

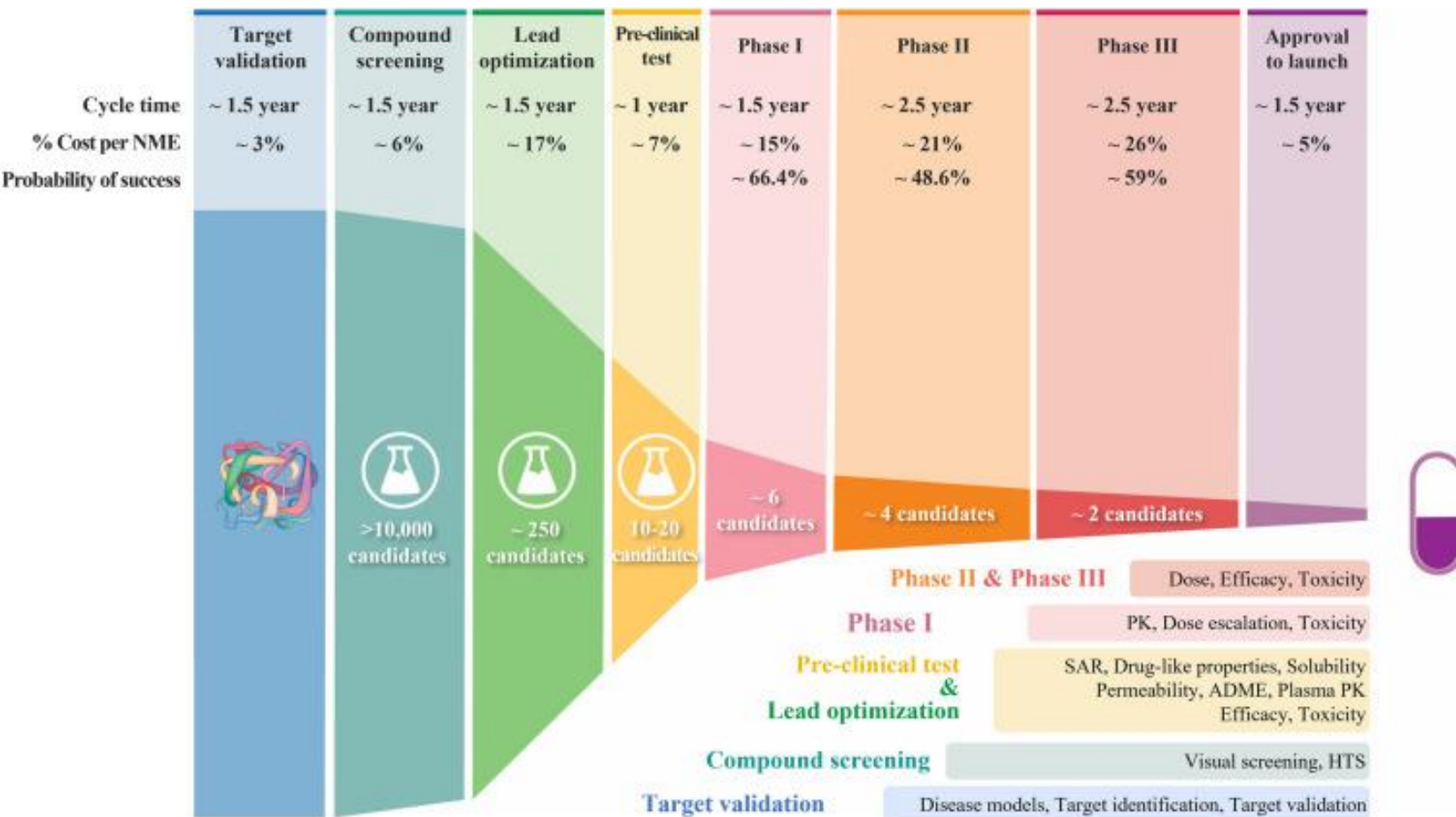


# *The Future of Healthcare – Innovations & Trends*

A Global Health Perspective

# Drug Discovery

a long and complex process



- 10 Year Development cycle
- Many opportunities to optimise the process
- Eg Digital, AI, data

“There were 5 exabytes of information created between the dawn of civilization through 2003, but that much information is now created every two days.”

Eric Schmidt  
Executive Chairman at Google



Sun *et al* 2022

# Access to new medicines

Developing the medicine is only part of the challenge....



