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| **Abstract:** | This document contains the report of the 11th meeting of the ITU-T Focus Group on Artificial Intelligence for Health (FG-AI4H), held as an E-meeting, 27-29 January 2021. |

Executive summary

The 11th meeting of the FG-AI4H took place online, 27-29 January 2021 to review updates to its 24 deliverables and sub-deliverables, and review progress by the existing 21 topic groups.

The following updates in leadership of FG-AI4H working groups were endorsed:

* WG-RC: Michael Berensmann and Robin Seidel replace Wolfgang Lauer Wolfgang.Lauer@bfarm.de (Federal Institute for Drugs and Medical Devices, Germany); and Liang Hong replaces Peng Liang (National Medical Products Administration, China) as WG-RC vice-chairs
* WG-O: Eva Weicken replaces Monique Kuglitsch as WG co-chair

Topic group updates:

* No new TGs were created at this meeting
* Weihong Huang (Xiangya Hospital Central South University, China) replaces Maria Vasconcelos (Fraunhofer Portugal) as TG-Derma topic driver
* Pierpaolo Palumbo (University of Bologna, Italy) steps in as interim TG-Falls driver until Sept 2021, for Inês Sousa (Fraunhofer Portugal)

Deliverables update:

* No new deliverables were agreed at this meeting. Future deliverables under consideration are:
* Open Code Initiative reference software implementation (Editor: Marc Lecoultre, MLlab.AI, Switzerland)
* Guidance on digital technologies for COVID health emergency (Co-editors: Shan Xu, CAICT, China; Ana Riviere-Cinnamond, PAHO)
* Risk management in AI for health (Editor: Pat Baird, Philips, USA)
* All available deliverables were reviewed, their latest version is found in the [FG-AI4H collaboration site](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/SitePages/Deliverables.aspx).

No new output documents were agreed. The following updated output documents were agreed:

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

The following documents were reconfirmed:

* [F-103](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-F-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
* [K-107](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-107.docx): FG-AI4H Onboarding document
* [FG-AI4H Whitepaper](https://www.itu.int/en/ITU-T/focusgroups/ai4h/Documents/FG-AI4H_Whitepaper.pdf) ([K-002](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-002.docx))
* [J-105](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-105.docx): TDD Template
* [J-103](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-105.docx): CfTGP template

The meeting had 140 participants over the various days and reviewed 54 documents (not counting attachments). There were no outgoing LSs prepared.

A list of the five decisions taken at the meeting is found in [Annex F](#AnnexF) of the report.

The next meeting of the FG-AI4H will be in held virtually, probably May 2021, dates TBD to be communicated in the FG-AI4H webpage and mailing list.

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# Opening

The meeting was opened by the FG-AI4H chairman, Mr Thomas Wiegand (Fraunhofer HHI, Germany), who welcomed the participants. He presented an overview of the FG-AI4H work, as found in [K-002](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-002.pptx).

# Approval of agenda

The agenda in [K-001](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-001.docx) (Agenda) was approved. Various updates were issued during the meeting, the final version being found in [K-001-R03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-001-R03.docx) (cf. [Annex A](#AnnexA)).

The time allocation for the presentation of meeting documents was maintained live though the link: <https://docs.google.com/spreadsheets/d/1W3lfoj5kOApD4TezqqUiMTpzyaQgXZdLMINPa4ZqKqE/edit#gid=0>.

# Documentation and allocation

The initial list of documents and allocation in [K-001](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-001.docx) were adopted. The final list is found in [Annex B](#AnnexB).

# IPR

The text in [K-001](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-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.

# Management updates

The following updates in leadership were endorsed by the FG-AI4H meeting:

* WG-RC:
* Vice-chair Wolfgang Lauer Wolfgang.Lauer@bfarm.de (Federal Institute for Drugs and Medical Devices, Germany) replaced by two colleagues – Michael Berensmann and Robin Seidel;
* Vice-chair Peng Liang (National Medical Products Administration, China) replaced by Liang Hong;
* WG-O: Monique Kuglitsch was replaced by Eva Weicken as co-chair;
* TG-Derma: Driver Maria Vasconcelos (Fraunhofer Portugal) replaced by Weihong Huang (Xiangya Hospital Central South University, China);
* TG-Falls: Pierpaolo Palumbo (University of Bologna, Italy) is interim driver for Inês Sousa (Fraunhofer Portugal) until September 2021.

The meeting thanked Wolfgang Lauer, Peng Liang and Maria Vasconcelos for their contribution to the FG-AI4H and wished them the best. The meeting welcomed Michael Berensmann, Liang Hong, Weihong Huang, Robin Seidel, and Eva Weicken in their new roles. The meeting also thanked Pierpaolo Palumbo for agreeing to step in for Inês Sousa, and wished her best of luck in her maternity leave.

# Approval of Meeting J outcomes and updates

The report of virtual Meeting J (online, 30 September – 2 October 2020) in [J-101](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-I-101.docx) was approved without comments.

The following documents from Meeting J were noted by the meeting:

* [J-102](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-102.docx): Updated call for Proposals: use cases, benchmarking, and data
* [J-103](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-105.docx): Updated call for topic group participation (CfTGP) template
* [J-105](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-004.docx): Updated TDD Template
* [J-107](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-107.docx): Updated FG-AI4H onboarding document
* [J-200-R1](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-200-R01.docx): Updated list of FG-AI4H deliverables

No comments were made at the opening; possibility left for comments until the end of the meeting. None were made.

1. The report of the virtual meeting held 30 September – 2 October 2020 found in [J-101](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-101.docx) was approved without comments and its five output documents were noted ([J-102](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-102.docx), [J-103](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-105.docx), [J-105](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-004.docx), [J-107](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-107.docx), and [J-200-R1](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-200-R01.docx)).

# Review of incoming liaison statements

## ITU-T SG20

[FGAI4H-K-031](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-031.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-031-A01.docx) – LS on Recommendation ITU-T Y.4908 (ex Y.IoT-EH-PFE) "Performance evaluation frameworks of e-health systems in the IoT" [ITU-T SG20]

**Abstract:** This liaison informs ITU-T SG16 and FG-AI4H that Recommendation ITU-T Y.4908 (ex Y.IoT-EH-PFE) "Performance evaluation frameworks of e-health systems in the IoT" was approved. A01 contains Determined draft Recommendation ITU-T Y.4908 (ex. Y.IoT-EH-PFE) "Performance evaluation frameworks of e-health systems in the IoT".

The Recommendation has already been approved and is in the process of being published.

## ITU-T FG-AI4AD

[FGAI4H-K-030](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-030.docx%22%20%5Ct%20%22_blank) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-030-A01.docx) – LS on invitation to review Artificial Intelligence Standardization Roadmap and provide missing or updated information (reply to SG13-LS174) [FG-AI4AD to ITU-T SG13]

**Abstract:** This liaison statement informs ITU-T SG13 on the work being carried on FG-AI4AD. A01 contains an updated list of initial deliverables to be developed by FG-AI4AD, as agreed during its third meeting (e-meeting, 16-17 September 2020).

This is a reply to a LS that the FG-AI4H considered at the previous meeting. The LS was noted.

# Information on AI-related activities

The meeting was reminded that WG-CE (§‎10.6) and WG-RC (§‎10.5) held workshops in the interim period and that reports would be made in the respective WG reports.

[FGAI4H-K-044](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-044.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-044-A01.pdf): ITU AI/ML in 5G Challenge review and learnings for FG-AI4H [ITU TSB]

**Abstract:** This document discusses the ITU AI/ML in 5G Challenge, the aims, challenges, and achievements during the 2020 edition. Furthermore, we discuss the learnings from the success of the ITU AI/ML in 5G Challenge and how AI4H could step on those success and collaborate with ML5G Challenge. Advantages to the FG-AI4H community to host a Challenge is also is discussed.

Reinhard Scholl presented an overview of the recent ITU AI/ML in 5G Challenge, as seen in [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-044-A01.pdf).

Over 1300 participants from 82 countries participated in the ITU AI/ML in 5G Challenge Out of 33 finalists, final winners were selected in the final episode of the Grand Challenge Finale on 17 December 2020 which was viewed live by close to 4000 viewers. Sponsors provided funding and infrastructure for the challenge. The Challenge was accompanied by closed to 30 webinars from June to December 2020, with 1h for each speaker, which allowed creation of a large network of experts. A special issue of the ITU News (91 pages), on the Challenge was issued in December 2020 and translated into Arabic, Chinese, French, Russian and Spanish. and a special issue of the peer-reviewed ITU Journal on Future and Evolving Technologies will feature original research associated with the Challenge. The 2021 edition of the Challenge will make a "sandbox" available to host data, simulators, ML tools and compute resources.

Some points made during the discussion:

The challenge matches well with the work in the open code initiative, but maybe 2021 is too soon as it requires a lot of preparation. Maybe it would be viable for some of the TGs, e.g., TG-Malaria.

How was the challenge phrased? Solve a problem, or have a performance for a specific baseline? It depended on the problem statements.

It would be good to find out how to connect interfaces, etc. between the challenge sandbox, so the FG-AI4H open code initiative could use it.

There is a team in WHO under the Digital Health department that is promoting challenges, so WHO is open to considering a joint challenge.

The motivation for people to participate in the challenge needs to be clear. Money, a bit, but the network was interesting, especially for students to have exposure. The topic is also intellectually challenging, in particular for management of new networks.

Content? WHO has three areas agreed by countries.

It was suggested to form a challenge structured around a TG. It could also be topics not yet covered by FG-AI4H, the challenge could be a seed to start new groups.

Is there interest from FG-AI4H TGs?

TG-Malaria has already built something customized. To team up here, it would be best to use the platform already put in place instead of ITU's and then use the logistic of ITU to run the challenge.

It seems challenges make sense for new topics, to attract experts for that field, especially for small, niche areas. The goal is not to identify winning solutions, but rather to identify new resources.

Should the challenges include or be about how they use the FG Deliverables? Not necessarily, too high a bar for outsiders at this stage. Could look for something that we do not have and then use the FG experts to build on identified solutions to add our own methodology (quality, risk, etc). The challenge should be just about the AI and then the FG would need to support with the formal side e.g., for the best ones.

The challenge should be easy to participate, and FG could provide value-added elements, some of which could be automated. Provide a feedback loop to developers. Keep the entry bar low. There could be different level of feedback to developers.

The following metaphor was suggested: the challenge provides the raw material; FGAI4H can provide tools to help refine this raw material into a final product. Think of mining gold, you start by digging up rocks from the earth, and then you give that raw material to other people that process it and creates gold bars.

Foster academic activities, but get them onboard and help the development of solid medical-grade solutions. How to structure this? A WG on challenges? Coordinated with the Open Code Initiative?

Challenges can be an opportunity for further promote the Open Code Initiative.

Currently, Open Code Initiative's top priority is to set up the EvalAI in 3 months. The annotation tool is more challenging, as they did not start working on it yet. A key reason is that although we have DEL5.3, more input is needed from TGs about their annotation needs. Currently collecting requirements. Serge Rovenne (Germany) has some annotated data and will provide to the annotation subgroup.

It was suggested to use challenges to help speed up the development of the annotation tool. Another approach would be to include students as auditors and find weaknesses in tools.

After these rich discussions, it is clear that more thought is needed into how to best make use of challenges to speed up progress of work in the FG-AI4H. It was agreed to follow up on challenges topic and will form a team including the open code initiative leader, to investigate strategies to use them to foster the FG-AI4H work.

1. An ad hoc group with members of the FG-AI4H management and the leaders of the various streams in the FG-AI4H Open Code Initiative (FOCI) will follow up on challenges topic and will form a team including the open code initiative leader, to investigate strategies to use them to foster the FG-AI4H work.

# Horizontal and strategic topics

[K-032](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-032.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-032-A01.pptx): Trust between AI and Human Being in the Pharmaceutical Business Context of Oncology and AI-supported Customer Relationship Management Solutions [Goethe Business School, Goethe University Frankfurt]

**Abstract:** This document presents selected main factors impacting trust between Human Being and Artificial Intelligence. Foundations of this research are trust building, trust maintenance and relevant factors in human relationships. Subsequently, the new relationship and relevant factors for trust building between human and AI are pointed out. In the master thesis the role of anthropomorphism and appearance of AI is explained and how AI on the one side avoids and on the other side induces bias. In the work two projects from the pharmaceutical industry are referenced, where AI provides suggestions on next best actions to the human users based on a machine learning prioritization approach. As findings, relevant trust factors and their transferability from human-human to human-AI relationships are specified, based on scientific prevalence and interviews which have been conducted with healthcare sales representatives (sales reps) and sales managers for a better understanding of the future user needs. Key findings are that performance factors of AI have the highest impact on trust. In conclusion, factors like a shared mental model to allow a common understanding of the AI capabilities, data accuracy, user experience specific trainings and a clear communication of the purpose are some of the most important factors for sales reps working with AI. The master thesis closes with a developed implementation proposal to establish trust in AI-based applications for future projects.

Manuel Bierwirth (Merck, Germany) introduced the document using the slides in [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-032-A01.pptx).

AI becomes part of the workflows in companies, so trust in AI-based applications is needed.

This is true also for the pharmaceutical sector. Drivers: cost drivers, COVID logistics, etc. The Master thesis explored the factors that influence trust between AI and human beings. In human-human trust, margin for error is allowed (e.g., manager and employee relationship). Trust is task-dependent.

There may be synergy of this work in various work streams of the FG-AI4h, e.g. work stream in DAISAM, Jana, Ethics, Regulatory Considerations. Manuel will contact the various activity leaders for further interactions.

[K-046](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-046.pdf) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-046-A01.pdf): Using artificial intelligence in nursing: Priorities, opportunities, and recommendations from an international invitational think-tank of the Nursing and Artificial Intelligence Leadership (NAIL) Collaborative [NAIL Collaborative, Canada]

**Abstract:** AI technologies in the hands of nurses, the largest healthcare profession in the world, has the potential to significantly shape the success or failure of AI technologies in health systems. Despite this central role, the voice of nursing remains largely absent in the discourse of AI use in health systems. Recognizing this lack of representation, we established the Nursing and Artificial Intelligence Leadership (NAIL) Collaborative. The NAIL Collaborative comprises experts in AI development and implementation, biomedical ethics, AI in primary care, AI legal aspects, philosophy of AI in health, nursing practice, implementation science, high-level leaders in health informatics practice, leads of international health informatics groups, a representative of patients and the public, and the Chair of the ITU/WHO Focus Group on Artificial Intelligence for Health. In an international invitational think-tank hosted by Fondation Brocher held in October 2019, the interdisciplinary members of the NAIL Collaborative convened to engage with pressing discourses, challenges, and opportunities in nursing and AI. Presented in this discussion paper is a summary of the central points of discussion from the think-tank, highlighting current gaps in the understanding and use of AI in nursing as well as opportunities and recommendations to address these identified gaps.

Charlene Ronquillo Ryerson (NAIL Collaborative, Canada) presented the document on behalf of the NAIL Collaborative, which contains a collection of lessons learned from a recent workshop. Noting that there is not much discussion or awareness AI within the nursing environment.

Three priorities are identified and actionable suggestions are made on these various dimensions.

1. Nurses must understand the relationship between data they collect and AI tech that will use it.
2. Nurses must be involved in all stages of AI, from development to implementation
3. AI for good nursing: AI must be used to help nurses be better at what they do.

The presentation was very relevant to the work of the FG-AI4H. It is noted that user-centred input should be considered in the work.

It was noted that the AI4H events are a good platform to promote awareness and further discussions on this topic. The AI4H team will be in contact with Charlene and identify joint work opportunities.

# Working Group updates

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

The WG is chaired by Pat Baird (Philips, USA), assisted by vice-chair, Luis Oala (Fraunhofer HHI, Germany).

There were two documents concerning DAISAM.

[K-054](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-054.pptx): DAISAM status update [WG-DAISAM]

**Abstract:** The slides provide a status update for the current DAISAM work streams, which are currently being driven by the work in DEL7.3.

Alixandro Werneck presented progress in DAISAM described in [K-054](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-054.pptx).

