What Do We Know and What Do We Not Know?

What financing options do developing countries have?

In practice, there are only four different financing methods available to countries other than out-of-pocket financing and external aid: 1) tax-financed national health services (NHS), 2) SHI, 3) community health insurance, and 4) private or voluntary insurance.[36]

The first two—tax-funded NHS and SHI—are the predominant forms in G8 nations with the exception of the United States, where private health insurance plays a major role. The problem for developing countries is to know which methods to use and how to implement them effectively in order to expand risk pooling, ensure access for the poor, and maximize efficiency in use of resources.

Tax-financed national health services

Tax-financed NHS are the most common strategy that developing countries have adopted. In this, public revenue collection is through general revenue taxation, with the funds directly financing government-operated healthcare services, which are made available to the whole population on a universal basis at zero or minimal price. The approach integrates public financing and provision.

Tax financing has many advantages. First, it achieves the highest degree of risk pooling and has proved the most equitable in being able to distribute costs most fairly across the whole population.[37] Second, taxation offers a broader revenue base than social insurance and one less likely to act as a disincentive for formal sector job creation. In poor countries, while most people cannot make significant insurance contributions, almost all of their governments are still able to raise taxes. Third, a key selling point is that it makes services available for free, thus eliminating financial barriers to access.

Unfortunately, most developing countries that rely on this approach fail to achieve equitable access to health services and adequate risk protection. Despite the promise of universality, in many countries the rich capture the available public services, leaving the poor without access. Such public systems often operate with great inefficiency, resulting in low quality and inadequate, unresponsive provision.[38] However, as in G8 nations, there is no empirical evidence that public sector provision is any more inefficient than the alternative private provision.

Nevertheless, several countries at all income levels successfully use the tax-financed NHS mechanism to provide the poor with access to services and effective risk protection. Examples include Sri Lanka, Kerala in India, Honduras, Malaysia, Botswana, and many Caribbean and Pacific Island states. Most do so at low cost, with government health spending being less than average, and less than 2–3 percent of GDP. Most are also exceptional health performers, on track to achieve their health-related MDGs. However, it is important to appreciate that these are not replicas of the NHS systems found in G8 nations, such as the UK, where the public sector provides almost all services. All of these developing countries have privately financed private health sectors accounting for a substantial 35–60 percent of overall financing and provision. Unlike G8 nations, these poor countries cannot afford to allocate the level of tax revenues (4–5 percent of GDP) that is necessary to ensure that almost all service provision is publicly financed. So their ability to manage their public-private mix in financing and delivery is critical. Unlike other poor countries, they manage to use the public system to reach the poor, while persuading the rich to self-pay for private services. Among high-income economies, Hong Kong SAR (China) and Cyprus provide comparable cases.[39]

Crucially, the only low-income countries that have been able to ensure universal and pro-poor access to health services,[40] and which are able to ensure effective risk protection,[41] all employ this tax-financed, government delivery approach complemented by private financing and provision. Unfortunately, there is only limited understanding of what these best practice countries do differently to be so successful and what lessons they can give to others. Abolition of user fees might be one element, but we do not fully understand how they are able to deliver services efficiently so as to meet the inevitable increases in patient demand, which have challenged African countries that have recently abolished fees.[42] Similarly, most do not means-test access to services, but we do not fully understand how they are able to ensure that public services serve mostly the poor.

Social health insurance

SHI is the main financing method in many developing countries, particularly middle-income ones. It involves the mandatory collection of contributions from designated segments of the population (typically through payroll taxes), and pooling of these contributions in independent funds that pay for services on behalf of the insured. In the classic SHI model, which originated in

Germany, there is an explicit link between making contributions and the right to benefits.[43] SHI can achieve significant risk pooling and equitably distribute the burden of payments between rich and poor, but not as much as general revenue taxation.[44]

Many middle-income countries have successfully used SHI to achieve universal access and effective risk protection. However, although often seen as a solution to failed tax-financed NHS systems, it has proven much harder to implement in the setting of low-income countries. To date, no country whose income is below US$1,000 per capita has been able to achieve universal access to healthcare services through SHI.[45] The central problem is that in poor economies with small formal sectors, SHI premiums are much harder to collect than general revenue taxes. Effective premium collection also requires a high degree of state capacity, (government technical and administrative capability), which tends to be most limited in low-income countries. Consequently, most developing countries have not been able to extend SHI coverage to the informal sector and rural populations.[46]

Nonetheless, a few poorer countries have had significant success in extending social insurance coverage despite having large informal sectors. None of them follow the classic SHI model, where insurance coverage is linked to insurance payments. All of them deviate by employing substantial tax monies to fund their SHI schemes and by extending insurance coverage mostly on a noncontributory basis. For example, both Mongolia[47] and Thailand[48] extended coverage with SHI to 90–100 percent of their population, but in order to finance the majority of the population who were outside the formal sector, 60 percent or more of the insurance fund comes from general revenue taxes. In both cases, increases in taxation were necessary. In Mongolia, these allocations could not be sustained and coverage fell, illustrating how difficult it is for poor countries to use SHI when their tax base is small. It is also worth noting that both countries have largely used the expanded SHI schemes to pay for public provision, suggesting that public provision can still play an important role under SHI.

Currently, some low-income countries, such as Ghana and Rwanda,[49] are attempting to use SHI to achieve universal coverage. However, none have been able to raise coverage levels to over 75 percent.[50] We do not know enough about the limitations they face or how well coverage actually benefits the poor. Countries such as these need much more information than we currently have on how other best-practice countries with small formal sectors succeeded in achieving universal SHI coverage.

Community-based health insurance

Community-based health insurance (CBHI) differs from SHI in that it involves voluntary membership and is controlled by community organizations rather than state agencies. Although CBHI was once important in some G8 nations (i.e., Germany and Japan) where it preceded the establishment of SHI, it is not used today by any developed country and is only found in the poorest countries.

CBHI takes diverse forms, but it typically operates where those in the informal sector incur out-of-pocket costs in order to obtain healthcare, and they lack access to other insurance. Evaluations by the World Bank, the International Labour Organization, and others conclude that in low-income settings CBHI schemes make only modest contributions to overall coverage and only as a complement to other formal schemes.[51] With the exceptions of China and a few schemes in India, CBHI has not proven able to cover large numbers of people (coverage rarely exceeds 10 percent of the population) or reach the very poor.[52] The main reasons are that the voluntary contributions of poor people are usually insufficient to fund the required levels of coverage, the risk pooling provided is inadequate, and scaling up such informal arrangements proves to be difficult.

Although many continue to advocate CBHI as a potential stop-gap solution, the evidence clearly indicates that CBHI approaches are not able to scale up to achieve universal coverage or provide high levels of effective risk protection.

Private or voluntary health insurance

Private or "voluntary" health insurance provides some element of risk pooling, which can be substantial if coverage is arranged through organized employee groups. However, well-known problems in insurance markets of adverse selection and cream-skimming severely limit its ability to cover people outside organized employee groups.[53] Private insurance schemes tend to be highly cost-inefficient, as they incur significant administrative costs and provide few pressures for cost control. Thus, in G8 nations, private health insurance has never been able to extend health coverage to most people, and its main purpose in Europe is only to provide complementary coverage to other public schemes. Even in the United States, where private health insurance is most developed, it leaves more than 45 million people uncovered[54] and is a significant factor behind high overall health expenditures.[55] In developing countries, the smaller

formal sector and weaker financial markets generally limit coverage of private health insurance to less than 2–5 percent of the population, and to less than 5 percent of overall healthcare financing.[56] Strong adverse selection effects usually eliminate the market for many types of coverage relevant to MDGs 4, 5, and 6, with items such as maternal care, routine outpatient treatment, and HIV/AIDS care often excluded.

