# Editorial: Transforming Global Health, Global Health Education, Infectious Disease, and Chronic Conditions in the 21st Century

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## GLOBAL HEALTH, GLOBAL HEALTH EDUCATION, INFECTIOUS DISEASE, AND CHRONIC CONDITIONS: THE UNACCEPTABLE AND OBSCENE SITUATION

Billions of humans are currently neglected, marginalized, and deprived. Four seminal volumes on global health in the *Infectious Disease Clinics of North America* Series— International Health, International Health Beyond the Year 2000, and the two current volumes on Global Health, Global Health Education, and Infectious Disease[1–4]— have taken on the challenge of focusing on *this unacceptable situation,* reminding us that we should all continue to share the plight of these people and that we should advocate on their behalf at every opportunity through transformational changes in global health education, research, service, advocacy, policy, or diplomacy. Infectious

diseases such as HIV-AIDS, neglected diseases of tropical medicine, chronic diseases, trauma, violence, and mental health problems disproportionately affect the poor. In the 1930s, James Grant, who served as the Director of UNICEF, felt that addressing poverty should be the priority of societies because it was clearly immoral not to act when 40,000 children a day were dying, two-thirds from preventable causes. He called this an "obscene situation." He reasoned that if one lived in a world in which not much could be done about poverty, then doing little or nothing about it would not be a crime. However, when it was possible to do something about poverty, or about its worst manifestations, than it was clearly immoral not to act.[5] Even today, poverty continues to be a major determinant and driver of ill health and non-productivity.[6]

## A SAFER AND MORE SECURE FUTURE

A more secure and safer future is achievable by bridging the gaps between ideas, ideals or values, and transformational actions for global health, global health education, infectious disease, and chronic conditions. Goals continue to shift, but the deep values that we espouse as humans are eternal within the context of specific cultures. The hallmarks of universal shared values are expressed as equity, rights, fairness, justice, and solidarity. These values underpin the universal processes of interdependence, independence, collaboration, and interdisciplinary approaches to solving global health problems and the challenges of rich and poor alike by focusing on the social determinants of health across economic and geopolitical boundaries, including in one's own backyard. Aside from the recognition of shared vulnerability, we now understand that we have shared responsibility, which calls for shared security. Shared vulnerabilities arise from chronic conditions, infectious diseases, climate change, natural and human-made disasters, adverse effects of globalization, wars, and individual and group violence. The response to addressing shared vulnerability must consist of shared responsibility, mutual trust, accountability, transparency, and mutual respect. The building blocks of these efforts include shared knowledge; generation and application of new knowledge; a shared global workforce; resources, including natural resources; peace; and effective, fair, representative governance. Shared safety and security have many components, such as basic rights to food, clean water, shelter, jobs, education, and freedom of worship.[7–10] The recent events in Haiti, including an earthquake, political chaos, and outbreak of cholera, and the transformation of the political scene in the Middle East with much destruction of human life and displacement, provide great lessons and an opportunity to get involved seriously in root-cause analysis, joint learning, and realization of social justice, rights, and participatory governance.

## THE 21ST CENTURY AND THE NEW WORLD ORDER: TRANSFORMATIONAL STRATEGIES AND POLICIES

In the early 1990s, in a brief editorial and response to Alfred Sommer's insightful commentary,[11] I indicated that the search for President Bush's "new world order" and the World Health Organization (WHO) agenda "Health for All by the Year 2000" were neither theoretical nor rhetorical. The major challenges and some solutions to global health problems were reviewed in two issues of *Infectious Diseases Clinics of North America*[1,2] and I suggested that, if the United States adopted global leadership in efforts to improve the health of people everywhere, then health for the "global person" could translate into "the new diplomacy" and better health could be the new *lingua franca*, replacing the arms race and the cold war.[12] In contrast, aside from the creation of the President's Emergency Plan for AIDS Relief (PEPFAR), which was a significant event, no clear indication was delivered from the US Presidency until