- Manufacturing
- Patient access
  - Migration/remote populations
- Diagnosis
- Patient monitoring
  - Efficacy
  - Safety
- Adherence
- Global warming
- AMR

# Three partnership examples in Global Health...

- Gradient : Target Population Analysis



- Improving Healthcare



- Premonition AI



*Gradient : Science based approach to better understand genetic variability in Africa and impact in response to drugs*

<https://www.gsk.com/en-gb/media/press-releases/gsk-and-novartis-announce-collaboration-to-support-scientific-research-into-genetic-diversity-in-africa/>



# Global Health trigger and lead the proposal

*Aimed to characterise aspects of population and regional variation across Africa*

To identify **pharmacogenomic determinants** that impact drug response in African populations



Global Health

Research collaborative agreement



NOVARTIS



**GRADIENT for Africa Project**

**Genomic Research Approach for Diversity and Optimizing Therapeutics**

Focused on Malaria and TB treatments



# Project GRADIENT: Structure and current status

## Combined funding commitment of up to £2.8m over 5 years with three funding mechanisms

- **Fellowships:** A limited number of fellowships in academic institutions with a reputation for global excellence to collect and analyse data on determinants of drug response.
- **Investigator-sponsored research:** Hypothesis-driven research focused on understanding genetic regional variation in drug response.
- **Seed-Fund:** A limited number of projects to enable the exploration of new research goals, depending on the results from 1 and 2.



## *Working to improve health outcomes in Africa*

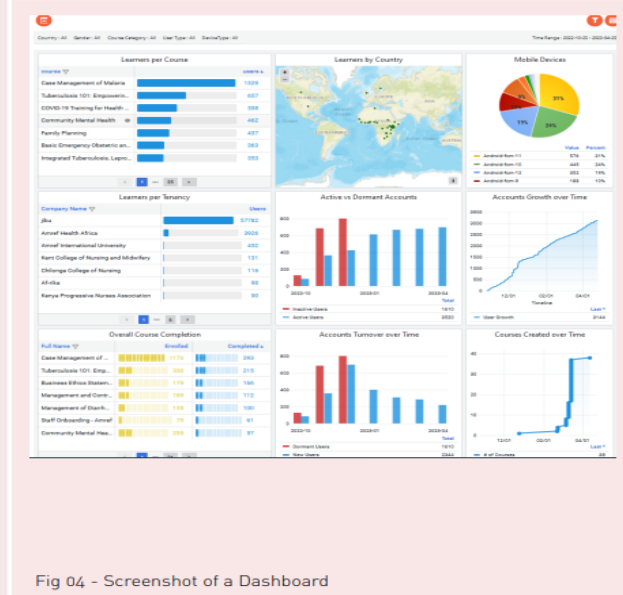
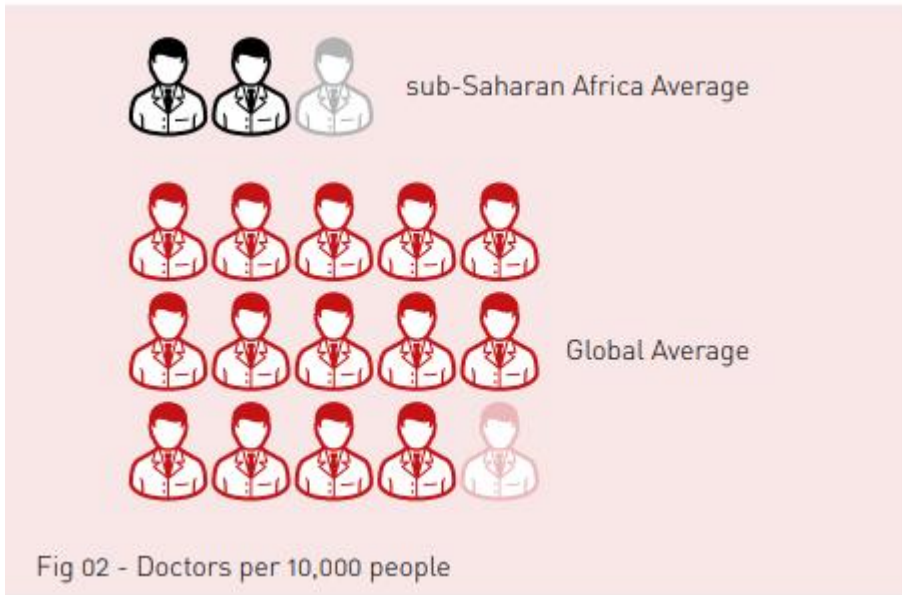


<https://www.gsk.com/en-gb/responsibility/global-health-and-health-security/improving-access-to-healthcare/>

<https://newsroom.amref.org/innovative-health-services-solutions/2023/01/amref-takes-a-digital-leap-forward-with-gsk-and-cognizant/>



# Working to improve health outcomes



To deliver training and guidance remotely to health workers, Amref leveraged Africa’s widespread mobile connectivity using two different solutions:

- Jibu, for use on smartphones, and
- Leap, a voice and text-based solution for use with feature phones.

Amref also used a third app, M-Jali, to support health workers to gather household-level data, potentially providing granular insights into everything from treatment outcomes to localized disease outbreaks and public health trends.



## Working to improve health outcomes



“These dashboards are very critical and important because as a person that is

supporting champions to enrol and engage, I’m able to see areas and gaps that I’m able to assist champions to develop better.

STEPHEN ANGUVA SHIKOLI  
National Coordinator  
Network of TB Champions  
Kenya



“Before the dashboard era, accessing data was not easy. It was

time consuming because it had to be done manually.

