The United States and global health: inseparable and synergistic? The Institute of Medicine’s report on global health

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In the wake of dynamic economic and political transitions worldwide, the Institute of Medicine recently released its report advocating investments in global health from the United States (US). The expert panel reinforces the ‘transnational and interdisciplinary’ nature of global health research and practice as an endeavor ‘to improve health and achieve greater equity for all people worldwide.’ This report was judiciously timed given the growing recognition of global health, and is also acknowledged for incorporating themes that are particularly pertinent to the twenty-first century. New paradigms are introduced, denouncing the dichotomous distinction between rich and poor countries with the rapidly transitioning countries emerging as global powers, and affirming the need for models of respectful partnership and wider translation of science into practice. Cultivating sustainable partnerships and investing in the understanding and combat of diseases worldwide will become increasingly important for the US to maintain its global competitiveness, and may offer lessons in innovation, efficiency, and organization of institutions and human resources.

Keywords: global health; United States; translation; low and middle-income countries; Institute of Medicine

In his recent speech at Cairo University on the 4th of June 2009, President Obama eloquently spoke of a rapidly globalizing world, ‘...when a financial system weakens in one country, prosperity is hurt everywhere. When a new flu infects one human being, all are at risk. When one nation pursues a nuclear weapon, the risk of nuclear attack rises for all nations. When violent extremists operate in one stretch of mountains, people are endangered across an ocean. And when innocents in Bosnia and Darfur are slaughtered, that is a stain on our collective conscience. That is what it means to share this world in the 21st century. That is the responsibility we have to one another as human beings. This is a difficult responsibility to embrace.’ (1)

In line with this growing realization of contemporary global inter-dependence, the Institute of Medicine’s (IOM) recent report entitled ‘The U.S. Commitment to Global Health: Recommendations for the Public and Private Sectors’ is particularly timely (2). This report was the product of an expert committee, chaired by Harold Varmus, Nobel Laureate and former director of the United States (US) National Institutes of Health (NIH), and is an updated collection of recommendations, building on several influential organizations and texts that embody this theme (3–5). Global health engenders issues that transcend national boundaries, and requires global cooperation, multi-disciplinary, and interdisciplinary involvement toward achieving greater socioeconomic and health equity, for both domestic and international populations (6).

The committee articulates a clear rationale for investment by the US governmental and non-governmental organizations (universities, civil society, relief organizations, and other private ventures) in global health research and initiatives. The imperative is based on the unique current opportunity (given passionate interest and financial commitments from a wide range of vested groups) as well as acknowledgements of global interdependence in health and the significance of poverty reduction and socioeconomic development for sustainable health gains everywhere. The report graciously declares that this is neither an exclusive venture to be taken up by the US, nor is it solely the responsibility of health sector affiliates, but rather requires respectful and...
interdisciplinary collaboration, inclusivity, and leadership by way of imparting financial commitment and technical skill.

The recommendations
The five groups of recommendations set forth by the committee are specific and comprehensive, and are followed by a ‘call to action’ encouraging sustainable investment and coordination of vested groups.

Scaling up existing interventions
The report highlights the gap between current evidence supporting cost-effective health interventions, and low levels of implementation of these proven tools and technologies. There is also an emphasis on building and/or strengthening health systems toward more evidence-based and integrated health care delivery. The authors note the constraints of financing, infrastructure, and trained personnel, but also stress the fundamental role of favorable policy frameworks, capacity-building, and institutional development.

Generate and share knowledge endemic to the global poor
The report acknowledges the US’ contribution to science, but appropriately criticizes the focus on investigating a narrow range of diseases that affect developed countries. Research funds tend to be disproportionately skewed toward high-profile diseases, while suboptimal distribution of proven technologies and interventions for under-nutrition, vaccine-preventable diseases, and non-communicable diseases (NCD) (7) receive little attention, thereby perpetuating the mortality and morbidity burdens due to these conditions. Furthermore, current contributions toward multi-lateral organizations (e.g. the Global Fund to Fight AIDS, TB, and Malaria) have not been optimized. In the case of TB, for example, antiquated diagnostic tools and therapeutic options dating back at least a half-century are still the mainstays used today, perpetuating the development of drug resistance. As such, the report emphasizes the significance of: appropriate application of innovation and technology toward identifying acceptable and accessible solutions; health systems research; novel proliferation incentives (e.g. advanced market commitments); and improved methods, greater connectivity, and wider access for disseminating knowledge to contexts where they are most urgently required, especially since good health outcomes result from applying global strategies through local forces (communities, families, and decentralized institutions).