There are five active plus one planed work streams, with various regular meetings:

* WS-1: Measures & Metrics: Fridays, 14:00 Geneva time (Contact Luis and Pat)
* WS-2: Assessment Platform
* Evaluation Package (Contact Elora and Alixandro)
* Reporting Package (Contact: Pradeep and Alixandro)
* WS-3: Good Practices in Machine Learning: Tuesdays, 14.00 Geneva time (Contact Pradeep)
* WS-4: Perturbed minds: Fridays, 13:00 Geneva time (Contact Luis and Bruno)
* WS-5 Transparent model reporting: Thursdays, 16:00 Geneva time (Contact Jana)
* WS-6: "aiaudit.org" web resource (Contact Luis and Pat)

The results from the work streams are coordinated with the Open Code Initiative (§‎11; in particular for WS‑2), and DEL7.3 (§‎12.11.3).

[K-036-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-036-R01.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-036-A01.pptx) (Slides) + [A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-036-A02.pdf) (Flier): Call for participation: Transparent model reporting for trustworthy Machine Learning for Health applications [WG-DAISAM]

**Abstract:** Transparent model reporting has been suggested as an important checkpoint for regulatory approval for healthcare products using machine learning (ML). We aim to investigate to which extent transparent reporting has been adapted in practice and how much information can be shared without violating data protection or business secrets. The ITU/WHO Focus Group on "Artificial Intelligence for Health" invites participants from companies and academia who developed a ML-based algorithm for a healthcare application to report about their use-case in a questionnaire. The questionnaire follows current considerations for model reporting and elicits required information to assess the quality of the product. In return, we will provide a feedback report and select 5 use-cases for an individual consultation session about the assessed model quality and reporting practices. We will summarize the current state of model reporting practices and highlight adaptation challenges. With our findings, we aim to help 1) Product owners to adapt to regulatory requirements and 2) regulatory institutions to assess the feasibility of fulfilling the stated requirements.

Jana Fehr (HPI, Germany) presented the concept in the paper. Transparency relates to topics such as: what environments things work, are algorithms fair, etc. Model reporting is an important tool to get comparable and relevant information on how models were trained. Questionnaire just launched, following a preliminary one that came out from the Berlin Workshop.

The FG-AI4H is supportive of the activities and encouraged the team to continue work and bringing updates at the next FG-AI4H meeting.

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

WG-DASH has Marc Lecoultre (ML Lab, CH) and chair and Ferath Kherif (CHUV, CH) as Vice-chair.

No particular reports were provided specifically for WG-DASH. All the focus of the work has been in the Open Code Initiative.

## Operations (WG-O)

The WG on operations (WG-O) is co-chaired by Markus Wenzel and Eva Weicken (Fraunhofer HHI, Germany).

There was not specific report at this meeting. Attention is drawn to the deliverable peer review process discussion in §‎12.1

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

The chair of the FG-AI4H WG-Ethics, Andreas Reis (WHO), presented a progress report in [K-028-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-028-A01.pptx) concerning the ethics work in WHO and the relationships with the FG-AI4H interests.

Note the discussion on the *WHO Guidelines on Ethics and governance of artificial intelligence for health* ([K-028](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-028.docx)) in §‎12.5. Andreas also mentioned that activities of the WHO ethics experts group will concentrate next on ethics aspects for COVID-19 contact tracing and the digital vaccination certificates.

One contribution was submitted at the previous meeting and re-considered here.

[K-027](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-027.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-027-A01.pdf) – Translating Principles into Practices: Responsible Innovation and AI Taskforce at the University of Montreal Academic Health Center (CHUM) [Centre hospitalier de l'Université de Montréal (CHUM)]

**Summary:** Much of the debate on AI ethics in healthcare has focused on the what rather than the how. Key principles (e.g. benevolence, equity, explicability) have been put forward to guide the responsible development and deployment of AI applications in healthcare. However, there is still a lack of actionable methods and tools to help AI developers and implementors embed these principles in current practices. The University of Montreal Hospital Center (CHUM) has launched a multi-stakeholder task force to produce knowledge, tools and methods to enhance the governability of AI systems in real-life care settings.

Malas Kathy (CEO, …) presented the document. Describes how to structure activities in different fields and departments in their institution that use AI in their methodologies across their innovation cycle. This includes, tools, approaches, workflows, criteria. Developing a checklist for innovators covering ethics, and also responsibilities. E.g. how to be inclusive and ethical.

Andreas: interest in the checklists. For whom? For innovators, currently, although in the future it could be expanded.

Manuel Bierwirth: Can the checklists also be understood as implementation proposal for AI designers? Yes, that is one of the purposes.

The chairs of WG-Ethics (Andreas Reis) and WG-CE (Upadhyay Shubhanan, Eva Weicken and Naomi Lee) will be in contact with the authors to further collaboration and consideration of relevant aspects in the work of the FG-AI4H.

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

The chair of the WG-RC, Naomi Lee (Lancet, UK).

No specific report was made for the WG-RC, as the focus of the work has been in the preparation of DEL2. See §‎12.6.

## Clinical Evaluation (WG-CE)

The co-chairs of the WG-CE are Naomi Lee (The Lancet, UK), Shubhanan Upadhyay (ADA Health, Germany), and Eva Weicken (Fraunhofer HHI, Germany).

No specific report was made for the WG-CE, as the focus of the work has been in the preparation of DEL7.4. See §‎12.11.4.

## Ad-hoc group on digital technologies for COVID health emergency (AHG-DT4HE)

The co‑chairs of the FG-AI4H ad hoc group on AHG on digital technologies for COVID health emergency (AHG-DT4HE) are Shan Xu (CAICT, China) and Ana Rivière-Cinnamond (PAHO/WHO).

[K-042](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-042.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-042-A01.pptx):Updated FG AI4H DT4HE Output 1 "Guidance on AI and digital technologies for COVID health emergency" (27-29 January 2021) [Editors]

**Abstract:** This document is an updated draft of a new Deliverable [12] produced by the AHG-DT4HE. This document is an updated version AHG-DT4HE Output 1 (2020-11-30). One of the possibilities for publication of the final version of this document is as a deliverable of the FG-AI4H, provisionally labelled DEL[12]. This document describes the diverse nature of addressing a pandemic such as COVID-19 and proposes to set up a guidance on how to leverage artificial intelligence (AI) and other digital technologies to combat COVID-19 and other health emergencies. This document proposes a framework for AI and digital interventions targeted towards public health emergency. It aims at identifying best practices and use cases on AI and other digital technologies to combat COVID-19. The use cases were collected and classified following the emergency life cycle stages framework. It also discusses the technical feasibility, digital governance, and performance evaluation on digital response to COVID-19 and other health emergencies. The document is developed under the ad-hoc working group on digital technologies on COVID health emergency. It can act as a response from FG-AI4H on many global calls for action to leverage AI and other digital technologies in combating COVID-19, to provide experience sharing and collaboration mechanisms for various stakeholders to build global dialogues and cooperation on digital projects on general health emergencies.

Ana presented the slides in [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-042-A01.pptx). With the progress on the activities of the group. The group issued a first output document, "[Output 1](https://www.itu.int/en/ITU-T/focusgroups/ai4h/Documents/FGAI4H-DT4HE-O-001.pdf): Guidance on digital technologies for COVID health emergency". [K-042](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-042.docx) contains an updated version of Output 1, focusing on case collection; a questionnaire was added to the deliverables. She described the recent developments in the group, and information how to join the activities. Regular calls are held on Mondays of every-other week.

If interested in contributing, experts are invited to contact the co-chairs and visit the groups home page at <https://www.itu.int/en/ITU-T/focusgroups/ai4h/Pages/dt4he.aspx>.

The meeting commended the results so far and asked the group to keep up the good work and consider sharing their outputs to International Association of National Public Health Institutes (IANPHI).

# FG-AI4H Open Code Initiative

The FG-AI4H open code initiative is chaired by Marc Lecoultre (ML Lab, CH).

[K-043](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-043.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-043-A01.pptx): Open Code Project Status Update [Chair]

**Abstract:** This Open Code Project aims to produce the digital building blocks (six software packages) that compose the FG-AI4H Assessment Platform. The assessment platform, which can be distinguished from AI "challenge" platforms through its consideration of regulatory guidelines and the needs of other AI for health stakeholders, supports the end-to-end assessment of AI for health algorithms.

Marc Lecoultre introduced the slides in [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-043-A01.pptx). Software and documentation to all aspects of the assessment of AI for health algorithms on a global level. Presentation continued by Shobha Iyer (Core package), Shruti Choudhary (Metadata management as example of features that need to be implemented),

A concept / prototype implementation is available, demonstrated during the meeting. Demo today for diabetic retinopathy (TG-Ophtahalmo). Many participants from five continents with a broad variety of backgrounds. Beyond the demo today, Figma for wireframe, Miro for collab diagrams, azure dev-ops site to track process. Call for more participants in the various tasks; links provided in presentation:

* Requirement document: [https://docs.google.com/document/d/1eksm8dm7MYuNjtThRp-zmwlxvFXUrjSjDnkpuMwZNJ4/edit#heading=h.z6ne0og04bp5](https://docs.google.com/document/d/1eksm8dm7MYuNjtThRp-zmwlxvFXUrjSjDnkpuMwZNJ4/edit)
* Azure DevOps: <https://dev.azure.com/mllabai/FG-AI4H%20Assessment%20Platform>
* Slack: assessmentpla-m174974.slack.com
* Contact: Mark Lecountre

Different streams:

* Core package – deliver common services to all platforms: Authentication and authorization to access resources, storage. FHIR used in the implementation to facilitate secure patient data transfer. Next steps: e-mail service; uniformize SSO usage. Demo: Dominic Schneider.
* DAS package – Joachim Krois presented. High quality data for downstream usage. Data acquisition (ingestion, metadata entrance, etc), storage. Data spec deliverable 5.5 used to guide / streamline the package implementation. Implements in software the prescription in FG-AI4H Del 5.5(?)
* Evaluation package – Elora Schörverth presented. Activity started 2019 with the paper [ML4H Auditing: From Paper to Practice](http://proceedings.mlr.press/v136/oala20a.html), eval and reporting. Compare perf ML algorithms, benchmarks customizable by users, and upload own datasets. The EvalAi open-source platform for the assessment package was used with adaptation of frontend, added (36 question) questionnaire for qualitative eval. Demo version in AWS. Submission of dockerized diabetic retinopathy model.
* Reporting package – Pradeep Balachandran presented. Django framework being used, backend web API to model evaluation result from eval service and a front-end service (rendered to user). Demo shown.
* Data annotation package – Marc presented. No prototype done yet, created functionality matrix, working on diff modalities that can be annotated, came up with an architecture that fit these needs. Symptoms data set is very different from the other groups, many based on images; this brings specific annotation requirements.

Data history – Data modification in dataset, there is an audit implemented.

The importance of versioning of benchmarked solutions and testing environment was stressed. For example, to reproduce the results from a test done five years ago. Dataset needs to be recoverable to rerun a benchmark. This aspect was not yet implemented, but it was recognized that it is an essential aspect that would need to be addressed as the Open Code Initiative develops.

Dominic Schneider showed the demo for core.

The group was extremely pleased with the progress of the FG-AI4H Open Code Initiative and looks forward to the next planned steps and reporting at the next FG-AI4H meeting.

[K-035](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-035.docx) + [A01-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-035-A01-R01.pptx): AI4H Open Code Project - Data Storage Package (DS): AI design's processes and digital data governance by the cover of fundamental rights [FIBREE Foundation]

**Abstract:** This contribution responds the questions in AI4H FG in ITU-WHO OPEN CODE PROJECT regarding to AI Software License and provides a recommendation on how to proceed through the 3-Clause BSD License (Modified BSD License).

The document was noted with thanks as author Andrea Garcia could not present during this meeting.

Marc Lecoultre reported that there was extensive discussion in the Open Code Initiative and the group converged on a modified BSD license for its use, see <https://dev.azure.com/mllabai/FG-AI4H%20Assessment%20Platform/_wiki/wikis/FG-AI4H-Assessment-Platform.wiki/21/Open-Code-Modified-BSD-License> for the license text.

After this introduction, the meeting agreed with the recommendation from the open code initiative participants that the modified BSD license in the link above will be used for the code developed under the FG-AI4H open code initiative. The text of the license is reproduced in [Annex E](#AnnexE) of this report.

1. The FG-AI4H agreed to use the modified BSD license identified in [Annex E](#AnnexE) of FGAI4H-K-101 (this report) for the code developed under the FG-AI4H open code initiative.

# FG-AI4H deliverables

## Process for assessing quality of draft FG-AI4H deliverables

[K-029](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-029.docx): Updated draft description of the peer review process for FG-AI4H deliverables [Editors]

[K-004-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-004-A01.pptx): Presentation slides for K-004 and K-029

**Abstract:** To ensure that the WHO/ITU FG-AI4H deliverables—a key contribution of our activities—achieve the maximum level of quality and offer value for stakeholders, this document contains an updated description of a two-part (internal and external) peer review process. This contains updates to FG-AI4H-J-042, considering the comments at Meeting J and interim ad hoc discussions, and the final version of the TDD deliverable template (J-105) that was approved online on 26 November 2020.

Eva Weicken presented the document using the final slides in [K-004-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-004-A01.pptx) (common slide set for DEL10 in K-004).

The best approach for some points are still unclear, e.g. how to motivate reviewers to review the deliverables and whether we should partner with other journals.

It was agreed that more development was needed on the proposed process, for presentation at the next meeting.

The draft in [K-029](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-029.docx) is noted.

## List of deliverables

[K-005](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-005.docx): Updated list of FG-AI4H deliverables (as of 2021-01-23) [TSB]

Abstract: This document summarizes the current status of the planned deliverables for the ITU-T Focus Group on AI for health (FG-AI4H), based on the output list from the virtual meeting held 30 September – 2 October 2020 and subsequently by the FG-AI4H management, based on feedback from editors. This summary is also available as DEL00S in the FG-AI4H Deliverables page, although it is not itself a deliverable. This document is based on J-200-R01.

The document was noted, and it would be updated after the meeting according to the discussions affecting deliverables as shown in Table 1 hereinafter, also issued as [K-200](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-200.docx) out of this meeting.

The meeting reviewed progress for the various deliverables and highlights are provided in the next sub-sections of this report.

A progress report was presented for the following deliverables, but an updated deliverable document was not provided:

* DEL1
* DEL2
* DEL4
* DEL5, DEL5.4, DEL5.5 (progress report presented, document is stable), DEL5.6
* DEL8 (no initial draft)
* DEL9.1, DEL9.2

No updates were provided during the meeting for the following documents:

* DEL2.1
* DEL5, DEL5.1, DEL5.2
* DEL7.1, 7.2

The latest version of the deliverables can always be found in the FG-AI4H collaboration site at <https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/SitePages/Deliverables.aspx>.

