ITU / WHO Focus Group on Artificial Intelligence for Health

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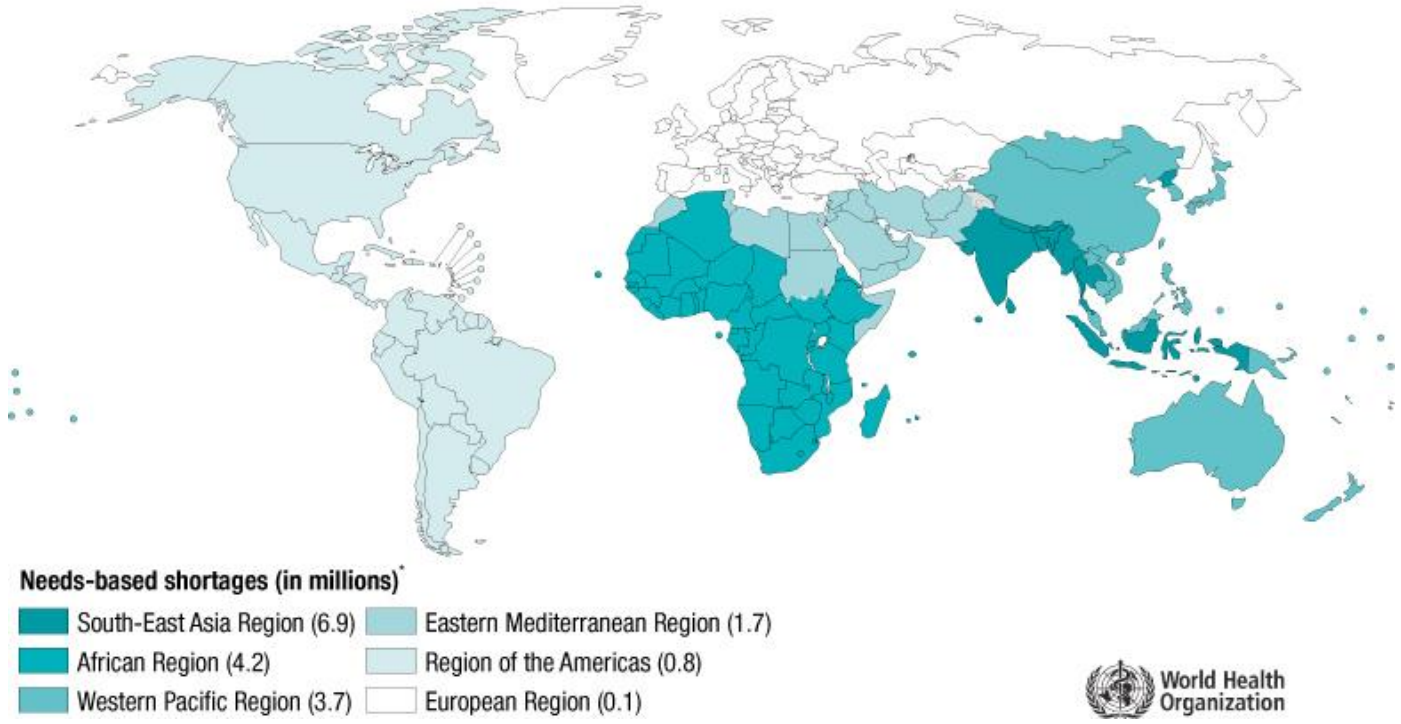
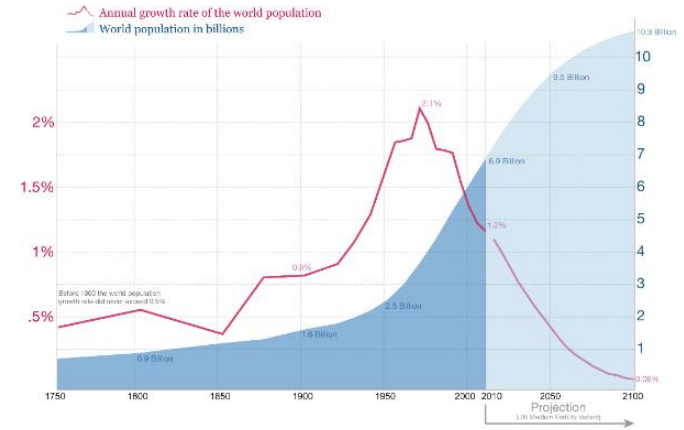
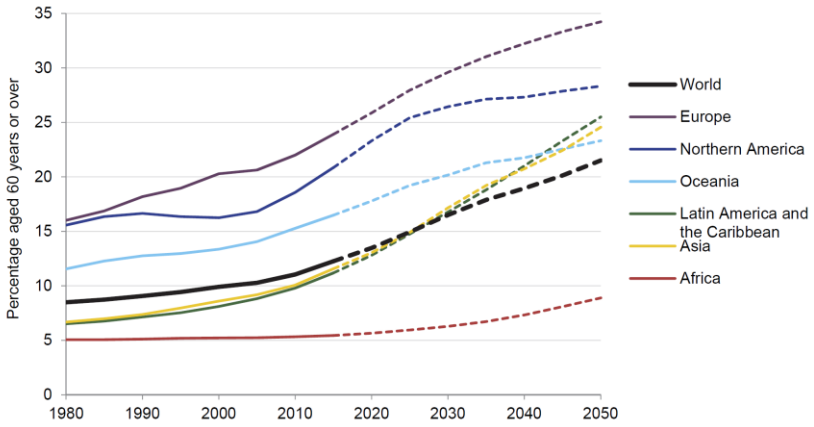
Shortage of Health Workers