Investing in people, institutions, and capacity-building
Local resources are critical to the execution and continuity of health initiatives. Also, as a matter of global responsibility, the US should invest in health worldwide as it has and continues to rely heavily on internationally trained health workers; in the year 2000, foreign-trained nurses and physicians accounted for 9.1 and 25% (a combined workforce totaling over 350,000 professionals) of US health personnel, respectively (8, 9). Acknowledging the need for skilled, experienced, and knowledgeable health professionals to remain vested in low and middle-income countries (LMIC), the recommendations outline incentives (monetary, career-enhancing opportunities), and leveraging scientific and academic collaborations toward skills transfer, policy development, and improving institutional capacity. The National Heart Lung and Blood Institute’s (NHLBI) recent Global Health Initiative (10, 11) provides a good example of advancing research and human resource development in LMICs through financing institutional partnerships for chronic diseases research. This scheme and the Fogarty International Scholars Program incorporate opportunities for US investigators and trainees to work in new and varied environments, and forges alliances with US universities. In the long term, imparting models that engender high-quality scientific investigation and self-sufficiency will augment coordinated research and health programs between countries, inform national policies, and also create opportunities for young analysts, researchers, and junior faculty to be able to remain in-country and complete the circle by teaching others. Local capability will breed sustainability and foster global collaboration.

Increase financial commitments
While the Obama administration has pledged US$13 billion annually to global health initiatives up to 2014, the IOM report urges that current commitments overlook the burden of NCDs. Although not included in the UN Millennium Development Goals, these diseases account for 60% of mortality worldwide, of which 80% occurs in LMICs, affecting young and vulnerable subpopulations, often with devastating societal and individual socioeconomic impacts (12). Augmented investments in global health must be comprehensive, continuing to support initiatives aimed at highly prevalent infectious threats, but also providing funds for neglected diseases of poverty and health systems development. Novel transaction mechanisms and training methods can aid local dissemination of financing, procurement and distribution of diagnostics, therapeutics, and vaccines, and capacity development; ultimately, it is the local institutions (families, communities, and service organizations) that can best adapt global solutions to local contexts in order to deliver sustainable results. At the same time, concerted global cooperation among leaders of nations is required to address broader issues like global warming and its effects on health.
Engage in respectful partnerships

Truly valuable capacity-building should avoid simple paternalistic models of aid and skills transfer. Effective leadership by example and recognition of the complexities of engaging partners globally are key tenets in the process. Conveying organizational tools (structures, processes, and outcomes) and strengthening the health and public policy research and implementation workforce increases self-assurance and accountability of these sectors in LMICs. In addition, the report advocates coordination amongst the huge variety of agencies involved in global health. Although the recommendation is justified and current efforts are fragmented, sometimes duplicated, and often unplanned and improvised, it must be acknowledged that coordinating this plethora of vested groups introduces immense complexity and traditional models of organizing and synchronizing efforts may not work. The recently formed Global Alliance for Chronic Diseases, a consortium of six of the world’s most influential health agencies, is a promising new venture committed to coordinating the global health community’s fight against NCDs, and will attempt to do so by engaging more collaborative priority-setting (13).

Commentary

We would add that investing in global health is not wholly an altruistic goal, and need not be; but will also benefit the US through curbing the risk of communicable health threats, enhancing research collaborations and increasing innovation possibilities, offering opportunities for American academics and organizations, improving the global image of the US, promoting strategic alignments, and encouraging greater cooperation and trade with countries with increasing economic and political influence. Examples of this reasoning follow.

With increasing migration, travel, and human displacement, communicable agents threaten the health of all populations. For example, in 2004, there were 338 million border entries and exits documented in the US, a 5% increase from the previous year (14), and in 2007, there were 13,000 reported cases of TB in the US (15). Recent developments and the rapid spread of infectious agents like the Severe Acute Respiratory Syndrome (SARS) and H1N1 influenza virus, along with the growth of drug-resistant infections worldwide, exemplify the reasons reinforcing global cooperation in surveillance and disease control.