Table 1 – Updated list of deliverables (K-005 plus updates)

| No. | Deliverable | Updated initial draft editor | Availability\* |
| --- | --- | --- | --- |
| 0 | Overview of the FG-AI4H deliverables | Shan Xu (CAICT, China) | [K-047](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-047.docx) |
| 1 | AI4H ethics considerations | Andreas Reis (WHO) | [K-028](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-028.docx)([K-028-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-028-A01.pptx)) |
| 2 | AI4H regulatory best practices | Jackie Ma (Fraunhofer HHI, Germany), Khair ElZarrad & Rose Purcell (FDA, USA) | –([K-049](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-049.pptx)) |
| 2.1 | Mapping of IMDRF essential principles to AI for health software | Luis Oala (Fraunhofer HHI, Germany), Pradeep Balachandran (Technical Consultant eHealth, India), Pat Baird (Philips, USA), Thomas Wiegand (Fraunhofer HHI, Germany) | [G-038](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-038.docx), [G-038-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-038-A01.xlsx) |
| 2.2 | Good practices for health applications of machine learning: Considerations for manufacturers and regulators | Pradeep Balachandran (India) and Christian Johner (Johner Institut, Germany) | [K-039](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-039.docx) & [Nextcloud document](https://datacloud.hhi.fraunhofer.de/nextcloud/s/izz73RgE474Rq9g) |
| 3 | AI4H requirement specifications | Pradeep Balachandran (India) | [K-040](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-040.docx) |
| 4 | AI software life cycle specification | Pat Baird (Philips, USA) | [J-033](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-033.docx)([K-034](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-034.pptx)) |
| 5 | Data specification | Marc Lecoultre (MLlab.AI, Switzerland) | [G-205](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-205.docx) |
| 5.1 | Data requirements | [Marc Lecoultre (MLlab.AI, Switzerland)]\*\* | [I-044](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-I-044.docx) |
| 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), Sebastian Bosse (Fraunhofer HHI, Germany) | [K-048](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-048.docx) |
| 5.4 | Training and test data specification  | Luis Oala (Fraunhofer HHI, Germany), Pradeep Balachandran (India) | [I-034](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-I-034.docx)([K-050](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-050.pptx)) |
| 5.5 | Data handling  | Marc Lecoultre (MLlab.AI, Switzerland) | [DEL05](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL05.docx) |
| 5.6 | Data sharing practices | Ferath Kherif (CHUV, Switzerland), Banusri Velpandian (ICMR, India), WHO Data Team | [J-054](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-054.docx)([K-051](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-051.pptx)) |
| 6 | AI training best practices specification | Xin Ming Sim and Stefan Winkler (AI Singapore) | [K-037](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-037.docx) |
| 7 | AI for health evaluation considerations | Markus Wenzel (Fraunhofer HHI, Germany) | [K-038](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-038.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) | [I-027](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-I-027.docx) |
| 7.3 | Data and artificial intelligence assessment methods (DAISAM) reference | Luis Oala (Fraunhofer HHI, Germany) | [K-045](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-045.docx) |
| 7.4 | Clinical evaluation of AI for health | Naomi Lee (Lancet, UK), Eva Weicken (Fraunhofer HHI, Germany), Shubhanan Upadhyay (ADA Health, Germany) | [K-041](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-041.docx) |
| 8 | AI4H scale-up and adoption | Sameer Pujari (WHO), Yu ZHAO and Javier Elkin [Previously: Robyn Whittaker (New Zealand)] | –([K-052](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-052.pptx)) |
| 9 | AI4H applications and platforms | Manjeet Chalga (ICMR, India), Aveek De (CMS, India) | [K-053-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-053-R01.docx) |
| 9.1 | Mobile applications | Khondaker Mamun (UIU, Bangladesh), Manjeet Chalga (ICMR, India) | [I-048](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-I-048.docx) |
| 9.2 | Cloud-based AI applications | Khondaker Mamun (UIU, Bangladesh) | [I-049](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-I-049.docx) |
| 10 | AI4H use cases: Topic description documents | Eva Weicken (Fraunhofer HHI, Germany) | [K-004](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-004.docx) |
| 10.1 | 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) |
| 10.1A | Cardiovascular disease management (TG-Cardio), Subtopic: Cardiovascular disease (CVD) *risk prediction* *using AI* | Benjamin Muthambi (Watif Health, South Africa) | [K-006-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-006-A01.docx) (risk prediction) |
| 10.2 | Dermatology (TG-Derma) | Weihong Huang (Xiangya Hospital Central South University, China)NOTE – Maria Vasconcelos (Fraunhofer, Portugal) resigned from the role, §‎13.3. | [K-007-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-007-A01.docx) |
| 10.3 | Diagnosis of bacterial infection and anti-microbial resistance (TG-Bacteria) | Nada Malou (MSF, France) | [K-008-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-008-A01.docx) |
| 10.4 | Falls among the elderly (TG-Falls) | Pierpaolo Palumbo (University of Bologna, Italy); Inês Sousa (Fraunhofer Portugal) | [K-012-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-012-A01.docx) |
| 10.5 | Histopathology (TG-Histo) | Frederick Klauschen (Charité Berlin, Germany) | [K-013-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-013-A01.docx) |
| 10.6 | Malaria detection (TG-Malaria) | Rose Nakasi (Makerere University, Uganda) | [K-014-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-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) | [K-015-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-015-A01.docx) |
| 10.8 | Neurological disorders (TG-Neuro) | Marc Lecoultre (MLlab.AI, Switzerland) | [K-016-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-016-A01.docx) |
| 10.9 | Ophthalmology (TG-Ophthalmo) | Arun Shroff (MedIndia) | [K-017-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-017-A01.docx) |
| 10.10 | Outbreak detection (TG-Outbreaks) | Auss Abbood (Robert Koch Institute, Germany) and Stéphane Ghozzi (HZI, Germany) | [K-018-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-018-A01.docx) |
| 10.11 | Psychiatry (TG-Psy) | Nicolas Langer (ETH Zurich, Switzerland) | [K-019-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-019-A01.docx) |
| 10.12 | AI for radiology (TG-Radiology) | Darlington Ahiale Akogo (minoHealth AI Labs, Ghana) | [K-023-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-023-A01.docx) |
| 10.13 | Snakebite and snake identification (TG-Snake) | Rafael Ruiz de Castaneda (UniGE, Switzerland) | [K-020-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-020-A01.docx) |
| 10.14 | Symptom assessment (TG-Symptom) | Henry Hoffmann (Ada Health, Germany) | [K-021-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-021-A01.docx) |
| 10.15 | Tuberculosis (TG-TB) | Manjula Singh (ICMR, India) | [K-022-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-022-A01.docx) |
| 10.16 | Volumetric chest CT (TG-DiagnosticCT) | Kuan Chen (Infervision, China) | [K-009-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-009-A01.docx) |
| 10.17 | Dental diagnostics and digital dentistry (TG-Dental) | Falk Schwendicke and Joachim Krois (Charité Berlin, Germany); Tarry Singh (deepkapha.ai, Netherlands) | [K-010-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-010-A01.docx) |
| 10.18 | Falsified Medicine (TG-FakeMed) | Franck Verzefé (TrueSpec-Africa, DRC) | [K-011-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-011-A01.docx) |
| 10.19 | Primary and secondary diabetes prediction (TG-Diabetes) | Andrés Valdivieso (Anastasia.ai, Chile) | [K-024-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-024-A01.docx) |
| 10.20 | AI for endoscopy (TG-Endoscopy) | Jianrong Wu (Tencent Healthcare, China) | [K-025-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-025.docx) |
| 10.21 | AI for Musculoskeletal medicine (TG-MSK) | Peter Grinbergs (EQL, UK), Yura Perov (UK) | [K-026-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-026-A01.docx) |

NOTES

\* The document numbers indicated reflect the status as of the end of the e-meeting J. Colour codes indicate deliverable drafting status (as of the issuance of this document) as "*active*" (green) and "*unclear whether active*" (blue). Some links provided are to slide sets; these slide sets are not meant to be the deliverable documents, but rather a status update concerning progress of the respective deliverable. Documents in parenthesis are status updates, not a deliverable text.

\*\* Acting editor.

Possible future Deliverables:

| No. | Deliverable | Updated initial draft editor | Reference |
| --- | --- | --- | --- |
| – | Open Code Initiative reference software implementation | Marc Lecoultre (MLlab.AI, Switzerland) | [K-043](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-043.docx), §‎11 |
| – | Guidance on digital technologies for COVID health emergency | Shan Xu (CAICT, China), Ana Riviere-Cinnamond (PAHO)  | [K-042](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-042.docx), §‎10.7 |
| – | Risk management in AI for health | Pat Baird (Philips, USA) | [K-034](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-034.pptx), §‎12.8 |

## New deliverable proposals

There were no proposals for new deliverables at this meeting.

NOTE – It was clarified that potential deliverable 7.5 identified at the previous meeting would be part of the Open Code Initiative and not a separate deliverable at this point in time. Hence, it is removed from Table 1.

## DEL00: Overview of the FG-AI4H deliverables

[FGAI4H-K-047](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-047.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-047-A01.pptx): Updated DEL00: Overview of the FG-AI4H deliverables [Editor]

**Abstract:** This deliverable provides an overview of the various FG-AI4H deliverables. To establish a standardized assessment framework for the evaluation of AI-based methods for health, a series of deliverables is planned, including 9 generalized specifications on ethics, regulatory, requirement, data, training, evaluation, application, etc., and 20 topic description documents on specific use cases with corresponding AI/ML tasks. This document is to give a comprehensive understanding and overview on the structure, relationship, progress, and corresponding scopes on those deliverables, and improve possible collaborations. This version is based on the update on FG-AI4H meeting J, 30 Sep-2 Oct 2020 (A revision marked version is found in document FG-AI4H-J-043).

The update to this deliverable was presented by the editor, Shan Xu (CAICT, China). It provides an overview of the various FG-AI4H deliverables.

It was suggested to make the current status of the FG-AI4H work more visible to the outside world.

The update to [DEL00](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL00.docx) as found in [K-047](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-047.docx) was adopted to be uploaded to the [deliverables website](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/).

## DEL01: AI4H ethics considerations

The editor of this deliverable is Andreas Reis (WHO).

[K-028](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-028.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-028-A01.pptx):Draft Guidance document: Ethics and governance of artificial intelligence for health [WHO]

**Abstract:** This document contains a draft guidance document prepared by WHO on the ethics and governance of artificial intelligence for health. It addresses the key topics in 10 sections and contains three checklists addressing implementors, ministries of health and health care providers.
In line with the discussions held at Meeting J, this draft which is provided for comments by the FG-AI4H members. In particular, for comments from AI programmers/designers from the FG-AI4H on the related checklist in Annex I (pages 104-109). Also, TG Drivers are invited to try to apply the principles and checklists in this document (particularly, Annex I) to their TDDs and provide feedback to the authors. An early feedback by 30 November 2020 was requested.

Andreas introduced [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-028-A01.pptx) the last activities on ethics in the WHO group as well as for the development of the WHO draft Guidance on ethics and governance of artificial intelligence for health. Several virtual meetings in addition to interviews with experts. Andreas hopes to issue guidance by the end of 1st quarter 2021. Currently, 20 experts have contributed, including feedback from FG-AI4H experts on the use of the checklists. Some suggested a shorter version of the report to make it easier to use, so an executive summary is being prepared with a pair of pages or so. Restructuring the document. Andreas welcomes if some additional use cases could be added from the experience of the FG-AI4H. Feedback also requested for WHO and other international agencies. A revised version expected by the end of February, for issuance in March. Andreas would like to receive suggestions on how to make an impactful launch of the guidelines.

On the relationship of the WHO document with the FG-AI4H deliverable, it is not clear whether it could be the same document, an extract or an appendix to the WHO guidance document. This is not clear, maybe a short version of the guide focused for designers and programmer? Open to ideas.

Some differentiation material could be country specific methods / principles of ethics for AI in different national data or digital strategy or international organizations, and a mapping between the more general to AI4H specific principles. It was pointed out that at EU level there is also an initiative going on in that direction, a sort of roadmap. See [https://futurium.ec.europa.eu/en/‌european-ai-alliance/pages/altai-assessment-list-trustworthy-artificial-intelligence](https://futurium.ec.europa.eu/en/european-ai-alliance/pages/altai-assessment-list-trustworthy-artificial-intelligence) and <https://ec.europa.eu/digital-single-market/en/news/ethics-guidelines-trustworthy-ai>.

There was a suggestion that the guidance document should not be a PDF on the website, but rather a more dynamic document. This could be a joint development. It was also suggested to consider the WHO activity as "an arm of the FG-AI4H" and to take it on from there.

There was no update to [DEL01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL01.docx).

## DEL02: AI4H regulatory best practices

The editors of [DEL2](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL02.docx) are Jackie Ma (Fraunhofer HHI, Germany), Khair ElZarrad and Rose Purcell (FDA, USA).

[K-049](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-049.pptx): DEL02: AI4H regulatory best practices and WG-RC - Progress Review [Editors]

Shada Alsalamah (WHO) presented the progress of the work in the WG-RC and its DEL02 was presented using K-049. The deliverable addresses high level overview of key regulatory considerations for the use of AI in health. It is not intended as guidance policy or regulations, but rather a resource that can be considered by *regulators*, *developers*, and other stakeholders. It is hoped that the document will facilitate the *Dialogue* between developers and regulators to establish a common understanding around the use of the AI solutions in health. An updated draft of the deliverable was *not* shared at the meeting, as it was still being checked within the working group.

The team has 93 different members, and a WHO-hosted MS Teams platform has been deployed. A link to the current draft of DEL2 will be sent on Teams

The timeline for the WG-RC work to prepare DEL2 has shifted by about two months.

|  |  |
| --- | --- |
| January | * Address internal SG leads comments for topics harmonization.
* Initiate WHO publication process
 |
| February | * Receive written feedback from whole WG-RC group
* Welcome written feedback from FG members
* Welcome feedback from relevant deliverables chair's
* Contributors' organizations internal check
 |
| March | * Address All review comments
* Submit to WHO editors
* Receive final approval from WG-RC group after editing
* Publish DEL02
 |

### DEL02.1: Mapping of IMDRF essential principles to AI for health software

The editors of [DEL2.1](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL02_1.docx) are Luis Oala (Fraunhofer HHI, Germany), Pradeep Balachandran (Technical Consultant eHealth, India), Pat Baird (Philips, USA), Thomas Wiegand (Fraunhofer HHI, Germany)

There was no update to DEL2.1 and the most recent version (G-038 at Meeting G) is found in the [deliverables website](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/).

### DEL02.2: Guidelines for AI based medical device: Regulatory requirements

The editors of [DEL2.2](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL02_2.docx) are Pradeep Balachandran (India) and Christian Johner (Johner Institut, Germany)

[K-039](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-039.docx%22%20%5Ct%20%22_blank) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-039-A01.pptx) :Updated DEL2.2: Good practices for health applications of machine learning: Considerations for manufacturers and regulators [Editors]

Christian presented [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-039-A01.pptx). Processes need to be modelled not only with documents. Tools need to be able to filter sets of requirements e.g. the ones relevant for a particular audit. One objective is to have safe medical products / devices with a minimum of red tape involved. Some of the steps addressed include model data and workflows; identify stakeholder requirements, derive product requirements, select a development tool, and to validate tool and results iteratively.

Concerning the link between DEL2.2 and open code, while DEL2.2 are requirements, the open code implementation should be aligned with the specification under development under DEL2.2. This way, if the open code platform is used by an implementer, it could facilitate review of results by a regulator.

Christian clarified that in his slides he proposed that an online tool be used to maintain the checklist (requirements), not to do the specific checks – e.g., database or markdown. Running specific checks would be a task in the Open Code Initiative.

It was reminded that checklists are used in both project planning and auditing, while open code would be used for assessment tasks.

The meeting was informed that checklist has been applied by regulators in Germany to assist in their certification processes, who provided feedback to improve the guidelines in DEL2.2.

The update to DEL2.2 as found in [K-039](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-039.docx) was adopted to be uploaded to the [deliverables website](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/).

## DEL03: AI4H requirements specifications

The editor of [DEL3](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL03.docx) is Pradeep Balachandran (India).

[K-040](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-040.docx): Updated DEL03: AI4H requirement specifications [Editors]

**Abstract:** This document contains the updated version 4.0 of the project deliverable FG-AI4H DEL03 "AI4H requirement specifications" and supersedes the previous version of the document (FG-AI4H-J-041-R01). The purpose of DEL3 is to define the System Requirement Specifications (SyRS) that explains the informational, functional, behavioural and operational aspects a generic AI for health (AI4H) system. SyRS serves as the basis and helps to create system design, system verification and validation plans and procedures; while system requirements analysis methodology follows a collaborative team-oriented approach, involving all the working groups and topic groups of AI4GH FG, to help the project team identify, control and track various requirements and changes to those requirements during the AI4H system development lifecycle.

Pradeep presented the document, and the meeting recognized the good progress.

The update to DEL3 as found in [K-040](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-040.docx) was adopted to be uploaded to the [deliverables website](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/).

## DEL04: AI software life cycle specification

The editor of [DEL4](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL04.docx) is Pat Baird (Philips, USA).

[K-034](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-034.pptx): DEL04: AI software lifecycle specification – Progress Review [Editor]

**Abstract:** Information: This presentation contains a summary of DEL04 for new members and proposes considering the idea to have a new deliverable addressing risk management in AI4H.

The editor provided an update on the work for DEL04 with the slide set in [K-034](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-034.pptx). No feedback was received since Meeting J, so the focus of the presentation was to provide an overview was provided to new participants. Pat highlighted the importance of ISO/IEC 62304 for software life cycle specifications, although it is not customized for AI4H needs.

