FG-AI4H – Focus Group on AI for Health

Framing the AI for Health to advance national health-related Sustainable Development Goals and targets

Ramesh S. Krishnamurthy, PhD, MPH, PHIF
Senior Advisor, Health Metrics and Measurement
World Health Organization
Geneva, Switzerland

World Health Organization

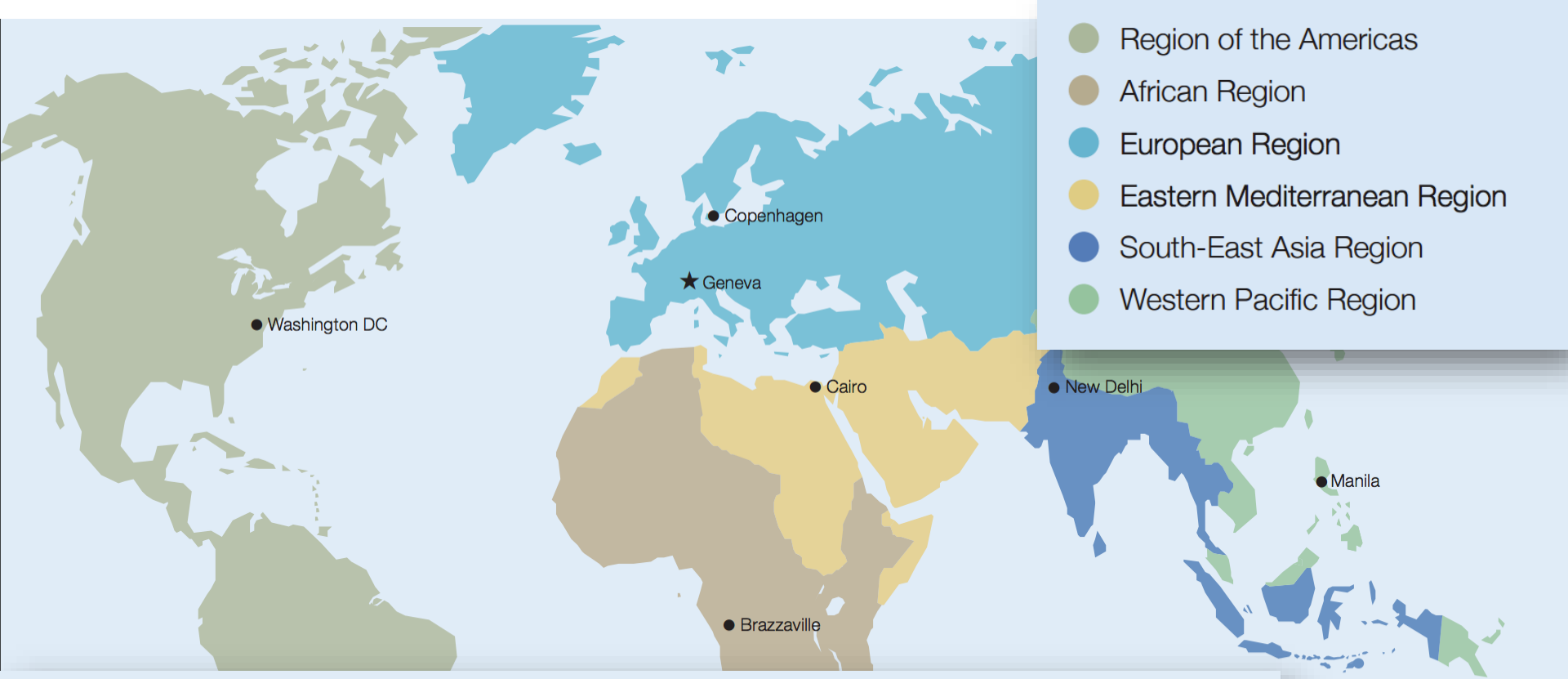
Key Message

- Application of AI in healthcare is most effective when it helps achieve national health-related SDG goals.
- National and sub-national governments are encouraged to have appropriate policy and governance mechanisms to ensure ethical and safe use of Artificial Intelligence (AI) in Healthcare without hindering innovation.

About the
World Health Organization

the United Nations specialized agency for health
Established in 1948

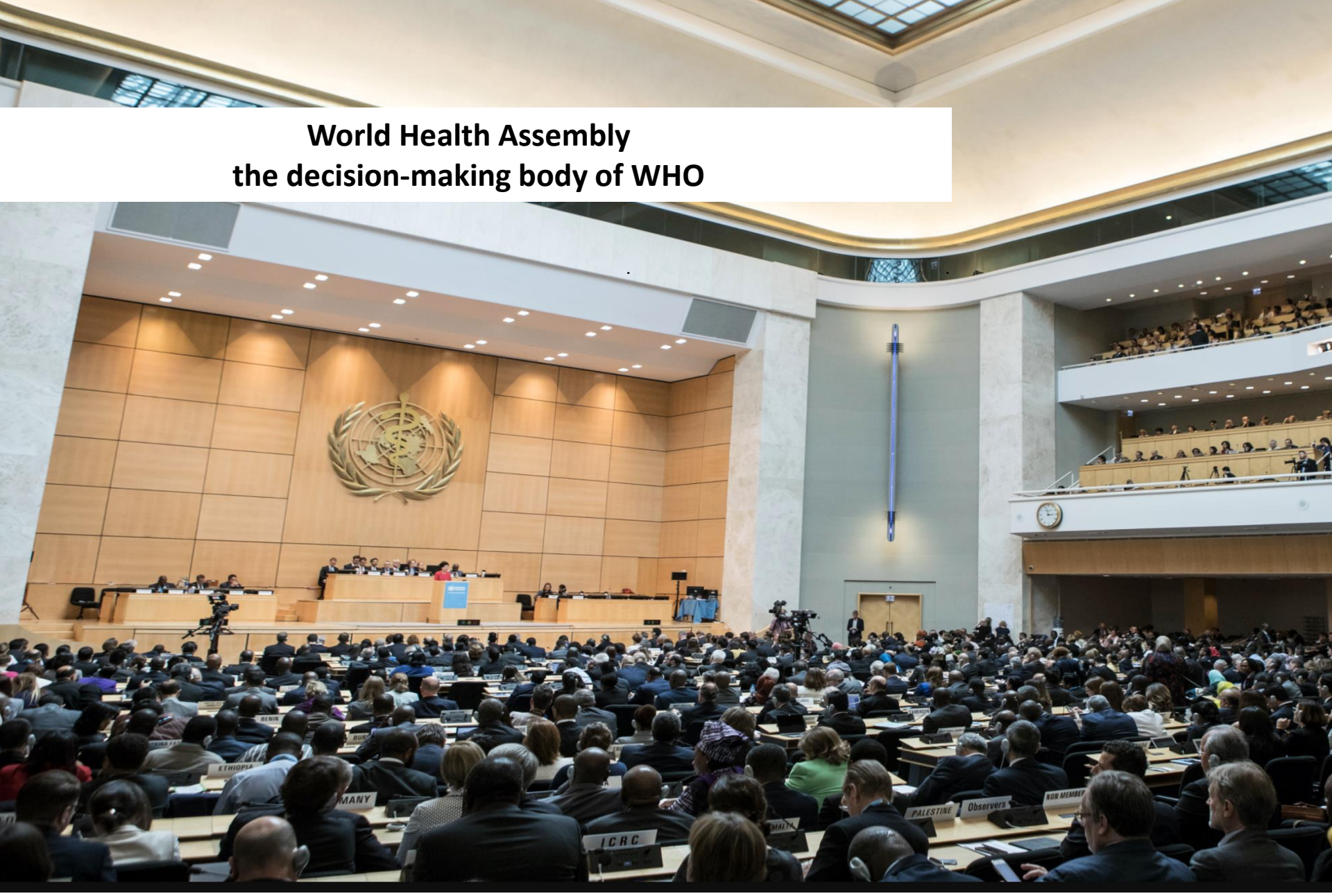
World Health Organization



WHO at a glance

- 194 Member States
- Headquarters in Geneva
- 6 regional offices
- More than 150 country offices
- More than 7000 staff
- More than 700 institutions supporting WHO's work
- Close partnerships with UN agencies, donors, foundations, academia, nongovernmental organizations and the private sector