Collaborative investigation of patho-physiological mechanisms and disease interventions can promote health globally while benefiting the increasingly multiethnic population of the US, and inform long-awaited health system reforms. Nabel et al. (11) describe how ‘rigorous research undertaken at diverse sites will also enrich our basic understanding of disease causation and of the interplay between biological, environmental, and sociocultural contributors to public health.’ Additionally, research to test the effectiveness and cost-effectiveness of practical, low-cost interventions in real-life settings where suboptimal circumstances are common, satisfies many of the themes stipulated in the report and offers the potential of scalability and sustainability. Arguably, out of necessity, there is a high tolerance for risk in the types of innovative research undertaken in resource constrained settings of LMICs. For example, the Bill and Melinda Gates Foundation sponsored a study in rural India from which a cervical cancer screening test emerged as effective and acceptable, prompting the likelihood that this test will replace long-established pap smears (16, 17). Furthermore, the manufacturers of the test have declared that market demand and Gates Foundation subsidies will lower the cost to approximately US$5 per test, making it a viable option for rich and poor countries alike.

Global partnerships may also encourage rapid and cost-effective scientific innovation and discoveries. For instance, although the promise of a polypill for prevention of cardiovascular disease events has been around for some years (18, 19), there has been little progress in this direction in developed countries. However, recognizing the looming health and economic threat of NCDs, researchers in India collaborated with investigators in Canada to investigate the viability of this simple, low-cost idea. The Indian Polycap phase II study (20) is thus an example of a trial with potentially significant global impacts that overcame scientific and political barriers. The success of the polypill is likely to have impacts on lowering costs, enhancing adherence, expanding accessibility, and improving multiple risk factor control in both LMICs and more developed countries (21). Another noteworthy alliance between GlaxoSmithKline and Dr. Reddy’s Laboratories, a large India-based manufacturer, to promote the development and marketing of generic drugs to LMICs, highlights the growing need for low-cost drugs for the majority of the world’s population (22).

There may also be lessons for the US health system from comparative cost-effectiveness analyses of different models of delivery and health technology utilization. For instance, private health care providers and insurance companies in India are increasingly catering to a large market of people in lower socioeconomic strata (23). The Aravind Eye Hospitals (AEH) have become a renowned example, operating a high-volume, low-cost model of delivery where 285,000 eye operations are performed annually, and the tiered fee system results in almost 65% of these being provided at no cost to those in need. In making sensible decisions regarding resource allocation, independent evidence-based recommendations to government to regulate the use of health technologies, as is the function of the National Institutes of Clinical Excellence
growth of technology, digital communication, migration, and large emerging markets, is quickly creating an interdependent world, but also shapes population health. Transitioning demographic, nutritional, and lifestyle patterns that accompany these developments result in changing epidemiological patterns. Ageing, global warming, marketization, adoption of sedentary lifestyles and calorie-dense low-fiber diets, and changing modes of transport between and within countries, together result in increasingly common health challenges (obesity, diabetes, and escalating costs of health care) as well as rapid transmission of health threats and information across countries. The imperative for coordination and investment in health is paramount given the mounting burdens of chronic NCDs and looming issues of climate change. As such, the IOM report sets out progressive recommendations, but what of the adoption of these proposed schemes, and what metrics need to be considered to adequately evaluate these?

The emergence of the Brazil, Russia, India, and China (BRIC) economies signals an era of changing social, political, and economic forces worldwide. The combined economies of these four countries are expected to be larger than the G6 within 40 years (28). Additionally, the ever-increasing speed and access to information technology will yield increasingly aware populations, cognizant of current affairs worldwide. In this changing world, the US will need to adapt to maintain its historical international competitiveness. The cited examples (16, 20, 25, 26) of research, cheaper manufacturing, care delivery, and regulation offer glimpses of innovation born out of need, in different settings where resource inputs and market size plus composition vary. As such, global health offers areas of great need for investment in innovation and education.

We recognize that several challenges will need to be addressed, including lack of infrastructure and standardized quality assurance, competing agendas, and differences in the politics and culture of scientific research across countries. Can these barriers and global health challenges truly be overcome without cooperation from the other influential countries worldwide? Also, could one legitimately expect collaboration from these ‘Group of 20’ countries, given the current economic conditions worldwide and the associated competing priorities? Political esteem is currently intimately linked with domestic public sentiment leading to legitimate prioritization of their own citizens’ concerns, domestic politics, and protectionism. Free market and trade liberalization ideologies have been ‘modified’ by wealthier nations to exploit large consumer markets overseas while regulating imports of competitive products from these countries; this will ensure that the equity gap between wealthier nations and LMICs will be maintained, no matter how noble the country’s perspective. Amidst these issues, is it realistic for us to believe

(NICE) in the UK, provides an alternative model. All told, no single strategy would be infallible, but learning from a variety of contexts and applying a combination of strategies may help reduce expenditures and create a more sustainable US health system.