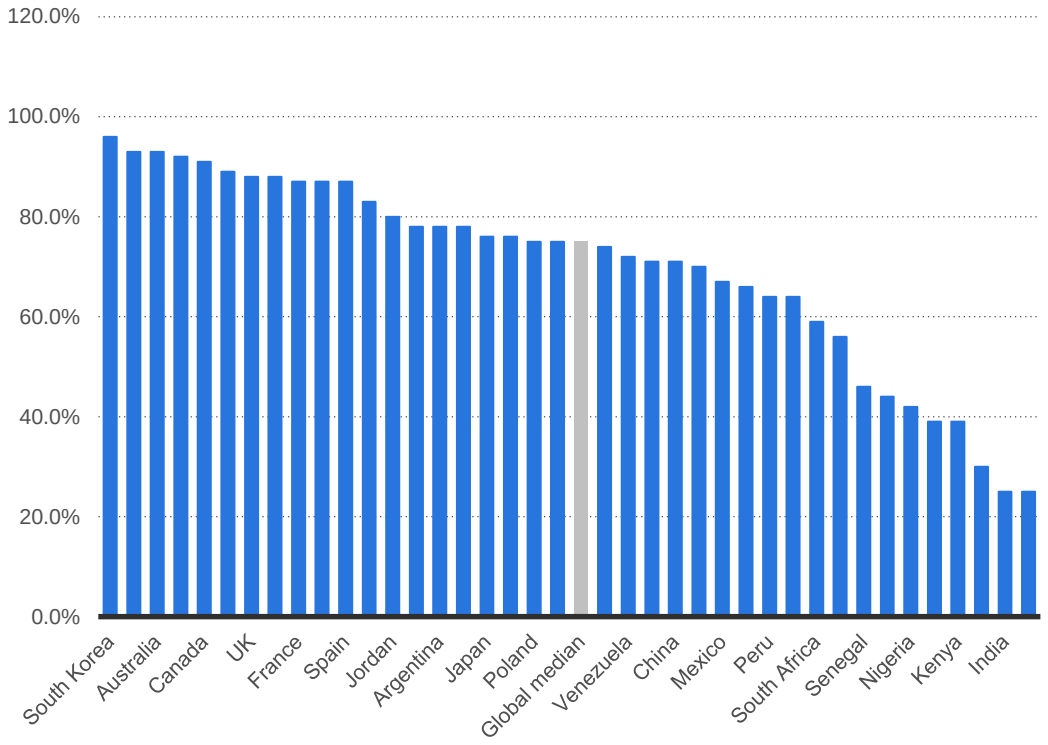




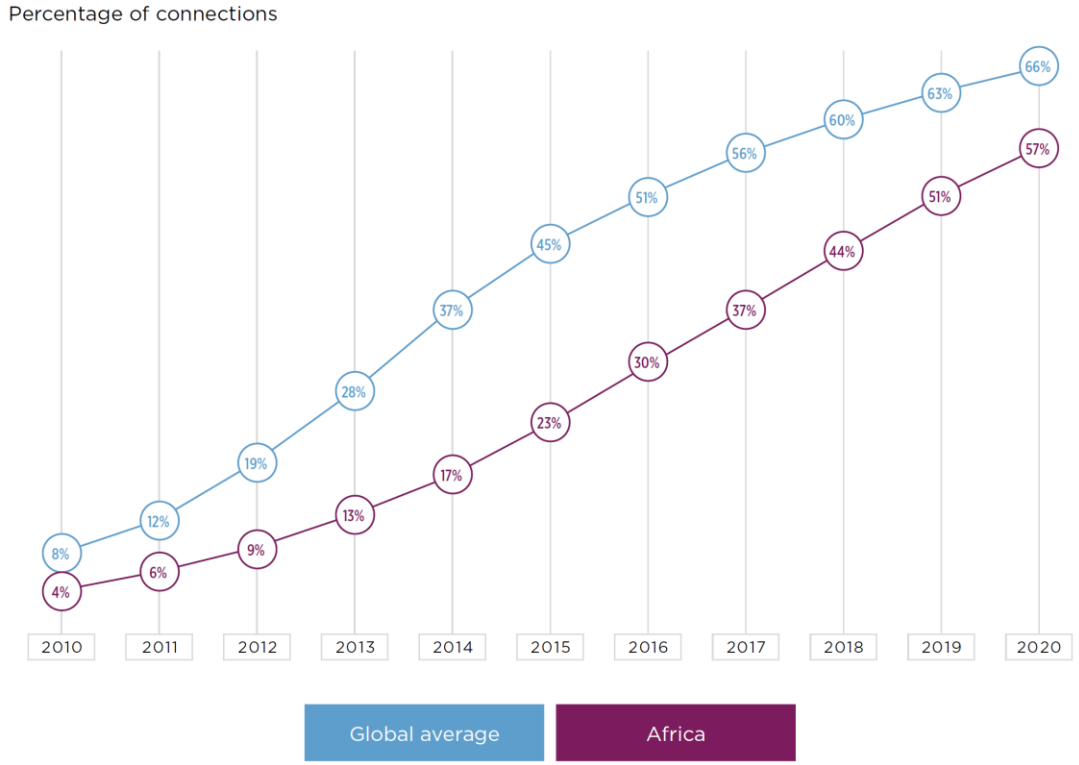
Will become more serious with a growing and aging population