the recent President's Global Health Initiative, which will be transformative in scope if performed as planned. President Obama, recalling the centrality of the United Nations Charter and the Universal Declaration of Human Rights, pledged to work to promote the economic and social advancement of all people and to recognize the inherent dignity and rights of every individual, including the right to a decent standard of living. Furthermore, President Obama pointed out that, in addition to freeing men, women, and children from the injustice of extreme poverty, the new initiative would focus on several issues: (1) moving nations from poverty to prosperity, by harnessing all the tools from diplomacy to trade and investment policies, and addressing how aid is structured, (2) offering people a path out of poverty by breaking the cycle of dependency, (3) unleashing transformational change through broad-based economic growth; combating corruption; promoting good governance and democracy, the rule of law, and equal administration of justice; and creating transparent institutions with strong civil societies and respect for human rights, and (4) mutual accountability from all parties. Additionally, investments in health, education, and the rights of women, entrepreneurs, and leaders will be a critical part of development and global health policy. The core principles, implementation components, and program areas have been summarized elsewhere.[13] Other transformative and innovative thinking on global health comes from planning and action by the rising economic powers. The acronyms BRIC (Brazil, Russia, India, and China), IBSA (India, Brazil, and South Africa), and BASIC (Brazil, South Africa, India, and China) point to the new reality that these countries have growing influence within the global health policy status quo previously dominated by European and American interests.[14] The increased influence of these countries and creation of solidarity in the global south–south partnership and alliance configuration brings creative thinking to the fields of economics, politics, health issues, and global health diplomacy. For instance, Brazil has emerged as a dominant global health player in the 21st century. The core of its unique understanding of global health is rooted in the nation's constitution (1988), which stresses health as a human right. "Brazil's global health outreach is premised on the idea of 'health in all policies,' and themes of solidarity, human rights, and the priority of health over patent protections inform the perspective Brazilian program implementers and policymakers…."[14] Brazil's new model of international development calls for structural cooperation in health with capacity building in education, research, human resource training, health service, use of local skills and expertise, knowledge generation, involvement of civil societies, and the strengthening of health systems. However, there is also a need to structure institutions such as health ministries, schools of public health, national health institutes, and faculties of higher education to work cooperatively in developing efficient and integrated health systems.[15,16]

## INFECTIOUS DISEASE AND GLOBAL HEALTH: THE MILLENNIUM DEVELOPMENT GOALS

The recent interest in the emerging vision, variously described as the field, discipline, enterprise, or goal of global health, has drawn many North American and European academic institutions and philanthropic organizations to seriously engage in the problems of the middle- and lower-income countries (MLCs) that have been devastated by infectious and chronic disease, droughts, wars, natural disasters, forced migration, and global climate change. The specialties of infectious disease and public health are keystones of global health. Those who pursue research and practice in these specialties have played a critical role in elucidating the epidemiology of the HIV-AIDS pandemic, neglected diseases prevalent in the tropics, and travel-associated diseases; in developing vaccines and antimicrobics; and in making a panoply of other

contributions to tackling emerging and remerging diseases and population health, population displacement, and health care-associated infections (HAIs). Many universities are now also engaged in creating centers of "Global Health Excellence" to coordinate the multidisciplinary activities and interests in transuniversity and intrauniversity research, teaching, and service; as well as advocacy, policy, and diplomacy.[17,18] Infectious disease specialists direct a number of these centers. Infectious disease physicians also take active roles in the Society of Tropical Medicine & Hygiene, Public Health, and Travel Medicine.

In 1987, the UNICEF Report Adjustment with a Human Face dealt with the negative impact of the poorly thought out Structural Adjustment Programs on societies, especially with reference to education and health.[19] Today, as we become more enlightened and bridge the schism between medicine and public health we need to craft global health with a human face[9] and, by extension, global health education, global health policies, global health diplomacy, and global health law with a human face. With this new mindset, we can clearly overcome the schisms between public health and medicine and the ephemeral schisms present within universities and between universities locally and globally.[20]

We in medicine, public health, and the diverse fields and disciplines involved in global health owe a deep debt of gratitude to WHO and UNICEF, which together launched the greatest public health enterprise of the last three centuries, Health for All, at Alma Ata in the former Soviet Union in 1978. This was a clarion call, a simple slogan to mobilize the world's values and commitment to aid billions in desperate need, from those in our backyards to the globally marginalized. A host of other collaborative initiatives followed, such as the Convention on the Rights of the Child (1990), the World Summit for Children (1990), the African Program for Onchocerciasis (1995), UNAIDS (1996), Stop-TB Initiative (1998), Roll Back Malaria Partnership (1998), and Global Alliance for Vaccines and Immunizations (1999). The Millennium Development Goals, another major milestone in global health, were unanimously adopted by the leaders at the United Nations (UN) in September 2000. Eight development goals were established, starting with the elimination of extreme poverty and hunger. The sixth goal was to combat HIV-AIDS, malaria, and other infectious diseases, but neglected conditions such as chronic diseases and tropical diseases that contribute to the massive morbidity and mortality globally were not included. In all, infectious disease accounts for 29 of the 96 major causes of human morbidity and mortality,[21] causes 25% of global deaths (over 14 million deaths annually), and continues to be a major challenge worldwide.[22] For instance a comprehensive literature review identified 1415 species of infectious organism known to be pathogenic to humans, including 217 viruses and prions, 538 bacteria and rickettsia, 307 fungi, 66 protozoa, and 287 helminthes; of these, 868 (61%) are zoonotic, and 175 pathogenic species are associated with a disease considered to be "emerging."[23] Every year brings a new emerging infection and multiple issues of antimicrobic resistance. The Infectious Disease Society of America (IDSA) has presented several dire scenarios to the US Congress of the ongoing crises in antimicrobic availability, increasing resistance, and dwindling production of new antimicrobics and antihelminthes,[24] but without much response. In the MLCs, the epidemic of HAIs has the potential to deplete scarce global resources.