The last update of the text of DEL4 was prepared for meeting J, as found in the [deliverables website](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/).

Pat also brought up a new idea, to bring **risk management** aspect onboard for health care. How can ML-based algorithms fail? There is a gap in specifications how to address risk management for AI/ML based health solutions. Surprised at the very many ways machine learning systems can fail.

The following was requested from the meeting:

* Share experiences with Pat on risk management in health solutions.
* Should we develop a risk management specific deliverable?
* Asked for pointers to documents that could help develop a body of guidance on risk management for AI4H.
* Help in defining a taxonomy of failure modes, list of potential hazards, and an inventory of techniques.

Eva noted that WG-CE is also considering the same problem. She invited Pat to join the WG-CE meetings and mailing list.

It was noted that many people face the problem when developing products, but it remains internal to teams and do not get published. It was felt that it is a great idea to document this.

Attention was drawn to some relevant resources:

* <https://www.trustworthyml.org/>
* <https://trustworthyiclr20.github.io/>

There is support for going into this direction. Next steps would be:

* Inventory of failure modes and approaches to mitigate them.
* Check whether there is a deliverable where this could fit, or then propose a new deliverable.
1. The meeting agreed to bring onboard the risk management aspect for AI for health care. Experts are requested to assist Pat Baird (Philips, USA), initially to compile an inventory of failure modes and approaches to mitigate them, as well as to analyse whether there is a deliverable where this could fit, or then propose a new deliverable.

## DEL05: Data specification

The editor of [DEL05](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL05.docx) is Marc Lecoultre (MLlab.AI, Switzerland). The latest update was reviewed at the Brasilia meeting H. Discussions at this meeting focused on progressing the various sub-deliverables, as described next.

There was no update to DEL5 and the most recent version is found in the [deliverables website](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/).

### DEL05.1: Data requirements

The acting editor for DEL5.1 deliverable is Marc Lecoultre (MLlab.AI, Switzerland).

There was no update to DEL5.1. The most recent draft was prepared by Marc Lecoultre (who oversees the parent Deliverable 5), as found in [DEL05.1](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL05_1.docx) (Meeting I). We are still looking for new editors to take over this Deliverable.

### DEL05.2: Data acquisition

Rajaraman (Giri) Subramanian (Calligo Tech, India) and Vishnu Ram (India) are the editors.

No updates were provided at this meeting and the editors did not join the meeting. The latest draft of [DEL05.2](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL05_2.docx) found in the deliverables folder was developed at meeting G (G-205-A02, New Delhi meeting), which tries to address the lack of widely-accepted, standardized ways to acquire medical data. A scalable platform would be needed.

It had been noted at the previous meeting that, noted that DEL5.2 needs to be focused on data acquisition, while the more general considerations should be added in DEL5 itself. Some of the aspects in G-205-A02 are already addressed in other deliverables; removing these repetition elements would simplify the task of preparing this deliverable.

### DEL05.3: Data annotation specification

The editors of [DEL5.3](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL05_3.docx) are Shan Xu (CAICT, China), Harpreet Singh (ICMR, India), Sebastian Bosse (Fraunhofer HHI, Germany).

[K-048](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-048.docx): Updated DEL05.3: Data annotation specification [Editors]

**Abstract:** DEL5.3 defines a data annotation specification for the FG-AI4H. Data annotation is one of the most dependable factors on model performance, it serves as an important aspect of data quality control on Artificial Intelligence for health. This document is committed to give a general guideline of data annotation specification, including definition, background and goals, framework, standard operating procedure, scenario classifications and corresponding consistency criteria, as well as recommended metadata, etc. A questionnaire is attached to seek input and collaboration with topic groups in FG-AI4H regarding data annotation.

Shan introduced the document, which received several updates. Contributions were received from various experts since the last meeting. Quality control on data annotation is a factor that is easily overlooked but crucial to the model performance. It is especially critical to models based on large-scale dataset. Annotation should assist in the quality control of data annotation from standard operating procedure, help reduce model performance problems caused by inconsistent data annotations, enable large-scale dataset projects on high diversity of data formats and multi-annotators, and act as a training material for non-professional annotators and improve common understandings.

It was suggested that a requirement be added on how to annotate a lesion by circling an entire lesion. Mention: annotation of anomaly lesion, encourage circling (marking) the area, including the area where a transition happens. This would help in screening false-positives and false-negatives.

How many annotators are needed to cover difference in opinion from different specialists? This spec to reduce variations and how to help reduce the variation. Serge Rovene mentioned that there are several approaches, for example Consensus of independent experts; arbitration by a 3rd expert if there is conflict; larger numbers of annotators.

The update to DEL5.3 as found in [K-048](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-048.docx) was adopted to be uploaded to the [deliverables website](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/).

### DEL05.4: Training and test data specification

The editors of [DEL5.4](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL05_4.docx) are Luis Oala (Fraunhofer HHI, Germany), Pradeep Balachandran (India).

[FGAI4H-K-050](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-050.pptx): Updates for DEL 5.4 "Training and test data specification"

Luis presented the slides in K-050. No updates were done in DEL5.4 as focus is currently put into the various DAISAM workstreams within the Open Code Initiative. The latest version is available from the [deliverables website](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/).

Room for improvement in robustness testing, assessing the effect of data perturbation.

A great challenge is the identification of the gold standard / ground truth. It also depends on where the data set comes from, as equipment vary in resolution for example. In some areas, there is a ground truth and in others there is not. Different methods, quality and bias play a role.

The DAISAM group has regular activities, this conversation could follow up within the appropriate workstream (see §‎10.1).

### DEL05.5: Data handling

The editor of [DEL05.5](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL05_5.docx) is Marc Lecoultre (MLlab.AI, Switzerland). Similar to DEL5.4, there was no update to DEL05.5 at this meeting.

**Abstract:** DEL5.5 describes the objectives and proposes an initial outline of the planned deliverable "Data Handling" to help seed future content. This document outlines how data will be handled, once they are accepted. Health data are one of the most valuable and sensitive types of data. Handling this kind of data is often associated with a strict and factual framework defined by data protection laws. It is important to set a strict data policy which will ensure confidence in FG-AI4H not only among contributors, but across all stakeholders. There are two major issues that the data handling policy should address: (a) compliance with regulations dealing with the use of personal health data; and (b) non-disclosure of the undisclosed test data held by FG-AI4H for the purpose of model evaluation.

What has been described is being used / implemented in the benchmarking Open Code.

Shown [DEL05.5](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL05_5.docx) reviewed in meeting I (I-045). Main topic, document data handling (security, life cycle). It was noted that DEL5.5 is very stable, as it is matches F-103 on the main page.

### DEL05.6: Data sharing practices

The editors of [DEL5.6](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL05_6.docx) are Ferath Kherif (CHUV, Switzerland), Banusri Velpandian (ICMR, India), assisted by the WHO Data Team.

[K-051](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-051.pptx): DEL5.6: Data sharing practices - Progress Review [Editors]

Ferath introduced the progress in the deliverable with the slides in [K-051](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-051.pptx). No updates were provided to the test of DEL05.6 for this meeting, which in the [deliverables website](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/).

Some good approaches are found at <https://www.daqcord.org/>.

Robin: How can a user be sure that the data is safe from an IT security point of view? Like viruses, etc. (Real-world data) Data provider is the owner of the data, they are responsible that it does not get exposed. And in the federated case? Need to have trust build.

The last update of the text of DEL4 was prepared for meeting J, as found in the [deliverables website](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/).

## DEL06: AI Training best practices specification

The editors of [DEL6](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL06.docx) are Xin Ming Sim and Stefan Winkler (AI Singapore).

[K-037](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-037.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-037-A01.pptx): Updated DEL06: AI Training Best Practices Specification [Editors]

**Abstract:** Machine learning models for AI in Health are deployed in high-impact tasks. As a result, it is important to follow best practices for training and documentation so as to achieve maximum performance and transparency. The first part of this document provides a review of best practices for proper AI model training. The second part of this document provides guidelines for model reporting.

Xinming presented the progress on the document using the slides in [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-037-A01.pptx).

Resource framework for AI model training. Document covers data pre-processing and model training itself.

Areas for further development include inclusion of more advanced techniques for feature engineering, use techniques for ensemble learning for decision making, and data augmentation techniques for image-based applications.

There was support for the idea to group deliverables in a series of topic-specific workshops (for DEL01 to DEL09).

The update to DEL6 as found in [K-037](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-037.docx) was adopted to be uploaded to the [deliverables website](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/).

## DEL07: AI for health evaluation considerations

The editor of [DEL7](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL07.docx) is Markus Wenzel (Fraunhofer HHI, Germany).

[K-038](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-038.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-038-A01.pptx): Updated DEL07: AI for Health Evaluation Considerations [Editors]

**Abstract:** This introduction with considerations on the evaluation of AI for health sets the scene for the five related documents DEL07.1-5 that describe the evaluation process (DEL07.1), the technical tests (DEL07.2), the test metrics (DEL07.3), the clinical evaluation (DEL07.4), and an assessment platform (DEL07.5) in detail. In this document, characteristics of health AI validation and evaluation that are novel are identified, the concept of standardized model benchmarking is introduced, preliminary considerations on the evaluation process are being made, and an overview of the deliverables DEL7.1-5 is given. Moreover, requirements for a benchmarking platform are considered in detail and best practices for the health AI model assessment are collected from selected sources.

Markus introduced the document. The draft is progressing well.

The update to DEL7 as found in [K-038](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-038.docx) was adopted to be uploaded to the [deliverables website](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/).

### DEL07.1: AI4H evaluation process description

The editor of [DEL7.1](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL07_1.docx) is Sheng Wu (WHO).

No updates were provided at this meeting; the latest update was provided in meeting G ([G-207-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-207-A01.docx)).

### DEL07.2: AI technical test specification

The editor is Auss Abbood (Robert Koch Institute, Germany).

No updates were made to the deliverable document for this meeting. Auss presented orally a recap on the deliverable objectives, current draft status and areas where he would request assistance from the experts.

Currently: Large background on software testing, somewhat filtered for the context of AI/ML. The goal is to include how to test benchmarks. Help is needed for the following:

* More contributors and reviewers of the latest draft
* Contact with editors of other deliverables, and avoid overlap, e.g. testing aspects already covered in other deliverables.

The last update of the text of DEL7.2 was prepared for meeting I, as found in the [deliverables website](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/).

### DEL07.3: Data and artificial intelligence assessment methods (DAISAM) reference

The editor of [DEL 7.3](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL07_3.docx) is Luis Oala (Fraunhofer HHI, Germany).

[K-045](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-045.docx): DEL7.3: Data and Artificial Intelligence Assessment Methods (DAISAM) Reference [Editors]

**Abstract:** This document, *Data and artificial intelligence assessment methods (DAISAM) reference,* is the reference collection of WG-DAISAM for assessment methods of data and artificial intelligence quality evaluation. This document also constitutes subsection 7.3 of the FG-AI4H deliverable 7.

The document and activities in preparing DEL7.3 have spawned various work streams within DAISAM, but there are not updated for DEL7.3 draft, the latest version being the one seen in Meeting I (FGAI4H-I-035), reproduced for easier reference as a Meeting K document. It is also found in the [deliverables website](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/).

### DEL07.4: Clinical evaluation of AI for health

The editors of [DEL7.4](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL07_4.docx) are Naomi Lee, Rupa Sarkar (Lancet, UK), together with Eva Weicken (Fraunhofer HHI, Germany) and Shubs Upadhyay (ADA Health, Germany).

[K-041](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-041.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-041-A01.pptx): Updated DEL7.4: Clinical evaluation of AI for health [Editors]

**Abstract:** This document provides an overview of the current challenges of "Clinical Evaluation of AI for Health". It is part of the deliverable-series 7.1-7.4 that are outlined by deliverable No.7 "AI for Health Evaluation considerations". Although the performance of AI models in health is often measured by their accuracy, establishing confidence among clinicians, patients, researchers and policy makers in the safety and efficacy of AI solutions in health requires a more comprehensive evaluation. The purpose of the deliverable No.7.4 is to outline the current best practice, and outstanding issues for further considerations related to clinical evaluation of AI models for health. It serves as the output document of the Working Group on Clinical Evaluation of AI for Health (WG-CE).

Eva presented the update on the work of the WG-CE in [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-041-A01.pptx). In addition to creating a community for collaboration, the WG will develop guideline documentation on existing evaluation frameworks.

Shubs provided an overview of the Sub-WGs on pre- and post-deployment. Use if sub-groups to better manage the group sizes and to facilitate having quality discussions. Clinical experts and stakeholders are essential to have relevant inputs. In post-development sub-group, there are some overlaps with the SaMD regulation group (WG-RC).The update to DEL7.4 as found in [K-041](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-041.docx) was adopted to be uploaded to the [deliverables website](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/). Outlook: working on the draft outline and defining gaps. Will report back to the group and organize follow up meetings. Interested experts should contact the co-chairs.

It was requested that consideration on misuse of tools be part of the considerations.

The update to DEL7.4 as found in [K-041](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-041.docx) was adopted to be uploaded to the [deliverables website](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/).

## DEL08: AI4H scale-up and adoption

The editor of [DEL8](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL08.docx) is Sameer Pujari (WHO) with Yu Zhao and Javier Elkin.

[FGAI4H-K-052](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-052.pptx): DEL08: AI4H scale-up and adoption - Implementation Roadmap [Editors]

Sameer presented the slides in [K-052](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-052.pptx).

Del delayed as they were waiting for the formalization of the global strategy on digital health 2020-2025. This was to take advantage of the existing funding and structure to develop the deliverable. The final process should be scalable and accessible to key stakeholders.

Mapping of existing activities, define country priorities, recruit experts

Sameer Pujari expects that a first draft would be available at the end of February 2021.

## DEL09: AI4H applications and platforms

The editors of [DEL9](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL09.docx) are Manjeet Chalga (ICMR, India), Aveek De (CMS, India).

[K-053-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-053-R01.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-053-A01.pptx):Updated DEL09: AI4H applications and platforms [Editors]

**Abstract:** This document contains a discussion on development of AI tool for health using mobile applications and cloud-based AI applications. This document also invites Medical & AI researchers to collaborate in development of cloud-based / mobile application-based AI tools for Health within the FG-AI4H.

Manjeet presented the update to DEL9 using the slides in [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-053-A01.pptx).

It was noted that data is not recorded in a structured way.

The update to DEL9 as found in [K-053-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-053-R01.docx) was adopted to be uploaded to the [deliverables website](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/).

### DEL09.1: Mobile Applications

The editor of [DEL09.1](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL09_1.docx) are Khondaker Mamun (UIU, Bangladesh) and Manjeet Chalga (ICMR, India).

No updates to the draft of DEL9.1 were provided at this meeting. The last update was made available in Meeting I ([I-048](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-I-048.docx)).

[K-055](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-055.pdf): Overview of issues for DEL09.1 (Mobile Applications) and DEL09.2 (Cloud-based AI applications) [Editor]

Mamun presented an overview of mobile applications for health using an example in Bangladesh with the slides in [K-055](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-055.pdf). It also described a digital health platform for assisting managing the COVID-19 pandemic, as well as for vaccination logistics.

Who is the custodian of and who owns the data? How you choose models for screening.

Data owned: the patient, patient and service provider.

Requested help from experts to join and develop further the draft of DEL9.1 and DEL9.2.

### DEL09.2: Cloud-based AI applications

The editor of [DEL 9.2](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL09_2.docx) is Khondaker Mamun (UIU, Bangladesh).

No updates to the draft of DEL9.2 were provided at this meeting. The last update was made available in Meeting I ([I-049](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-049.docx)).

See slide set and discussion in §‎12.13.1.

## Deliverable 10: AI4H use cases: Topic Description Documents

The editor of [DEL10](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL10.docx) is Eva Weicken (Fraunhofer HHI, Germany).