Industries that supply diagnostic, therapeutic, and preventative tools and technologies may also benefit from international collaborations. More rapid and cost-effective scientific discovery as well as creativity and innovation are key components of competitive advantage in a globalized world. Currently, research and development costs average US$800 million per new drug in the US and require eight years from clinical testing to marketing (24). In comparison to SmithKline Beecham’s price of US$20 per shot of Hepatitis B vaccine, a vaccine research firm in India employs innovative and efficient processes to deliver the same product for 28 cents (25). The AEH, cited above, similarly manufactures high-quality intra-ocular lenses at a cost of US$5, compared to the US $80–100 when imported, and has supplied more than 2 million lenses to over 85 countries (26). Innovation, attention to resource inputs and health outcomes, and prudent use of technology are all significant lessons the US must incorporate to deliver equitable, high-quality health care to the whole population.

Aside from the knowledge-generating benefits, investing in health and development has powerful economic and social returns. Direct economic benefits described by the UN Secretary General at a Forum on Global Health recently include six-fold economic returns on investments in basic health services; from the US$1.5 billion in treatment costs saved by governments annually through Polio eradication campaigns in sub-Saharan Africa, to the US$27 in health expenses saved per dollar invested in vaccines in the US (27). Healthy people incur less health expenses, suffer less morbidity, and generate more productivity.

Finally, while the US’ image worldwide may have suffered due to foreign, economic, and trade policies of previous administrations, it did receive appreciation and adulation for its contributions to human welfare and education development. In particular, the President’s Emergency Plan for AIDS Relief has had a profoundly positive effect, exemplifying greater goodwill and influence (soft power) that can be gained from addressing the compelling and influential humanitarian imperative of health in LMICs. The IOM’s advocacy for more investment in global health research and programs can therefore improve the country’s image further, distinguishing itself as a responsible steward of health and peace.

**Implications**

Contemporary globalization, characterized by rapid growth of technology, digital communication, migration, and large emerging markets, is quickly creating an interdependent world, but also shapes population health. Transitioning demographic, nutritional, and lifestyle patterns that accompany these developments result in changing epidemiological patterns. Ageing, global warming, marketization, adoption of sedentary lifestyles and calorie-dense low-fiber diets, and changing modes of transport between and within countries, together result in increasingly common health challenges (obesity, diabetes, and escalating costs of health care) as well as rapid transmission of health threats and information across countries. The imperative for coordination and investment in health is paramount given the mounting burdens of chronic NCDs and looming issues of climate change. As such, the IOM report sets out progressive recommendations, but what of the adoption of these proposed schemes, and what metrics need to be considered to adequately evaluate these?

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health concerns globally are ever going to climb high enough on the agenda of high-income countries unless consumer market size is threatened.

It must also be recognized that if a greater proportion of financial investment is committed by wealthier nations, this strongly influences the nature of the relationship with their counterparts in LMICs, whereby the ‘equal’ and ‘respectful’ partnership remains a mere façade. Other limiting factors of this report are the lack of actual, specific steps toward engaging US politicians, academics, and citizens in the realm of global health; the relative contributions of these various groups in their respective roles; building and implementing partnerships; and evaluating the outcomes. Lastly, while the report reflects on the strengths and past successes of US institutions (such as the NIH, USAID, CDC, and academia) globally, it does not detail the transformation and adaptations required to reframe their global engagement to align with the report’s recommendations.

Wider translation of available knowledge and technologies into health practice and policy globally must contend with a complex mix and different levels of challenges, and will probably require collective commitments from a number of wealthy nations. Even though the equity gap is large, and the process of addressing these issues looms lengthy and arduous, we cannot ignore our commitment to global health. In the words of Martin Luther King, ‘Injustice anywhere is a threat to justice everywhere.’ In much the same way, in today’s world, poor health anywhere is a threat to good health everywhere.

Note
1. Accessible from http://www.nap.edu/catalog/12642.html

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