World Health Assembly
the decision-making body of WHO



One Health

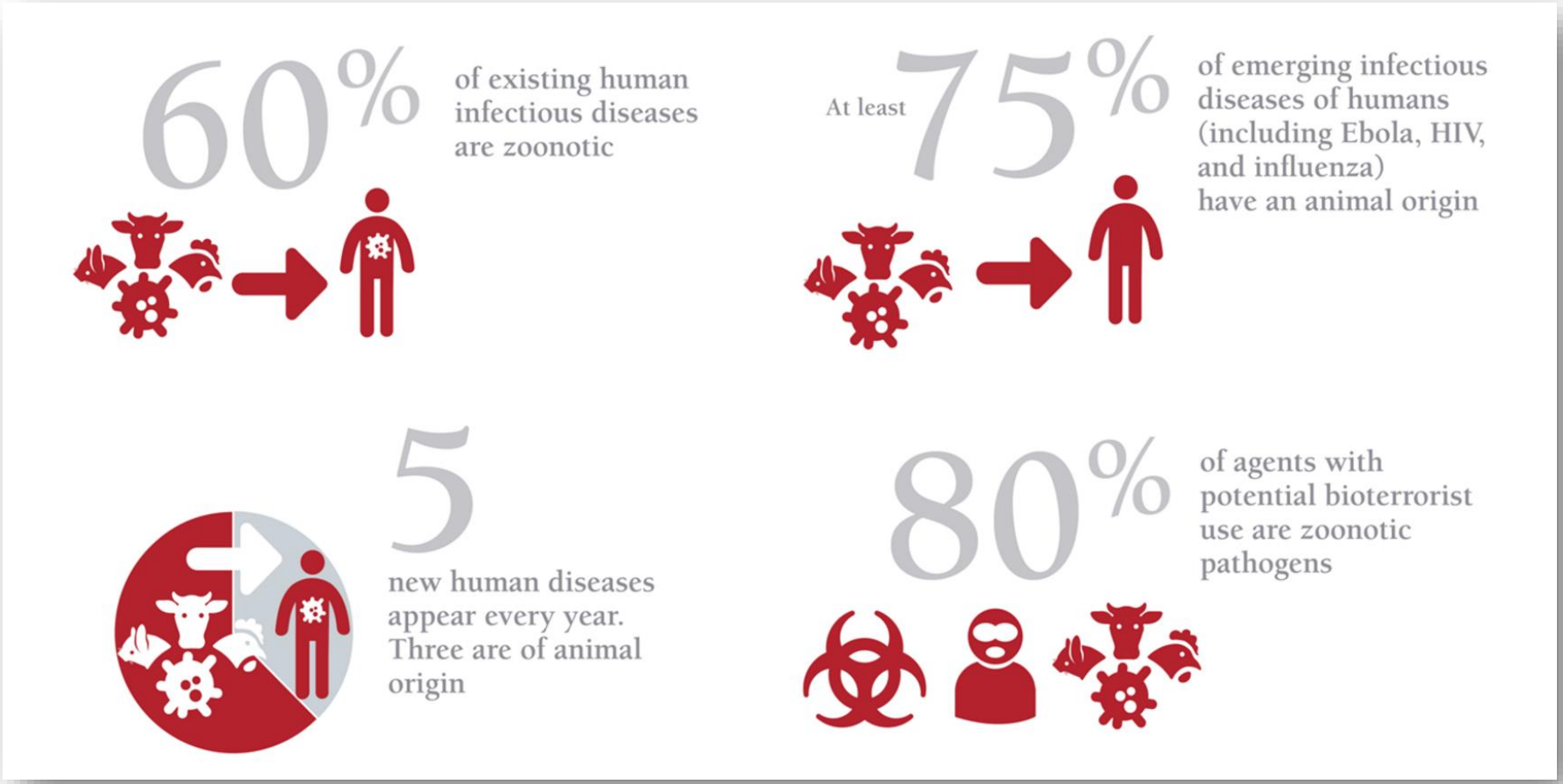
the interconnectedness of human health, animal health and the ecosystem

World Health Organization

One Health

Source: OIE, 2016; http://www.oie.int/for-the-media/onehealth/

One Health



Source: OIE, 2016; http://www.oie.int/for-the-media/onehealth/

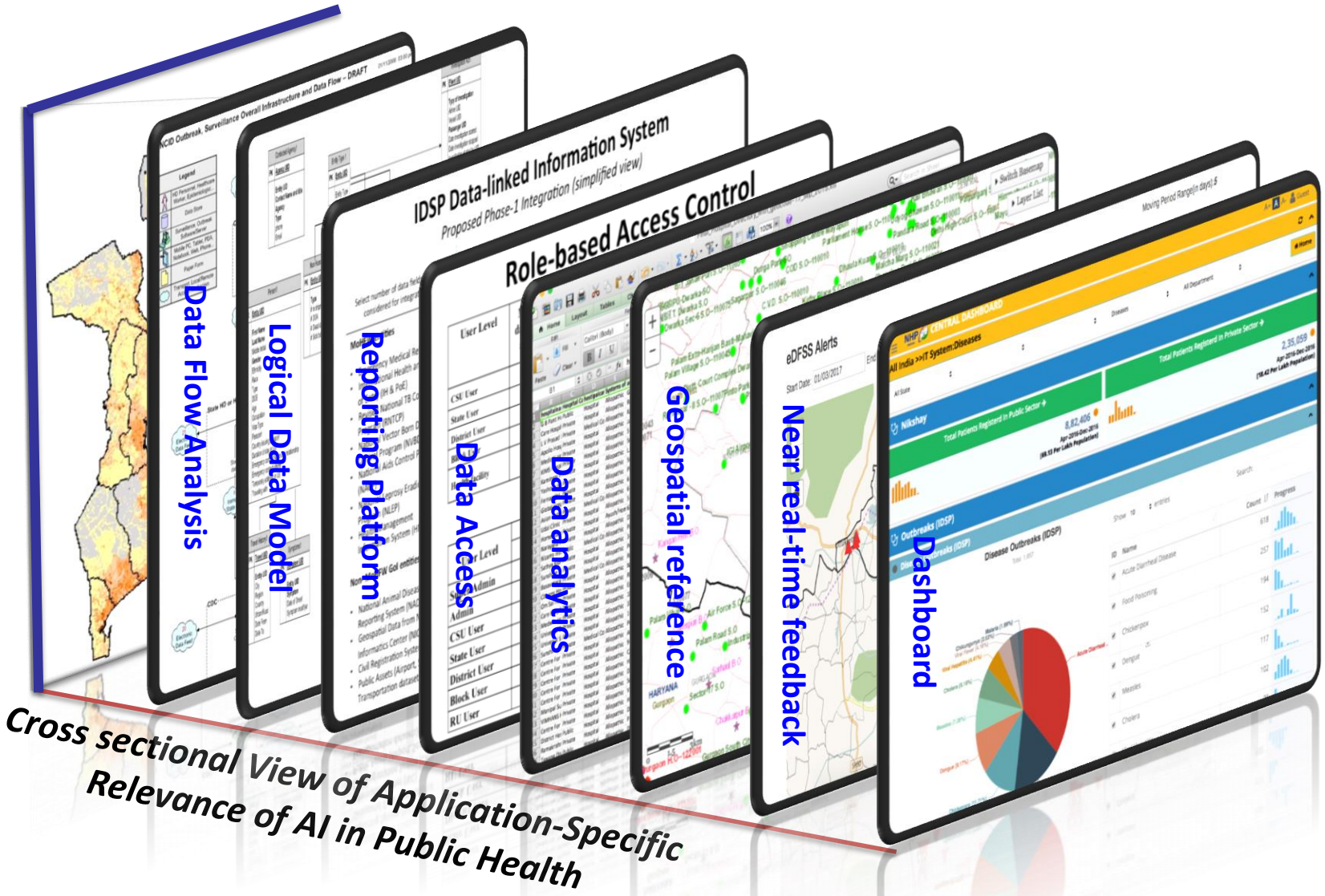
HEALTH IN THE SDG ERA

World Health Organization

WWW.WHO.INT/SDGS

SUSTAINABLE DEVELOPMENT GOALS

Cross sectional View
Relevance of AI in Public Health


Data Flow Analysis
Logical Data Model
Reporting Platform
IDSP Data-linked Information System
Proposed Phase-1 Integration (simplified view)
Data Access
Role-based Access Control
Data analytics
Geospatial reference
Near real-time feedback
eDFSS Alerts
Dashboard
Cross sectional View of Application-Specific
Relevance of AI in Public Health

Five necessary elements for use of AI in Health at National levels

1. AI Policy Framework and Regulatory Mechanisms
2. AI-Specialized Human Resource Capacity
3. AI Architecture and Computing Infrastructure
4. AI-Specific applications and algorithms
5. Financing “AI for Health” Research & Development

Potential work streams for AI in Health

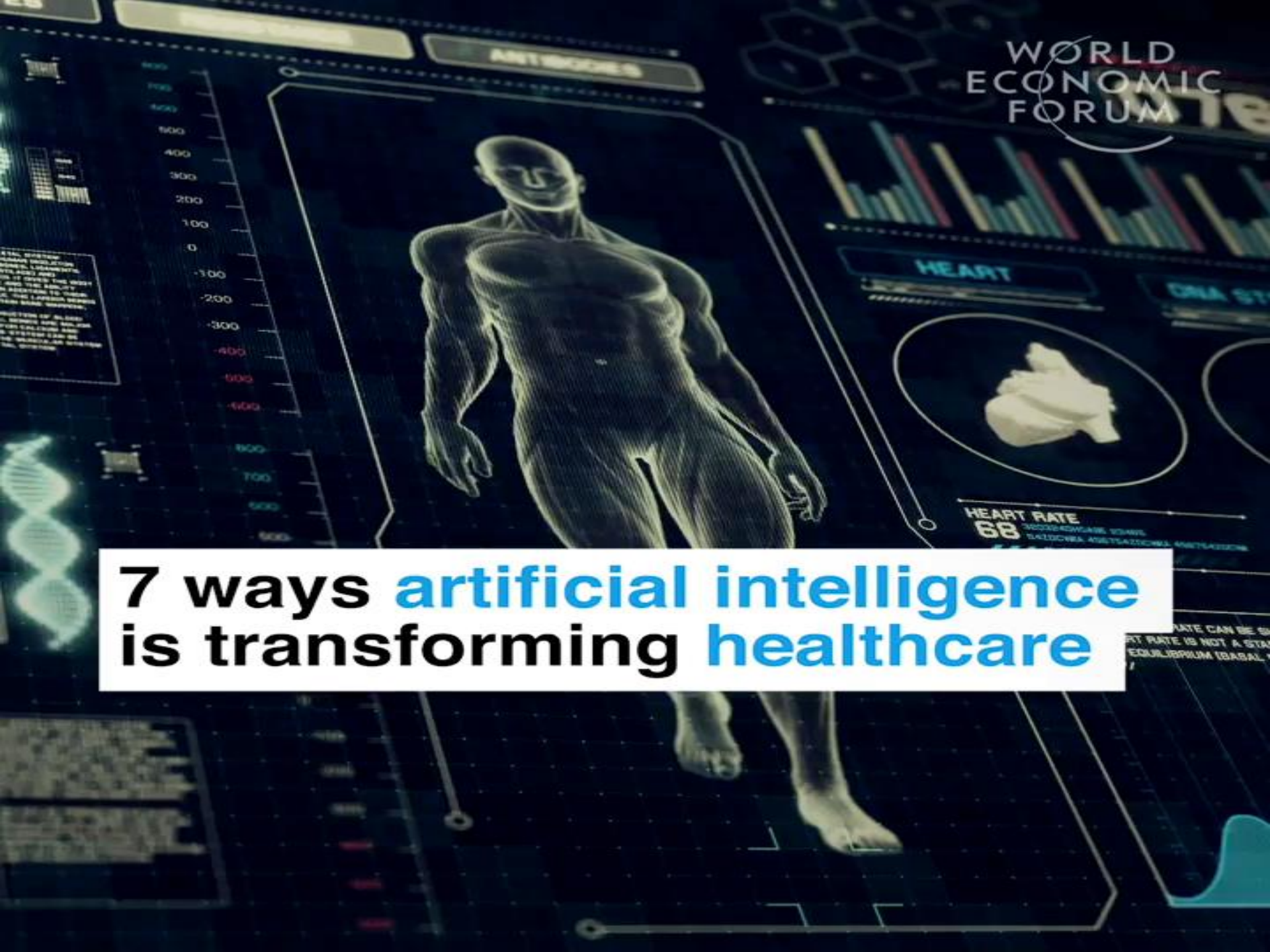
A. AI for primary care and service delivery