[K-004](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-004.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-004-A01.pptx): Updated DEL10: AI4H use cases: Topic Description Documents [Editor]

**Abstract:** This document provides an overview of the "AI4H use cases: Topic Description Documents" developed by the ITU/WHO Focus Group on AI for Health. Each use case is represented by a topic group that is dedicated to a specific health topic in the context of AI. The topic group proposes a procedure to benchmark AI models developed for a special task within this health topic. All members of a topic group develop a topic description document (TDD) that contains information about the structure, operations, features, and considerations of the specific health topic. This document constitutes DEL10.

Eva introduced the deliverable using the slides in [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-004-A01.pptx). This Deliverable provides a summary of all TDDs, which are part of the documentation of each of the Topic Groups (see §‎13). The current version updates information as a result of the progress in the various TGs. She highlighted that several TGs updated their TDDs using the updated template in [J-105](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-105.docx) approved at the previous FG-AI4H meeting.

The update to DEL10 as found in [K-004](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-004.docx) was adopted to be uploaded to the [deliverables website](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/).

# 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: initial TDD in meeting J. Proposed at meeting F.
* TG-Derma (Dermatology)
Last updates: Meeting E. Proposed at meeting B.
* TG-FakeMed (AI-based detection of falsified medicine)
Last updates: TDD: Meeting J; CfTGP: Meeting H. Proposed at Meeting F.
* TG-Histo (Histopathology)
Lat updates: TDD: Meeting I; CfTGP: Meeting E. Proposed at meeting B.
* TG-MCH (Maternal and child health)
Last updates: TDD at meeting H. CfTGP at meeting H. Proposed at meeting D, re-started at meeting F, then meeting G.
* TG-Snake (Snakebite and snake identification)
Lat updates: TDD: Meeting I; CfTGP: Meeting G. Proposed at meeting B.

Various groups have not shown or reported progress and that is counter-productive towards the FG-AI4H meeting its deadlines.

1. It was agreed to remind TG Drivers that an update of their activities is expected at each FG meeting.

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

## Template updates: TDD, CfTGP

None at this 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:

* [J-105](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-105.docx) (TDD)
* [J-103](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-103.docx) (CfTGP)

Various of the existing TGs should also update their TDDs and CfTGP based on the new templates.

## TG-Cardio (Use of AI in Cardiovascular Disease Management)

Benjamin Muthambi is the driver for the main topic as well as for sub-topic 1 (CVD Risk Prediction using AI). The latest documentation available is as follows:

TDD: [K-006-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-006-A01.docx) (Same as Meeting H) – [K-006-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-006-A01.pdf)
CfTGP: [K-006-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-006-A02.docx) (Same as Meeting H)
Contributions: N/A

Benjamin presented updates to the TDD, focusing on the sub-topic 1 (CVD Risk Prediction using AI). Migration to the new TDD template is ongoing.

It was noted that in the open code platform, the diabetic retinopathy benchmarking from TG-Ophthalmo will take place in a few weeks. The initiative could accommodate TG-Cardio when it is ready, major effort would be preparing the respective scripts. Benjamin was encouraged to get into contact with Marc.

## TG-Derma (Dermatology)

The Topic Driver is Weihong Huang (Xiangya Hosp. Central S. University, China; whuangcn@qq.com). The latest documentation available is as follows:

TDD: [K-007-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-007-A01.docx) (Same as Meeting E) – [K-007-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-007-A03.pptx)
CfTGP: [K-007-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-007-A02.docx) (Same as Meeting E)
Contributions: [K-033](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-033.docx) [Dermatology AI for Global Health]

No progress report was presented.

[FGAI4H-K-033](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-033.docx): TG-Derma: Dermatology AI for global health (DAIGH) proposal for image recognition challenge for skin diseases [Dermatology AI for Global Health, USA]

**Abstract:** Skin disease is known to have a significant impact on quality of life, productivity and mental health, especially in the developing world. Despite this, skin diseases in developing countries often remain undiagnosed. The application of convolutional neural networks (CNNs) to the diagnosis of skin disease is an active field of research but has been predominantly focused on developed-world diseases such as melanoma. We assembled a database of more than twenty thousand open-source photos of human skin affected with a wide variety of conditions and have built a CNN-based model for image-based diagnoses for skin diseases prevalent in the developing world. We propose to execute an image recognition challenge for skin diseases in which we would make the dataset and baseline model available to multiple participants, allow each participant to build alternative CNN architectures, evaluate the performance of each model, and publish the highest-performing model on an open-source basis.

The document was presented by Lincoln Manzi. There is substantial interest in this area of work.

There is a strong dependency on regional specificities and ethnicities. This aspect needs to be taken into account for any apps in dermatology.

Lincoln was encouraged to coordinate with Topic Driver Weihong Huang and consider joining the TG-Derma.

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

The Topic Driver is Nada Malou. The latest documentation available is as follows:

TDD: [K-008-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-008-A01.docx) (Same as Meeting J)
CfTGP: N/A
Contributions: N/A

No progress report was presented.

## TG-DiagnosticCT (Volumetric chest computed tomography)

The Topic Driver is Kuan Chen. The latest documentation available is as follows:

TDD: [K-009-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-009-A01.docx) (Same as meeting J) – [K-009-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-009-A03.pptx)
CfTGP: [K-009-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-009-A02.docx) (Same as Meeting H)
Contributions: N/A

The presentation in [K-009-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-009-A03.pptx) was introduced by Ms Bingshu Chen and provided an overview of the TG and an update on new contributors to the group.

Presenter asked what the next steps should be. It was suggested that the TG convert the TDD into the new TDD template ([J-105](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-105.docx)), and that they join the Open Code Initiative for the benchmarking.

The TDD was last updated in meeting J, which is reproduced in [K-009-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-009-A01.docx) for easier reference.

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

The Topic Drivers are Falk Schwendicke, Joachim Krois (Charité Berlin, DE) and Tarry Singh (deepkapha.ai, Netherlands). The latest available documentation is as follows:

TDD: [K-010-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-010-A01.docx) – [K-010-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-010-A03.pptx)
CfTGP: [K-010-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-010-A02.docx)
Contributions: N/A

Falk and Joachim presented the progress report in [K-010-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-010-A03.pptx). The TDD document was updated for this meeting.

The TDD was converted to the new template and the new TDD structure allowed them to do a gap analysis. They described some challenges for accurate cephalometric landmark detection.

It was noted that one should be able to differentiate between common jaws, teeth and gums issues from those related to other oral hygiene, to help people catch issues early. Falk: they want to include those, albeit it is very ambitious.

## TG-FakeMed: AI-based detection of falsified medicine

The Topic Driver is Franck Verzefé. The latest documentation available is as follows:

TDD: [K-011-A01-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-011-A01-R01.docx) (Same as meeting J)
CfTGP: [K-011-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-011-A02.docx) (Same as Meeting H)
Contributions: N/A

No progress report was presented.

## TG-Falls (Falls among the elderly)

Pierpaolo Palumbo (University of Bologna, Italy) replaces Inês Sousa (Fraunhofer Portugal) as interim Topic Driver until September 2021. The latest documentation available is as follows:

TDD: [K-012-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-012-A01.docx) – [K-012-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-012-A03.pptx)
CfTGP: [K-012-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-012-A02.docx) (Same as Meeting H)
Contributions: N/A

Pierpaolo presented an overview and update of the TG-Falls work using the slides in [K-012-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-012-A03.pptx). The TDD document was updated for this meeting.

He clarified that work focuses on fall prediction (based on well-established methodologies – "golden standards"- that include previous behaviour, e.g., gait during walking, historic of previous falls, self-perceived problems with balance). Fall detection is not yet a sub-topic, although may address it in the future.

## TG-Histo (Histopathology)

The Topic Driver is Frederick Klauschen. The latest documentation available is as follows:

TDD: [K-013-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-013-A01.docx) (Same as Meeting I)
CfTGP: [K-013-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-013-A02.docx) (Same as Meeting E)
Contributions: N/A

No updates were submitted for this meeting.

The TG-Driver mentioned by e-mail that he would provide an updated document with the latest advances in the Histopathology subgroup where we have established new collaborations with accreditation bodies and a large network (Empaia).

## TG-Malaria: Malaria detection

The Topic Driver is Rose Nakasi. The latest documentation available is as follows:

TDD: [K-014-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-014-A01.docx) – [K-014-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-014-A03.pptx)
CfTGP: [K-014-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-014-A02.docx)
Contributions: N/A

A progress report was presented by the Topic Driver with the slides in [K-014-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-014-A03.pptx). The TDD document was updated for this meeting. The TG is holding biweekly online meetings and progress is well on track.

It was noted a key motivation for this work is the lack of qualified / trained technicians. Gold-standard method is using the microscope. AI solutions are hoped to improve the timeliness and accuracy. This TG aims to standardise benchmarking of AI solutions for the detection of malaria. Developed a 2nd Minimal Benchmarking platform developed with improvements and plan to launch a challenge. Added a new public database with over 27,000 thin blood smear images.

Rose asked some assistance to promote the challenge.

It was noted that this is a very necessary tool, especially if it could have dataset with slides enabling differentiating from two varieties of malaria, plasmodium vivax and plasmodium falciparum.

Serge Rovenne suggested using slides without staining and digitizing with high quality scanners, in addition to the stained slides digitized with smart phones as this would allow important additional benchmarking. He agreed to help find volunteers to assist with the digitization. The contribution is welcome.

Marc noted that the Open Code Initiative is looking for candidates to co-host challenges in the new platform. Rose will coordinate with Marc on that.

## TG-MCH: Maternal and child health

The Topic Drivers are Raghu Dharmaraju (Wadhwani AI, India) and Alexandre Chiavegatto Filho (University of São Paulo, Brazil).The latest documentation available is as follows:

TDD: [K-015-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-015-A01.docx) (Same as Meeting H)
CfTGP: [K-015-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-015-A02.docx) (Same as Meeting H)
Contributions: N/A

No one presented. No docs submitted.

## TG-Neuro: Neurological disorders

The Topic Driver is Marc Lecoultre (ML Labs, Switzerland). The latest documentation available is as follows:

TDD: [K-016-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-016-A01.docx) (Same as meeting J) – [K-016-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-016-A03.pptx)
CfTGP: [K-016-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-016-A02.docx) (Same as Meeting E)
Contributions: N/A

A progress report was presented by Ferath Kherif (CHUV, Switzerland) using the slides in [K-016-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-016-A03.pptx) and progress is well on track.

The updated TDD is found in [K-016-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-016-A01.docx).

## TG-Ophthalmo (Ophthalmology)

The Topic Driver is Arun Shroff. The latest documentation available is as follows:

TDD: [K-017-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-017-A01.docx) – [K-017-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-017-A03.pptx)
CfTGP: [K-017-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-017-A02.docx)
Contributions: N/A

Arun Shroff presented an overview and update of the activities in the TG-Ophthalmo using the slides in [A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-017-A03.pptx). The TDD document was updated for this meeting.

The updated TDD was presented by the topic driver and progress is well on track. Showcased in the DAISAM paper.

Next steps: update to new template, split into subtopics and add ethics considerations; dataset procurement (biggest task); establish benchmark methodology and implement it. The group continues to encourage more experts to join the effort.

Manjula Singh: Datasets: Different stages? Geographical variety? Annotated? Arun Shroff: Yes there is an initial set over 100,000 images, but it needs to be expanded.

## TG-Outbreaks (AI for Outbreak Detection)

The Topic Driver are Auss Abbood (Robert Koch Institute, Germany) and Stéphane Ghozzi (HZI, Germany). The latest documentation available is as follows:

TDD: [K-018-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-018-A01.docx) – [K-018-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-018-A03.pptx)
CfTGP: [K-018-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-018-A02.docx) (Same as Meeting I)
Contributions: N/A

Auss Abbood reported that not much progress was made since last meeting and provided a recap the status of the TG-Outbreaks studies. Progress has been stalled by the COVID-19 pandemic.

TDD was updated in the new template. Missing: need to have benchmarking running, but that depends on the development of metrics.

## TG-Psy (Psychiatry)

The Topic Driver is Nicholas Langer. The latest documentation available is as follows:

TDD: [K-019-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-019-A01.docx) – [K-019-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-019-A03.pptx)
CfTGP: [K-019-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-019-A02.docx) (Same as Meeting H)
Contributions: N/A

The Topic Driver presented the and overview of the TG work and recent updates using the slides in [K-019-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-019-A03.pptx). The TDD document was updated for this meeting.

Need help with the benchmarking, which is being applied on a secret dataset. Various groups submitted models for benchmarking. Luis volunteered to help with the evaluation package. Share uncertainty estimation in quantifying for next meetings.

A short video on the TG work is found at <https://methlabuzh.wixsite.com/mysite>.

## TG-Snake (Snakebite and snake identification)

The Topic Driver is Rafael Ruiz. The latest documentation available is as follows:

TDD: [K-020-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-020-A01.docx) (Same as Meeting I)
CfTGP: [K-020-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-020-A02.docx) (Same as Meeting G)
Contributions: N/A

No progress report was provided at this meeting.

The TG Driver informed by e-mail that a paper has been published on the recent challenge, "*Crowdsourcing snake identification with online communities of professional herpetologists and avocational snake enthusiasts*", Royal Society Open Science, Vol 8 No 1, 2021-01-27, <https://royalsocietypublishing.org/doi/10.1098/rsos.201273>. In essence, the online experiment measured the capacity of the crowd to identify snake photos correctly. It is useful to understand exactly how much one can rely on experts and non-experts herpetologist to tag the data in the future and support the AI in the context of clinical management of snakebite.

## TG-Symptom (Symptom assessment)

The Topic Driver is Henry Hoffmann. The latest documentation available is as follows:

TDD: [K-021-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-021-A01.docx) – [K-021-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-021-A03.pptx)
CfTGP: [K-021-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-021-A02.docx)
Contributions: N/A

A progress report (including a general overview of the activity) in [K-021-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-021-A03.pptx) was presented by the Topic Driver and progress is well on track. The TDD document was updated for this meeting.

Migration to the new TDD template is underway. It was a good process as it helped to identify some aspects that were missing in the current TDD. Trailing a process to improve the identification of ontologies and encoding the cases.

Currently, there are two sub-topic groups and 18 companies are participating. Continue to develop an ontology and to encode the cases.

It was suggested that the name of the sub-topic groups, self-assessment and clinical symptom assessment. Maybe self-assessment by non-expert user; and sign. (clinical signs and clinical symptoms.) Patient Self-Assessment & Clinical assessment. There were substantial discussions on this issue, but no agreement. It was agreed that the discussion would continue in the TG-Symptom regular meetings.

## TG-TB (Tuberculosis)

The Topic Driver is Manjula Singh. The latest documentation available is as follows:

TDD: [K-022-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-022-A01.docx) – [K-022-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-022-A03.pptx)
CfTGP: [K-022-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-022-A02.docx) (Same as Meeting E)
Contributions: N/A

The TG Driver presented an overview and update for the TG-TB using the slides in [K-022-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-022-A03.pptx). The TDD document was updated for this meeting.

The slides also included results from the implementation of a pulmonary TB detection tool in India using chest x-rays, DeepCXR, which was introduced by Manika Sharma (Institute for Plasma Research).

Who is being screened? Clusters of the general population.

How is annotation done? two independent expert radiologists. In case of divergence, a 3rd independent radiologist, senior, arbitrates the definitive answer. It was noted that the same process in Europe, at least for breast x-ray diagnostics. This is relevant for DEL5.3, see §‎12.9.3.

## TG-Radiology (Radiology)

The Topic Driver is Darlington Ahiale Akogo (minoHealth AI Labs, Ghana). The latest documentation available is as follows:

TDD: [K-023-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-023-A01.docx) – [K-023-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-023-A03.pptx)
CfTGP: [K-023-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-023-A02.docx) (Same as Meeting H)
Contributions: N/A

The TG driver presented the progress report in [K-023-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-023-A03.pptx) with an overview and update for the TG-Radiology. The TDD document was updated for this meeting. Progress is well on track.

Currently with 23 participants from 11 organization, 14 very active contributors, one year of work. A radiograph-agnostic evaluation framework platform was identified; 29 conditions are covered.

## TG-Diabetes

The Topic Driver is Andrés Valdivieso (Anastasia.ai, Chile) The latest documentation available is as follows:

TDD: [K-024-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-024-A01.docx) – [K-024-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-024-A03.pptx)
CfTGP: Not yet available
Contributions: N/A

Andres presented the activity update using the slides in [K-024-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-024-A03.pptx). The TDD document was updated for this meeting.