## HAIs: PATIENT AND POPULATION SAFETY

In 2005, the state of California mandated the creation of the HAIs Advisory Committee. The committee, of which I was a member, was charged with making recommendations

to the California Department of Public Health on the prevention of HAIs.[25] Based on estimates from 2004, approximately 240,000 HAIs likely occurred in California among 4 million patient discharges, with a cost of approximately $3.1 billion. This excludes the economic cost to individuals and society from lost wages, productivity, and medico-legal costs.[25] As a committee, we felt that aside from our core missions of the prevention of antimicrobial resistance through antibiotic stewardship programs, surgical-site infections, ventilator-associated pneumonia, central-line-related bloodstream infections, and influenza transmission in health care facilities, it was critical to develop and implement public health infrastructure for surveillance and effective interventions, including the development of an effective HAI surveillance and prevention program and an electronic database for public reporting, and to strengthen lab capacity.[25] In contrast, the MLCs in most instances lack both a national surveillance system and the capacity within the health systems to address the mounting burden of HAIs.[26] Over the last 8 years, significant progress has been made in benchmarking regional and international data from the MLCs and identifying the relative economic and social burdens of HAI.[27] A major step 8 years ago was the founding of the International Nosocomial Infection Control Consortium (INICC) to standardize surveillance and control HAIs in hospitals in developing countries. In the INICC report of March 2010, there were no surprises. As expected, the rate of infections was several-fold higher in MLCs than in developed countries in all categories of HAIs, and most of the bacteria were resistant to multiple antimicrobics.[28]

## THE NEGLECTED AND SEVERELY NEGLECTED TROPICAL DISEASES

Emerging infectious diseases such as Ebola virus, West Nile virus, avian influenza (H5N1), severe acute respiratory syndrome (SARS), and the so-called swine flu (H1N1) represent the tip of the iceberg but capture a lot of attention and emergency funding. In contrast, the rest of the iceberg contains neglected and severely neglected tropical diseases that cause approximately 534,000 deaths annually.[29] The 13 neglected tropical diseases are among the most disabling chronic conditions. They target the world's bottom billion in terms of poverty and perpetuate the intergenerational cycle of poverty. The seven most prevalent neglected tropical diseases within this group (ascariasis, trichuriasis, hookworm infection, schistosomiasis, lymphatic filariasis, trachoma, and onchocerciasis) have been targeted for control and elimination by the Global Network for Neglected Tropical Diseases and their partners.[29,30] A hopeful sign is the inclusion of the neglected tropical diseases in the new Presidential Global Health Initiative.

## CHRONIC AND NONCOMMUNICABLE DISEASES

By one estimate, chronic diseases such as cardiovascular disease, diabetes, respiratory disease, and cancers will account for 69% of all global deaths by 2030, with 80% of these deaths in the MLCs.[31] They are already surpassing infectious diseases as the major burden in the new century. A number of chronic diseases have a microbial cause or are driven by an infectious disease. This is in addition to other negative social determinants of health, such as poverty and lack of education, access to clean water, food, and human security. A whole complex of interactive social determinants and environmental factors such as poverty, discrimination, access to health care, availability of employment, adverse marketing of tobacco and products containing high salt and sugar, climate change, natural and human-made disasters, exposure to microbial threats, environmental toxins, and breakdown of public health play a significant role in both well-to-do nations and fragile states. These factors, which are usually beyond

individual control, are now well recognized and form the basis of the historic WHO resolution on noncommunicable diseases and the high-level UN meeting scheduled for September 2011: "[T]he Resolution and the High Level meeting will place chronic diseases at the center of other development and health initiatives, including the need to strengthen health systems, the focus on prevention and control of disease, and the importance of whole-government approaches" to global health.[32] Both infectious diseases and chronic conditions (including mental health and cancers) require a robust and functioning health system to provide continuity of care through all stages of life, and primary health care within an integrated health system has been determined to be an indispensable point of entry for coordination of preventive, promotive, equity-based, quality affordable care.