B. Outbreaks, Emergency Response and Risk Reduction

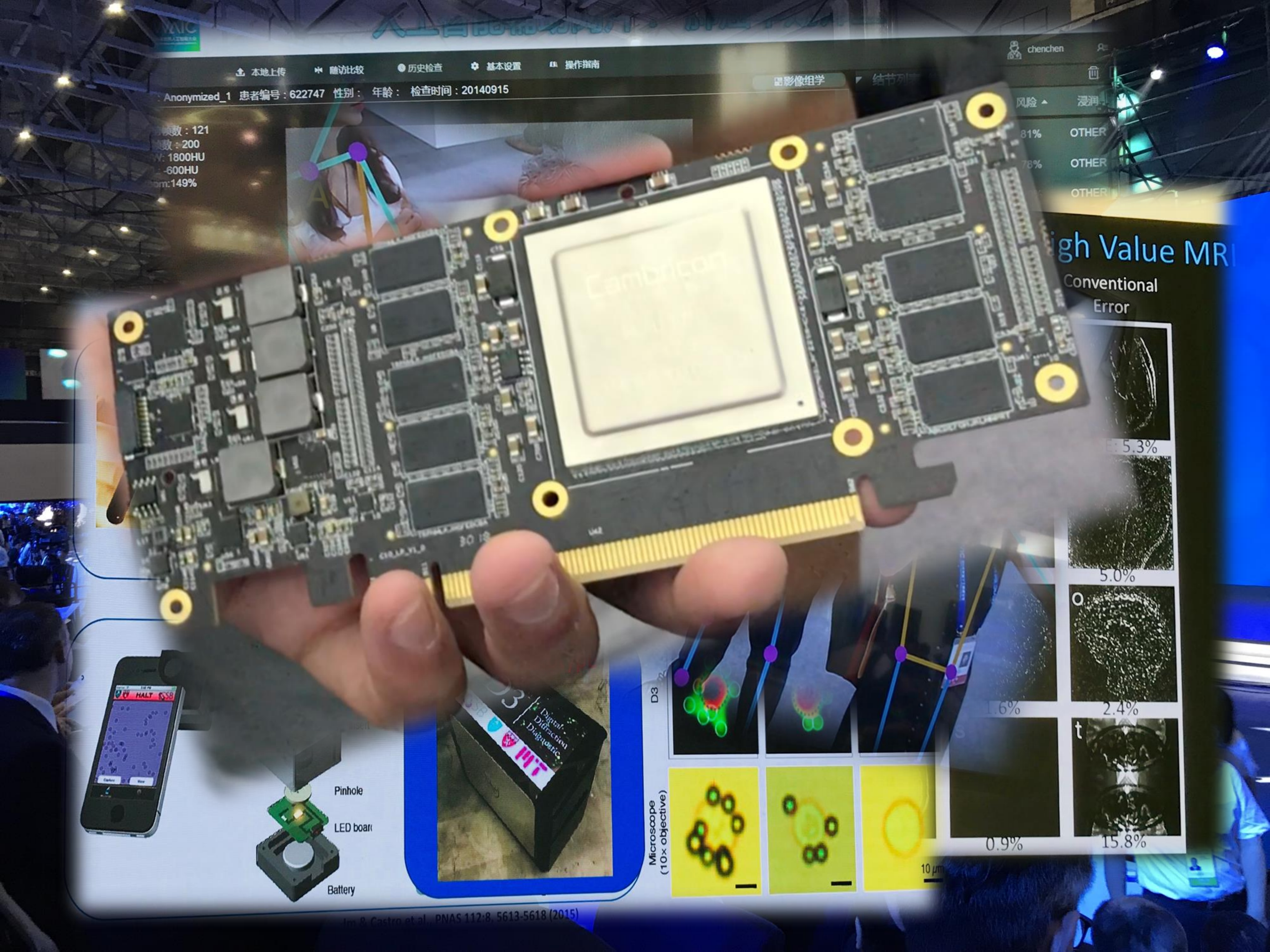
C. Health promotion, prevention, and education

D. AI health policy and financing

Examples of AI-related Ongoing Activities

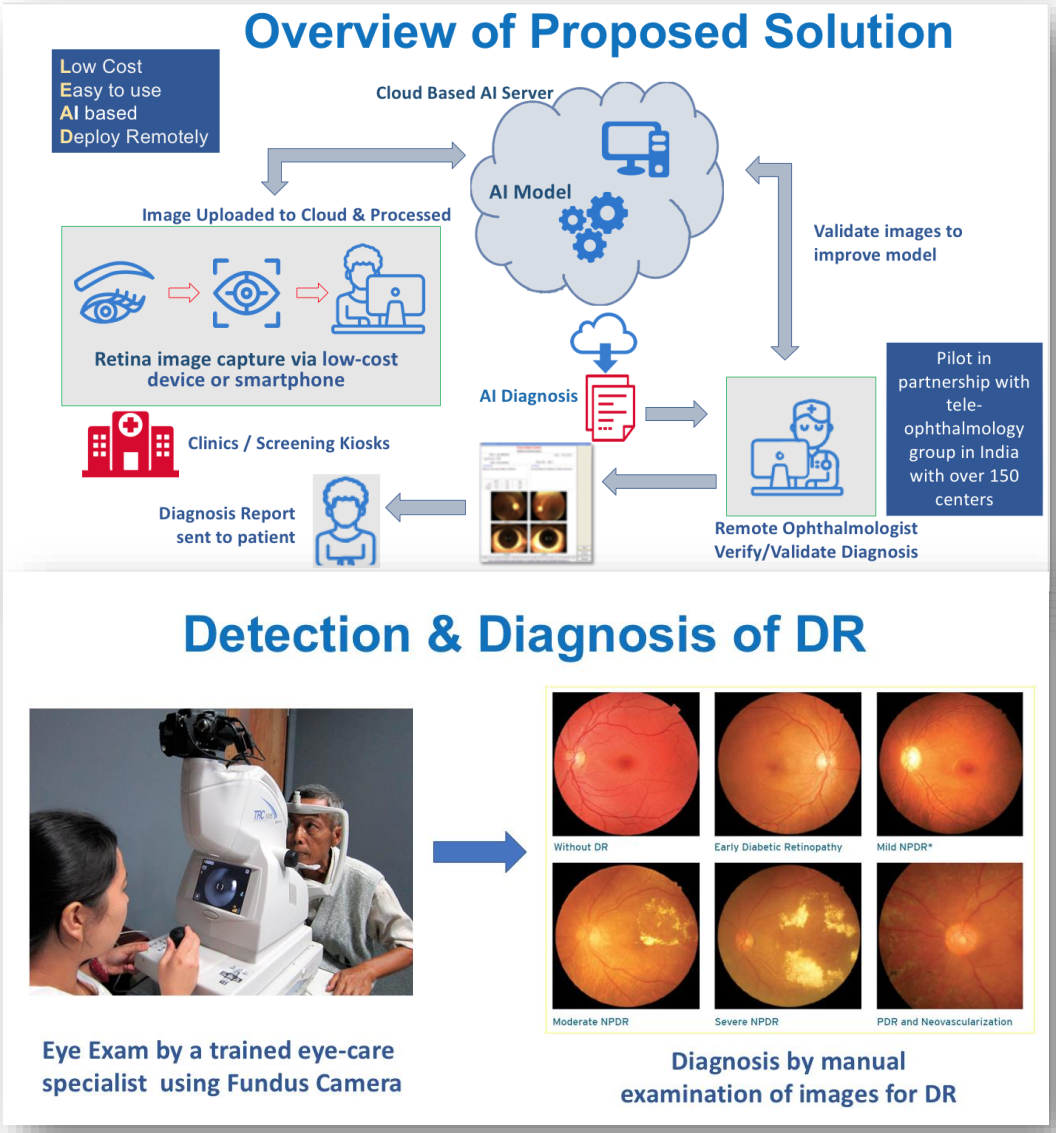


7 ways artificial intelligence is transforming healthcare


本地上传
随访比较
历史检查
基本设置
操作指南
Anonymized_1 患者编号：622747 性别： 年龄： 检查时间：20140915
chenchen
影像组学
OTHER
OTHER
igh Value MRI
Conventional
Error
5.3%
5.0%
1.6%
2.4%
0.9%
15.8%
HALT
Pinhole
LED boar
Battery
D3
Microscope
(10× objective)

Track 2: AI + Health: Artificial Intelligence – a game changer for Universal Health Coverage?