Sources: WHO, Roser & Ortiz-Ospina (2018), United Nations

Telecommunication Offers New Solutions



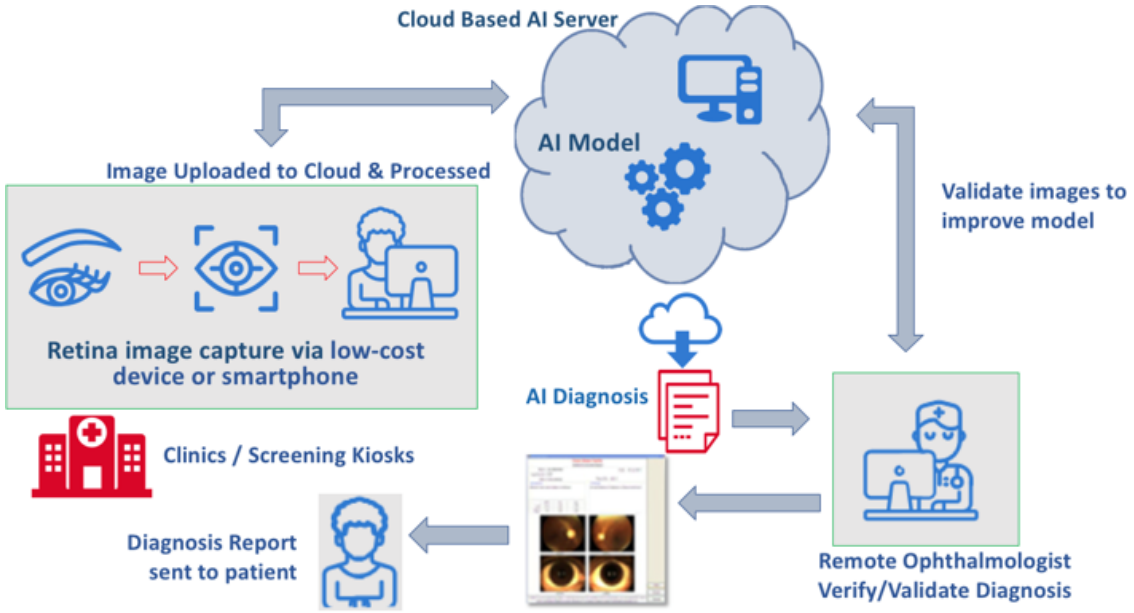
At least occasional internet access (2017)