One of the issues is how to organize the benchmarking to be scalable. Problem: difference on how experts annotate records, creating different catalogues. Preparing guidelines how to annotate datasets to help improve semantic interoperability.

Serge Rovenne: The use of structured data annotations is also difficult for radiology and other fields. There are standards but they are not used. One of the important reasons is that data structured annotation is time consuming for technicians / doctors. In some countries, if regulators are convinced, structured encoding can be imposed at public hospitals first, and then it will eventually drip down to private practice; this will take time. It is more pragmatic to use natural language recognition methods, even though it will provide less structured data with more limited usability. Serge will send contact information to Andres.

Manjula suggested not to use data normalization, better to focus on compound factors, so that training is data is robust to capture all sorts of variation. For training set, include all variabilities. Only normalization is to remove non-conformant data. Andres clarified that he meant normalization not to exclude data, but to harmonize how annotations are made. For example, Andres has observed that annotation imaging from the same provider catalogue of text labs is inconsistent.

It was suggested that the TG check deliverable Del 5.3 (§‎12.9.3) concerning the data annotation aspects, in particular to ensure that the data semantic interoperability issue in annotations is properly addressed.

## TG-Endoscopy

The Topic Driver is Jianrong Wu (Tencent Healthcare, China). The latest documentation available is as follows:

TDD: [K-025-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-025-A01.docx)
CfTGP: [K-025-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-025-A02.docx) (Same as Meeting J)
Contributions: N/A

The progress report was presented by Yajun Zhang on behalf of the Topic Driver. The TDD in [K-025-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-025-A01.docx) has been updated to the new template in J-105.

So far, the work covers single-camera endoscopy. Progress is well on track. Currently only one track (no sub-topics), participation of other experts is very welcome.

## TG-MSK

The Topic Driver is Yura Perov (EQL, UK). The latest documentation available is as follows:

TDD: [K-026-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-026-A01.docx) – [K-026-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-026-A01.pptx)
CfTGP: [K-025-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-025-A02.docx)
Contributions: N/A

The Topic Driver delivered a progress report on the activities of this new TG as found in [A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-026-A01.pptx). He also presented the initial version of the TDD in [K-026-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-026-A01.docx) and of the initial CfTGP in [A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-025-A02.docx).

Three meetings of the TG were held. They identified three types AI/ML tasks for MSK medicine (self-management; prediction and prevention of MSK conditions; motion capture, pose recognition, posture and gait analysis). Next steps: Start defying the applications in more details, then start identifying metrics for benchmarks and weighting mechanisms for data points; extend the reach of the group (e.g. Google/FitBit, Apple, Samsung, London Marathon, other marathons, etc.) and identify what research/industry groups are doing/can be doing motion capture in general/for clinical applications.

# Proposals for new topic areas

No new topic areas were proposed at this meeting.

# Review / reconfirmation of previous output documents

The list of current output documents was reviewed, as follows.

Updates agreed:

* The call for proposals: use cases, benchmarking, and data in [J-102](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-102.docx) needs only the usual updates (venue, dates) and it will be issued as [K-102](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-102.docx) as soon as the date of the next meeting is defined.

The following documents are reconfirmed without any updates:

* [F-103](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-F-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
* [K-107](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-107.docx): FG-AI4H Onboarding document
* [FG-AI4H Whitepaper](https://www.itu.int/en/ITU-T/focusgroups/ai4h/Documents/FG-AI4H_Whitepaper.pdf) ([K-002](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-002.docx))
* [J-105](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-105.docx): TDD Template
* [J-103](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-105.docx): CfTGP template

# Working methods

No changes were agreed to the working methods, and no new mailing lists were created.

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

The following updates in leadership were endorsed by the FG-AI4H meeting:

* WG-RC:
	+ Wolfgang Lauer wolfgang.lauer@bfarm.de (Federal Institute for Drugs and Medical Devices, Germany) replaced by Michael Berensmann (michael.berensmann@bfarm.de) and Robin Seidel (robin.seidel@bfarm.de);
* Peng Liang (National Medical Products Administration, China) replaced by Liang Hong (lianghong@cmde.org.cn).
* WG-O: Monique Kuglitsch (monique.kuglitsch@hhi.fraunhofer.de) replaced by Eva Weicken (Eva.Weicken@hhi.fraunhofer.de)

## TG updates

New TG/sub-TG:

* No new TGs were created at this meeting

Leadership / scope updates:

* TG-Derma: Maria Vasconcelos (Fraunhofer Portugal) replaced by Weihong Huang (Xiangya Hospital Central South University, China)
* TG-Falls: Pierpaolo Palumbo (University of Bologna, Italy) is interim driver until Sept 2021, taking over for Inês Sousa (Fraunhofer Portugal)

## Output liaison statements

No OLSs were prepared.

## Output documents

No new output documents were agreed. The following updated output documents were agreed:

* [K-102](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-102.docx): Updated call for proposals: use cases, benchmarking, and data (to be published once the final dates of the next FG-AI4H meeting are defined)
* [K-200](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-200.docx): Updated list of FG-AI4H deliverables

## Deliverables and parent group reporting

No new deliverables were agreed at this meeting. Future deliverables under consideration are:

* Open Code Initiative reference software implementation (Editor: Marc Lecoultre, MLlab.AI, Switzerland). Initial reference: [K-043](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-043.docx)
* Guidance on digital technologies for COVID health emergency (Co-editors: Shan Xu, CAICT, China; Ana Riviere-Cinnamond, PAHO). Initial reference: [K-042](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-042.docx)
* Risk management in AI for health (Editor: Pat Baird, Philips, USA). Initial references: [K-034](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-034.pptx), discussion in §‎12.8

No reports for the parent group were needed at this time.

# Future work

## Schedule of future FG meetings and workshops

The schedule of meetings in [K-003](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-003.docx) was reviewed; see Table 2 for easier reference. It is expected that at least for all of the 1st half of 2021, the meetings will continue to be virtual; for the remainder of 2021, it will depend on the evolution of travel restrictions related to the COVID-19 pandemic.

Table 2– Schedule of future FG meetings (as of 2020-01-29)

| Meeting | Date | Venue | Notes |
| --- | --- | --- | --- |
| L | May 2021 | Online | TBC |
| M | August to September 2021 | Online | TBC |
| N | January to February 2022 | Online | TBC |

The following is a list of potential future meeting locations:

|  |  |  |
| --- | --- | --- |
| Asia:1. Bangladesh
2. Philippines
3. Singapore
4. South Korea
5. Thailand

Middle-East1. Oman
2. UAE
 | Africa1. South Africa
2. Uganda
3. Kenya
4. Ghana
5. Rwanda
6. Nigeria

Europe1. Berlin
 | Americas1. Canada
2. US
3. Chile
 |

In addition to meetings, **topic-specific webinars** should be organized around horizontal deliverables (DEL01 to DEL09).

## Work plan and timeline

Update drafts of the deliverables in Table 1 (see §‎11) are expected to be available by two weeks before the next FG-AI4H plenary meeting (to be announced).

## 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

There was support for the idea to group deliverables for a series of topic-specific webinars (DEL01 to DEL09).

A promotion plan should be designed for the ethics and regulatory consideration guidelines as they would become available.

# A.O.B.

None.

# Closing

The FG-AI4H chairman thanked all participants for having joined 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 Fri 29 January 2021 around 1600 hours (Geneva time).

Annex A:
Agenda

|  |  |  |
| --- | --- | --- |
|  |  | Related Documents |
| 1 | Opening | [K-002](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-002.pptx) (Introduction) |
| 2 | Approval of agenda | [K-001-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-001-R01.docx) (Agenda); Initial timing: [link](https://docs.google.com/spreadsheets/d/1W3lfoj5kOApD4TezqqUiMTpzyaQgXZdLMINPa4ZqKqE/edit?usp=sharing) |
| 3 | Documentation and allocation | [K-001-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-001-R01.docx) (Allocation); Annex [B](#AnnexB) (Documentation)  |
| 4 | IPR | Annex [A](#AnnexA) |
| 5 | Management updates |  |
|  | Vice-chairs |  |
|  | WGs | * WG-RC:  Wolfgang Lauer (Federal Institute for Drugs and Medical Devices, Germany) replaced by two colleagues: Michael Berensmann; Seidel, Robin Peng Liang (National Medical Products Administration, China) replaced by Liang Hong
* WG-O: Monique Kuglitsch replaced by Eva Weicken (Fraunhofer HHI, Germany)
 |
|  | TGs | * TG-Derma: Maria Vasconcelos (Fraunhofer Portugal) replaced by Weihong Huang (Xiangya Hospital Central South University, China)
* TG-Falls: Pierpaolo Palumbo (University of Bologna, Italy) is interim driver until Sept 2021, taking over for Inês Sousa (Fraunhofer Portugal)
 |
| 6 | Approval of Meeting J outcomes and updates | [J-101](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-101.docx): Meeting Report[J-102](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-102.docx): Updated call for Proposals: use cases, benchmarking, and data[J-103](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-105.docx): Updated call for topic group participation (CfTGP) template[J-105](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-004.docx): Updated TDD Template[J-107](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-107.docx): Updated FG-AI4H onboarding document[J-200-R1](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-200-R01.docx): Updated list of FG-AI4H deliverables |
| 7 | Review of incoming LSs |  |
|  | LS on invitation to review Artificial Intelligence Standardization Roadmap and provide missing or updated information | FG-AI4AD to SG13: [K-030](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-030.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-030-A01.docx) à *Note* |
|  | Recommendation ITU-T Y.4908 (ex Y.IoT-EH-PFE) "Performance evaluation frameworks of e-health systems in the IoT" | SG20: [K-031](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-031.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-031-A01.docx) à *Note* |
|  | Others? |  |
| 8 | Information on AI-related activities | WG workshops (WG-CE, WG-RC)AI for Good webinars[FGAI4H-K-044](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-044.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-044-A01.pdf): ITU AI/ML in 5G Challenge review and learnings for FG-AI4H [ITU TSB] |
| 9 | Horizontal and strategic topics | [K-032](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-032.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-032-A01.pptx): Trust between AI and Human Being in the Pharmaceutical Business Context of Oncology and AI-supported Customer Relationship Management Solutions [Goethe Business School, Goethe University Frankfurt][K-046](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-046.pdf) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-046-A01.pdf): Using artificial intelligence in nursing: Priorities, opportunities, and recommendations from an international invitational think-tank of the Nursing and Artificial Intelligence Leadership (NAIL) Collaborative [NAIL Collaborative, Canada] |
| 10 | Working Group updates |  |
|  | Data and AI solution assessment methods (WG-DAISAM) [Pat Baird; Luis Oala] - Metrics and Measures Paper Questionnaire [Alixandro Werneck] | [K-054](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-054.pptx): DAISAM status update [WG-DAISAM][K-036-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-036-R01.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-036-A01.pptx) (Slides) + [A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-036-A02.pdf) (Flier): Call for participation: Transparent model reporting for trustworthy Machine Learning for Health applications [WG-DAISAM] |
|  | Data and AI solution handling (WG-DASH) [Marc Lecoultre; Ferath Kherif]  |  |
|  | Ethics (WG-Ethics) [Andreas Reis] | [K-027](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-027.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-027-A01.pdf): Translating Principles into Practices: Responsible Innovation and AI Taskforce at the University of Montreal Academic Health Center [CHUM][K-028](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-028.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-028-A01.pptx): Draft Guidance document: Ethics and governance of artificial intelligence for health [WHO] |
|  | Operations (WG-O) [Markus Wenzel/Monique Kuglitsch] |  |
|  | Regulatory considerations (WG-RC) [Naomi Lee] |  |
|  | Clinical Evaluation (WG-CE) [Naomi Lee] | [K-041-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-041-A01.pptx): Updates on the work of WG-CE and DEL 7.4 |
|  | AI and other digital technologies for COVID-19 health emergency (AHG-DT4HE) [Shan Xu, Ana Rivière-Cinnamond] | [K-042](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-042.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-042-A01.pptx): Updated FG AI4H DT4HE Output 1 "Guidance on AI and digital technologies for COVID health emergency" (27-29 January 2021) [Editors] |
| 11 | Open Code Project [Marc Lecoultre] | [K-043](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-043.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-043-A01.pptx): Open Code Project Status Update[K-035](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-035.docx) + [A01-R02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-035-A01-R02.pptx): AI4H Open Code Project - Data Storage Package (DS): AI design's processes and digital data governance by the cover of fundamental rights [FIBREE Foundation] |
| 12 | FG-AI4H deliverables | [K-029](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-029.docx) + [K-004-A01-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-004-A01-R01.pptx): Updated draft description of the peer review process for FG-AI4H deliverables[K-005](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-005.docx): Updated list of FG-AI4H deliverables (as of 2021-01-27) [TSB] |
|  | New deliverables: |  |
|  | [DEL00](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL00.docx): Overview of deliverables | [K-047](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-047.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-047-A01.pptx):Updated DEL00: Overview of the FG-AI4H deliverables [Editor] |
|  | [DEL01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL01.docx): AI4H ethics considerations | [Editors] |
|  | [DEL02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL02.docx): AI4H regulatory best practices | [K-049](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-049.pptx): DEL02: AI4H regulatory best practices and WG-RC - Progress Review [Editors] |
|  | [DEL02.1](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL02_1.docx): Mapping of IMDRF essential principles to AI for health software | [Editor] |
|  | [DEL02.2](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL02_2.docx): Good practices for health applications of machine learning: Considerations for manufacturers and regulators (*title changed*) | [K-039](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-039.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-039-A01.pptx):Updated DEL2.2: Good practices for health applications of machine learning: Considerations for manufacturers and regulators [Editors] |
|  | [DEL03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL03.docx): AI4H requirements specifications | [K-040](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-040.docx): Updated DEL03: AI4H requirement specifications [Editors] |
|  | [DEL04](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL04.docx): AI software life cycle specification | [K-034](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-034.pptx): DEL04: AI software life cycle specification - Progress Review [Editor] |
|  | [DEL05](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL05.docx): Data specification | [Editor] |
|  | [DEL05.1](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL05_1.docx): Data requirements | [Editor] |
|  | [DEL05.2](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL05_2.docx): Data acquisition | [Editors] |
|  | [DEL05.3](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL05_3.docx): Data annotation specification | [K-048](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-048.docx): Updated DEL05.3: Data annotation specification [Editors] |
|  | [DEL05.4](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL05_4.docx): Training and test data specification | [K-050](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-050.pptx): DEL5.4: Training and test data specification - Progress Review [Editor] |
|  | [DEL05.5](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL05_5.docx): Data handling | [Editor] |
|  | [DEL05.6](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL05_6.docx): Data sharing practices | [K-051](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-051.pptx): DEL5.6: Data sharing practices - Progress Review [Editors] |
|  | [DEL06](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL06.docx): AI training best practices specification | [K-037](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-037.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-037-A01.pptx): Updated DEL06: AI Training Best Practices Specification [Editors] |
|  | [DEL07](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL07.docx): AI for health evaluation considerations | [K-038](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-038.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-038-A01.pptx):Updated DEL07: AI for Health Evaluation Considerations [Editors] |
|  | [DEL07.1](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL07_1.docx): AI4H evaluation process description | [Editors] |
|  | [DEL07.2](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL07_2.docx): AI technical test specification | [Editors] |
|  | [DEL07.3](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL07_3.docx): Data and artificial intelligence assessment methods (DAISAM) reference | [K-045](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-045.docx): DEL7.3: Data and Artificial Intelligence Assessment Methods (DAISAM) Reference [Same as meeting I] [Editors] |
|  | [DEL07.4](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL07_4.docx): Clinical evaluation of AI for health | [K-041](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-041.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-041-A01.pptx): Updated DEL7.4: Clinical evaluation of AI for health [Editors] |
|  | [DEL07.5](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL07_5.docx): Assessment platform | [Editors] |
|  | DEL08: AI4H scale-up and adoption | [K-052](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-052.pptx): DEL08: AI4H scale-up and adoption - Implementation Roadmap [Editors] |
|  | [DEL09](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL09.docx): AI4H applications and platforms | [K-053-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-053-R01.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-053-A01.pptx): Updated DEL09: AI4H applications and platforms [Editors] |
|  | [DEL09.1](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL09_1.docx): Mobile applications, [DEL09.2](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL09_2.docx): Cloud-based AI applications | [K-055](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-055.pdf): Overview of issues for DEL09.1 (Mobile Applications) and DEL09.2 (Cloud-based AI applications) [Editors] |
|  | [DEL10.0](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Deliverables/DEL10_0.docx): AI4H use cases: Topic Description Documents | [K-004](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-004.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-004-A01.pptx): Updated DEL10: AI4H use cases: Topic Description Documents [Editor] |
| 13 | Updates to TGs and new proposals |  |
|  | Template updates: TDD, CfTGP | [J-105](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-105.docx): TDD template (to note)[J-103](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-103.docx): CfTGP template (to note) |
|  | TG-Cardio (Cardiovascular Risk Prediction) [Benjamin Muthambi] | TDD: [K-006-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-006-A01.docx) - [[K-006-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-006-A03.pptx)](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-006-A03.pptx) CfTGP: [K-006-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-006-A02.docx) Contributions:  |
|  | TG-Derma (Dermatology) [Weihong Huang] | TDD: [K-007-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-007-A01.docx) - [K-007-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-007-A03.pptx) CfTGP: [K-007-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-007-A02.docx) Contributions: [K-033](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-033.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-033-A01.pptx) [ Global Health ] |
|  | TG-Bacteria (Diagnoses of bacterial infection and anti-microbial resistance - AMR)[Nada Malou] | TDD: [K-008-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-008-A01.docx) - [K-008-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-008-A03.pptx) CfTGP: [K-008-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-008-A02.docx) Contributions:  |
|  | TG-DiagnosticCT (Volumetric chest computed tomography) [Kuan Chen] | TDD: [K-009-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-009-A01.docx) - [K-009-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-009-A03.pptx) CfTGP: [K-009-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-009-A02.docx) Contributions:  |
|  | TG-Dental (Dental diagnostics and digital dentistry)[Falk Schwendicke, Joachim Krois] | TDD: [K-010-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-010-A01.docx) - [K-010-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-010-A03.pptx) CfTGP: [[K-010-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-010-A02.docx)](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-010-A02.docx) Contributions: |
|  | TG-FakeMed: AI-based detection of falsified medicine[Franck Verzefé] | TDD: [K-011-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-011-A01.docx) - [[K-012-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-012-A03.pptx)](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-011-A03.pptx) CfTGP: [[K-011-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-011-A02.docx)](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-011-A02.docx) Contributions:  |
|  | TG-Falls (Falls among the elderly) [Pierpaolo Palumbo for Inês Sousa] | TDD: [K-012-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-012-A01.docx)- [K-012-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-012-A03.pptx) CfTGP: [K-012-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-012-A02.docx) Contributions: |
|  | TG-Histo (Histopathology) [Frederick Klauschen] | TDD: [K-013-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-013-A01.docx) - [K-013-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-013-A03.pptx) CfTGP: [K-013-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-013-A02.docx) Contributions: |
|  | TG-Malaria: Malaria detection [Rose Nakasi] | TDD: [K-014-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-014-A01.docx) - [[K-014-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-014-A03.pptx)](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-014-A03.pptx) CfTGP: [[K-014-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-014-A02.docx)](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-014-A02.docx) Contributions:  |
|  | TG-MCH: Maternal and child health [Raghu Dharmaraju, Hafsa M. Mitwa] | TDD: [K-015-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-015-A01.docx) - [K-015-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-015-A03.pptx) CfTGP: [K-015-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-015-A02.docx) Contributions: |
|  | TG-Neuro: Neurological disorders [Marc Lecoultre] | TDD: [K-016-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-016-A01.docx) - [K-016-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-016-A03.pptx) CfTGP: [K-016-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-016-A02.docx) Contributions: |
|  | TG-Ophthalmo (Ophthalmology) [Arun Shroff] | TDD: [K-017-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-017-A01.docx) - [K-017-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-017-A03.pptx) CfTGP: [K-017-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-017-A02.docx) Contributions:  |
|  | TG-Outbreaks (AI for Outbreak Detection) [Stéphane Ghozzi] | TDD: [K-018-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-018-A01.docx) - [K-018-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-018-A03.pptx) CfTGP: [K-018-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-018-A02.docx) Contributions: |
|  | TG-Psy (Psychiatry) [Nicholas Langer] | TDD: [K-019-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-019-A01.docx) - [K-019-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-019-A03.pptx) CfTGP: [K-019-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-019-A02.docx) Contributions:  |
|  | TG-Snake (Snakebite and snake identification) [Rafael Ruiz] | TDD: [K-020-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-020-A01.docx) - [K-020-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-020-A03.pptx) CfTGP: [K-020-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-020-A02.docx) Contributions: |
|  | TG-Symptom (Symptom assessment) [Henry Hoffmann] | TDD: [K-021-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-021-A01.docx) - [[K-021-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-021-A03.pptx)](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-021-A03.pptx) CfTGP: [[K-021-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-021-A02.docx)](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-021-A02.docx) Contributions: |
|  | TG-TB (Tuberculosis) [Manjula Singh] | TDD: [K-022-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-022-A01.docx) - [K-022-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-022-A03.pptx) CfTGP: [K-022-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-022-A02.docx) Contributions: |
|  | TG-Radiology (Radiology) [Darlington Ahiale Akogo] | TDD: [K-023-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-023-A01.docx) - [K-023-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-023-A03.pptx) CfTGP: [K-023-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-023-A02.docx) Contributions: |
|  | TG-Diabetes[Andrés Valdivieso] | TDD: [K-024-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-024-A01.docx) - [K-024-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-024-A03.pptx) CfTGP: [K-024-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-024-A02.docx) Contributions: |
|  | TG-Endoscopy[Jianrong Wu] | TDD: [K-025-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-025-A01-R01.docx) - [K-025-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-025-A03.pptx) CfTGP: [K-025-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-025-A02.docx) Contributions: |
|  | TG-MSK (AI for Musculoskeletal medicine)[Yura Perov] | TDD: [K-026-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-026-A01.docx) - [K-026-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-026-A02.docx) CfTGP: [K-026-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-026-A03.pptx) Contributions: |
| 14 | Proposals for new topic areas |  |
|  | None  |  |
|  | Others? |  |
|  |  |  |
| 15 | Review / reconfirmation of previous output documents | [J-102](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-102.docx): Updated call for proposals: use cases, benchmarking, and data[F-103](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-F-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[J-107](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-107.docx): Onboarding document[FG-AI4H Whitepaper](https://staging.itu.int/en/ITU-T/focusgroups/ai4h/Documents/FG-AI4H_Whitepaper.pdf) [[J-002](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-002.docx)]Others? |
| 16 | Outcomes of this meeting | a) Outgoing liaison statementsb) Structure updatesc) Call for proposals (K-102)d) Output documents- …e) Updated list of planned deliverables[[K-005](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-005.docx)àK-200] |
| 17 | Future work |  |
|  | Schedule of future FG meetings and workshops | [K-003](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-003.docx) |
|  | Format of next meeting |  |
|  | Work plan and timeline |  |
|  | Interim activities (online) |  |
|  | Extension of the FG |  |
| 18 | Promotion and outreach |  |
|  | Promotional activities |  |
|  | Press communication |  |
|  | Funding and partnerships |  |
| 19 | A.O.B. |  |
| 20 | Closing |  |

