OPPORTUNITY #20

WHAT IF HEALTH DATA WENT MACRO?

A MEDICAL LIBRARY FOR PLANET EARTH

Medical data goes global through shared data sets combined with advanced computational power

WHY IT MATTERS TODAY

Interest in sharing data on health is not new. Global data sharing dates back to 1965 with the creation of the International Agency for Research of Cancer (IARC), part of the World Health Organisation (WHO), which now includes data from more than 180 countries.[196]

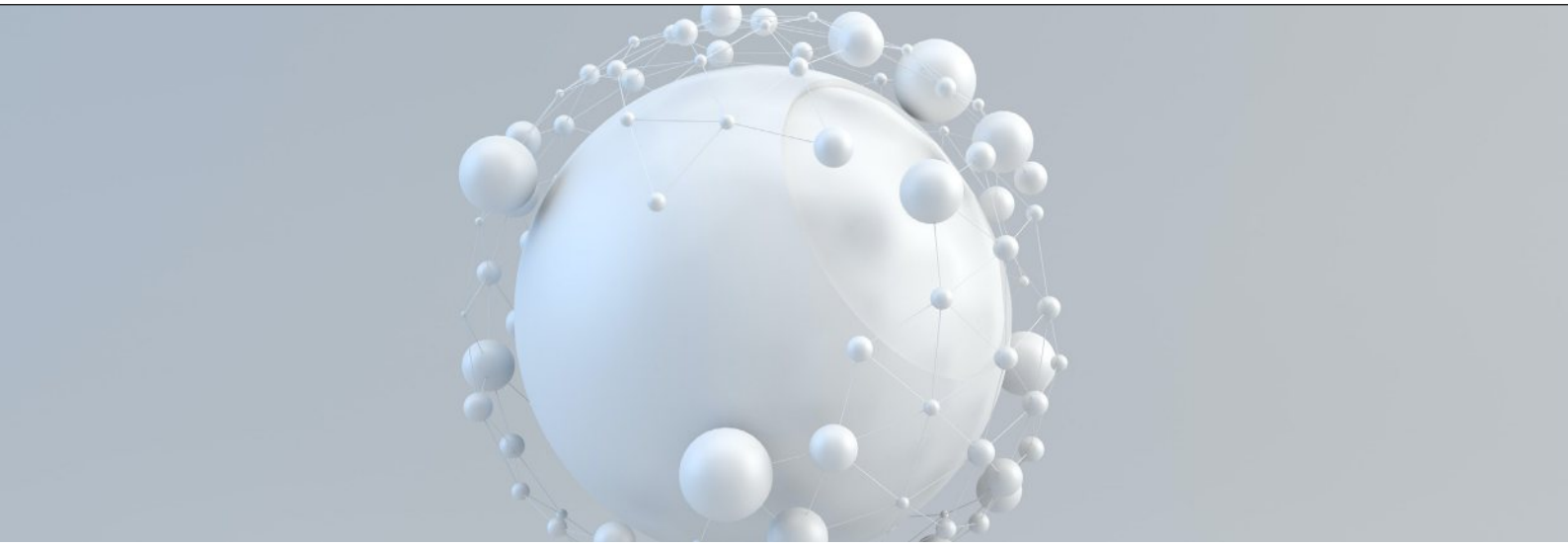
The output of data by even a single patient is vast and interest is growing in sharing. One person can generate nearly one terabyte of biomedical data, the equivalent of 300,000 photos or 130,000 books,[197] while journal publications related to 'data sharing' in PubMed increased from 46 in 1980 to 5,960 articles in 2019.[198] In total, around 30% of the world's total data is being generated by the healthcare industry.[199]

Meanwhile, the global budget for the sector is expected to grow to $15 trillion by 2030.[200] Linked to this expansion is a corresponding increase in the availability of data and data-gathering devices – including genomics, implantables, wearables, sensors, retailers, social media apps, artificial intelligence (AI), analytics, clinical data and electronic health records. This area is projected to grow at an annual rate reaching 36% by 2025: 6% faster than manufacturing, 10% faster than financial services and 11% faster than media and entertainment.[201]

Despite rapid growth, clinical trials – a linchpin of effective health care – are a major area for improvement. They take an average of six to seven years to complete and the average cost is $2.6 billion. However, there is a less than 12% chance that the drug will enter the marketplace.[202]

SECTORS

AGRICULTURE & FOOD · ADVANCED MATERIALS & BIOTECHNOLOGY · EDUCATION · HEALTH & HEALTHCARE



THE OPPORTUNITY TOMORROW

Sharing data across borders and advances in computing can combine to make the provision of healthcare and research on rare diseases, pandemics and other areas of health much more effective.

Global health data can be collected well beyond statistics on mortality and morbidity, with new information about epidemiology, administration and management allowing for more comparative insights with both aggregated and disaggregated data that further aid research and analysis.

Global-scale population data sets can speed up diagnoses and treatment plans for multiple conditions by either human doctors or machines. Such insights can help reveal which drugs, treatments or approaches are statistically more effective – including for rare conditions – and enable more treatment or prevention to be effectively personalised.

Developing such data sets will require countries to remove barriers to cross-border sharing of health data and enter into collaborative agreements to align on technical standards for interoperability and on ethical issues, such as privacy, access and purpose.

BENEFITS

Vast user-generated data sets support modelling for clinical trials, speeding up drug development, enabling better health outcomes and improving real-time monitoring for infectious disease outbreaks.

Larger sample sizes will allow governments to adjust health policies and improve health outcomes for everyone, particularly previously under-represented groups, as variations across sub-groups are explored.

RISKS

Risks include attacks to deliberately corrupt data sets and individuals losing control over their personal health data.