LACK OF CAPACITIES AND INCENTIVES TO SHARE DATA: In general, wider availability of datasets will result in different analyses of key public health issues. This is to be expected and encouraged. Genuine academic discourse about what can and cannot be reliably concluded from data will advance the evidence base for public policy derived from these data. Opening them up to wider use may also encourage methodological developments, which in turn may shed new light on key public health issues.

Despite technological advances, the progress toward open access and data sharing in the public domain is still slow in the area of global health,[63] with the exception of microdata from DHS and the Integrated Public-Use Microdata Series, both of which have sufficient technical, financial, and administrative support.

Data collected by many institutions and countries are still restricted to a limited number of investigators and collaborators for an indefinite period. Access is restricted for the following reasons: 1) to protect the ownership and intellectual property rights of the investigators, 2) to help offset the costs of maintaining data collection, 3) to retain confidentiality of individual participants, and 4) to minimize the risk of misinterpretation of data.[64]

These reasons may not be sufficient to restrict access to invaluable sources of data indefinitely, particularly when such obstacles can be overcome by appropriate and time-limited use of restrictions.

Precedents and protocols exist for addressing concerns around data access. For example, provision of wider access to data from clinical trials and DHS, after a certain period of exclusive rights to the investigators, can be adapted to other contexts. Data sharing may not be guaranteed through principles or codes alone but should be promoted by giving incentives, building capacity, and ensuring sustainability of data collection activities at the country level.[65]

Allocative inefficiency

On the one hand, the amount of data being collected in global health is rapidly increasing.[66] On the other, the political and financial attention now being paid to global health has not been matched by improved sources of information on the performance of health systems and new health programs.[67] This is partly due to the duplication and fragmentation of activities and partly due to the lack of sustainable investment in data collection at the country level.

Duplication among stakeholders: In every aspect of major functions in health information (data collection, monitoring and evaluation, and systematic assessment), there is a duplication of activities across and within agencies and institutions. In data collection platforms, the notable example of duplication and fragmentation is household surveys in countries.[68]

Survey modules in the traditional DHS and Multiple Indicator Cluster Surveys have been expanded substantially to cover a wide range of health and other issues. Single-disease surveys, such as for AIDS, malaria, tuberculosis, or tobacco, are becoming more common, often accompanied by biological and clinical data collection. While this approach ensures more data for the disease of interest, it imposes a substantial burden on countries and misses an opportunity to collect information on a broader range of health issues at relatively little marginal cost.

The World Health Survey (WHS) implemented by the WHO in 2002–2003 was an experiment in collecting a comprehensive set of information in a systematic and comparable way.[69] Such information is required to assess adult health and risk factors, effective coverage, and health system performance, and it was not available from existing data collection platforms. However, the WHO was not strategic enough to engage other stakeholders and enhance country capacity in order to leverage the real potential of the WHS.[70]

In theory, a single survey could include all priority health topics for which data are needed for decision making, from acute infectious to chronic noncommunicable diseases. Limiting factors are the complexity of the survey, the length of the interview, and funding challenges. However, technological advances have made it possible to carry out efficient sampling and include biomarkers in population-based surveys in developing countries. Joint surveys can also facilitate the integration of many existing efforts to strengthen countries' capacity and provide financial and technical incentives to collect, analyze, and share better quality data.

Lack of investment in standard data collection platforms: While demand for health information grows, primary data collection platforms in most developing countries are not improving. The technological potential for linking individual records to population health metrics has not yet had a major impact on primary data collection platforms in health systems in most developing countries.[71]

To increase the availability of high-quality primary data, local capacity for data collection and analysis needs to be strengthened, including making

investments in country data collection platforms, as well as changing the culture around the release of public data.

While there is some funding for making data available, there is much less to support the collection and production of the right data. It is only by supporting those who collect the data and involving them in analysis that the understanding of how better data can result in better health outcomes translates into a data collection incentive.

Another major deficiency is the lack of progress in civil registration.[72] More complete statistics on maternal and child mortality (MDGs 4 and 5); improved data on deaths from HIV/AIDS, tuberculosis, and malaria (MDG 6); and information on who dies and from what causes cannot be continuously generated at national and subnational levels with the methods currently at the disposal of the public health community in most developing countries. The absence of civil registration has other implications as well. When births are not registered, people are less likely to benefit from basic human rights—social, political, civic, or economic.