There have been frequent claims (for example in Africa in the 1990s) that private insurance initiatives might provide a way to scale up healthcare coverage in low-income countries.[57] Yet experience has shown that none have been able to surmount the basic problems that prevent private insurance from scaling up or being cost effective in the G8 setting.[58] Currently, there are initiatives to support private health insurance schemes in Africa, but none have demonstrated the ability to scale up coverage in the poorest African countries. Indeed, one project in Namibia proposes to spend more than US$35 per capita to extend subsidized private health insurance schemes for upper-middle-income workers, which does not appear to provide a cost-effective, sustainable, or equitable way to use scarce donor funds for extending coverage to the poor in a region where per capita spending on the poor is typically less than US$10.[59]

What do we know to improve healthcare financing policies in developing countries?

In the past three decades, we have accumulated considerable knowledge about what works in healthcare financing in developing countries and what does not, to supplement what has been learned in G8 countries themselves. There is now broad consensus among technical experts and development agencies that the key to increasing coverage of health services in the poorest countries, and improving equity and risk protection, is to expand and rely on public financing.[60]

The general principles by which developing countries and their donor partners should improve health financing are clear:

1. to improve coverage of the poor and to improve financial risk protection, countries must shift financing from out-of-pocket payments toward reliance on public financing, involving tax financing and/or SHI
2. although the ability to mobilize tax financing in the poorest countries is inherently limited, many countries have room to increase current levels and should do more to promote such funding for health[61]

3. increased external assistance can help, but its effectiveness depends on better pooling and integration with domestic sources of financing and better design
4. if SHI is relied on to expand public spending in poor countries, it must be partly financed by taxation to enable coverage extension to the poor; given the constraints to increasing taxation in the poorest countries, this makes SHI less feasible in these countries
5. where tax-financed NHS are the main channel for public spending, countries will need to share the burden of financing with the private sector; yet, the public-private mix must be managed effectively so that public spending preferentially reaches the poor
6. user fees for health interventions whose coverage needs to increase should be reduced or eliminated where possible so as to improve access by the poor
7. countries should not rely on private health insurance or CBHI to expand coverage of the services to the poor, since experience in both G8 and developing countries has repeatedly shown that they are not effective

Where are the gaps in what we know?

While the broad principles are clear, we often lack detailed knowledge of how to achieve such improvements in actual and diverse country settings. There are several reasons. One is that health financing has tended to suffer from conflicts over ideology and analytic approaches. The debates between market and non-market perspectives in particular have hindered consensus formation on what the evidence shows. Nevertheless, there is now consensus that in the area of healthcare financing, a strong state role is universally needed to address inherent market failures in financing, and there is acceptance that market approaches may sometimes benefit the delivery side.

Another reason is there has been insufficient effort to explain and learn from the past experience of best practices in health financing in the developing world. Technical experts find it easier to research and evaluate programmatic interventions, which lend themselves more easily to experimental methods, than to research and explain successes at the level of national financing systems, where more historical and reflective approaches are needed. Consequently, we know surprisingly little about what lessons can be drawn from such successes and how they can be applied to others.[62]

A third reason relates to the way in which development agencies broker global knowledge about what works in health financing. These agencies source much

of this knowledge from what is generated through their own country investment and advisory activities, but because their mandates lead them to focus on countries with poor health financing policies, their in-house knowledge on best practice countries is often limited.

There are four areas where critical knowledge gaps have emerged:

1. A few developing countries operate tax-funded, integrated health services alongside private provision to achieve effective and equitable coverage of the poor, despite limited spending. They often do this without explicitly targeting public services. How they do this and manage the public-private mix needs to be better understood since it has direct relevance to the poorest countries with limited fiscal capacity and capabilities to use more sophisticated strategies.
2. New public sector management has been advocated for developing countries to split purchasing from provision and to use the financing mechanism as a lever to improve the performance of public services. However, success with this approach has been rare in poor countries, often due to weak institutions. Knowledge is limited on how to assess institutional preconditions for such reforms, how to address weaknesses, and whether such reforms are beneficial.
3. Expansion of SHI from already established formal sector groups to the informal and rural sectors confronts significant challenges in many countries. Not enough is known about how successful countries tackled this in the past and how such expansions should be implemented so as to make universal coverage feasible.
4. Several developing countries achieve high levels of health service coverage and sustain rapid improvements in health indicators despite small expenditures, certainly far below currently recommended international targets. What explains their ability to obtain such good value from little financing and what role the financing system plays are not sufficiently understood.

Challenges for the G8 in Health Financing and Global Initiatives

The G8 plays a lead role in influencing the global health agenda, and its member countries provide crucial assistance to partner developing countries. The past decade has seen significant increases in funding for health, but the impact in terms of accelerated health progress has often been modest or negligible.

Looking forward, the G8 needs not only to raise support but also to work with partner countries to improve financing policies so as to increase the returns to health investments. To do this, the G8 faces five challenges:

1. The G8 cannot impose better policies on partner countries. How does the G8 encourage countries to increase their commitment and take ownership of better policies?
2. Donor assistance is not without limits. How should funding gaps be prioritized?
3. Despite broad consensus on the key principles of effective health financing, the G8 countries themselves often contribute to policy confusion in developing countries. How can this be resolved?
4. Vertical funds and initiatives are a key channel for external financing, but they often cause tensions within health systems. How can this be addressed?
5. The global financial crisis will squeeze the fiscal capacity of both developed and developing countries. What should the response be?

Improving the policy environment in partner developing countries

World Bank and OECD work on aid effectiveness shows that health ODA is only effective in improving health outcomes in countries with sound policies and institutions. Conditionality only works if governments are committed to the conditions they agreed to. Donors cannot force policies, only help to design them, and since aid is fungible, external investments often effect little change in spending patterns.[63]

The emergence of good policy is evidently not just a result of evidence. Germany did not introduce SHI, or Thailand move toward universal coverage, simply because of technical analysis. Politics and political leadership also matter. However, national capacity to assess policy options, to adapt international and domestic experience, and to analyze challenges is a necessary tool to facilitate policy change and to extend healthcare coverage in a sustainable manner. Japan is a powerful reminder of this: from the late 1800s, its capacity to assess international experiences and decide for itself what was most appropriate drove the establishment and design of its health system. Similarly, the United States has significantly expanded the policy analysis capacity available to its policymakers as it confronts the challenges of improving coverage and achieving better value for public health spending.[64]

For improvements in financing policy to be sustained, countries—more than donor partners, must be convinced that policies are desirable, and they must have the adequate capacity to implement those policies. Most developing countries lack the technical capacity to make their own assessments, which would also enable them to retain ownership over these choices. Consequently, they often mistrust or reject evidence. Thailand is known for its recent reforms, but these were made possible by a sustained effort to build national capacity for health systems policy research. In contrast, many African countries lack even one qualified health financing expert, let alone institutions.

Although this gap in national capacities has been recognized,[65] there has been little improvement in practice in the past decade. There are a few examples of best practice in using ODA to build capacity, such as in the Kyrgyz Republic and China, but these are exceptions. In the spirit of partnership, the G8 needs to facilitate the building of in-country policy analysis capacity to complement its other efforts to support policies.

Prioritizing funding gaps for external assistance

Country policies and institutions matter. At the same time, it is not realistic to expect that all assistance should only be given to countries with good policies and institutions. First, countries with weak institutions are the ones that are most likely to fail to achieve the health-related MDGs, and thereby the most in need. Second, humanitarian considerations matter to the governments and publics of G8 nations, and in the case of failed or highly vulnerable states, it is not realistic to link assistance to the actions of the government. In stronger countries, the direction may be to link external assistance to performance. However, even this is not straightforward. The relationship between investment and outcomes is often difficult to show, so basing performance on outcomes is not easy. More importantly, if the performance goals that donors use are not related to a country's own strategies, then this will only undermine national coordination and planning.

