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Want Value for Money? Invest in Information

Comprehensive Health Information Systems Are Essential and Affordable

Just about everyone needs health information in one form or another: health ministries; researchers; program evaluators; nongovernmental organizations and advocacy groups; private-sector health providers; donors; international agencies; and individuals and communities. Good health information has the power to change behavior, and it can drive health policy decisions and health spending. But comprehensive systems need to be in place that can collect and disseminate the information from the local to the national level.

An effective health information system (HIS) requires a clear structure for collection, analysis, and use throughout the health sector. Although it requires effort, an HIS is both indispensable and affordable. Such a system enables decisionmakers to detect health problems needing attention, develop appropriate responses, and track progress toward agreed-upon health goals, such as the Millennium Development Goals. The HIS is also a health “best buy,” as it reaps savings by helping direct resources toward their most efficient use.

Key Components of a Health Information System

Many developing countries have built information systems around specific health initiatives rather than systematically responding more broadly to a nation’s health needs. Governments need to recognize the vital role that information plays in advancing health and build systems from the ground up that will provide timely, accurate, and relevant information. An effective HIS should have six key components:

- **A national census** every 10 years is irreplaceable for providing the basic population data upon which all other surveys and estimates are based.

- **Sample household surveys** are a mainstay of health information, because they provide data on service use and coverage (for example, immunizations), and on health conditions, such as childbearing, sickness, and death.
- **Public health and disease records** have typically focused on infectious diseases, such as tuberculosis and HIV/AIDS, which health care providers and laboratories are required by law to report. Countries increasingly see the surveillance of noncommunicable diseases as vital, as these diseases begin to predominate. Surveillance allows health services to target interventions for controlling specific diseases.
- **Vital events monitoring** is the continuous and mandatory civil registration of key vital events, such as births, deaths, and marriages. Ideally, such registration should be universal.
- **Health service statistics** should be collected at all levels of the health system, from community outreach service points to district and referral hospitals. The statistics enable managers to monitor the quantity and quality of services provided and to detect and solve problems.
- **Resource tracking** is critical for managing personnel, facilities, commodities, and funds. The national health accounts (NHA) framework is an internationally agreed-upon method to track spending from household, public, private, and donor sources.

Developing countries, donors, and technical agencies have recently formed a global Health Metrics Network to provide guidance for developing a national HIS. The Network has developed the first consensus framework for the structure, planning, and management of the HIS, incorporating the components described above.

Barriers to Adopting New Information Technologies

A key barrier to adopting and using better information is policymakers' lack of awareness that health information systems are essential, doable, and affordable. A "digital divide" persists between developed and developing countries, due in part to several factors:

- Lack of reliable electrical power and Internet connectivity;
- Lack of funds to procure computer equipment and software; and
- Inadequate training and technical support of staff who use the systems.

Given adequate commitment and funds, developing countries could take advantage of several promising new technologies:

- Satellite telephones for Internet access and reporting of diseases;
- Free software such as Epi Info (for analyzing and reporting diseases) from the U.S. Centers for Disease Control and Prevention; and
- Geographic information system (GIS) and other mapping software.

Human capacity strengthening is essential, however, to adopt the new technologies and use them well.

How Much Does the HIS Cost?

The cost of a comprehensive HIS can be estimated based on recent experience with censuses, demographic and health surveys, and other monitoring systems in developing countries. The range of estimated costs vary between low- and high-income countries, with the higher ranges applying to countries with higher salaries and more comprehensive systems (see table). The annual cost, from about \$.50 to \$3 per capita, could be fully offset

or even exceeded by the savings resulting from improvements in the efficiency of the health system.