Annex B:
Documentation

| Name | Title | Source |
| --- | --- | --- |
| [FG-AI4H-K-001-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-001-R01.docx) | Agenda of the 11th meeting (Meeting K) of the Focus Group on Artificial Intelligence for Health (FG-AI4H) | Chairman FG-AI4H |
| [FGAI4H-K-002](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-002.pptx) | Introduction to ITU/WHO Focus Group on AI for Health (FG-AI4H) | Chairman FG-AI4H |
| [FGAI4H-K-003](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-003.docx) | Schedule of future FG meetings (as of 2021-01-27) | Chairman FG-AI4H |
| [FGAI4H-K-004](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-004.docx) + [A01-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-004-A01-R01.pptx) | Updated DEL10: AI4H use cases: Topic Description Documents | Editor |
| [FGAI4H-K-005](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-005.docx) | Updated list of FG-AI4H deliverables (as of 2021-01-27) | TSB |
| [FGAI4H-K-006](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-006.docx) | Updates for Cardiovascular disease risk prediction (TG-Cardio) | TG-Cardio Topic Driver |
| [FGAI4H-K-006-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-006-A01.docx) | Att.1 – TDD update (TG-Cardio) |  |
| [FGAI4H-K-006-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-006-A02.docx) | Att.2 – CfTGP (TG-Cardio) |  |
| [FGAI4H-K-006-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-006-A03.pptx) | Att.3 – Presentation (TG-Cardio) |  |
| [FGAI4H-K-007](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-007.docx) | Updates for Dermatology (TG-Derma) | TG-Derma Topic Driver |
| [FGAI4H-K-007-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-007-A01.docx) | Att.1 – TDD update (TG-Derma) |  |
| [FGAI4H-K-007-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-007-A02.docx) | Att.2 – CfTGP (TG-Derma) |  |
| [FGAI4H-K-008](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-008.docx) | Updates for Diagnosis of bacterial infection and anti-microbial resistance (TG-Bacteria) | TG-Bacteria Topic Driver |
| [FGAI4H-K-008-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-008-A01.docx) | Att.1 – TDD update (TG-Bacteria) |  |
| [FGAI4H-K-008-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-008-A02.docx) | Att.2 – CfTGP (TG-Bacteria) |  |
| [FGAI4H-K-009](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-009.docx) | Updates for Volumetric chest CT (TG-DiagnosticCT) | TG-DiagnosticCT Topic Driver |
| [FGAI4H-K-009-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-009-A01.docx) | Att.1 – TDD update (TG-DiagnosticCT) |  |
| [FGAI4H-K-009-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-009-A02.docx) | Att.2 – CfTGP (TG-DiagnosticCT) |  |
| [FGAI4H-K-009-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-009-A03.pptx) | Att.3 – Presentation (TG-DiagnosticCT) |  |
| [FGAI4H-K-010](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-010.docx) | Updates for Dental diagnostics and digital dentistry (TG-Dental) | TG-Dental Topic Driver |
| [FGAI4H-K-010-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-010-A01.docx) | Att.1 – TDD update (TG-Dental) |  |
| [FGAI4H-K-010-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-010-A02.docx) | Att.2 – CfTGP (TG-Dental) |  |
| [FGAI4H-K-010-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-010-A03.pptx) | Att.3 – Presentation (TG-Dental) |  |
| [FGAI4H-K-011](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-011.docx) | Updates for falsified medicine (TG-FakeMed) | TG-FakeMed Topic Driver |
| [FGAI4H-K-011-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-011-A01.docx) | Att.1 – TDD update (TG-FakeMed) |  |
| [FGAI4H-K-011-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-011-A02.docx) | Att.2 – CfTGP (TG-FakeMed) |  |
| [FGAI4H-K-012](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-012.docx) | Updates for Falls among the elderly (TG-Falls) | TG-Falls Topic Driver |
| [FGAI4H-K-012-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-012-A01.docx) | Att.1 – TDD update (TG-Falls) |  |
| [FGAI4H-K-012-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-012-A02.docx) | Att.2 – CfTGP (TG-Falls) |  |
| [FGAI4H-K-012-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-012-A03.pptx) | Att.3 – Presentation (TG-Falls) |  |
| [FGAI4H-K-013](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-013.docx) | Updates for Histopathology (TG-Histo) | TG-Histo Topic Driver |
| [FGAI4H-K-013-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-013-A01.docx) | Att.1 – TDD update (TG-Histo) |  |
| [FGAI4H-K-013-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-013-A02.docx) | Att.2 – CfTGP (TG-Histo) |  |
| [FGAI4H-K-013-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-013-A03.pptx) | Att.3 – Presentation (TG-Histo) |  |
| [FGAI4H-K-014](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-014.docx) | Updates for Malaria detection (TG-Malaria) | TG-Malaria Topic Driver |
| [FGAI4H-K-014-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-014-A01.docx) | Att.1 – TDD update (TG-Malaria) |  |
| [FGAI4H-K-014-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-014-A02.docx) | Att.2 – CfTGP (TG-Malaria) |  |
| [FGAI4H-K-014-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-014-A03.pptx) | Att.3 – Presentation (TG-Malaria) |  |
| [FGAI4H-K-015](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-015.docx) | Updates for Maternal and child health (TG-MCH) | TG-MCH Topic Driver |
| [FGAI4H-K-015-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-015-A01.docx) | Att.1 – TDD update (TG-MCH) |  |
| [FGAI4H-K-015-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-015-A02.docx) | Att.2 – CfTGP (TG-MCH) |  |
| [FGAI4H-K-016](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-016.docx) | Updates for Neurological disorders (TG-Neuro) | TG-Neuro Topic Driver |
| [FGAI4H-K-016-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-016-A01.docx) | Att.1 – TDD update (TG-Neuro) |  |
| [FGAI4H-K-016-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-016-A02.docx) | Att.2 – CfTGP (TG-Neuro) |  |
| [FGAI4H-K-016-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-016-A03.pptx) | Att.3 – Presentation (TG-Neuro) |  |
| [FGAI4H-K-017](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-017.docx) | Updates for Ophthalmology (TG-Ophthalmo) | TG-Ophthalmo Topic Driver |
| [FGAI4H-K-017-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-017-A01.docx) | Att.1 – TDD update (TG-Ophthalmo) |  |
| [FGAI4H-K-017-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-017-A02.docx) | Att.2 – CfTGP (TG-Ophthalmo) |  |
| [FGAI4H-K-017-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-017-A03.pptx) | Att.3 – Presentation (TG-Ophthalmo) |  |
| [FGAI4H-K-018](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-018.docx) | Updates for Outbreak detection (TG-Outbreaks) | TG-Outbreaks Topic Driver |
| [FGAI4H-K-018-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-018-A01.docx) | Att.1 – TDD update (TG-Outbreaks) |  |
| [FGAI4H-K-018-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-018-A02.docx) | Att.2 – CfTGP (TG-Outbreaks) |  |
| [FGAI4H-K-018-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-018-A03.pptx) | Att.3 – Presentation (TG-Outbreaks) |  |
| [FGAI4H-K-019](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-019.docx) | Updates for Psychiatry (TG-Psy) | TG-Psy Topic Driver |
| [FGAI4H-K-019-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-019-A01.docx) | Att.1 – TDD update (TG-Psy) |  |
| [FGAI4H-K-019-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-019-A02.docx) | Att.2 – CfTGP (TG-Psy) |  |
| [FGAI4H-K-019-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-019-A03.pptx) | Att.3 – Presentation (TG-Psy) |  |
| [FGAI4H-K-020](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-020.docx) | Updates for Snakebite and snake identification (TG-Snake) | TG-Snake Topic Driver |
| [FGAI4H-K-020-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-020-A01.docx) | Att.1 – TDD update (TG-Snake) |  |
| [FGAI4H-K-020-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-020-A02.docx) | Att.2 – CfTGP (TG-Snake) |  |
| [FGAI4H-K-021](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-021.docx) | Updates for Symptom assessment (TG-Symptom) | TG-Symptom Topic Driver |
| [FGAI4H-K-021-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-021-A01.docx) | Att.1 – TDD update (TG-Symptom) |  |
| [FGAI4H-K-021-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-021-A02.docx) | Att.2 – CfTGP (TG-Symptom) |  |
| [FGAI4H-K-021-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-021-A03.pptx) | Att.3 – Presentation (TG-Symptom) |  |
| [FGAI4H-K-022](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-022.docx) | Updates for Tuberculosis (TG-TB) | TG-TB Topic Driver |
| [FGAI4H-K-022-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-022-A01.docx) | Att.1 – TDD update (TG-TB) |  |
| [FGAI4H-K-022-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-022-A02.docx) | Att.2 – CfTGP (TG-TB) |  |
| [FGAI4H-K-022-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-022-A03.pptx) | Att.3 – Presentation (TG-TB) |  |
| [FGAI4H-K-023](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-023.docx) | Updates for Radiology (TG-Radiology) | TG-Radiology Topic Driver |
| [FGAI4H-K-023-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-023-A01.docx) | Att.1 – TDD update (TG-Radiotherapy) |  |
| [FGAI4H-K-023-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-023-A02.docx) | Att.2 – CfTGP (TG-Radiotherapy) |  |
| [FGAI4H-K-023-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-023-A03.pptx) | Att.3 – Presentation (TG-Radiotherapy) |  |
| [FGAI4H-K-024](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-024.docx) | Updates for Primary and secondary diabetes prediction (TG-Diabetes) | TG-Diabetes Topic Driver |
| [FGAI4H-K-024-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-024-A01.docx) | Att.1 – TDD update (TG-Diabetes) |  |
| [FGAI4H-K-024-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-024-A02.docx) | Att.2 – CfTGP (TG-Diabetes) |  |
| [FGAI4H-K-024-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-024-A03.pptx) | Att.3 – Presentation (TG-Diabetes) |  |
| [FGAI4H-K-025](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-025.docx) | Updates for Endoscopy (TG-Endoscopy) |  |
| [FGAI4H-K-025-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-025-A01.docx) | Att.1 – TDD update (TG- Endoscopy) |  |
| [FGAI4H-K-025-A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-025-A02.docx) | Att.2 – CfTGP (TG- Endoscopy) |  |
| [FGAI4H-K-026](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-026.docx) | Initial documents for AI for Musculoskeletal medicine (TG-MSK) |  |
| [FGAI4H-K-026](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-026-A01.docx)-[A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-026-A01.pptx) | Att.1 – TDD update (TG-MSK) |  |
| [FGAI4H-K-026](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-026-A02.docx)-[A0](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-J-026-A01.pptx)2 | Att.2 – CfTGP (TG-MSK) |  |
| [FGAI4H-K-026-A03](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-026-A03.pptx) | Att.3 – Presentation (TG-MSK) |  |
| [FGAI4H-K-027](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-027.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-027-A01.pdf) | Translating Principles into Practices: Responsible Innovation and AI Taskforce at the University of Montreal Academic Health Center (CHUM) | CHUM |
| [FGAI4H-K-028](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-028.docx) | Draft Guidance document: Ethics and governance of artificial intelligence for health | WHO |
| [FGAI4H-K-029](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-029.docx) | Updated draft description of the peer review process for FG-AI4H deliverables | Editors |
| [FGAI4H-K-030](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-030.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-030-A01.docx) | LS on invitation to review Artificial Intelligence Standardization Roadmap and provide missing or updated information (reply to SG13-LS174) | FG-AI4AD |
| [FGAI4H-K-031](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-031.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-031-A01.docx) | LS on Recommendation ITU-T Y.4908 (ex Y.IoT-EH-PFE) "Performance evaluation frameworks of e-health systems in the IoT" | ITU-T SG20 |
| [FGAI4H-K-032](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-032.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-032-A01.pptx) | Trust between AI and Human Being in the Pharmaceutical Business Context of Oncology and AI-supported Customer Relationship Management Solutions | Goethe Business School, Goethe University Frankfurt |
| [FGAI4H-K-033](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-033.docx%22%20%5Ct%20%22_blank) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-033-A01.pptx) | TG-Derma: Dermatology AI for Global Health (DAIGH) proposal for image recognition challenge for skin diseases | Dermatology AI for Global Health (USA) |
| [FGAI4H-K-034](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-034.pptx%22%20%5Ct%20%22_blank) | DEL04: AI software life cycle specification - Progress Review | Editor |
| [FGAI4H-K-035](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-035.docx%22%20%5Ct%20%22_blank) + [A01-R02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-035-A01-R02.pptx) | AI4H Open Code Project - Data Storage Package (DS): AI design's processes and digital data governance by the cover of fundamental rights | FIBREE Foundation |
| [FGAI4H-K-036-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-036-R01.docx%22%20%5Ct%20%22_blank) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-036-A01.pptx) (Slides) + [A02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-036-A02.pdf) (Flier) | WG-DAISAM: Call for participation in survey for transparent model reporting for trustworthy Machine Learning for Health applications | WG-DAISAM |
| [FGAI4H-K-037](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-037.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-037-A01.pptx) | Updated DEL06: AI Training Best Practices Specification | Editors |
| [FGAI4H-K-038](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-038.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-038-A01.pptx) | Updated DEL07: AI for Health Evaluation Considerations | Editors |
| [FGAI4H-K-039](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-039.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-039-A01.pptx) | Updated DEL2.2: Good practices for health applications of machine learning: Considerations for manufacturers and regulators | Editors |
| [FGAI4H-K-040](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-040.docx) | Updated DEL03: AI4H requirement specifications | Editors |
| [FGAI4H-K-041](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-041.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-041-A01.pptx) | Updated DEL7.4: Clinical evaluation of AI for health | Editors |
| [FGAI4H-K-042](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-042.docx)+ [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-042-A01.pptx.docx) | Updated FG AI4H DT4HE Output 1 "Guidance on AI and digital technologies for COVID health emergency" (27-29 January 2021) | Editors |
| [FGAI4H-K-043](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-043.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-043-A01.pptx) | Open Code Project Status Update | Open Code Project - Management Team |
| [FGAI4H-K-044](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-044.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-044-A01.pdf) | ITU AI/ML in 5G Challenge review and learnings for FG-AI4H | TSB |
| [FGAI4H-K-045](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-045.docx) | DEL7.3: Data and Artificial Intelligence Assessment Methods (DAISAM) Reference [Same as meeting I] | Editors |
| [FGAI4H-K-046](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-046.pdf) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-046-A01.pdf) | Using artificial intelligence in nursing: Priorities, opportunities, and recommendations from an international invitational think-tank of the Nursing and Artificial Intelligence Leadership (NAIL) Collaborative | NAIL Collaborative (Canada) |
| [FGAI4H-K-047](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-047.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-047-A01.pptx) | Updated DEL00: Overview of the FG-AI4H deliverables | Editor |
| [FGAI4H-K-048](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-048.docx) | Updated DEL05.3: Data annotation specification | Editors |
| [FGAI4H-K-049](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-049.pptx) | DEL02: AI4H regulatory best practices and WG-RC - Progress Review | Editors |
| [FGAI4H-K-050](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-050.pptx) | DEL5.4: Training and test data specification - Progress Review | Editor |
| [FGAI4H-K-051](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-051.pptx) | DEL5.6: Data sharing practices - Progress Review | Editors |
| [FGAI4H-K-052](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-052.pptx) | DEL08: AI4H scale-up and adoption - Implementation Roadmap | Editor |
| [FGAI4H-K-053-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-053-R01.docx) + [A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-053-A01.pptx) | Updated DEL09: AI4H applications and platforms | Editors |
| [FGAI4H-K-054](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-054.pptx) | WG-DAISAM status update | WG-DAISAM |
| [FGAI4H-K-055](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-055.pdf) | Overview of issues for DEL09.1 (Mobile Applications) and DEL09.2 (Cloud-based AI applications) | Editor |
| [FGAI4H-K-101](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-101.docx) | Report of the 11th meeting (Meeting K) of the Focus Group on Artificial Intelligence for Health (FG-AI4H) | FG-AI4H |
| [FGAI4H-K-102](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-102.docx) | Updated call for proposals: Use cases, benchmarking, and data | FG-AI4H |
| [FGAI4H-K-200](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-200.docx) | Updated list of FG-AI4H deliverables | FG-AI4H |