Thus, the G8 needs a more strategic approach to allocating external assistance. In the weakest, most vulnerable or failed states, humanitarian objectives must predominate, and direct support to health services may be required, if necessary through nongovernmental providers. At the same time, in weak states, the key development goal of building state capacity cannot be ignored. External assistance to Afghanistan has often bypassed state institutions because of frustration with weak capacity. Yet such policies have almost certainly undermined

state development, overall aid effectiveness, and critical G8 interests in that country.[66]

Where countries are stronger, assistance should focus on encouraging better policy strategies and not specific programmatic objectives. This is best done through arrangements that ensure that ODA objectives are aligned with national plans, such as through sector-wide agreements.[67] G8 nations have recognized this through their support for initiatives such as IHP+ and P4H, both of which embody the principles of aid harmonization, support for country policies, and public financing. These have the potential to significantly improve health financing in partner countries, and the G8 should substantially expand its support for both.

Resolving mixed donor messages on health financing

Lack of consensus among technical experts and G8 members, as well as a consistent failure to take a systemic approach to health financing, have led the development community to frequently change the recommendations that it makes on health financing to country partners. For example, in the past three decades, leading agencies have advised African countries that the solutions to the region's health financing problems include introducing user fees,[68] revolving drug funds,[69] private health insurance,[70] and community health insurance; increasing taxation;[71] removing user fees; and introducing SHI and private health insurance again.[72]

Other than reducing the credibility of global evidence, these contradictions cause uncertainties at the country level and undermine coordination between donor and partner countries. The most serious problem is the differing interpretations by G8 members on the choice between the SHI model and tax-financed NHS. The choice between the two is a nuanced one and depends critically on the specific country circumstances. It is embodied in the P4H initiative and reflected in many high-level documents issued by the OECD, the EU, and others,[73] as well as in the relevant WHO resolution,[74] which some G8 members have endorsed. However, this consensus is frequently negated by the practical differences that often arise between agency officials in the messages delivered to countries.[75] At the same time, the general consensus on public financing that has been achieved by most experts and is reflected in international consensus documents has not translated well into clear policy commitments. So, for example, although the G8 countries have committed to supporting public financing mechanisms through P4H, and several European

governments have committed to supporting the abolition of user fees as a first step, the development community continues to provide conflicting signals. Given the central importance of this issue, there is a role that the G8 should play in advocating a clear and robust common position, building on the consensus represented by P4H.

Resolving tensions between vertical initiatives and health systems

The many vertical health initiatives, such as the Global Fund and PEPFAR, represent a major source of new funding for health systems. The tensions that they cause are well known. Although new initiatives, such as IHP+, are working to harmonize donor investments, these vertical initiatives will continue. One response to this problem has been to urge them to allocate part of their funding toward health system strengthening and cross-cutting activities.

The efforts of the Global Fund to do this are instructive. Its mandate prevents it from substantially changing what it can finance, but when the Global Fund opened up channels for health system strengthening support, actual take-up by countries was poor. The main reason for this appears to be weak capacity within countries to prepare effective proposals exploiting such new funding windows. This reveals that the real issue is not that vertical funding initiatives undermine country planning but that the capacity of overall country planning and management to effectively coordinate external funding flows is typically weak. These are problems that need more attention not by such vertical initiatives but by those agencies whose remit is to support health system strengthening, such as the World Bank and the WHO. In this respect, the P4H initiative can make an important contribution by supporting countries to better link domestic and external financing.

The implications of the emerging global financial crisis

The current financial crisis will lead to severe pressures on the budgets of both developed and developing country partners. In the past, this has resulted in reductions in ODA from developed countries and reductions in public spending by developing countries. There will be temptations to use policy to shift the burden of health financing back to private sources and to cut back on support to the poorest countries. Is this the appropriate and inevitable response this time? The lessons of the past, as well as pragmatic considerations, suggest not.

First, past experience in both developed and developing countries clearly shows that at times of severe economic slowdown, the poorest people are least able to fall back on private resources in order to meet health and social needs. This was the case in countries as diverse as Japan and Sri Lanka in the early 1930s and in Thailand and Indonesia following the 1997–1998 currency crisis. In each instance, recognition of the failure of private mechanisms led to stronger national commitments to use public financing for health. Such situations indeed provide the rare political opportunities to expand social protection (as it did in the United States in the 1930s), and donor countries would do well to support developing countries in doing this. Second, as the global economy slows, both developed and developing nations must respond to the International Monetary Fund's call to take concerted action to increase domestic consumption.[76] The G8 countries have an interest in encouraging policies that boost consumption at lowest fiscal cost in both developed and developing countries. Expansions of health coverage can represent one of the most effective fiscal multipliers to do this. In fact, in the case of China, a significant expansion in public spending on basic health services is likely to be one of the most effective ways of boosting domestic demand.

Finally, the G8 and partner developing countries have a mutual interest in preventing the financial crisis from leading to protectionism that reverses past gains in trade liberalization. A sustained recession, with its negative impacts on large numbers of workers, has the potential to undermine confidence in the global market economy and in an open trading system. It is precisely in this situation that investing in effective and expanded publicly financed social protection mechanisms, including health, to assist vulnerable groups will be most valuable in maintaining support for an open global economy.

Recommendations for G8 Action

Despite substantial increases in investments in global health by G8 members, overall performance by developing country partners toward the health-related MDGs has not visibly accelerated. Weaknesses in health financing policies at the country level play a major role. More money is necessary, but improving the value of health spending through improvements in financing policies is also crucial. The global financial crisis has increased fiscal and credit constraints in both developed and developing countries and increases the vulnerability of those without access to health coverage. This increases the need for effective social health protection measures, strengthening moves toward universal coverage.

The G8 should respond with three actions:

1. The G8 should complement its efforts on increasing money for health with efforts to improve the value of health spending through support for better country-led health financing and systems policies.
2. The G8 should build on the existing consensus among technical experts with an explicit G8 commitment to prioritize support for country health financing policies that place public financing for health, in the form of tax financing and/or SHI, as the core of efforts to expand coverage for poor people and vulnerable groups in society.
3. The G8 should invest in the ability of developing country partners to make better financing policies. This will require increased investments in building national capacity for health systems policy assessment and in the mechanisms to understand and share the lessons of best practice countries.

Implications

The commitment to prioritize support for country health financing policies that place public financing at their core recognizes that the key goal is to increase risk pooling and reduce financial barriers to access by the poor, if health coverage and human security are to be improved. In concrete terms, this should translate into the following:

1. Explicit support and encouragement for partner developing countries who wish to abolish user fees in their public sectors, recognizing that the abolition of user fees must be accompanied by appropriate investments in health systems to ensure that free services are actually available to and used by poor people. Such policies might start first with the provision of services relevant to MDGs 4, 5, and 6.
2. Bolstering the IHP+ and P4H initiatives, with directions to G8 countries' aid agencies and multilateral agencies to ensure a clear and coherent message to partner developing countries that both taxation and SHI financing are recommended options but that their choice will depend on the specific country circumstances. This should reflect the global evidence indicating that SHI mechanisms are more feasible in middle-income country settings, while tax-financed mechanisms have worked even in low-income country settings.

Investing in country capacity to make good health financing policy choices recognizes that only when developing countries can take ownership over these decisions will the necessary country commitment be forthcoming. In concrete terms, this requires the following:

1. Scaling up of investments to develop country capacity for health systems policy analysis;
2. Significant investment to support partner developing countries in improving the evidence base on best practices in country financing and delivery that is needed to inform better policies and in a way that encourages joint learning; and
3. A fresh look at what has worked before in capacity building, and how agency practices can be improved, to avoid the lip service to capacity building that has unfortunately characterized past activities.[77]

Opportunities

It would be wrong to think that the current economic climate is a bad time to expand the G8's commitments to improve health in developing countries. Indeed, it is a unique opportunity to address key challenges in health sectors.