Team Lead: Marcel Salathé (EPFL); Ramesh Krishnamurthy, Senior Advisor, Department of Information, Evidence and Research, World Health Organization (WHO); Sameer Pujari, "Be Healthy, Be Mobile" Project Manager, World Health Organization (WHO)



Proposal Pitch

AI to Detect Vision Loss

Category

For profit

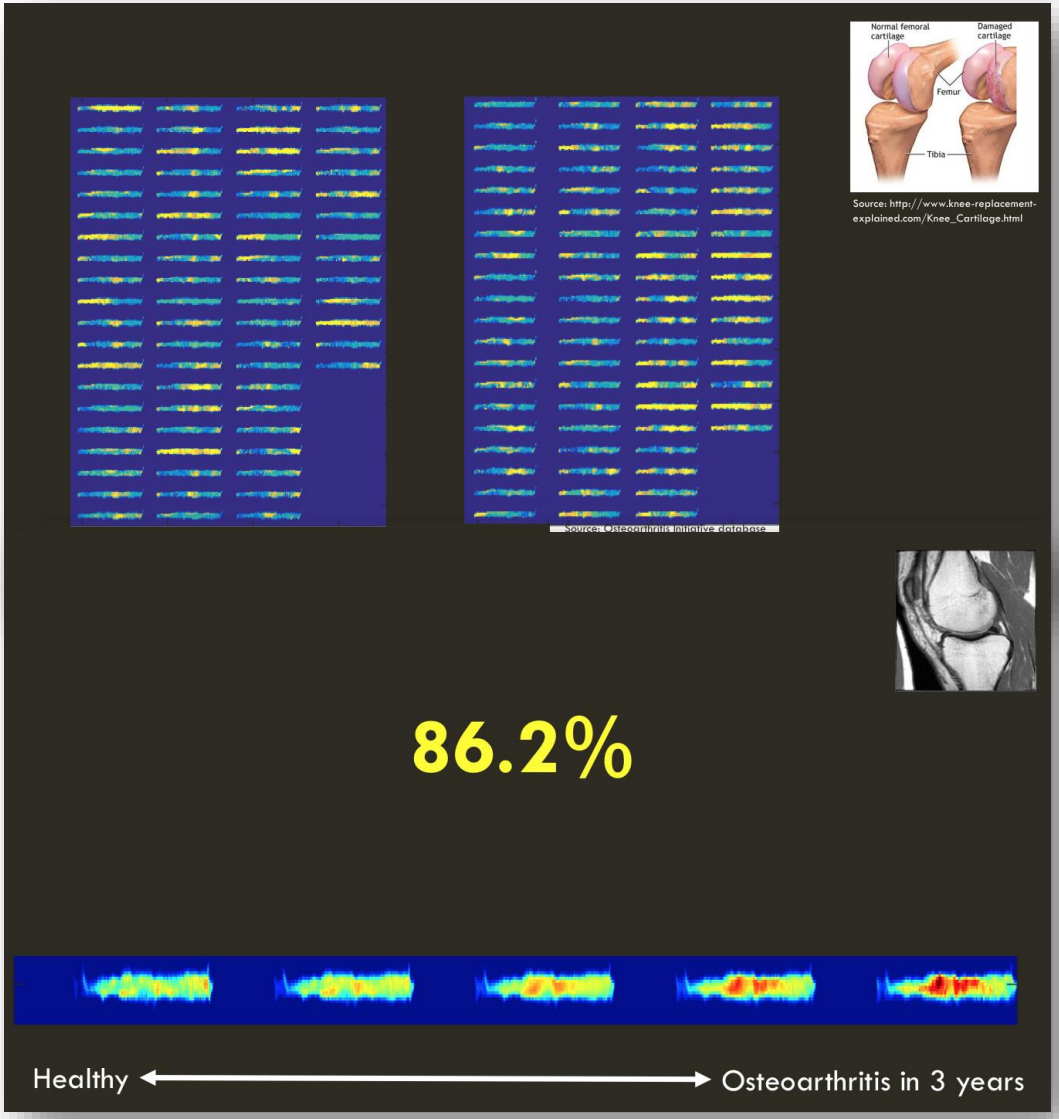
Subject

Diabetic Retinopathy (DR), serious eye-disease affecting people

OO1

Credit: Arun Shroff, Co-founder, Medindia.net

AI for Good Summit, 2018.



Proposal Pitch

AI to Detect Osteoarthritis

Category

Non-profit

Subject

Prediction of who will develop osteoarthritis

OO2

Credit: Shinjini Kundu, University of Pittsburgh Medical Center

AI for Good Summit, 2018

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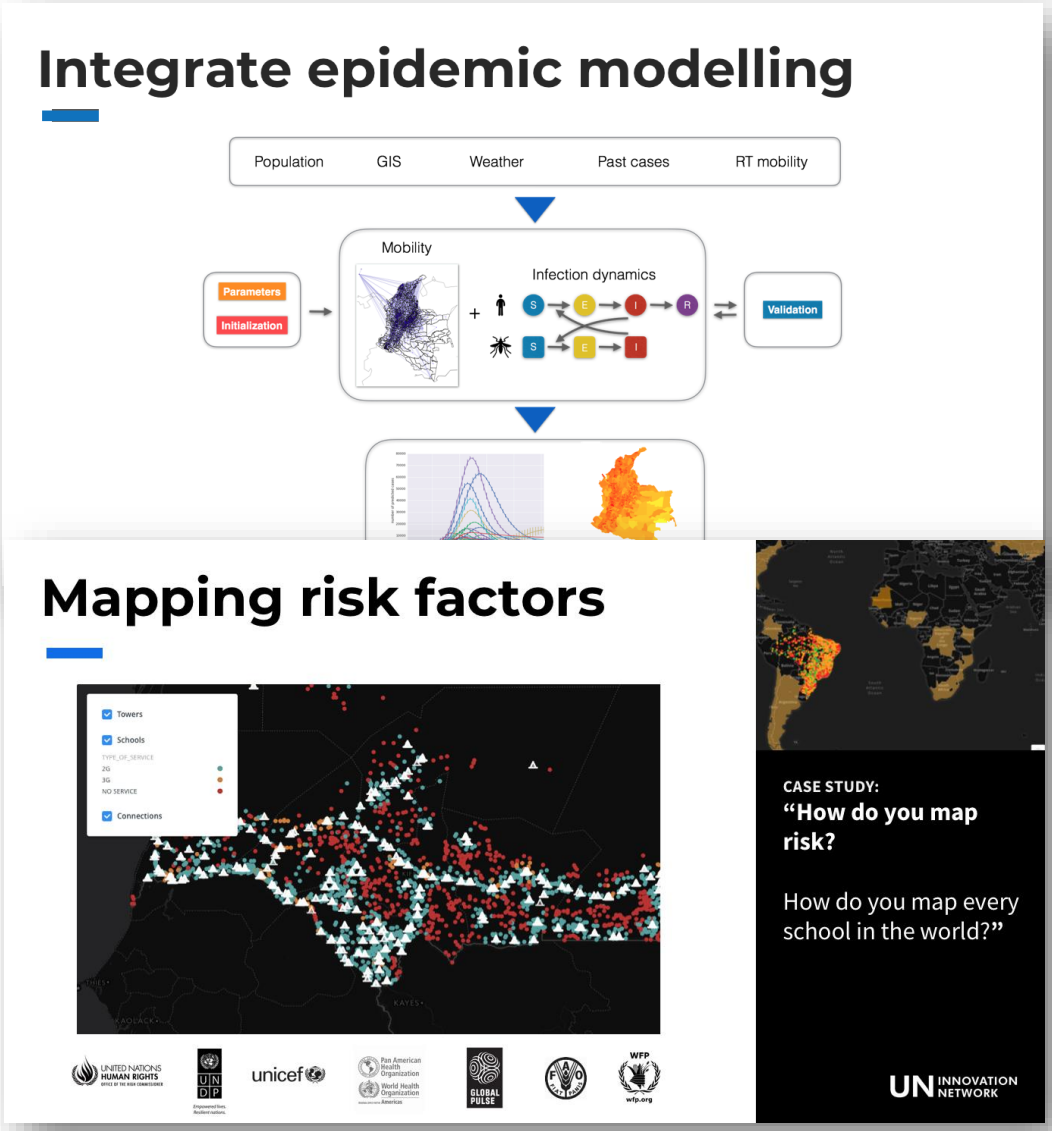


Credit: Clara Palau, UNICEF

AI for Good Summit, 2018.