Annex C:
List of participants

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| Steffen | Vogler | Bayer | steffen.vogler@bayer.com | Germany | X | X |  |
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| Yanchuan | Wang | China Telecom | wangych@chinatelecom.com.cn | China | X |  | X |
| Eva | Weicken | Fraunhofer HHI & IIS | eva.weicken@hhi.fraunhofer.de | Germany | X | X | X |
| Markus | Wenzel | Fraunhofer HHI & IIS | markus.wenzel@hhi.fraunhofer.de | Germany | X | X | X |
| Thomas | Wiegand | Fraunhofer HHI & IIS | thomas.wiegand@hhi.fraunhofer.de | Germany | X | X | X |
| Tommy | Wilkinson | World Bank | twilkinson1@worldbank.org | USA |  | X |  |
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| Jicang | Xu | MIIT | jicangxu3-c@my.cityu.edu.hk | China | X | X | X |
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| Shan | Xu | MIIT | xushan@caict.ac.cn | China | X |  |  |
| Ruijie | Yang | MIIT | ruijyang@yahoo.com | China | X |  | X |
| Yajun | Zhang | Tencent Technology | yajunzhang@tencent.com | China | X | X | X |
| Simão | Campos | ITU | simao.campos@itu.int | Switzerland | X | X | X |
| Bilel | Jamoussi | ITU | bilel.jamoussi@itu.int | Switzerland | X | X | X |
| Reinhard | Scholl | ITU | reinhard.scholl@itu.int | Switzerland | X | X | X |
| Bastiaan | Quast | ITU | bastiaan.quast@itu.int | Switzerland |  | X |  |
| Kaoru | Mizuno | ITU | kaoru.mizuno@itu.int | Switzerland | X | X | X |
| Ayda | Dabiri | ITU | ayda.dabiri@itu.int | Switzerland | X | X | X |
| Eun Kyeong | Jee | ITU | eun-kyeong.jee@itu.int | Switzerland |  | X | X |
| Thomas | Basikolo | ITU | thomas.basikolo@itu.int | Switzerland | X | X |  |

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

Working groups

| Working Group | Leadership |
| --- | --- |
| Clinical evaluation of AI for health (WG-CE) | Co-chairs: Naomi Lee (The Lancet, UK), Upadhyay Shubhanan (ADA Health, Germany), Eva Weicken (Fraunhofer HHI, Germany) |
| 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 (MLlab.AI, CH)Vice chair: Ferhat Kerif (CHUV, CH) |
| Operations (WG-O) | Co-chairs: Markus Wenzel and Eva Weicken (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)
* Michael Berensmann and Seidel, Robin (Federal Institute for Drugs and Medical Devices, Germany)
* Liang Hong (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 risk prediction
 | TG-Cardio | Benjamin Muthambi (Watif Health, South Africa) | [K-006-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-006-A01.docx) | C |
| 1. Dermatology
 | TG-Derma | Weihong Huang (Xiangya Hospital Central South University, China)NOTE – Maria Vasconcelos (Fraunhofer, Portugal) resigned from the role at meeting J. | [K-007-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-007-A01.docx) | B |
| 1. Diagnosis of bacterial infection and anti-microbial resistance
 | TG-Bacteria | Nada Malou (MSF, France) | [K-008-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-008-A01.docx);Proposal: [F-033](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-F-033.docx) (MSF, France) | F |
| 1. Volumetric chest CT
 | TG-DiagnosticCT | Kuan Chen (Infervision, China) | [K-009-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-009-A01.docx) | D |
| 1. Dental diagnostics and digital dentistry
 | TG-Dental | Falk Schwendicke and Joachim Krois (Charité Berlin, Germany); Tarry Singh (deepkapha.ai, Netherlands) | [K-010-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-010-A01.docx) | G |
| 1. Falsified Medicine
 | TG-FakeMed | Franck Verzefé (TrueSpec-Africa, DRC) | [K-011-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-011-A01.docx);Proposal: [G-022](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-022.docx) (TrueSpec-Africa, DRC) | F |
| 1. Falls among the elderly
 | TG-Falls | Pierpaolo Palumbo (University of Bologna, Italy) a.i. [Inês Sousa (Fraunhofer Portugal) on maternity leave, Sep 2021] | [K-012-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-012-A01.docx) | B |
| 1. Histopathology
 | TG-Histo | Frederick Klauschen (Charité Berlin, Germany) | [K-013-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-013-A01.docx) | B |
| 1. Malaria detection
 | TG-Malaria | Rose Nakasi (Makerere University, Uganda) | [K-014-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-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) | [K-015-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-015-A01.docx) | D; G |
| 1. Neurological disorders
 | TG-Neuro | Marc Lecoultre (ML Labs, Switzerland) | [K-016-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-016-A01.docx) | B |
| 1. Ophthalmology
 | TG-Ophthalmo | Arun Shroff (MedIndia) | [K-017-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-017-A01.docx) | B |
| 1. Outbreak detection
 | TG-Outbreaks | Stéphane Ghozzi (Robert Koch Institute, Germany) | [K-018-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-018-A01.docx) | E |
| 1. Psychiatry
 | TG-Psy | Nicolas Langer (ETH Zurich, Switzerland) | [K-019-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-019-A01.docx) | C |
| 1. Snakebite and snake identification
 | TG-Snake | Rafael Ruiz de Castaneda (UniGE, Switzerland) | [K-020-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-020-A01.docx) | B |
| 1. Symptom assessment
 | TG-Symptom | Henry Hoffmann (Ada Health, Germany) | [K-021-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-021-A01.docx) | B |
| 1. Tuberculosis
 | TG-TB | Manjula Singh (ICMR, India) | [K-022-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-022-A01.docx) | C |
| 1. Radiology
 | TG-Radiology | Darlington Ahiale Akogo (minoHealth AI Labs, Ghana) | [K-023-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-023-A01.docx) | D; H |
| 1. Primary and secondary diabetes prediction
 | TG-Diabetes | Andrés Valdivieso (Anastasia.ai & Tecnigen, Chile) | [K-024-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-024-A01.docx) | H |
| 1. AI for endoscopy
 | TG-Endoscopy | Jianrong Wu (Tencent Healthcare, China) | [K-025-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-025-A01.docx) | I |
| 1. AI for musculoskeletal medicine
 | TG-MSK | Yura Perov (EQL, UK) | [K-026-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-K-026-A01.docx) | J |

Mailing lists

| Description | Mailing list | Archive |
| --- | --- | --- |
| General mailing list | fgai4h@lists.itu.int | <https://itu.int/ml/lists/arc/fgai4h> |
| 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> |
| TG-Diabetes | fgai4htgdiabetes@lists.itu.int | <https://itu.int/ml/lists/arc/fgai4htgdiabetes> |
| TG-Falls | fgai4htgfalls@lists.itu.int | <https://itu.int/ml/lists/arc/fgai4htgfalls> |
| TG-Malaria | fgai4htgmalaria@lists.itu.int | <https://itu.int/ml/lists/arc/fgai4htgmalaria> |
| TG-Ophthalmo | 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-MSK | fgai4htgmsk@lists.itu.int | <https://itu.int/ml/lists/arc/fgai4htgmsk> |
| TG-Psy | fgai4htgpsy@lists.itu.int | <https://itu.int/ml/lists/arc/fgai4htgpsy> |
| AHG-DT4HE | fgai4hahgdt4he@lists.itu.int | <https://itu.int/ml/lists/arc/fgai4hahgdt4he>  |

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:
FG-AI4H open code software license

The following is the text of the license to be used in the work of the FG-AI4H open code initiative.

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Annex F:
Summary of decisions

This is a summary of the decisions taken at Meeting G (E-meeting, 27-29 January 2021):

[Dec-K-1. The report of the virtual meeting held 30 September – 2 October 2020 found in J-101 was approved without comments and its five output documents were noted (J-102, J-103, J-105, J-107, and J-200-R1).](#_Toc68108714)

[Dec-K-2. An ad hoc group with members of the FG-AI4H management and the leaders of the various streams in the FG-AI4H Open Code Initiative (FOCI) will follow up on challenges topic and will form a team including the open code initiative leader, to investigate strategies to use them to foster the FG-AI4H work.](#_Toc68108715)

[Dec-K-3. The FG-AI4H agreed to use the modified BSD license identified in Annex E of FGAI4H-K-101 (this report) for the code developed under the FG-AI4H open code initiative.](#_Toc68108716)

[Dec-K-4. The meeting agreed to bring onboard the risk management aspect for AI for health care. Experts are requested to assist Pat Baird (Philips, USA), initially to compile an inventory of failure modes and approaches to mitigate them, as well as to analyse whether there is a deliverable where this could fit, or then propose a new deliverable.](#_Toc68108717)

[Dec-K-5. It was agreed to remind TG Drivers that an update of their activities is expected at each FG meeting.](#_Toc68108718)

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