In past meetings, the G8 has laid a credible basis for addressing the health problems facing partner countries, demonstrated by their scaled-up external assistance for health and their commitments to support health system strengthening. More recently, the IHP+ and P4H initiatives pushed by G8 nations, such as France, Germany, and the UK, justify enhanced engagement that is based on alignment with country-led policies, support for public financing to improve coverage and equity, and enhanced social health protection. Both initiatives also stress the importance of investing in the capacity of countries to assess their own progress and learn from each other's own experience. So the IHP+ and P4H initiatives provide an important framework to advance the key recommendations of this chapter.

The G8 should build on and enhance the two initiatives, by providing a clear message of its support for translating the principle of public financing for better health into increased reliance on taxation and SHI, improving the value of health spending, and enabling developing countries to take greater ownership. This can and should explicitly identify the progressive attainment of universal coverage and strengthening of social health protection as the two motivating goals.

At the same time, the G8 should challenge fears that the crisis will reduce available funding for health. As noted, the current financial crisis requires fiscal expansion, and not contraction, in both developed and developing nations. Instead, the crisis provides an opportunity to support increases in health spending that are linked to better coverage and which can strengthen health systems to achieve better value for their spending. In this respect, the High-Level Task Force on Innovative International Financing for Health Systems can play an important role. It can learn from past efforts to identify new ways for G8 nations to financially support health systems and capacity building, at a time when conventional ODA budgets may be under pressure. At the same time, it should recognize that the key driver for better health systems is the health financing policies of countries themselves and that innovative new external financing mechanisms will only be effective if they link to and encourage better domestic policies in countries.

Notes

1. International Monetary Fund and World Bank, *Global Monitoring Report 2008: MDGs and the Environment: Agenda for Inclusive and Sustainable Development* (Washington DC: International Monetary Fund and World Bank, 2008).
2. Adam Wagstaff and Mariam Claeson, *The Millennium Development Goals for Health: Rising to the Challenges* (Washington DC: World Bank, 2004).
3. Ke Xu et al., "Protecting Households from Catastrophic Health Spending," *Health Affairs* 26, no. 4 (2007). cited in *WHO World Health Report 2008*, xiv.
4. More than 70 million people a year have been estimated to fall below the poverty line in selected countries of Asia, with as many as 2.6 percent of households in China and 3.8 percent in Bangladesh doing so in a given month. Eddy van Doorslaer et al., "Effect of Payments for Health Care on Poverty Estimates in 11 Countries in Asia: An Analysis of Household Survey Data," *Lancet* 368, no. 9544 (2006).
5. EU Presidency/Commission, "Background Paper for Informal Meeting of Development Ministers of the European Union, 29–30 September 2008—Working Session: Strengthening Health Systems in Developing Countries" (Brussels: EU Commission, 2008).
6. World Health Organization, *World Health Report 2008: Primary Health Care Now More Than Ever* (Geneva: World Health Organization, 2008).
7. As recent experiences with HIV, SARS, and avian influenza have shown, the most significant global risks of new pandemic pathogens arise in the poorest economies where there is the greatest risk of new pathogens emerging, owing in particular to agricultural practices, and where public surveillance and control systems are weakest.
8. This is well illustrated by the global impacts of the contamination of milk products with melamine in China in 2008.
9. Giulia Greco et al., "Countdown to 2015: Assessment of Donor Assistance to Maternal, Newborn, and Child Health between 2003 and 2006," *Lancet* 371, Special issue Countdown 2008 (2008).
10. Ke Xu et al., "Protecting Households from Catastrophic Health Spending,"
11. Margaret Chan, *Address by Dr. Margaret Chan to Executive Board of WHO* (WHO, 2007 [cited 25 September 2008]); available at http://www.who.int/dg/speeches/2007/eb120_opening/en/index.html.
12. Ke Xu et al., "Protecting Households from Catastrophic Health Spending."
13. To achieve MDGs 4 and 5, countries must reduce child and maternal mortality by two-thirds of their 1990 levels by 2015. This translates into an average annual reduction in mortality rates of 4.3 percent a year. Historically, the annual rates at which individual countries have been able to reduce mortality have tended to be quite steady over time for individual countries. So for most countries, the MDGs imply accelerating the rate of decline in mortality. For child mortality (MDG 4) for which data are the most reliable, the evidence shows that for the critical regions of South Asia and sub-Saharan Africa, the rates at which countries have been reducing mortality have in fact slowed during the 1990s, with progress being slower than in the preceding decades. To some extent, this is due to the impact of HIV in sub-Saharan Africa, but elsewhere, such as South Asia, this is clearly not the reason.
14. Child mortality estimates from the Inter-Agency Group for Child Mortality Estimation, as described in Edilberto Loaiza, Tessa Wardlaw, and Peter Salama, "Child Mortality 30 Years after the Alma-Ata Declaration," *Lancet* 372 (2008).
15. World Health Organization, *World Health Statistics 2008* (Geneva: World Health Organization, 2008). See also note 7 above.
16. In OECD countries, annual rates of doctor consultations range from 4 to 15 per year, as detailed in OECD, *Health at Glance 2007: OECD Indicators* (Paris: OECD, 2007). This is

4–10 times more than in most low-income countries. In the case of hospitalizations, the disparity is even greater, with annual rates in OECD countries being 5–10 times higher.

17. At the 2000 Okinawa Summit, the G7 committed to finding and mobilizing substantial new financial resources for HIV/AIDS and health in general in order to support expansion of coverage of critical health services in developing countries.
18. Figure 1 shows that overall external flows for health have increased in the past decade. In addition, other data suggest significant increases in recent years in the specific areas of HIV/AIDS and also maternal, neonatal, and child health [Greco et al., "Countdown to 2015: Assessment of Donor Assistance to Maternal, Newborn, and Child Health between 2003 and 2006." *Lancet* 371 (2008): 1268–1275]. Other data show that domestic financing has also increased in most partner countries.
19. A large number of estimates of the global financing needs have been published. They range considerably in their implied amounts because of differences in the methodologies used and also in what they attempt to estimate. Some, for example, focus on the marginal increases in public spending required to achieve just the health-related MDGs, while others attempt to estimate overall financing levels (both public and external) required to achieve universal coverage with basic health services. The key estimates are given by the WHO Commission on Macroeconomics and Health, *Macroeconomics and Health: Investing in Health for Economic Development* (Geneva: World Health Organization, 2001), which estimated a public financing need of US$34 per capita in 2001 in low-income countries, and other more recent World Bank estimates, which have suggested a requirement of US$30-50 per capita in the poorer developing countries.
20. Pablo Gottret and George Schieber, *Health Financing Revisited: A Practitioner's Guide* (Washington DC: World Bank, 2006). For a discussion of the UN MDG Needs Assessment Model, the UNICEF/World Bank/WHO Marginal Budgeting for Bottlenecks Model, and other alternative cost estimates, see Chapter 7.
21. Ernst R Berndt et al., "Chapter 3: Medical Care Prices and Output," in *Handbook of Health Economics*, ed. A. J. Culyer and J. P. Newhouse (Amsterdam: Elsevier Science BV, 2000). The authors review the considerable efforts that have been made to estimate health service efficiency changes in mostly developed economies. See also Martin Hensher, *Financing Health Systems through Efficiency Gains*, Paper No. WG3:2, *CMH Working Paper Series* (Geneva: Commission on Macroeconomics and Health, 2001).
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28. *World Health Report 2008* (p.49) provides an example of how comprehensive health centers are more effective in increasing coverage rates for vaccination than more selective delivery facilities.
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Toward Collective Action in Health Information

*Kenji Shibuya**

Globally, 9 percent of total gross national income is spent in the health sector. Donor agencies transfer US$16 billion for health programs in developing countries each year.[1] These figures represent an unprecedented increase in funding for health, and as a result, the global health landscape is unrecognizable from a decade ago. The Millennium Development Goals (MDGs) have revitalized interest in global health issues, and the influx of new money and multiple stakeholders has opened the way to innovative structures, networks, partnerships, and alliances beyond traditional health and development models.

