weeks, for receiving comments with concerns. These comments should be addressed by email to the secretariat, tsbfgai4h@itu.int. Absence of comments imply agreement to the proposed decision.
* If comments are received, they are discussed and resolved by the FG management in coordination with the commenters.
* If the amendment is minor, the chairman declares approval
* If the amendment is substantive, another consultation is started, or decision is postponed till the next meeting of the FG

Organizing interim electronic meetings

The following procedure is to be applied for organizing interim meetings of the FG and its WGs:

* **Announcement** in the general FG email reflector (fgai4h@lists.itu.int) for date/time and objectives **two weeks prior**
* **Documents** uploaded to the appropriate repository

Annex E
Summary of decisions

This is a summary of the decisions taken at Meeting H (Brasilia, 22-24 January 2020):

[Dec-H-1. TG Drivers are asked to read the IPR call as found in H-001-R04 Annex A and collect any declarations of made in return to the IPR question in their meeting minutes.](#_Toc32414018)

[Dec-H-2. Monique Kuglitsch and Markus Wenzel (Fraunhofer HHI, Germany) are the co-chairs of the WG-Operations.](#_Toc32414019)

[Dec-H-3. The report of the New Delhi meeting in G-101 was approved without comments and its three output documents were noted (G-102, G-107 and G-200-R2).](#_Toc32414020)

[Dec-H-4. Agreed to prepared replies to the LSs received from SG13 and JTC1 SC42, as found in H-040 and H-037 (plus A01), respectively.](#_Toc32414021)

[Dec-H-5. Experts willing to collaborate in the preparation of the various deliverables are invited to add their names to the list at: https://docs.google.com/spreadsheets/d/1ilGtBjH31-8AQX-p\_zZdnpKWywtffazjCYgpb8Xfl1A/edit?usp=sharing.](#_Toc32414022)

[Dec-H-6. The editors of the initial deliverable drafts (Table 1 of the report or H-200) to submit update by 5 March 2020 to Eva Weicken (Eva.Weicken@hhi.fraunhofer.de), CC the secretariat (tsbfgai4h@itu.int).](#_Toc32414023)

[Dec-H-7. FG-AI4H management to review the list of initial draft editors and identify replacements, if needed.](#_Toc32414024)

[Dec-H-8. A high-level overview document (around 5-pages) on Regulatory considerations on the implementation/development of AI software as a Medical Device will be prepared for discussion in the joint meeting with IMDRF (planned in March 2020) and be issued as document H-202. Pradeep Balachandran (India) and Christian Johner (Johner Institut, Germany) will be the editors, volunteers are welcome to aid in its preparation. The remaining documents on regulatory considerations including the mapping of Essential Principles to AI aspects and the long version of the Regulatory considerations on the implementation/development of AI software as a Medical Device will become annexes of H-202.](#_Toc32414025)

[Dec-H-9. In order to facility the global dialogue on AI for health, the meeting agreed to pursue the development of a data annotation platform under the WG-DAISAM, with Saul Calderon Ramirez (Costa Rica Institute of Technology/De Montfort University) and Henry Hoffmann (Ada Health, Germany) leading the effort.](#_Toc32414026)

[Dec-H-10. The FG-AI4H asked ITU to look into the resources need to implement the new design for the FG-AI4H website.](#_Toc32414027)

[Dec-H-11. Established the WG on ethical considerations on AI for health (WG-Ethics) with the ToR in H-039-R01 and Andreas Reis (WHO) as chairman.](#_Toc32414028)

[Dec-H-12. It was agreed to remind TG Drivers that an update of their activities is expected at each FG meeting.](#_Toc32414029)

[Dec-H-13. TG Drivers are requested to work with sub-topic drivers for creating the missing content and report back at the next FG meeting (Meeting I).](#_Toc32414030)

[Dec-H-14. Create two mailing lists for the TG-Cardio, one for the sub-TG on clinical predictions and one for the sub-TG on cardiac image analyses](#_Toc32414031)

[Dec-H-15. Rename TG-Cardio as "Use of AI in cardiovascular disease management".](#_Toc32414032)

[Dec-H-16. Joachim Krois and Eva Weicken to work together to improve the onboarding document (G-107) and other related materials based on the recent experience of the topic drivers in establishing the TG Dental working methods and documentation.](#_Toc32414033)

[Dec-H-17. Creation of a sub-TG on Malaria surveillance and detection within the TG-Malaria, coordinated by Helmi Zakariah (AIME, Malaysia). Work will be coordinated with relevant activities within TG-Outbreaks.](#_Toc32414034)

[Dec-H-18. TG-MCH (Maternal and child health) continues with Raghu Dharmaraju (Wadhwani AI, India) and Alexandre Chiavegatto Filho (University of São Paulo, Brazil) as co-topic drivers](#_Toc32414035)

[Dec-H-19. TG-Radiotherapy is re-scoped according to the proposal in H-029, with Darlington Ahiale Akogo (minoHealth AI Labs, Ghana) as the topic driver. Accordingly, the topic is renamed as AI for radiology (TG-Radiology).](#_Toc32414036)

[Dec-H-20. Agreed to create a new Topic Group on primary and secondary diabetes prediction (TG-Diabetes), with Andrés Valdivieso (Anastasia.ai, Chile) as Topic Driver.](#_Toc32414037)

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