Global Initiative on AI for Health

Use case for AI for Health: AI based diagnostics at the point-of-care

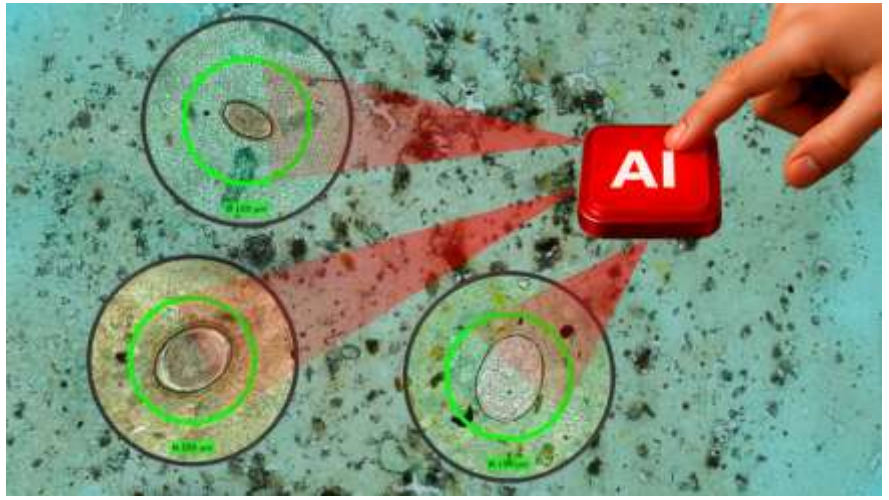
AI for Good, Geneva, July, 11, 2025

Nina Linder, MD, PhD

Professor in AI-based medical diagnostics
University of Helsinki, Finland
Uppsala University, Sweden

What is it?

- AI can be used for image-based microscopy diagnostics at the point-of-care and in field settings
- Accuracy of AI-based diagnostics is continuously improved



Why is it relevant for health?

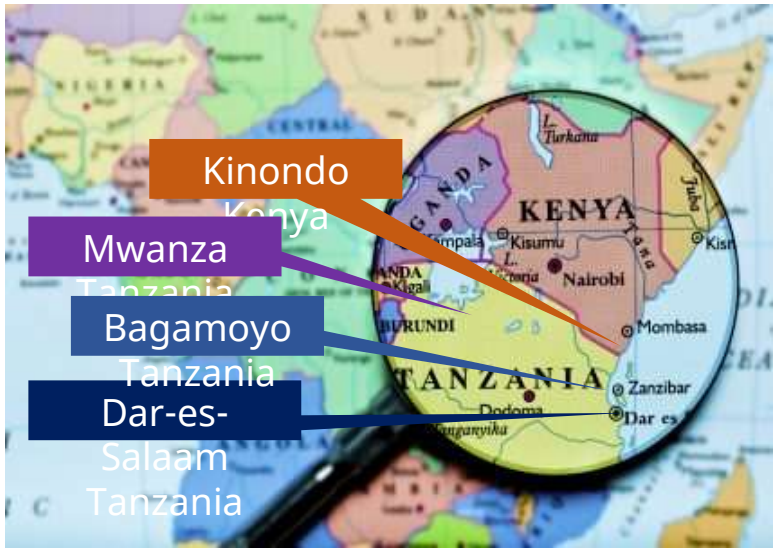
- **AI at the point-of-care** can increase access to high quality diagnostics
- Enable test-triage-treat
- Allow task-shifting
- **Large-scale implementation needed!**

Topic Group - AI at the point-of-care

Applied to cancer screening and infectious disease diagnostics in East-Africa

A series of real-world studies in resource-limited, challenging settings in 2019-25

- Studies on cervical cancer, neglected tropical diseases and malaria and screening have been conducted
- A minimal infrastructure approach using mobile microscopy, cloud-based AI, and human-in-the-loop verification
- Accuracy comparable or superior to human experts
- Cost per analysed sample to be established
- Next: Large-scale studies on a regional-national level



Risks and opportunities related to AI at the point-of-care and in resource-limited settings

Risks & challenges

- Generalizability across laboratories and clinics (differences in staining quality, sample preparation, patient populations)
- Models for doctor + machine collaborations in diagnostics are lacking
- Will patients have access to treatment after diagnosis?

Area(s) of opportunity

GI-AI4H can:

- Work to promote and secure access to data and foundation models
- Support large scale implementation in resource-limited settings and at the point-of-care
- Approach governments and NGOs with comprehensive information about opportunities to use AI for medical diagnostics

Key messages

1. Feasible to use AI in a primary healthcare setting for screening of cervical cancer and parasitic diseases w/AI
2. Funding models, regulatory approvals and stakeholder engagement are key for large scale implementation
3. Enormous potential for saving women´s lives and improve children's health through improved access to diagnostics