This attention is accompanied by greater demand for more and better information to track performance and ensure accountability. There is growing global interest in health information, particularly in metrics and evaluation, as exemplified by the MDGs and such major global health initiatives as performance-based financing. This unprecedented interest has increased the pressure on countries and agencies to generate high-quality and timely data.[2]

As one of the most influential entities in the global health arena, the G8 has an important role in tackling the deficiencies in the systems that are expected to generate this information. At the Toyako G8 Summit, the *Report of the G8 Health Experts Group* recognized the need for action to create appropriate

* The author would like to thank Chris Murray, Alan Lopez, Osman Sankoh, Octavio Gómez-Dantés, Ties Boerma, Laragh Gollogly, Masamine Jimba, Ravindra Rannan-Eliya, Michael Reich, and Keizo Takemi for their valuable comments; Susan Hubbard, Nono Ayivi-Guedehoussou, and Michael MacIntyre for their important contributions to this paper; and Tadashi Yamamoto and Tomoko Suzuki for their support.

monitoring and assessment of health systems so that policymakers could base their decisions on accurate health information.[3]

This chapter briefly reviews the current status of health metrics and evaluation in the context of health system strengthening and describes the role of the G8. We identify key challenges in this field and propose the development of a standard set of health metrics, accompanied by a measurement strategy, to monitor, evaluate, and facilitate the effective use of resources in global health. We conclude that collective action is required to promote the generation and use of sound health information, particularly at the country level, and to realize the G8's commitment to more accountability for the resources that are being invested in improving national health systems.

The Case for Better Health Information

During the past decade, health systems have become a prominent agenda item in global health, reflected in the World Health Organization's (WHO) *World Health Report 2000*; initiatives such as the International Health Partnership (UK), Women and Children First (Norway), the Catalytic Initiative to Save a Million Lives (Canada); efforts to advance social protection for health (Germany and France); and the Toyako G8 Summit and follow-up activities (Japan).[4]

However, without sound measurements to benchmark achievements and efficiency of resource use, debates on priorities for health and what does or does not work tend to be based more on ideology than on evidence.[5] The higher profile of health systems and the rapidly escalating demand for more progress and accountability in global health have exposed major gaps in the supply and use of health statistics for developing countries.

Health is one of the fundamental components of human security and development.[6] Effective health governance—the ability of national governments and the international development community to meet the health needs of the peoples of the world—requires laws, development, partnerships, and evidence.[7]

Health information contributes to all four of these functions at the global and national levels. The evidence function of health governance relies on the capacity to count, and account for, births, deaths, and causes of death. Counting everyone can also safeguard individual rights related to survival, livelihood, and dignity. While strengthening health information is essentially a national matter, the provision and accuracy of this information also has global implications insofar as it contributes to human security and development. Development

efforts in health and human security converge around the critical need for better information.

Health information can also serve other purposes: first, to sustain interest in, and funding for, global health by demonstrating positive results; second, to enhance efficiency by building a solid knowledge base of what works, thus generating a process of shared learning among countries; third, to improve the quality of decision making by providing sound evidence; fourth, to foster interdisciplinary dialogue by bringing together various areas of enquiry; and fifth, to promote the values of transparency and accountability as essential ingredients of democratic governance both nationally and globally.[8]

Health agencies and countries are actually generating increasing amounts of data.[9] Such data, however, do not necessarily provide comprehensive information for users, nor do they answer critical questions posed by the global health community. The lack of effective and efficient health monitoring and evaluation can be attributed to the following six factors.

First, the quantity and quality of data relevant for monitoring progress and assessing health systems is poor and has suffered from considerable underinvestment in the past decade.[10] Second, the efforts for correcting the scarcity of data have led to proliferation of indicators, inconsistent frameworks, and fragmented activities among stakeholders.[11] Third, work is duplicated across agencies, and these agencies compete to fill the same gaps rather than maximizing their comparative advantages.[12] Fourth, progress toward making data openly accessible remains slow.[13] As an example, at the midpoint of the efforts toward achieving the MDGs, there is no publicly accessible complete database with primary data on child mortality, the indicator for MDG 4.[14] Fifth, there is an obvious trade-off between country ownership, which was a core component of the Paris Declaration,[15] and independent evaluations. In particular, despite a growing trend toward performance-based disbursement, agencies are still vulnerable to political pressure from recipient countries.[16] Finally, many countries lack both the incentives and capacity to collect, share, analyze, and interpret better quality data.[17]

Health System Strengthening and Health Information

Global efforts to improve health conditions in poor countries have employed two distinct strategies in recent decades, one focusing on health systems and the other on specific diseases. The first strategy has emphasized

principle-based approaches to health improvement. In the late 1970s, the world embarked on a major effort to strengthen health systems, through the primary healthcare movement. The second strategy has emphasized disease-specific approaches, exemplified by the formation of disease control programs and funding mechanisms such as the Global Alliance for Vaccines and Immunization (GAVI) and the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund).

Currently, a consensus is emerging that the health problems of low- and middle-income countries can only be addressed with a more balanced approach between disease-specific and system-based solutions. While the government of Japan supported a strong vertical approach for three major communicable diseases in 2000 at the Kyusyu-Okinawa G8 Summit,[18] eight years later, the Toyako G8 Summit statement on health includes commitments to both achieving MDGs 4, 5, and 6 and strengthening health systems.[19]

The Health 8 (H8), an informal group of eight major health-related organizations (the WHO, UNICEF, the UN Population Fund, UNAIDS, the Global Fund, GAVI, the Bill & Melinda Gates Foundation, and the World Bank), is now advocating for scaling up of high-impact interventions needed to reach these goals. The International Health Partnership and Related Initiatives (IHP+), brings the H8, the African Development Bank, the Organisation for Economic Co-operation and Development, the European Commission, 14 countries, and 12 donor agencies together to advocate for strong donor coordination and country ownership, with an emphasis on meeting the health-related MDGs and on general health system strengthening.

But tension persists between the disease-specific programs and health system strengthening. In particular, there is limited evidence that disease-specific programs have contributed to strengthening health systems. Previous attempts to achieve strong donor coordination (e.g., poverty reduction strategies and sector-wide approaches) have not been shown to help improve health system performance.[20]

The challenge with such coordinated efforts for strengthening health systems is carefully monitoring how the country's plan is developed since no metrics have been developed to assess the impact of donor coordination. Efforts must be made to measure the extent to which donor coordination truly leads to improved health system performance.

Health information underpins the health system

Among the six core pillars of health systems proposed by the WHO,[21] health information underpins the entire health system, including health system inputs (workforce, financing), process, outputs (effective coverage), and impacts (health outcomes) (table 1). Health information also strengthens stewardship functions.[22]

Table 1: Indicators for assessing health system performance[23]

A. **Health system inputs and process measures:** These refer to resources invested in the health system and activities introduced to achieve program goals. Indicators in this category track the following:
   1. Human resources, such as measures of health personnel per 1,000 people, number of personnel completing training per year, new recruits, attrition rates, etc.
   2. Infrastructure and equipment, such as complete inventories of buildings and available technological and laboratory equipment
   3. Drug supply, including the types and quantities of drugs available in the area of intervention and broken down by district/sub-area (where relevant)
   4. Operational measures, including how many hours per day and how many days per week the facilities are providing services, measures of the management of the referral system, etc.
   5. Program activities, such as number and type of community outreach programs, educational materials and workshops for the population, etc.

B. **Program output measures:** These are measures of the direct output of the health system; they can change in a very short period of time, and any change in them can be directly attributed to the health system. Therefore, they can be used for monitoring progress throughout the implementation of the program, identifying areas of weakness in the program, and evaluating the impact of the program.
   1. Coverage: For the set of interventions that are being delivered through a program, coverage is defined as the proportion of the population receiving an intervention out of all those in need of the intervention. In other words, it measures the number of people who received an intervention (the numerator) out of the universe in need of the intervention (denominator). Coverage is measured separately for each intervention and then aggregated into a composite measure of health system coverage.
   2. Effective coverage: Effective coverage takes into consideration the quality of the intervention being delivered. Quality ranges from zero to one; if the individual receiving the intervention gets the maximum health gain from it then quality equals one. If an intervention is being delivered but it results in no health gain to an individual, then quality equals zero. Measures of

effective coverage are important to monitor as they track both the population receiving interventions and the quality of the interventions being delivered.