Good Information Pays Off

Pertinent information delivered to the right audience can drive health investments. At the international level, the 2001 report of the Commission on Macroeconomics and Health and the World Bank's 1993 *Investing in Health* report presented evidence that influenced health initiatives around the world. The World Bank report, based on the first edition of *Disease Control Priorities in Developing Countries* (DCP1), introduced disease burden and cost-effectiveness data that dramatically changed how health projects were identified, implemented, and evaluated. In India, for example, DCP1 provided much of the evidence that prompted the government to invest approximately \$2 billion in disease-control projects, partly funded by the World Bank. These projects saved thousands of lives and prevented or treated hundreds of thousands of cases of leprosy, tuberculosis, HIV/AIDS, and other scourges.

The Tanzania Essential Health Interventions Program (TEHIP) provides the best source of evidence for the cost-effectiveness of improved health information. The project was designed to test how evidence could be used to decentralize planning in the health sector, and how evidence-based priority setting could improve health. Project activities included door-to-door collection of data and training of managers to analyze and use burden-of-disease and cost-effectiveness data to identify the best health investments. TEHIP districts focused services on high-burden diseases, resulting in a tripling of clinic visits and increased effectiveness of treatment.

The project produced remarkable results: With a per capita increase in spending of only US\$0.80, child mortality rates declined by 47 percent from 1999 to 2002. Researchers estimate that TEHIP improved resource allocation and child health

Annual Cost of the Essential Components of a Health Information System				
	Total cost (US \$million)		Per capita cost (US \$)	
	Low-income countries	High-income countries	Low-income countries	High-income countries
Census	\$7.5	\$30	\$0.25	\$1.00
Household surveys	\$0.6	\$1	\$0.02	\$0.03
Vital events monitoring	\$1.5	\$6	\$0.05	\$0.20
Health service statistics & public health surveillance	\$4.8	\$26	\$0.16	\$1.66
Resource tracking	\$1.5	\$3	\$0.05	\$0.10
Total	\$16	\$66	\$0.53	\$2.99

Note: These estimates are based on a population of 30 million. They reflect reporting from public sector facilities only.

at a cost of US\$69 per DALY* gained—a very cost-effective investment by international standards, and a good buy compared with alternative uses of the funds.

Who Will Pay for the Improved Systems?

Many low- and middle-income countries will need to rely on donors and international initiatives to improve information systems. In many cases, donor agencies require that a specific percentage of funds be allocated to monitoring and evaluation; these funds should be used to strengthen the HIS. But, as the examples above illustrate, the cost of improvements in information systems may be fully offset or even exceeded by the savings resulting from greater efficiency. Investments in health information systems can not only transform public health but can also accelerate progress toward reducing poverty and promoting good governance.

Recent outbreaks of diseases such as SARS and avian influenza show that both developing and industrialized worlds need to strengthen health information systems. In addition, the trend toward “sector-wide approaches,” where donors pool their funds for the whole health sector, makes priority setting—and the information it is based on—all the more important.

Create a Culture of Information Use

Health information is valuable for a wide range of audiences—high-level decisionmakers; researchers; policy analysts; private

sector health providers and insurers; consumer organizations and advocates; journalists; and citizens. But these audiences can only benefit from better information if a culture of disseminating and using information exists. Information systems reveal strengths as well as weaknesses in health systems, such as services not reaching the poorest people, and thus foster greater accountability and transparency in decisionmaking.

Because policy decisions are often driven as much by politics as by evidence, information systems must be designed to meet policymakers’ needs and to promote evidence-based decisionmaking. One good way to encourage this is to make information use part of health providers’ and managers’ training, and part of the job requirements of all those employed in the health system.

For More Information

Stansfield, S.K., J. Walsh, N. Prata, and T. Evans, 2006. “Information to Improve Decision Making for Health,” in *Disease Control Priorities in Developing Countries*, 2nd ed., ed. D.T. Jamison, J.G. Breman, A.R. Measham, G. Alleyne, M. Claeson, D.B. Evans, P. Jha, A. Mills, and P. Musgrove, 1017-30. New York: Oxford University Press.

*DALYs refer to disability-adjusted life years, which reflect the number of years of healthy life lost to all causes, whether from premature death or from temporary or permanent disability.