

Opening data to the world: why health numbers matter

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Google, Wikipedia and other information resources have changed the world in many ways, but their users generally search via words, not numbers. Now, those who think about and work with numbers are helping the world's numeracy catch up with its literacy.

Web sites like MappingWorlds.com, Swivel.com and Data360.org are promoting data availability so that anyone with access to a computer can browse data, visualize it in a number of ways, learn from professionals in the field and share their insights with the rest of the world.

Why is this important? Global health threats make the world seem ever smaller. Viruses and other illnesses ignore borders and leapfrog from continent to continent, exploiting new connections between nations, goods and people. Severe acute respiratory syndrome (SARS) and multidrug-resistant tuberculosis (MDR-TB) show how local outbreaks can have global impacts within days. Yet the tools to combat these illnesses do not travel nearly as efficiently as their pathogens. Information often moves slowly from wealthy nations to developing countries, and too often it does not move at all, preventing appropriate medical treatments from being implemented. Drugs and treatment regimens are not the only tools needed to address global health issues. Numbers are the raw material of science, and increasing access to data can lead to better health care worldwide.

Think of a medical study that is backed by experimental data and statistical analysis. This study gets published in an academic journal, and its findings are picked up by the mainstream media. The coverage helps shape political debate, policy, funding and public

opinion. It is important that all of this information – both the mass-media sound bites and the original experimental data and raw numbers – is widely available. While no one will dispute the importance of publicity, access to the original data is equally critical so that research, interpretation and experimentation will continue.

Much of the effort and infrastructure behind the internet has focused on improving access to information. Yet despite the internet and other communications technologies' profound impacts on the advancement of human knowledge, numbers have been somewhat neglected. The primary focus has been narrative text that interprets raw data. Access to the data has only recently become a focus for innovation, tied to the growing realization that without the numbers, research findings can easily be misrepresented. Lack of raw data constrains further research that could save lives worldwide. It also prevents informed discussion, as readers of narrative material are forced to take claims about research at face value.

Consider the WHO/UNICEF guidelines¹ for infant feeding by HIV-positive mothers in Africa. When they are not implemented effectively under operational conditions in the field, the result can be more infant deaths. Data and methodology can differ from country to country, as in the case of Botswana and Kenya.² Those making recommendations in the field need access to all the facts for better decision-making in individual circumstances.

Access to the best data is a critical component of improving population health. Important findings are not confined to one indicator, methodology or organization. As avian influenza

and SARS have shown, useful analysis can link areas as diverse as epidemiology, agriculture and weather. Yet philanthropists, policy-makers, scientists, practitioners and students often lack access to basic data they need to assess priorities for public health.

How can public health professionals see the broader impact of their work? The key is free access to data from many different sources. These data must be made clear and engaging to spur insight, facilitate application and solve problems. Tools are being developed to help more people use basic data and encourage fact-based decision-making. These platforms provide ways to access and understand data that were previously reserved for academics. New tools provide consistent and constantly updated access to data culled from many domains. These numbers can forge communities of similar interests and spark new public health perspectives.

Improving numeracy will improve health by keeping professionals involved, governments honest and citizens informed. Data and tools accessible to all can empower civil societies around the globe. Ultimately, this transparency leads to better data, better debate, better policy decisions and longer lives. ■

References

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