Global health and development agencies continue to skirt the challenge of confronting the lack of functional systems of civil registration. There is still no identifiable home for civil registration within the UN system, and there are few visible efforts on the part of development agencies to respond to countries' requests for assistance.[73] The absence of vital statistics in many developing countries has been described as both a symptom and a cause of underdevelopment.[74]

Lack of independent and contestable evaluations: In principle, results-based commitments require a relevant baseline indicator and should directly measure subsequent changes in this. This in turn requires a predefined monitoring and evaluation framework and benchmarking.[75] However, most current evaluations, such as the Global Fund's five-year impact evaluation, are done on an ad hoc basis with limited baseline data or based on a comparison of outcomes before and after a program was introduced for the same group.[76]

Such studies do not necessarily provide compelling evidence on what actually works and what does not, since there is no way to rule out the possibility that some other policy or event that coincided with the program caused the observed change in outcomes.[77]

Another major challenge in such studies includes the principle of country ownership and its inevitable conflict with independent and contestable evaluations.[78] For instance, the IHP+, while stressing the mutual accountability of

donors and developing countries, excludes the need for independent verification of national progress toward the health-related MDGs.[79]

Similarly, as health information has been instrumental in promoting disease-specific programs, there has been a debate about the potential conflict of interest if these disease-specific programs evaluate themselves.[80]

Developing a common framework and collaborative community

Since the publication of the *World Health Report 2000*, various comprehensive frameworks have been proposed to assess health systems.[81] Improved methods and better data have since increased the opportunities for evaluating health systems.[82]

As these efforts progress, a comprehensive and consistent framework on health systems will need to be adopted along with a limited set of valid and reliable indicators.[83]

Despite the large resources devoted to health worldwide, the focus of monitoring and evaluation has been on inputs (human resources, financial resources, etc.) rather than outputs and impact on health (e.g., effective coverage and health outcomes). Such an imbalance in monitoring and evaluation practices needs to be corrected in order to shed more light on the system-wide impact of various global health initiatives.

Another limitation of many previous attempts at strengthening health systems is that they were solely focused on direct delivery of services instead of all key functional elements of the health system (i.e., stewardship, resource generation, and financing). This refocus has provided us with an opportunity to provide valid evidence on how to effectively design and manage health systems, one that will require well-designed research.[84]

The global health community urgently needs to correct the two major sources of inefficiencies in data described above, which are limiting the potential of health information activities at both the global and country levels. At the same time, it is necessary to bring together work and evidence on health system assessment (See fig. 1). This requires a regional and global collaborative community and shared learning across systems that can benefit all countries.[85]

For example, effective coverage is considered to be a better indicator of a health system's ability to deliver services by combining needs, quality, access, and utilization of services.[86] However, this metric requires more information and analytical capacity than what is available in countries with limited resources and health information systems. One of the major objectives of the newly

established Latin American Health Observatory is to complement countries' capacities through regional collaboration among centers of excellence in health metrics and evaluation.

In the latest *World Health Report 2008*, the WHO also called for more structured and intensive inter-country collaboration around policy reviews for primary healthcare, which would yield better international comparative data on variations in the development of health systems, on models of good practice, and on the determinants of successful reforms.[87]

Sustaining health information activities at the country level

The current attention to health information is primarily driven by donor agencies and foundations rather than the recipient countries. Along with the lack of capacity and incentives to carry out decent evaluations, there is chronic underinvestment in each function of health information activities, particularly in the area of country data collection and compilation. A recent report by donor agencies estimated that approximately US$250 million will be required annually in external financing to support needed infrastructure and associated operating expenditures.[88]

An innovative funding mechanism is needed in order to build country capacity to monitor and evaluate health systems and to sustain such activities at the country level.[89] One option is collective action or an arrangement that mobilizes funds for data collection and sharing by coordinating commitments of various countries, donors, and agencies.[90]

As in the case of conditional cash transfer programs that transfer money to poor households on the condition that they comply with a set of requirements on health and educational services,[91] some conditionality on the use of pooled resources would be necessary to give incentives and improve capacities to collect better data at the country level. Such conditions would obligate the use of standard measurements, data sharing in the public domain, and local capacity building.

Policy Recommendations

The solution to the lack of accountability and transparency in global health is twofold: enhance existing efforts and create a new approach that directly addresses the lack of incentives to make these efforts representative.[92]

Global Action for Health System Strengthening

Given the G8's unique role in global health, together with its commitment to accountability and the increasingly prominent role of health metrics and evaluation in global health, we recommend that, through a collective and multi-stakeholder approach, the G8 should focus on correcting the two major inefficiencies in the current field of health metrics by undertaking the following:

1 Implement the G8's **Annual Review** to assess G8 countries' commitments to health systems and programs.
  1.1 Define a standard set of metrics and measurement strategies to monitor and evaluate aid effectiveness, health programs, and systems.
  1.2 Plan and assess future health-related activities by the G8 and partners using a common framework and metrics.
2 Establish a **Digital Commons** using a network of global and regional centers of excellence to improve access to—and the quality of—datasets and analyses at the country and global levels.
  2.1 Promote the principles of open access and data sharing in the public domain.
  2.2 Develop a global databank for common indicators (starting with the MDG targets, human resources, and resource tracking) and a data exchange and quality assurance mechanism.
  2.3 Establish a Cochrane-type process for global health monitoring to generate empirical evidence for health policy.
3 Pool resources for health metrics at the global and country levels to create the **Global Health Metrics Challenge.**
  3.1 Develop capacity and create an incentive structure for countries and data producers to collect, share, analyze, and interpret better quality data.
  3.2 Make health funding contingent upon third-party evaluation that is compliant with agreed principles, including developing a standard measurement strategy, putting data in the public domain, strengthening local capacity, and making appropriate use of information technologies.
  3.3 In countries with incomplete or inexistent civil registration, prioritize development of civil registration systems.
  3.4 Invest in a series of nationally representative household surveys for multiple diseases and risk factors.

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Appendices

Appendix 1

Background of the Working Group on Challenges in Global Health and Japan's Contributions

A working group on Challenges in Global Health and Japan's Contributions (informally referred to as the Takemi Working Group) was launched in September 2007 to look at global health in the context of human security—a pillar of Japan's foreign policy—as Japan was gearing up to host the Fourth Tokyo International Conference on African Development (TICAD IV) and the G8 Summit in Toyako, Hokkaido, in the spring and summer of 2008. The Japan Center for International Exchange (JCIE) facilitated the launching of this group and has served as secretariat.

At the G8 Hokkaido Toyako Summit, the world leaders proposed the Toyako G8 Common Framework for Action on Global Health, a framework for strengthening health systems around the world but particularly in developing countries. But, in order for the many stakeholders in global health to come together to create that common framework, the stakeholders in the global health field need to develop a shared understanding of what "health system" means and a shared agenda for building its architecture. Growing momentum among the major Japanese stakeholders in global health to begin to address these questions led to the formation of a task force on "Global Action for Health System Strengthening" under the Takemi Working Group in September 2008.

The first phase of the working group's activities focused on ensuring that global health and human security remained high on the agenda of the Toyako Summit. During that phase, the working group members conducted site visits to learn more about the challenges and that developing countries face in improving health and some of the ways they are dealing with those challenges. Through an intense process of research and dialogue, the working group members developed policy recommendations for the Japanese government as the summit host. The recommendations were discussed in seminars in Geneva, Washington DC, and New York and at a major conference in Tokyo. The working group

also talked extensively with the key people in the government ministries and prime minister's office who were developing the summit agenda.

Human security, which has grown to be a central pillar of Japan's foreign affairs, offered a useful framework for the working group's exploration of global health. As a demand-driven approach that attempts to address the interconnected challenges that threaten the lives, livelihoods, and dignity of individuals and communities around the world, human security seemed to be a natural framework for health issues, which go to the very core of human existence.

The working group, which is led by Keizo Takemi, former senior vice minister of health, labor, and welfare, is unique in Japan in that it takes a participatory approach to impacting the summit agenda. The working group itself representatives from the three relevant ministries (foreign affairs; health, labor, and welfare; and finance), government aid agencies, academia, and NGOs. Just bringing together representatives from the three ministries for substantive discussion is rare in Japan, let alone bringing representatives from other sectors in to take part in the dialogue on an equal footing. The further discussions with experts and practitioners from around the world made it even more of a global and inclusive dialogue.

The Toyako G8 Common Framework for Action on Global Health demonstrates that the G8 countries still take their commitments to improving the health of individuals and communities around the world seriously. The framework emphasized health system strengthening as a complement to the crucial disease-specific programs that are already saving countless lives. The Takemi Working Group chose to explore ways to implement the common framework by looking in depth at the three entry points for health system strengthening that were proposed at the summit: the health workforce, health system monitoring and evaluation, and health financing. The Takemi Work Group is also exploring the overall question of building integrated health systems that are able to respond to the challenges of providing primary healthcare while also tackling individual diseases, to achieve the health-related Millennium Development Goals, and ultimately to enhance the health and human security of people around the world. The papers presented in this volume are the result of the first stage of that exploration.

As a follow-up to the G8 Summit, this group has been reorganized to pursue four primary goals. The first goal is to identify concrete activities for health system strengthening based on the Toyako G8 Common Framework for Action on Global Health. A second goal is to ensure that the political momentum on health system strengthening that was achieved over the past year under the leadership of Japan is transformed into concrete action and to

ensure continuity in the process of moving toward the 2009 G8 Summit, to be hosted by Italy, and beyond. Third, this project aims to identify ways in which the many stakeholders in this field around the world can reach consensus on concrete actions to be taken for health system strengthening and develop partnerships for joint implementation. Finally, the project aims to explore ways in which the G8 itself can play a catalytic role in global health policy making. In all of its activities, the Takemi Working Group acts as a catalyst to synthesize existing initiatives for health system strengthening around the world within the framework of human security.