C. **Health outcome (impact) measures:** This refers to the three main goals of a health system, namely improved health, fairness in financial contribution, and responsiveness, but the primary focus is the population health outcomes.

1. Population health outcomes: Improving the health of the target population is the defining goal of a healthcare program. Metrics for measuring population health include the following:
   a. Child mortality: Under-1 and under-5 mortality
   b. Adult mortality: Age- and sex-specific mortality rates, as well as a summary measure of adult mortality such as 45q15, i.e. the probability of dying between the ages of 15 and 59.
   c. Causes of death: Numbers of deaths attributable to the major causes. The list of major causes might vary slightly across countries but will likely have significant overlap. The composition of the leading causes of death for children and adults should be monitored as useful input into the epidemiologic profile of the population.
   d. Disease-specific health outcomes and risk factors: These should be decided on separately for each program, depending on the composition of the package of services being delivered.
2. Health expenditure: This is measured in terms of catastrophic health spending and out-of-pocket expenditure. Indicators include total amount of health expenditure from all sources, amount of out-of-pocket health expenditure, and the proportion of households that spend more than 30 percent of their disposable income on health.
3. Responsiveness: Responsiveness captures the non-medical aspects of the interaction between a patient and the health system. Indicators of the responsiveness of health systems are critical to measure during the implementation of a new system of delivering health care.
   a. Quality of care, including the cleanliness of the facilities, the quality and cleanliness of the patient beds, the availability of food during inpatient stay, patient satisfaction, etc.
   b. Promptness of care/waiting time, such as average waiting times in facilities and average waiting times to get specialized care, when needed.
   c. Access to social networks (mostly for inpatient care), such as whether patients are able to have their family members and other members of their social network visit during their hospital stay.
   d. Communication between providers and patients, such as whether diagnoses are effectively communicated to the patient and whether the patient understands what they are supposed to do upon leaving the facility in terms of taking medication, follow-up visits, etc.

Thus, any global health actions, whether vertical or horizontal, need to be matched by an increase in quality and quantity of health information

and guided by a standard set of health metrics and evaluation methods if they are to have an appreciable (and measurable) effect on health system performance. Generating this information is a great challenge for the horizontal approach as metrics for assessing health system performance require a range of health information, including the dimensions of health worker training, basic health infrastructure, procurement and distribution of reliable supplies of essential medicines, and sustainable in-country health financing and risk-pooling mechanisms.

Information on the entire health system is required to evaluate the impact of health workforce retention and task-shifting policies in sub-Saharan Africa and to test whether performance-based financing, long-term predictable funding, or a mixture of the two would have more impact on health.[24] Without timely and high-quality information, the global community cannot tell whether any health policies are having the intended impact. For example, without adjusted estimates from household surveys, we will not know when or if the MDG 4 target is achieved at country, regional, or global levels.[25]

The political and financial attention now being paid to global health has not been matched by improved information on the performance of health systems and new health programs. This shortfall in knowledge is hampering efforts to create a favorable environment for investments in health. Worst of all, the evidence gap is harming work to improve the health of the most vulnerable populations in the world, who are often identified as the intended beneficiaries of disease-specific initiatives such as GAVI and the Global Fund.[26]

Major functions in health information

Key functions in health information are performed by various stakeholders.[27] Such functions—at global, national, and subnational levels, involving government, academic, and civil society actors—include 1) data collection and compilation, 2) monitoring and evaluation processes, and 3) systematic assessment of evidence on health systems and meta-analysis of health interventions (fig. 1). The latter two steps produce necessary—but not necessarily sufficient—inputs to policy formulation.

At the global level, UN technical agencies have a key role in setting norms and standards for data collection and compilation in countries. For example, the WHO produces the *International Statistical Classification of Diseases and Related Health Problems* and the *International Form of Medical Certificate of Cause of Death.*[28]

At national and subnational levels, health information derives from data sources that are either population based, such as censuses, surveys, and civil registration, or facility based, such as facility censuses, health service records, and administrative records.[29] In many countries, a tension exists between the need to obtain valid and reliable data, often at high cost, and the need for timely local information. In practice, periodic surveys are often used to provide national measurements, whereas local decision makers have to rely on periodic or continuous collection of administrative records.

New methods are needed to improve the validity and reliability of timely local measurements at a reasonable cost, including the use of lower-cost sampling methods with larger design effects, record links between surveys and administrative systems allowing estimation of selection bias in administrative systems, and Bayesian methods for local-area estimation.[30]

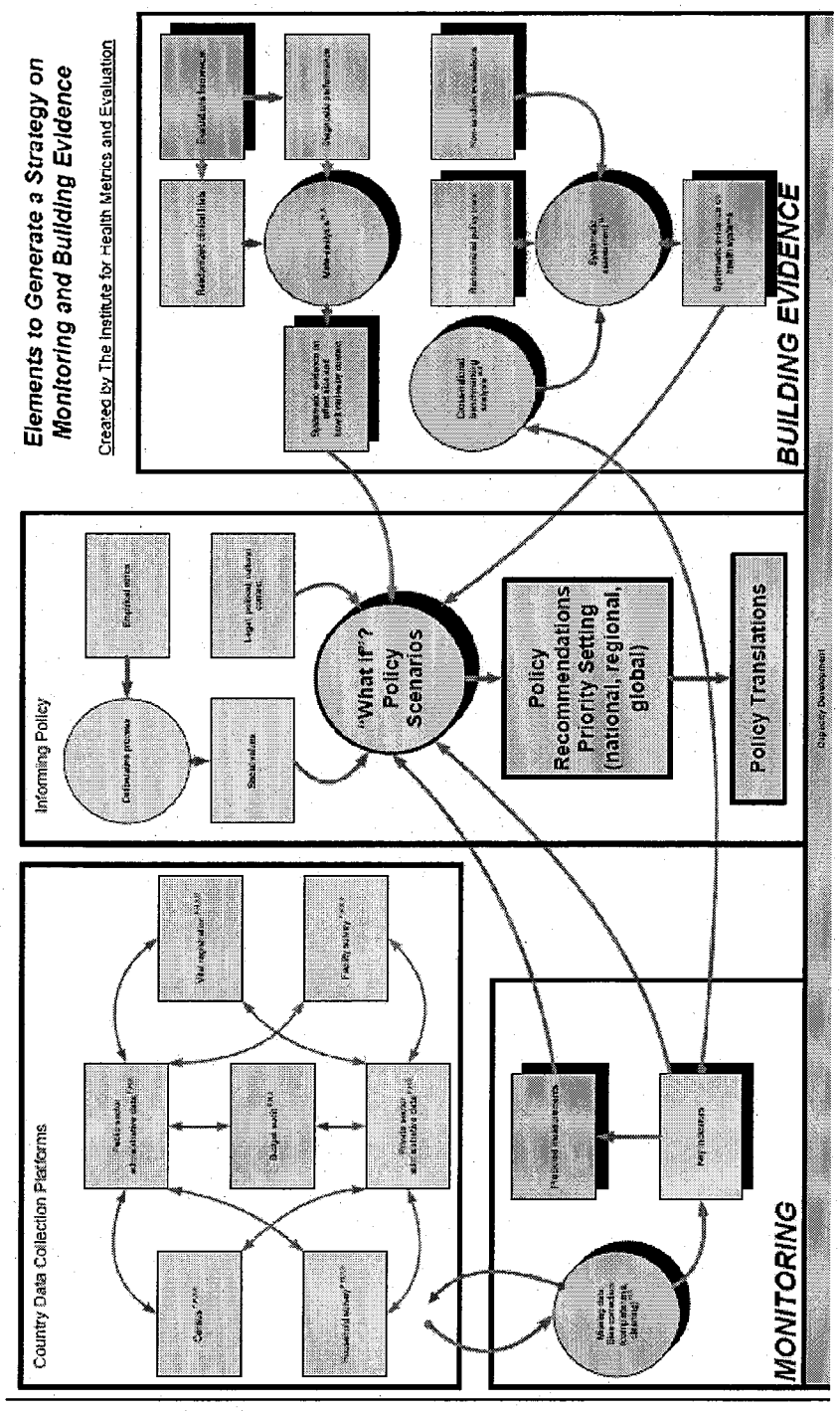
Biased data are of limited use in planning and strategic decision making, program implementation, monitoring of progress toward targets, and assessment of what works and what does not. One of the major functions in country and global health information activities is therefore to derive statistics that are corrected for known sources of bias so that figures are comparable over time and across sites or countries.[31]