Proposal Pitch

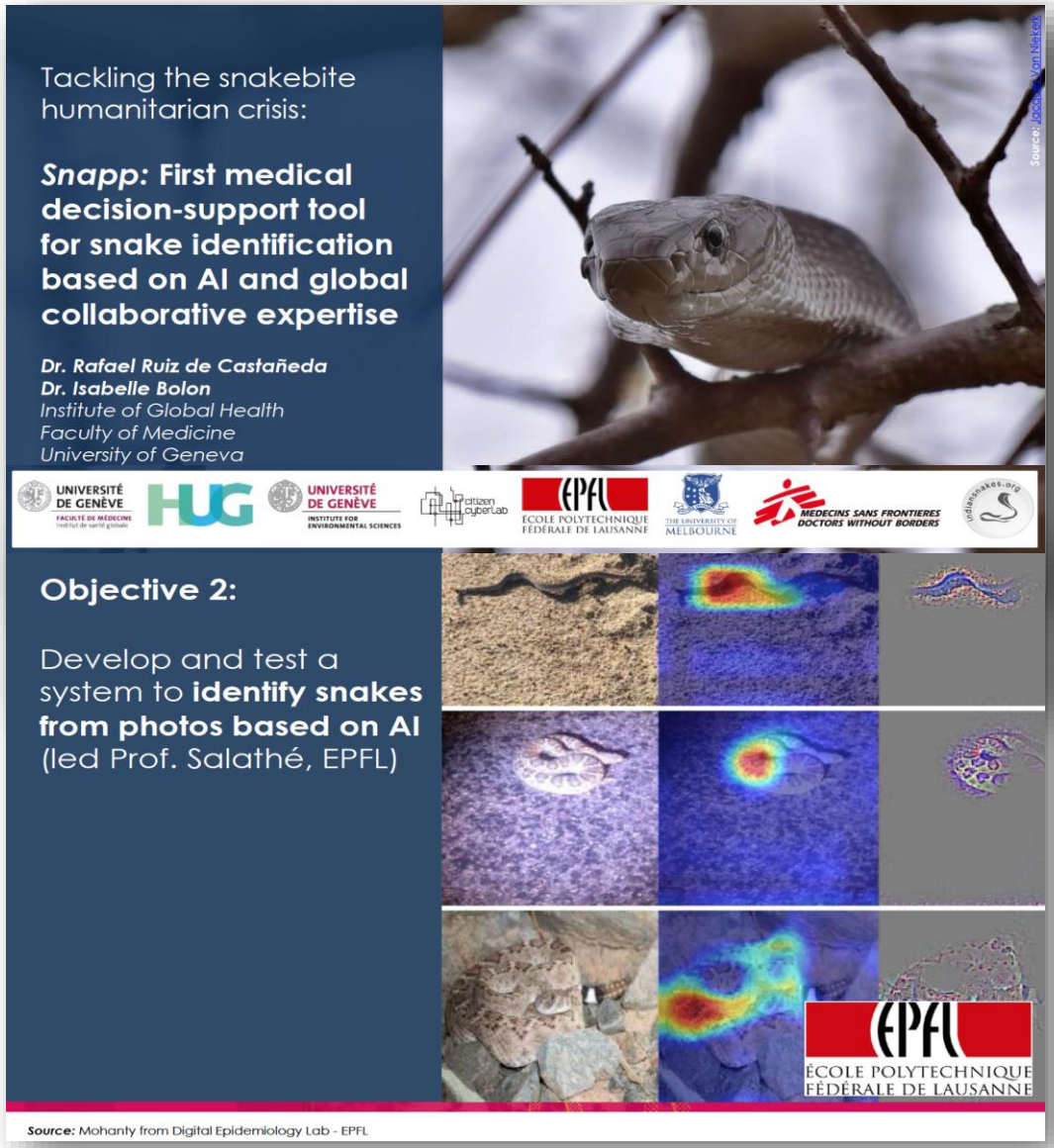
AI powered Epidemic Modelling

Category

Non profit

Subject

Mapping risk factors and assess epidemic risks



Credit: Ruiz Castaneda, Marcel Salathe

AI for Good Summit, 2018.

Proposal Pitch

AI-based snake identification

Category

Non profit

Subject

Rapid response support to health workers to treat snakebites

014

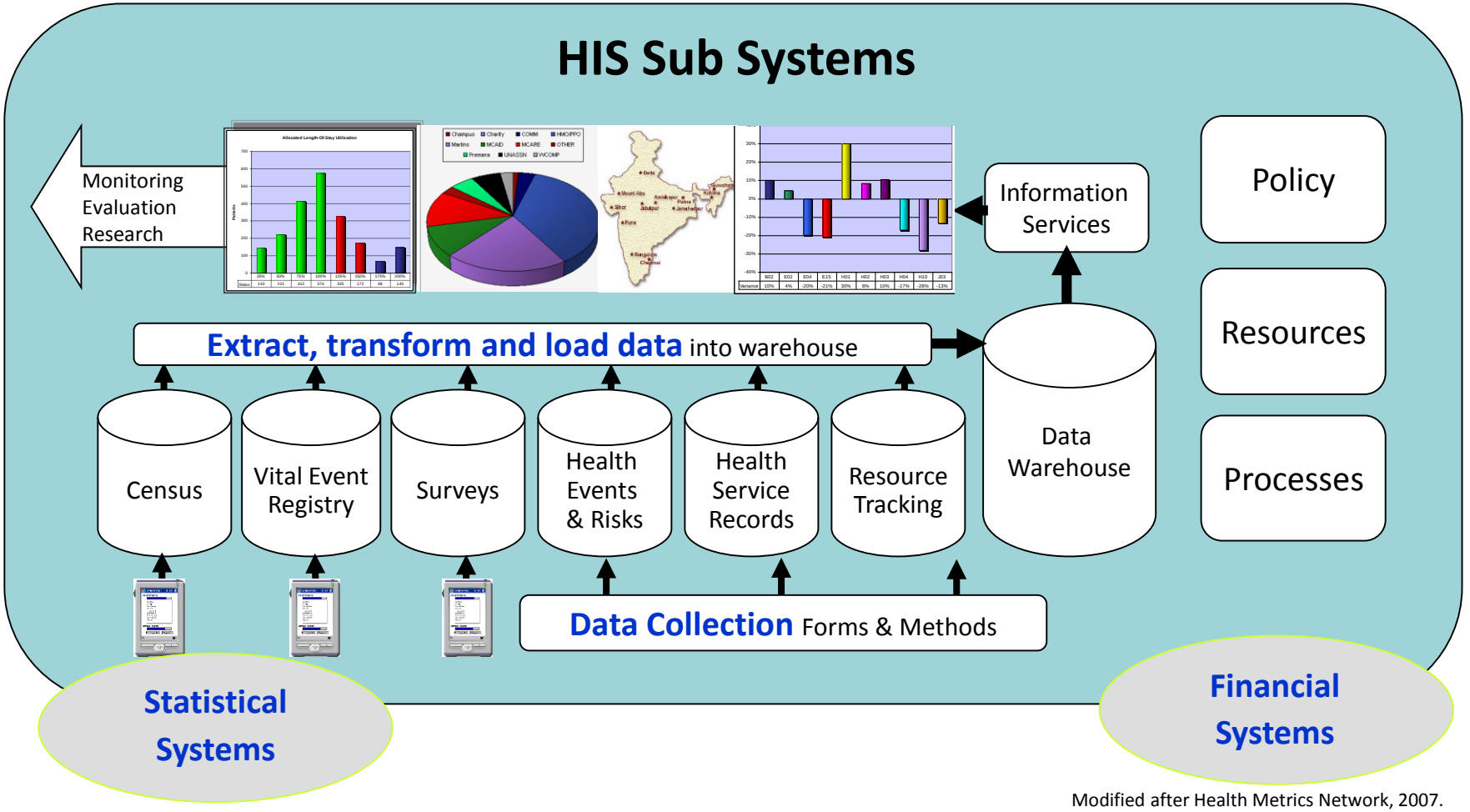
Use of AI in Public Health:

Evidence-informed decision-making and the role of AI

World Health Organization

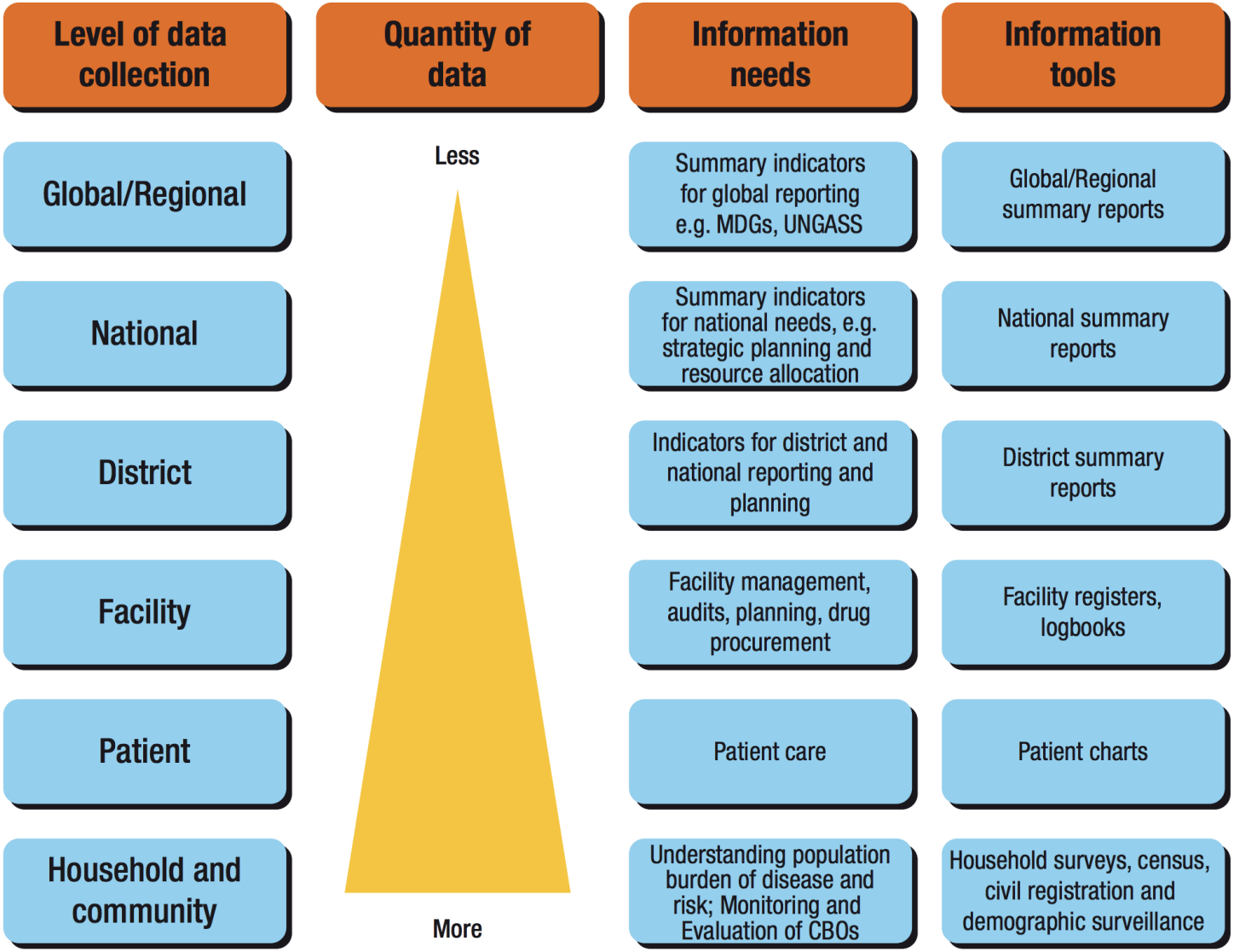
Health Information System Landscape

A Set of Complex Sub Systems



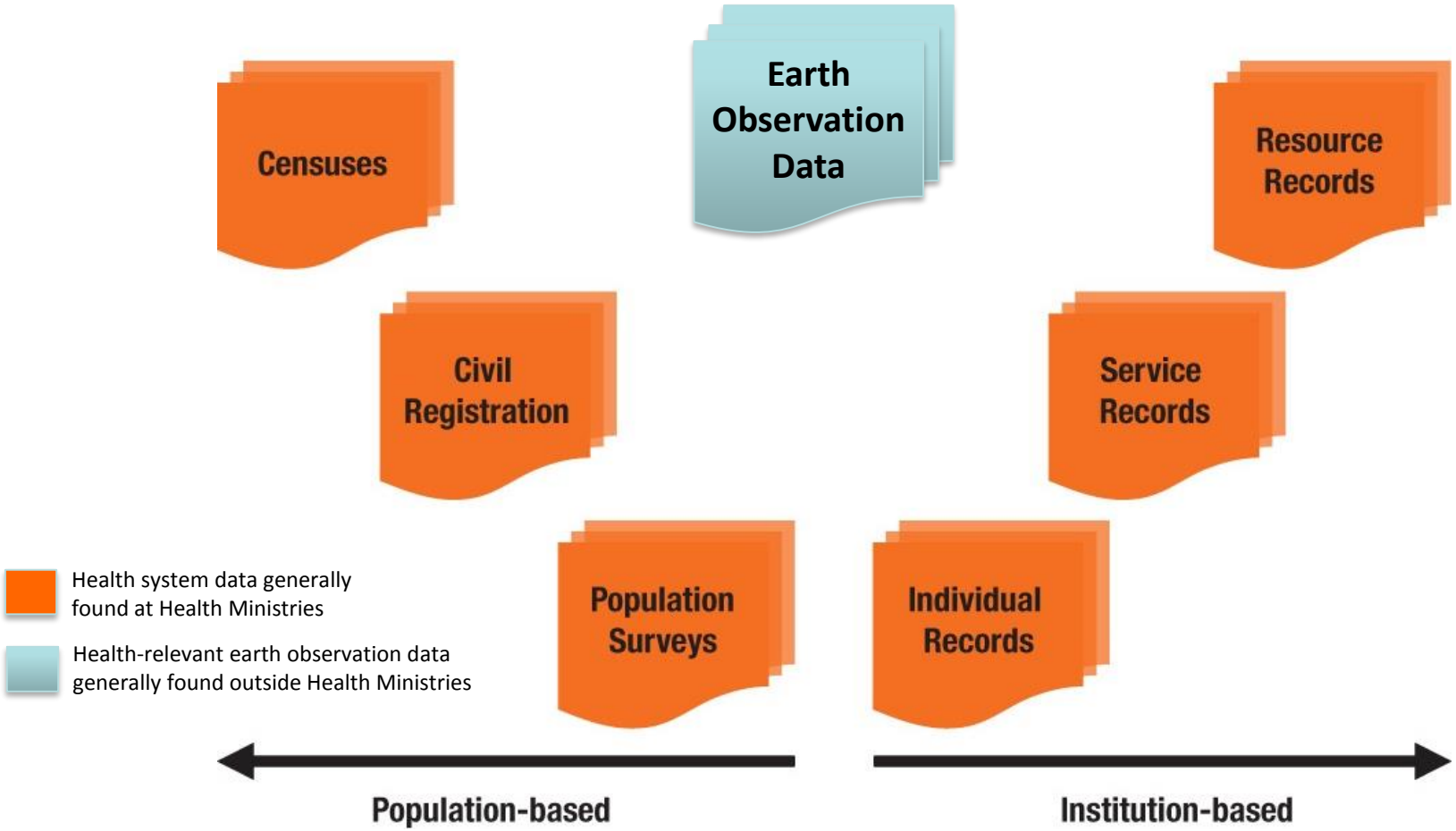
Modified after Health Metrics Network, 2007.

Information Needs and Tools at Different Levels of Data Collection



Source: HMN, WHO 2008

Common health-relevant data sources



Examples of earth observation data

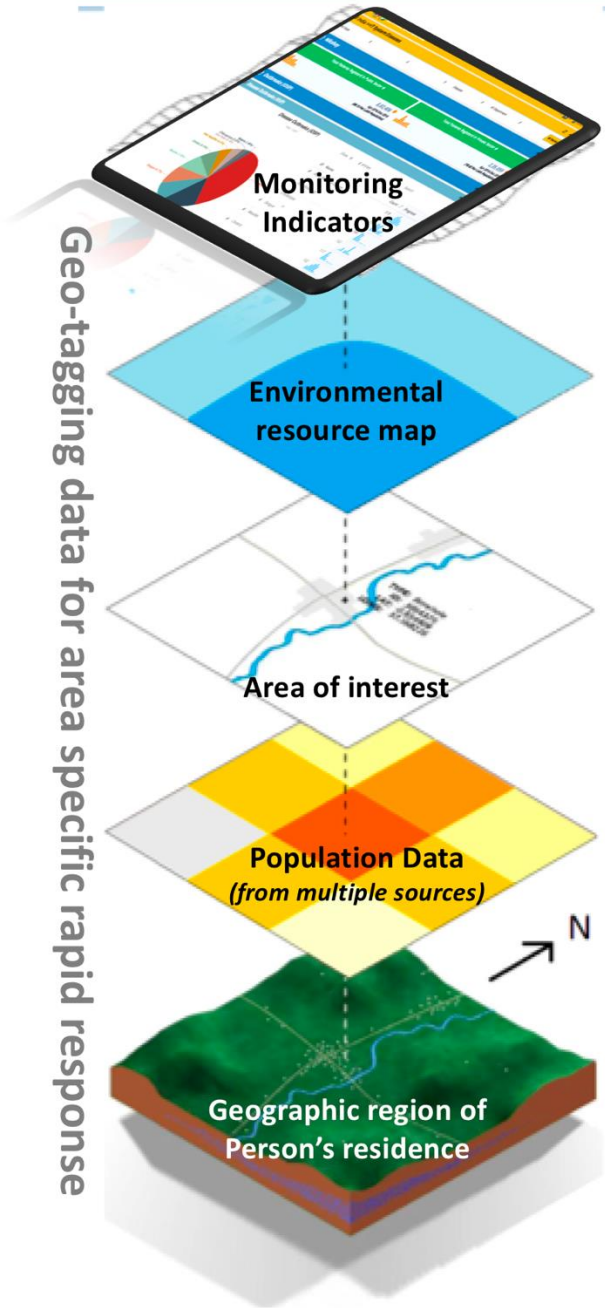
Near-real-time health-relevant earth observation data obtained from satellites

375 m Active Fire
Aerosols
Brightness Temperature
Carbon Monoxide
Cloud motion vectors (Winds)
Cloud Top Pressure
Clouds and Trace Gases
Clouds/Aerosols
Columnar Cloud Liquid Water over ocean
Columnar Water Vapor over ocean
Corrected Reflectance Imagery
Dust
Fire
Global Rainfall
Global Total Precipitation
Land Surface Reflectance
Land Surface Temperature
Moisture Profiles
Nitric Acid
Nitrous Oxide
Ocean Wind Speed
Ozone Profile
Ozone
Precipitation
Radiances
Retrieved Carbon Monoxide
(Thermal Infrared Radiances)
Sea Ice Concentration
Sea Ice
Snow Cover
Snow Water Equivalent
Soil Moisture
Sulfur Dioxide
Temperature
Total Column Ozone and Aerosol Index
Total Precipitable Water
Water Vapor

Source: NASA, 2017. https://earthdata.nasa.gov/earth-observation-data/near-real-time/download-nrt-data

Example of dataset required for national unified health information system

Data set required for	Prevention	Preparedness	Response	Recovery
Data from Routine Health Information Systems (Health Management Information Systems, Routine disease-specific information systems; other health information sub-systems; national emergency operations systems situation reports; NCD and environmental health data)				
Complete list of diseases, health conditions		**List of donor and partner agencies**		**Subject-specific financial Data**
Health facilities list (all types and levels)		**Health workforce data** (all cadre)		**Outbreak-related health data**
Essential medicines list		**Supply-chain information**		**Essential medical devices list**
Satellite Imagery (various types and resolutions)		**Other context-specific data**		**Other remotely sensed data** (temperature, precipitation, terrain and topology)
GIS with shape files, base maps and commonly used layers				
National pubic assets data (Airport locations, transportation hubs, Road network maps)				**Country-specific population data** (national/sub-national level; projections, census, actual)



Near real-time data gathering ability from
36 States, 707 districts, 6267 sub-districts, and 655075 villages

Integrated Health Surveillance Portal

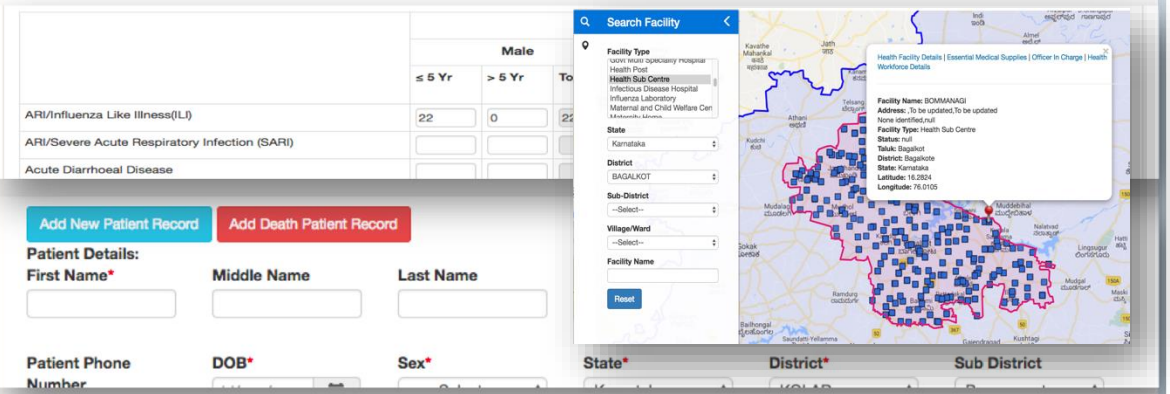
Integrated Disease Surveillance Programme