An international task force of 22 global health experts from various sectors from around the world was launched in September 2008 to further explore the three building blocks and offer policy recommendations, guided by an international advisory board comprising some of the world's top scholars and practitioners in this complex field. Three research teams were created within the task force, one for each of the entry points discussed above. Each research team was tasked with preparing concise, action-oriented policy papers, which were discussed at a workshop on October 4 and a major international conference in Tokyo on November 3–4 on Global Action for Health System Strengthening. Discussion at both events was enriched by the participation of many of the top experts in this field representing a diverse range of organizations and sectors. The product of this intense process of research and dialogue, contained in this report, was submitted to the Japanese government in January 2009, which in turn presented the paper and its recommendations to the Italian government.

JCIE and the Takemi Working Group are working in collaboration with the government of Japan (Ministries of Foreign Affairs; Health, Labour and Welfare; and Finance); the Bill & Melinda Gates Foundation; the Rockefeller Foundation; the World Health Organization; the World Bank; the Global Fund to Fight AIDS, Tuberculosis and Malaria; and other stakeholders.

Appendix 2

Working Group on "Challenges in Global Health and Japan's Contributions"

List of Members

Chair:

Keizo Takemi	Research Fellow, Harvard School of Public Health; Senior Fellow, Japan Center for International Exchange (JCIE)

Director:

Tadashi Yamamoto	President, JCIE

(*alphabetical order*)

Kazushi Hashimoto	Executive Director, Japan Bank for International Cooperation
Masami Ishii	Executive Board Member, Japan Medical Association
Sumie Ishii	Managing Director and Executive Secretary, Japanese Organization for International Cooperation in Family Planning (JOICFP)
Masamine Jimba	Professor, Department of International Community Health, Graduate School of Medicine, University of Tokyo
Yasushi Katsuma	Professor, Waseda University Graduate School of Asia-Pacific Studies
Kiyoshi Kurokawa	Professor, National Graduate Institute for Policy Studies (GRIPS); Chairman, Health Policy Institute, Japan
Daikichi Monma	Deputy Director-General, International Bureau, Ministry of Finance
Taro Muraki	Assistant Minister for International Affairs, Ministry of Health, Labour and Welfare

Yasuhide NAKAMURA	Professor, Department of International Collaboration, Graduate School of Human Sciences, Osaka University
Yohei SASAKAWA	Chairman, Nippon Foundation
Takehiko SASAZUKI	President Emeritus, International Medical Center of Japan
Takashi TANIGUCHI	Assistant Minister for Technical Affairs, Minister's Secretariat, Ministry of Health, Labor and Welfare
Shinsuke SUGIYAMA	Director-General for Global Issues, Ministry of Foreign Affairs
Yoshihisa UEDA	Vice President, Japan International Cooperation Agency

as of January 1, 2009

Appendix 3

Global Action for Health System Strengthening

International Advisory Board

Uche Amazigo	Director of the African Programme for Onchocerciasis Control (APOC), World Health Organization (WHO), Burkina Faso
Lincoln Chen	President of the China Medical Board, USA
David De Ferranti	Executive Director, Global Health Initiative, Brookings Institution, USA
Julio Frenk	Executive President, Carso Health Institute, Mexico
Yan Guo	Professor in Health Policy & Management, School of Public Health, Peking University, China
Richard Horton	Editor-in-chief, *Lancet*, UK
William Hsiao	K. T. Li Professor of Economics, Harvard School of Public Health, USA
Jim Young Kim	Director of the François-Xavier Bagnoud Center for Health and Human Rights (FXB), Harvard School of Public Health, USA
Eduardo Missoni	Adjunct Professor, Centre for Health Care Research (CERGAS), SDA Bocconi Postgraduate School of Management and Department of Institutional Analysis and Public Management, University Luigi Bocconi, Italy
Sigrun Møgedal	Ambassador for HIV/AIDS, Ministry of Foreign Affairs, Norway
Shigeru Omi	Regional Director, WHO, Regional Office for the Western Pacific, Philippines
Peter Piot	Executive Director, Joint United Nations Programme on HIV/AIDS (UNAIDS), Switzerland

Sujata RAO	Additional Secretary and Director General, National AIDS Control Organisation (NACO), India
Miriam WERE	Laureate, Hideyo Noguchi Africa Prize; Chairperson of the National AIDS Control Council (NACC), Kenya
Suwit WIBULPOLPRASERT	Senior Advisor, Ministry of Public Health, Thailand