ANN-RITA NJAMBE  
Trainer and Helpdesk Support  
Amref Health Innovations



“The data that I collect at the community level helps to influence the decision-making at the

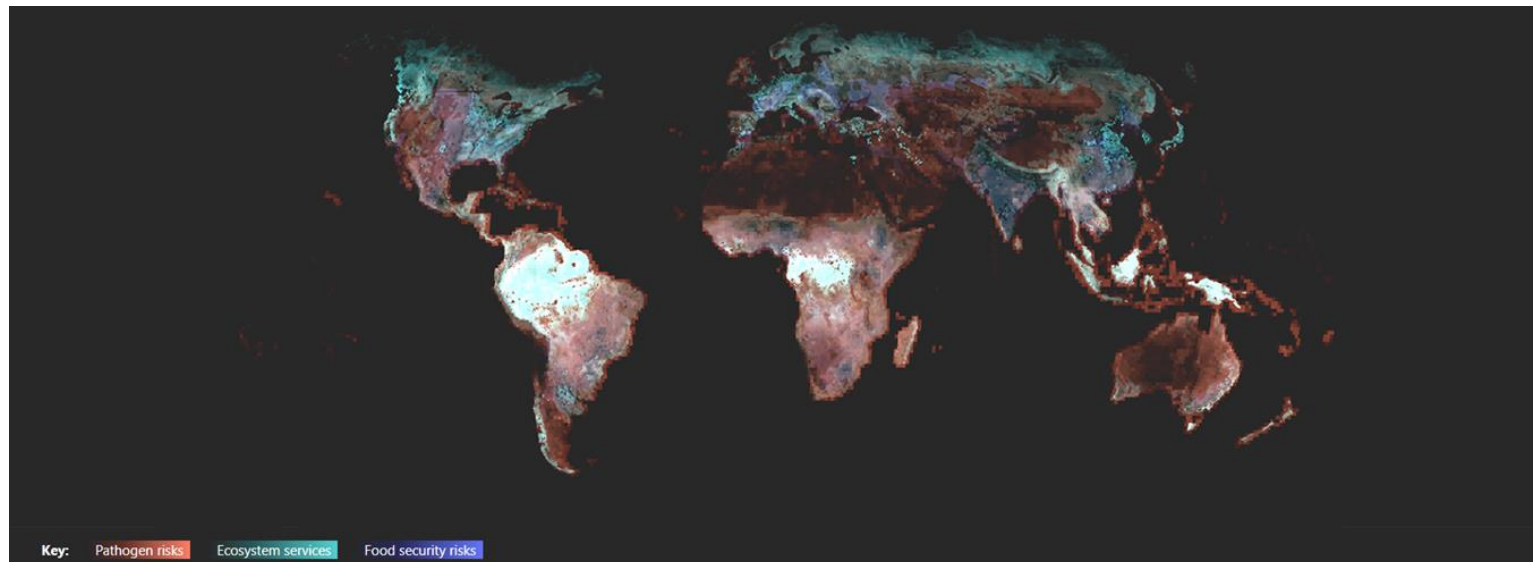
national level on issues of health.

JOHN GACHIRA  
Community Health Volunteer  
Dandora Kwa Mbao Unit  
Kenya

This partnership is about more than training health workers and collecting data. It is about the services that these health workers will provide to millions of people across the region towards our vision of lasting health change in Africa.” Diana Mukami, Digital Learning Director, Amref Health Africa



*Premonition AI : GSK and Microsoft, in collaboration with the Centre for Health and Disease Studies, launch disease surveillance project in Nepal*





# Premonition AI



- Neglected tropical diseases (NTDs) impact more than a billion people worldwide, and many are transmitted by insects and other animals.
- Reducing their risk means understanding their prevalence and spread across remote and unmonitored locations.
- This program, in Nepal, is deploying Premonition systems into impacted communities far from the infrastructure found in major cities.
- The goals are to improve monitoring of mosquito-borne NTDs so essential medicines can be delivered to communities and to understand the requirements of sustaining advanced bio-monitoring capabilities in key ecologies.

<https://www.gsk.com/en-gb/media/press-releases/gsk-and-microsoft-in-collaboration-with-the-centre-for-health-and-disease-studies/#>



# The future of Healthcare : a Global Challenge that cannot be achieved without partnership

- Right Medicine :
  - Data : precision medicine/digitisation/AI
  - Right Patient, Right Time, Right Dose
- AMR, Access and Global Warming
  - Spread of vector borne disease, future pandemics
  - Capability building in healthcare systems
- Emergency responses
- *Cross sector partnerships key to harnessing the full power of innovation*

# Ask the Audience....



**If you look at history, innovation doesn't come just from giving people incentives; it comes from creating environments where their ideas can connect."**

Steven Johnson (born 1968), Science author & media theorist

Where do you see the future of cross sector innovation in Healthcare ?

**GSK**