Ministry of Health and Family Welfare

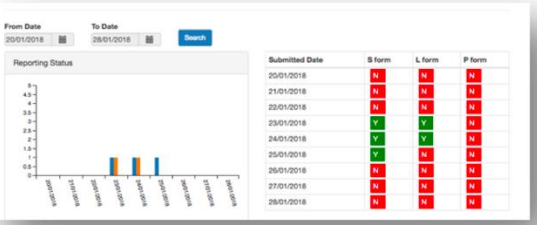
Near real-time, web-enabled, person-centric, national health surveillance portal to track data for routine surveillance, early warning signals, outbreak investigation, special surveillance, facility and lab reporting status, media scanning, customized dashboards

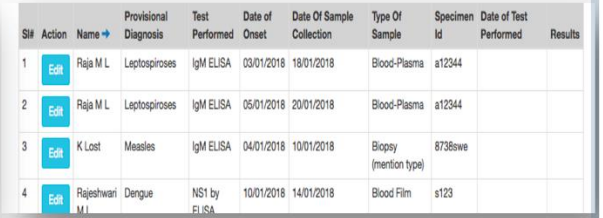
Home | About | Manage IDSP Forms | Special Surveillance | Reports | View Map | IHR

Data entry from phone or computer from anywhere in India



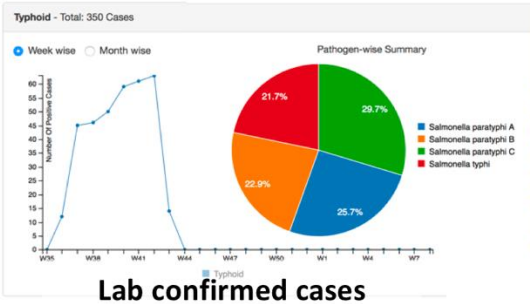
Nation-wide monitoring for compliance



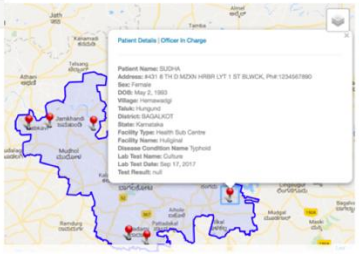


Sl#	Action	Name	Provisional Diagnosis	Test Performed	Date of Onset	Date Of Sample Collection	Type Of Sample	Specimen Id	Date of Test Performed	Results
1	Edit	Raja M L	Leptospiroses	IgM ELISA	03/01/2018	18/01/2018	Blood-Plasma	a12344		
2	Edit	Raja M L	Leptospiroses	IgM ELISA	05/01/2018	20/01/2018	Blood-Plasma	a12344		
3	Edit	K Lost	Measles	IgM ELISA	04/01/2018	10/01/2018	Biopsy (mention type)	8738swe		
4	Edit	Rajeshwari M L	Dengue	NS1 by ELISA	10/01/2018	14/01/2018	Blood Film	s123		

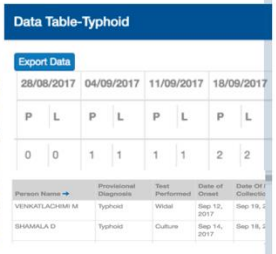
System generated reports



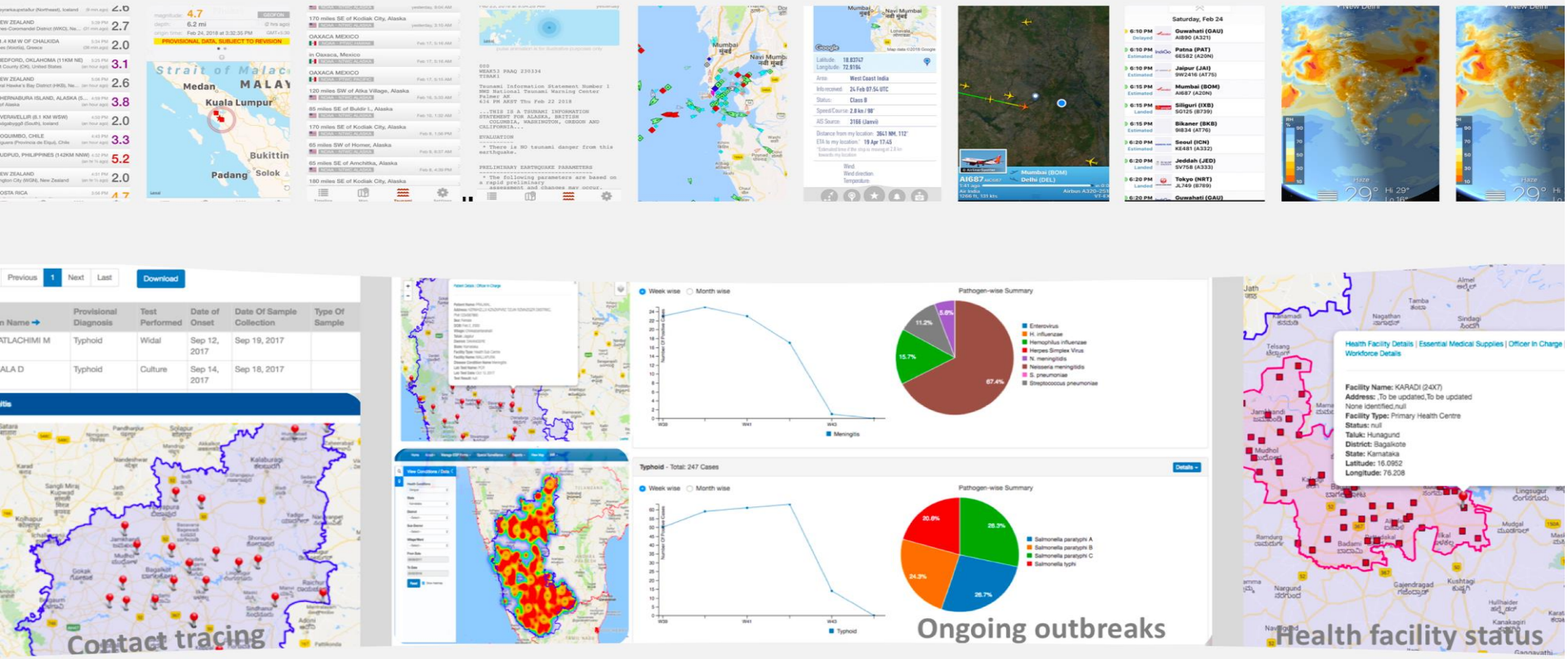
Lab confirmed cases



GPS Location of cases



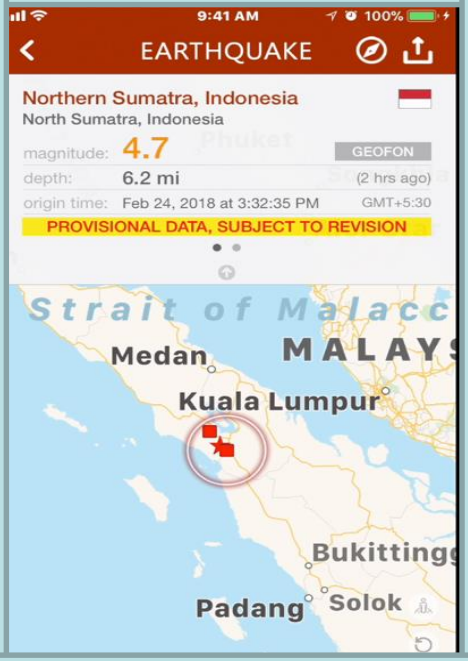
Aggregate report

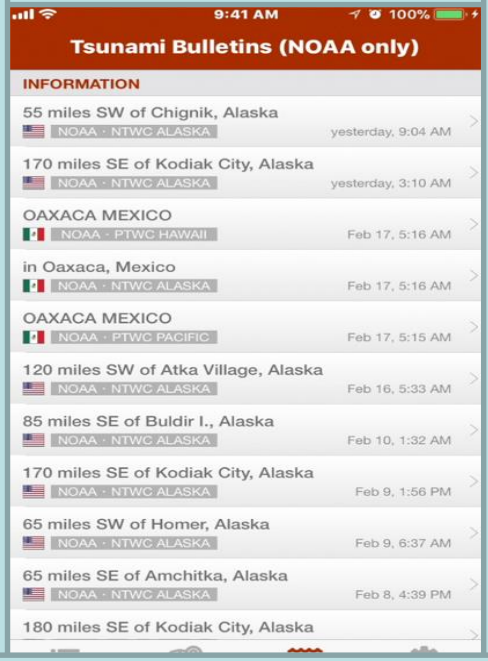


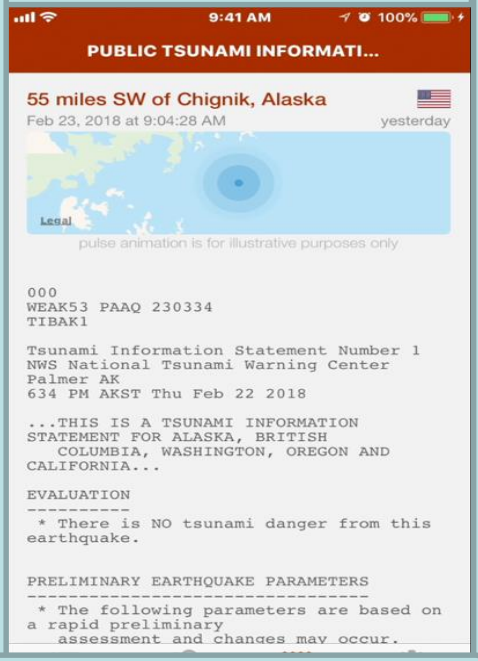
Integrated Health Surveillance Dashboard
Strategic Health Operations Center