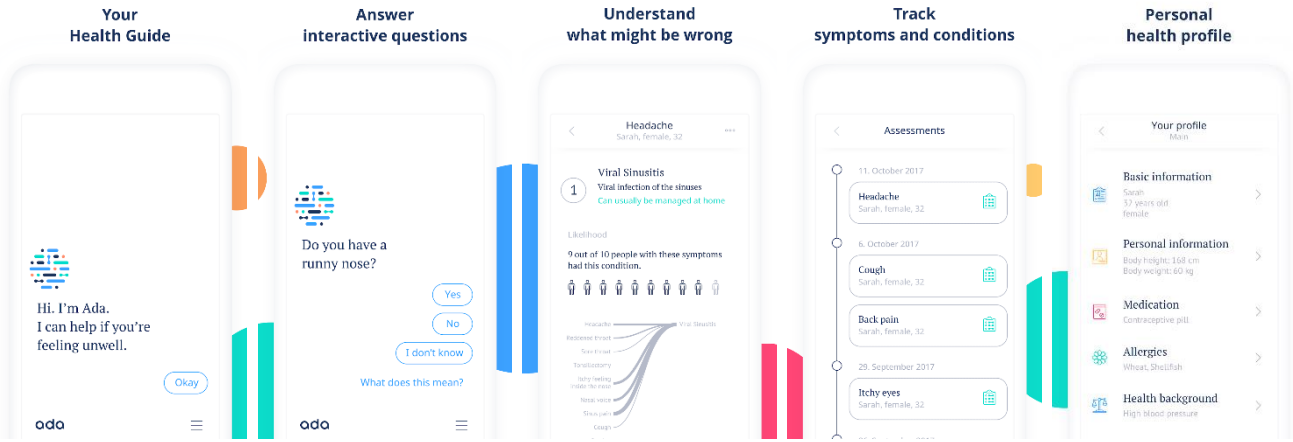
Smartphone adoption

Sources: Pew Research Center © Statista 2018 & GSMA Intelligence

Examples of AI for Health



AI-based diagnosis of eye disease from photos



Mobile smartphone app for symptom assessment & triage

Sources: Arun Shroff (Medindia.net) & Ada Health GmbH

AI for Health
An ITU Focus Group
In collaboration with WHO

AI Algorithms Map From/To

From

- Clinical records (SNOMED CT, HPO)
- Text (symptom description in layman's terms)
- Images (photos, videos, microscope, CT, MRI, X-ray)
- Laboratory results
- Sensor time series (ECG, EEG)

To

- International Classification of Diseases (ICD)
- International Classification of Health Interventions (ICHI)
- SNOMED CT

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Standardized assessment of AI for health solutions

- Would assure the quality
- Foster the adoption in practice
- Have strong impact on Global Health

Suggested Assessment Framework

- Standardized input data sets
- Confirmed standardized diagnosis/decision for each patient
- Split data into public *training* and private *test* sets
- Create metrics for comparisons (incl. timing aspects and other costs)
- Let the AI algorithms compete

FG AI4H: Identify

- Use case descriptions of AI4H solutions that are scalable
- Data required for testing AI4H algorithms
- Common health-specific domains, e.g. general diagnosis, specialty diagnosis (e.g. dermatology), health NLP, general clinical encounter note data extraction and coding, Rx coding, lab coding, etc.
- Standardization opportunities for benchmarking

Create

- An assessment framework for a standardized evaluation and validation of AI4H algorithms (with WHO)
- Open benchmarks, targeted to become international standards for the identified use cases. For each domain:
  - Identify sourcing of test data
  - current gold standard test success rates (e.g. how does a professional score on this test data)
  - setting of benchmark rates for AI system (to be acceptable for decision support, to be acceptable for autonomous operation)
  - acceptable fail modes (e.g. alert human operator if below a given confidence threshold)
- Reports and specifications for a transparent documentation

Establish

- A platform to facilitate the global dialogue on AI for health (with regular meetings, thematic workshops and forums)
- A partnership with the World Health Organization
- Liaisons with standards bodies, consortia, regulators, core research organizations, engineering teams, health professionals, entrepreneurs and policy makers
- Guidance and/or a registry platform for serious/adverse event (S/AE) reporting

Submit Your Data, because

- Your data may become the reference data set for the targeted health problem
- Your data and with that your data collection process may become visible on a large and even global scale
- Our evaluation will help you to understand the data better
- Our evaluation will help your future data collection processes

Submit Your Algorithm, because

- Your algorithm will be evaluated through our framework
- Government, regulators, insurances and others can use the results of your algorithm evaluation to decided on recommendations and other aspects
- Our evaluation might be your path to world-wide adoption