The systematic evaluation of health systems and interventions is particularly important to health policy at the national level. Such evaluations can be done by randomized assignment of intervention and control areas or through various non-randomized study designs.[32] Multi-country studies of health system performance are critical to understanding why a certain policy works in one country but not in another.

An often-neglected step in the health information cycle is translating the evidence into policy dialogue and specifying the actions needed to make an impact. The health information products need to be easy to use and designed to meet the immediate and strategic needs of decision makers. This in turn will enhance the awareness of decision makers at all levels of the importance of using reliable health information in their policymaking.

The current flow of health information is often in one direction, from communities to central governments or from countries to international agencies, and there is some concern that there will be further distancing of capacities from local data producers when data gathering and compilation happen at a higher level. In fact, quite a few developing countries are using estimates generated by international agencies to track progress on the MDGs without knowing where such figures come from,[33] and there is a risk that they may not develop their capacities to collect and analyze better quality data. The health

Figure 1



(Source: Institute for Health Metrics and Evaluation, unpublished)

information cycle, therefore, needs to bring the information back to countries and data collectors. The ultimate goal of the global health metrics community is to develop local capacity to collect high-quality data, monitor and evaluate health programs and systems, and inform policy.

The G8's Unique Role in Global Health

The G8 countries account for 48 percent of the global economy and provide roughly 75 percent of the world's development assistance. Although the G8 lacks a constitutive intergovernmental agreement and a secretariat, since 1996 the G8's annual summit and periodic ministerial meetings have emerged as an important forum for global health policy.[34] The G8 is unique in the global health arena: it is a small, collective decision-making forum, with a relatively new interest in population health in developing countries and a substantive influence on the directions and policies of international agencies.

The G8 initially made commitments to support the WHO and the broader UN system in raising the money these agencies needed but were unable to attract on their own.[35] The G8 then found it necessary to launch its own initiatives and started in 2001 by agreeing on the establishment of the Global Fund, followed by the Africa Action Plan (2001–2002), the Health Action Plan (2003), a focus on HIV/AIDS (2006), and most recently the Toyako Framework for Action on Global Health (2008). The Toyako Framework was the first attempt to promote the health-related MDGs through health system strengthening,[36] consistent with the recent directions proposed by the IHP+ and other global campaigns.

Until recently, the G8 has been silent about the need for accountability in the field of global health.[37] At the Toyako Summit, however, the *Report of the G8 Health Experts Group* explicitly stated the need for "appropriate monitoring and evaluation of health systems" and pointed out that policymakers need to be able "to base their decisions on accurate health information."[38]

G8 leaders have demonstrated their capacity to deliver an alternative to existing multilateral organizations through such initiatives as the establishment of the Global Fund.[39] In addition to the policy and resource commitments the G8 leaders make, their annual summits create value by establishing new principles in normative work, by highlighting new issues, and by altering public discourse on these issues.[40] The G8 also has an unparalleled capacity to link health with broader development and security issues. The G8 can also facilitate dialogue between public and private sectors, mobilizing intellectual, human, and financial

resources from government, business, and civil society active in global health at both the global and country levels.[41]

What should the G8 do in global health information?

In the health information arena, the G8 has the capacity to effectively catalyze action on a set of issues that the existing entities—including the H8, academics, civil society, individual donors, and bilateral aid agencies—cannot tackle effectively in isolation. The G8 should not replicate what a single country or agency can do but focus on the issues for which collective action works most effectively. It should define effective and efficient functions for the global health information architecture.

Several UN agencies have mandates and experience in assisting countries to develop their health information systems. Yet, in the case of the WHO at least, arguably little progress has been achieved in guiding the development of these systems over the past few decades,[42] and some countries have even witnessed declining coverage and completeness of vital event registration. While the WHO has established and disseminated some crucial standards for data collection, it has not effectively supported the widespread implementation of these standards by countries. Nor have the UN and its agencies been successful in building the capacity that countries require for data analysis close to the point of capture.[43]

The Health Metrics Network has provided small grants to 65 countries[44] for health information assessments but can only afford an in-depth focus for 6. While these decisions are a combination of explicit strategy and limited resources, the latter often determines a lack of flexibility among the institutions involved. Ensuring a more effective response to countries' needs for expertise and assistance with health information system development is a role that the G8 could play.

Jamison and colleagues propose a framework for defining essential functions of international organizations (See table 2). The first type of essential function transcends the sovereignty of any one nation-state and therefore makes up the core of international health cooperation. These functions address problems of the global commons, in which individual decisions based on property rights are made ineffective by the fact that use of resources cannot be contained within national boundaries.

This is the case with both global public goods, when use by any one country producing them does not preclude use by other countries, and negative

externalities, when behavior in one country causes danger and financial cost to another. Since they cross national borders, problems of the global commons are shared by rich and poor countries alike. The two core functions to address these problems are the promotion of international public goods and the surveillance and control of negative externalities.

The second type of essential function deals with problems within individual countries that may warrant collective action at an international level owing to the shortcomings of national systems; because they supplement activities that are primarily the responsibility of nation states, these functions are supportive.

The emphasis given to these two essential functions needs to be balanced carefully. In the area of health information, initial collective action can concentrate on the first essential function by developing a global database and setting standards to improve comparability of data, followed by capacity building at country level.

The G8 is uniquely capable of arbitrating the functions and roles of the existing components of the global architecture in health information. Its convening power can be used to revamp existing mechanisms, consolidate fragmented activities, and leverage outputs. In particular, through the G8 follow-up process, governments and agencies need to be encouraged to 1) strengthen existing initiatives to conduct monitoring and evaluations efficiently, 2) generate and share rigorous evidence, 3) synthesize studies, 4) build capacity in developing countries, and 5) link researchers, policymakers, and project managers in an effective health information system for using evidence for policy.[46]

Table 2: Essential objectives and functions of international organizations[45]

Basic objectives	Core functions and examples	Rationale
Assure adequate levels of goods with benefits to all countries	Promotion of global public goods Databases Norms and standards Research and development Consensus building on health policy	Collective action is an economically rational approach to provision of public goods from which all can benefit, and international collective action responds to opportunities, benefits of which cover many nations.
Assure opportune response to global threats and control of international transfer of health risks	Intervention to deal with international externalities Threats specified under the WHO's International Health Regulations Transfer of risk factors Trade in legal and illegal harmful substances	If actions in individual countries have consequences for other countries, leaving decision making to countries will fail to include all costs or benefits.

Supplementary objectives	Supportive functions	Rationale
Support development in countries	Technical cooperation and development financing Capacity building Capacity strengthening	According to special needs, some countries require targeted investments in knowledge and financial resources to enhance conditions for sustainable development.
Protect health of vulnerable groups	Agency for dispossessed The poor Special groups	Ethical imperative to protect people when their governments fail or when their human rights are violated; in self-interest of every nation/state to prevent and resolve humanitarian crises.