Modified after - Source: WHO. Artist rendering, 2015

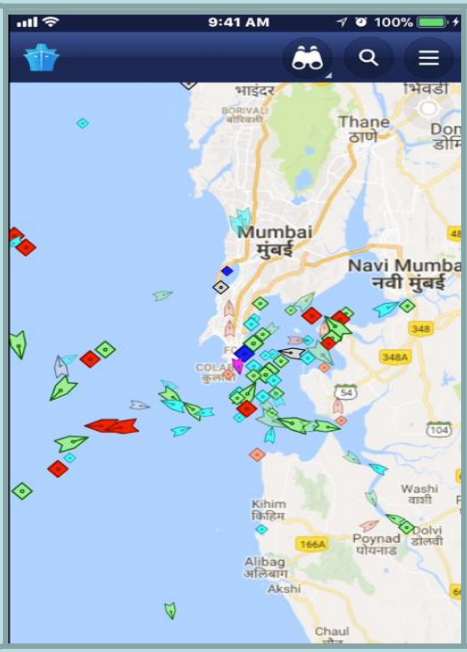
World Health Organization

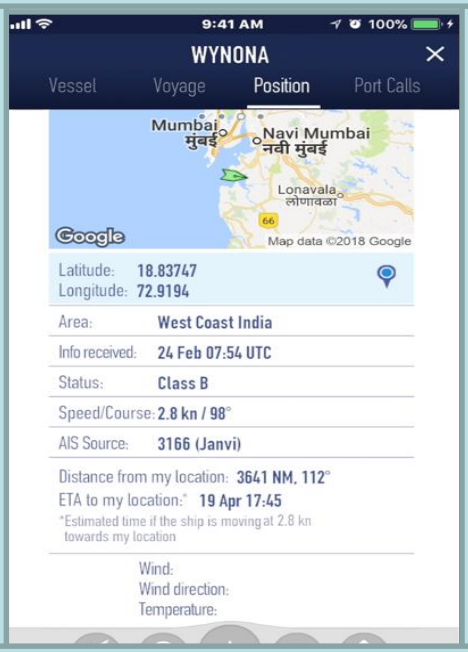


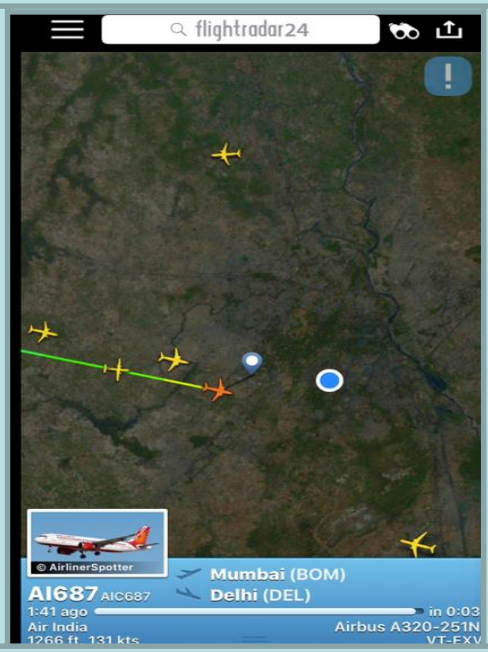


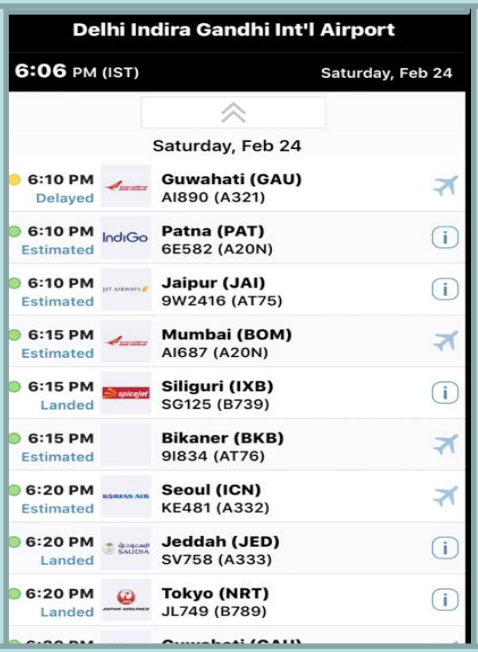


Dashboard A - Public Health Emergency Monitoring

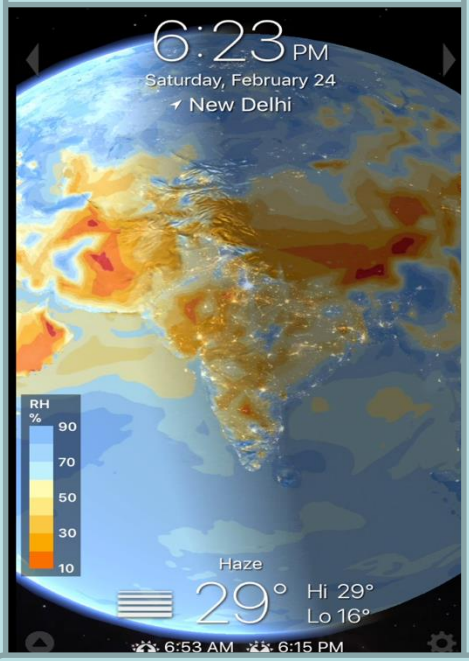








Dashboard B - Points of Entry Monitoring

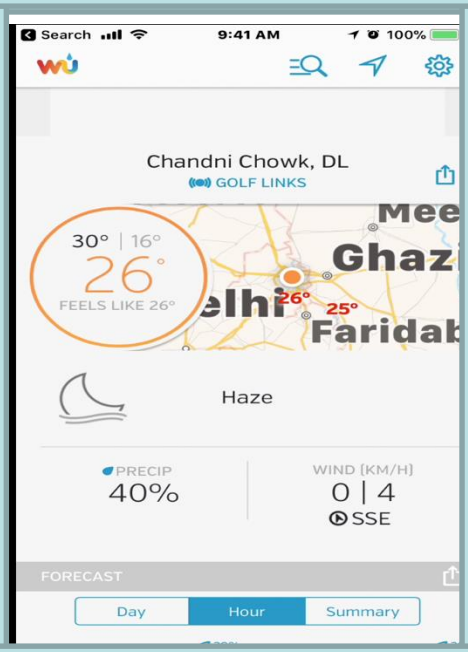


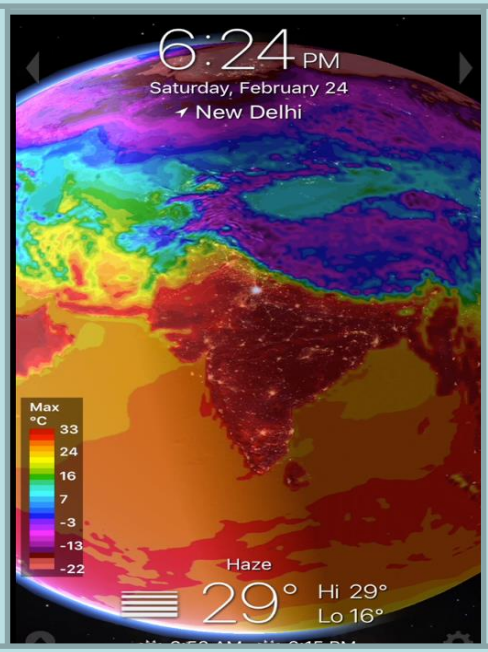
To be configured

To be configured

Dashboard C - Public Health Environment Monitoring

To be configured





To be configured

Workshop on Artificial Intelliger

World Health

Dashboard D – To be configured

Participation in FG-AI4H

Focus Group on "Artificial Intelligence for Health"

Focus Group on Artificial Intelligence for Health

Focus Group on Vehicular Multimedia

Focus Group on Technologies for Network 2030

Focus Group on Machine Learning for Future Networks including 5G

Focus Group on Application of Distributed Ledger Technology

Focus Group on Digital Currency including Digital Fiat Currency

FG-AI4H

The ITU-T Focus Group on Artificial Intelligence for Health (AI4H) was established by ITU-T Study Group 16 at its meeting in Ljubljana, Slovenia, 9-20 July 2018. The Focus Group will work towards a standardized assessment of AI4H solutions, in partnership with the World Health Organization.

Participation in the FG-AI4H is free of charge and open to all. To receive updates and announcements related to this group, please subscribe to the FG-AI4H mailing list (see the "FG-AI4H Mailing lists" tab on the right of this page).

Parent group: ITU-T Study Group 16

Terms of reference >

The Programme for the first workshop (25 September, WHO, Geneva) is now online.

Meetings and Related Events | Focus Group News | Focus Group Videos

WHO, Geneva, Switzerland 25-27 September 2018

Workshop on Artificial Intelligence for Health (25) and 1st meeting of FG-AI4H (26-27)

- Announcement letter
- Registration (deadline 19 September 2018)
- Submit written contributions by email to tsbfgai4h@itu.int (deadline 19 September 2018)
- Visa Information
- Link for preferential hotel rate
- Workshop on Artificial Intelligence for Health

All meetings >

Membership to Focus Group Workstreams

- The WHO and ITU strongly encourages individual with motivation, interest and expertise to join one or more of the following technical workstreams of the FG-AI4H. The terms of references for each of the technical workstreams are provided in the annex.
- Interested individuals can submit their candidacy for consideration or they can be nominated by an entity on or before November 1, 2018.

Membership to Focus Group Workstreams

- Following documents are necessary for review of candidacy:
- A complete resume highlighting your technical expertise and experience in AI
- Cover letter articulating your motivation to be part of the FG-AI4H workstream
- Full contact details and email addresses of 3 references
- Please submit the aforementioned via email to the ITU Secretariat

Method of selection and notification

- The selection committee includes the Chair and Co-chairs of the FG-AI4H, who will determine the membership based on the technical expertise. The notice of membership will be informed via email by December 1, 2018.

Conflict of Interest Disclosure

- All FG-AI4H members are required to complete a conflict of interest disclosure form.

Key Message

- Application of AI in healthcare is most effective when it helps achieve national health-related Sustainable Development Goals.
- National and sub-national governments are encouraged to have appropriate policy and governance mechanisms to ensure ethical and safe use of Artificial Intelligence (AI) in Healthcare without hindering innovation.