

The Rockefeller Foundation's Precision Public Health Initiative

The Rockefeller Foundation has been working to improve health for more than a century. Now, we are building on our legacy by launching a major initiative to harness the power of data and data science to reduce inequities in global health.

The Precision Public Health Initiative aims to leverage data and analytic tools to accelerate progress on the world's greatest public health challenges, starting with reducing maternal and child deaths in low- and middle-income countries. We are pleased to be partnering with UNICEF, the World Health Organization, global health funding agencies, ministries of health, and technology companies, among others.

Together we can create and share knowledge and tools that will usher in a new era of data-driven decision making for public health.

– Naveen A. Rao, MD, Senior Vice President, Health,
The Rockefeller Foundation



Closing the health data equity divide

Data and data science are increasingly reshaping nearly all aspects of our lives, including health. However, not everyone is benefitting. While advances like big data and artificial intelligence are beginning to revolutionize health care in high-income countries, they often fail to reach lower-income countries with the greatest need. It's time to change that.

We face a choice: left unaddressed, inequities in data quality and data science capacity threaten to further widen the gap in health outcomes between high-income and low- and middle-income countries. On the other hand, data's full potential can be leveraged to improve health among the world's most vulnerable populations—and achieve the health Sustainable Development Goals by 2030.

Precision Public Health

The Rockefeller Foundation's \$100 million Precision Public Health Initiative will make community health more proactive and responsive to patient and population needs, with the goal of saving the lives of at least 6 million women and children by 2030. The initiative will focus on:

- **Using predictive analytics to prevent rather than respond to health threats**—to equip community health workers and their supervisors with digital tools that enable them to be more targeted with their interventions, thereby improving their effectiveness and efficiency.
- **Leveraging big data on the social determinants of health**—to identify populations who are at greatest risk for health challenges due to factors such as income level, education, food security, and the physical environment, in order to facilitate the delivery of health interventions.

Bringing promising solutions to scale

The Precision Public Health Initiative, which The Rockefeller Foundation is undertaking with a range of partners, will accelerate existing efforts to apply data and data science to the practice of public health globally. The initiative will also identify and test other promising solutions.

To name just a few examples of the potential for data and data science to transform public health:



Saving mothers and children through social mapping and mobile technology

In Bangladesh, people living in Dhaka's slums were not counted in official statistics, inhibiting data-informed public health planning. Using social mapping, a local census, and mobile data technology, health workers were able to collect accurate data that allowed birthing and other health facilities to be placed in more accessible locations, which was associated with improved maternal and neonatal health outcomes (Marcil et al. 2016).



Slowing the spread of malaria and other diseases by tracking population movement

In Senegal, researchers combined cellular phone data from calls and texts with data on malaria incidence to track the relationship between travelers and the spread of the disease. Strategic targeting of travelers from high-incidence locations could result in up to five times as many cases being averted compared to policies that randomly target travelers during malaria season (Milusheva 2016).



Empowering community health workers to reach more people at risk

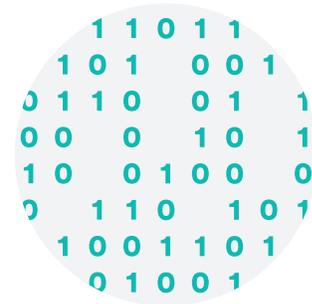
With only 200 practicing medical doctors in the entire country, Sierra Leone relies on community health workers to be the first point of contact with the health system for many of its 6 million citizens. UNICEF supported the ministry of health to conduct a census of health workers using geo-referenced data. This illuminated geographic disparities in health worker deployment, and spurred action to ensure more equitable distribution so that all people have access to medical care, no matter their location (UNICEF 2016).

Addressing barriers to progress

While a number of promising projects are underway to apply data and data science to public health practice, most are still in the early stages and have not been brought to scale. The Precision Public Health Initiative aims to change that by bringing together health stakeholders, technology partners, and in-country leaders to collectively address key challenges:

Gaps in data availability and quality

In many lower-income countries, health data are frequently incomplete, inconsistently collected and processed, and inaccurate (Ndabarora et al. 2014). Without reliable records of births, deaths, disease burden, and other health data, countries cannot accurately estimate a population's health needs or efficiently and effectively deliver quality health services (Health Data Collaborative 2018).



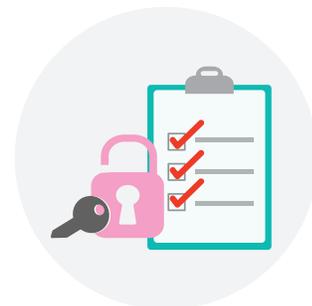
Gaps in data science talent

Many health stakeholders in lower-income countries, from ministry of health officials to facility-level staff, are interested in using data analytics to a greater degree to inform health policy decisions, but often do not have sufficient capacity to work effectively with data. In a survey of 92 national statistical offices, more than half of the respondents highlighted key gaps in technical skills, such as dealing with large datasets, geospatial analysis, and statistical literacy (PARIS21 2018).



Gaps in policies on responsible use of data

Health data have the potential to be misused or accessed inappropriately, which can lead to discrimination and privacy concerns. The risk of accidental or intentional breaches of data security may be greater among populations with high rates of illiteracy and in low-income settings undergoing technological transition (TrustLaw Connect 2013). In many such settings, legislation supporting the privacy and security of information services is frequently underdeveloped and rarely enforced (WHO 2014).



It is important to recognize that these challenges have larger root causes. For example, the lack of data science talent is linked to a broader scarcity of skilled workers in many lower-income countries. Given these interdependencies, we will need to address these challenges with in-country collaboration and long-term sustainability in mind.



The way forward

The Rockefeller Foundation is calling on diverse partners to work together to leverage the full potential of data to improve health outcomes among the world's most vulnerable populations. There is a role for everyone:

Global health agencies can direct funding and research to data and data science initiatives and strengthen foundations for scaling the application of data science.

Ministries of health can lead the charge to ensure data-driven community health solutions reflect local needs, and are implemented effectively.

Technology companies can collaborate to share knowledge and resources, and define global best practices for privacy, security, and sharing of sensitive health data.

Frontline health workers and their managers can apply more targeted and user-friendly solutions to make their work more effective and efficient.

We envision a world where community health systems everywhere are equipped to apply data-driven decisions in order to deliver the right health interventions to the right people at the right time.

Will you join us?