Key Challenges and Strategies in Health Information

The amount of data available from agencies and countries is rapidly increasing.[47] However, such data do not yet permit reliable monitoring of the trends of both communicable and noncommunicable disease burdens, evaluation of the impact of health initiatives and investments, or a comparable assessment of the performance of health systems. We do not know whether well-intentioned programs do more good than harm until sound evidence is provided.[48]

There are two major sources for this problem in the field of health information:

1. Existing data are neither accessible nor presented in a coherent way (a problem of technical inefficiency); and
2. Data, very often with limited utility, are collected and compiled in an uncoordinated fashion, hence at higher marginal costs (a problem of allocative inefficiency).

The correction of such inefficiencies across agencies, institutions, and countries will make global health metrics more useful and reliable and leverage the comparative advantage of each stakeholder. The biggest challenge facing the global health community is developing the local capacity needed to collect, share, and analyze the high-quality data that are required to guide the ongoing reform of health systems.

Technical inefficiency

Data availability is the key in monitoring progress toward targets and evaluating the performance of health systems and programs. Many consumers of statistics overlook this fact because numbers—such as those representing progress toward the health-related MDGs—continue to be published annually, and the assumption is that these represent meaningful data.[49] Both governmental and academic consumers of these reports are hampered in their attempts to understand or replicate such estimates because they do not have access to the data from which these were derived.

There are three prominent factors that contribute to technical inefficiency in data collection and compilation: 1) the lack of a common database, 2) the lack of standardized metrics and data quality assurance, and 3) the lack of capacity and incentives to share data.

LACK OF A COMMON DATABASE: As a general principle, common formats, definitions, and standards should be used to collect, compile, and store health information from countries. However, not all countries have achieved—nor are they likely to in the near future—best international practice in this area. However, there can be considerable information content and value in non-standard data sets (e.g., verbal autopsy-derived data on causes of death). Provided these data are well documented and understood, they should be made more widely available for comparative analyses and included along with more standardized compilations.

At a minimum, a common database should include all currently available data and their metadata, with detailed documentation specifying whether data are crude, adjusted, or projected statistics and including a link to the original dataset.[50]

For example, child mortality, the indicator for MDG 4, is one of a few health-related MDG indicators with good data available from a number of sources. These sources include complete and partial vital registration systems for some countries, Demographic and Health Surveys (DHS) and similar surveys, census questions on the number of children ever born and the number surviving, and sample registration systems. Some efforts have been made to put all data sources used for tracking child mortality in the public domain and harmonize the work of defining past trends and generating current estimates.[51]

Despite a major debate over the completeness of child mortality databases,[52] each institution still maintains an independent and incomplete dataset of child mortality. Some of these are in the public domain and others are not, and

there are quite a few data sources for child mortality that are missing from international databases.[53]

The WHO has two binding rules that ensure its legitimacy in collecting global health information. The first World Health Assembly in 1948 adopted nomenclature regulations for diseases and causes of death,[54] and the International Sanitary Regulations—adopted in 1951 and revised and consolidated as the International Health Regulations in 1969, 1973, 1981, and 2005—provide the organization with its disease surveillance mandate.[55]

However, data compiled by the WHO are often dependent on official reporting from countries, and it is not uncommon that the latest national data are not forwarded to the WHO.[56] For example, although the Register General of India has annually published its reports on medically certified causes of death since 1973, the WHO Mortality Database contains no data on India since 2001. The WHO has not received data from China since 2000. In other words, the two most populous countries in the world are not sending their latest mortality data to the WHO,[57] despite reports being shared with academics and other agencies through their collaborative activities. Better data on interventions' effective coverage, risk factors, and health system variables need to rely on household surveys and administrative records implemented independently by different agencies and countries.

Therefore, the global health community has not yet been able to use all existing data to assess progress toward MDG 4. If all global policy-relevant health data—particularly those related to MDGs 4, 5, and 6, and health systems—were available in a common database, independent analysis and synthesis would be possible at both the country and global levels.

As more data become available for users outside traditional health agencies through advances and investments in information technology, strategic collective action is needed in data compilation, building upon the principles of country ownership of data. Existing entities need to strengthen and clarify their functions, and a common data architecture needs to be developed.

LACK OF A STANDARD SET OF METRICS AND DATA QUALITY ASSURANCE: When developing health information systems, it is essential to determine what exactly to measure and how frequently and most efficiently to do so, recognizing that countries differ in their information needs and priorities. Little progress will be made if countries are advised to report on thousands of indicators. However, the set of measures needs to be sufficiently broad to capture the key information required to manage the health system (see table 1). G8 leadership to guide efforts to fill this critical knowledge gap would be most welcome.

Likewise, experience with the Global Burden of Disease project and other large comparative analyses suggest that there is limited capacity in many countries to critically appraise data.[58] A prerequisite to improving the quality of health information is to improve the capacity of country analysts—particularly those charged with data collection—to critically appraise data for biases, errors, and general plausibility. These skills are not routinely taught in schools of public health but need to be developed if any progress is to be made with improving data quality.

At the Toyako Summit, the G8 Health Experts Group recommended that the G8 should continue "to encourage further collaboration among stakeholders with the aim of standardizing health metrics to collect, analyse and evaluate health data for policy planning and evaluation" at both the global and the country level.[59] In developing a standard set of metrics, there is always an issue of defining the universe of core indicators and a trade-off between the number of indicators and their quality. The health-related MDGs provide a high-profile illustration.[60] In fact, for the health-related MDG indicators, overall availability of any type of statistics on the official UN MDG website is only 15 percent for the interval 1990–2005.[61]

With thousands of indicators recommended but few measured well, the global health community needs to focus its efforts on improving measurement of a small set of priority areas, including aid effectiveness and health system inputs (resource tracking), outputs (effective coverage), and impact (mortality, causes of death, and morbidity). Priority indicators should be selected on the basis of public health significance and specific dimensions of measurability.[62]

The lack of a standard data exchange and quality assurance process for health metrics is also aggravating technical inefficiency. Setting such standards at the global level, specifically by the WHO, is necessary but not sufficient unless standards are developed to enhance the quality of data at the country level.

The introduction of information technology alone cannot solve the problem of interoperability. Applying a complex quality assurance framework can be impractical and even meaningless for a wide range of statistics. There is no compelling evidence that data quality assurance as advocated by the statistical community has contributed to the improvement of statistics. Independence and objectivity are important principles, but these need to be accompanied by incentives and capacity for compliance. Data exchange and quality assurance processes should aim to set a minimum standard while contributing to analytical capacity at the country level.

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

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Masami Ishii	Executive Board Member, Japan Medical Association
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as of January 1, 2009

Appendix 3

Global Action for Health System Strengthening

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Appendix 4

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Acknowledgements

Keizo Takemi and Tadashi Yamamoto would like to thank all of the members of the project task force, including the authors, international advisory board, special advisors, and reviewers, for their hard work under tight deadlines; the members of the Takemi Working Group for their ongoing commitment; participants in the October workshop and November conference for their substantive input to the papers; and other colleagues from around the world who took the time to offer guidance and feedback throughout this process. We would also like to thank Susan Hubbard of JCIE/USA, Tomoko Suzuki and other staff members of JCIE for their support in managing the project and preparing this report. We are grateful for the generous financial support we have received from the Bill & Melinda Gates Foundation, the Rockefeller Foundation, and the government of Japan, without which we would not have been able to carry out the activities that have led to the publication of this report.

Earlier versions of the papers in this volume were published by the *Lancet*, the world's leading journal on global health, on January 15, 2009.* The views presented in this report are expressed in the individual authors' personal capacities and do not necessarily represent the opinions of their institutions, JCIE, the Takemi Working Group, the G8, or the government of Japan.

* Michael R. Reich and Keizo Takemi, "G8 and Strengthening of Health Systems: Follow-Up to the Toyako Summit." *Lancet* 2008; published online January 15. DOI:10.1016/S0140-6736-(08)61899-1.