## TRANSFORMING HEALTH SYSTEMS, PRIMARY HEALTH CARE, AND UNIVERSAL HEALTH CARE

Health systems are "all organizations, people, and actions whose main intent is to promote, restore, or maintain health."[33] This definition includes efforts to address the determinants of health and to direct activities to improve health. The WHO has also identified six "building blocks" for an efficient health system: (1) service delivery, (2) health workforce, (3) health information systems, (4) access to essential medicines, (5) financing, and (6) leadership or governance. A health system is therefore "more than a pyramid of publicly owned facilities that deliver personal health services."[33] A critical element of efficient and equitable health systems rests on health policy and systems research (HPSR), which is very often divorced from health systems, especially in the MLCs. HPSR is "the production of new knowledge to improve how societies organize themselves to achieve health goals," and HPSR can address any or all of the six "building blocks."[10] The achievement of health goals rests on an integrated system of primary care within a comprehensive health system. The primary care movement has been driven by the global values of equity, social justice, and solidarity and aims to create universal health care for all.[34] Increasingly, it is realized that effective primary care, regardless of its location, is best situated within a dynamic integrated health system that in turn reaches out and interacts with other sectors of the economy and civil societies. It is critical that these integrated primary care models include anesthesia, obstetric care, acute surgical care, ongoing surgical needs, and trauma care.[35] Excellent supportive laboratory and imaging systems are critical to all integrated health systems. Quality assurance and safety processes guide developing health systems to excellence.

## TRANSFORMING GLOBAL HEALTH EDUCATION, RESEARCH, SERVICE, ADVOCACY, AND POLICY

In 1997, there were two sets of organizations involved in global health. One group derived their legitimacy from their mission and global constitutional basis; this group includes the WHO, UNICEF, and the United Nations Population Fund. The other group included organizations in North America that derived their legitimacy from their constituency, such as the National Council for International Health (now Global Health Council), whose main mission was to improve global health by providing vigorous leadership and advocacy to increase private and public sector commitment to international health issues; the Canadian Society for International Health, a professional organization also advocating for international health issues; and, importantly, the academic institutions represented by the International Health Medical Education Consortium (now the Global Health Education Consortium [GHEC]).[36] These three

organizations shared the same challenge of how to attract and maintain interest in problems that often seemed distant. As Alleyne[36] stated, "The prize for most of these institutions and associations lay in development of new knowledge that had a value in and of itself as well as success in seeding in those who participated a new appreciation of the reality of health in other settings." He further said, "It is interesting to note that these entities in *international public health have been virtually ignored in the debate on how international or global public health problems might be addressed* [emphasis added]. As far as I am aware, little systematic attention has been given to the possibility of having this kind of institution become international or multinational in the sense of being replicated in several countries of the world."[36] Except for these organizations, a state of disinterest and noncollaboration in global health prevailed. A prominent member of the Institute of Medicine (IOM) Committee on International Health stated, "The last time I was on the committee, everybody was saying we might as well shut down this committee because nobody cares anymore and there is no interest in the US in international health. Some of us argued that we should produce a white paper that would try to find a reason people should care. So we did. We ended up doing the report that focused on what is America's self-interest in having our country remain active in global health."[37] Much has been achieved at IOM in global health since then including several groundbreaking reports such as the one on global health, chronic conditions, HIV-AIDS, and other topics, as can be seen on their Web site: http://www.iom.edu/Global/Topics/Global-Health.aspx.

Today, we would also say that GHEC has had considerable success in cultivating interest and involvement in global health in North American universities, and the launching of The Network for Equity represents a unique international model of education of health care professionals, based on the principles of global equity.[38,39]

## TRANSFORMATIVE MODELS OF EDUCATION: LESSONS FROM AFRICA

Pliny the Elder, a Roman scholar and scientist (23 to 79 AD) famously stated, "There is always something new out of Africa."[40] Having lived the first third of my life in Africa, I agree with this statement and recently participated in several major initiatives, in differing capacities, in reforming and transforming medical education. These initiatives included The Afiya Bora ("good health" in Swahili) in Nairobi, Kenya[41]; Developing Health Care Leadership, sponsored by the Institute of Infectious Disease at Makerere University, Kampala[42]; the sub-Saharan Africa Medical School Study (SAMSS)[43,44]; Celebrating Accountable Medical Education in Africa at the Walter Sisulu University in Mthatha, South Africa; and the Global Consensus for Social Accountability of Medical Schools (GCSA).[45] These efforts have given me another valuable perspective on the rapid pace of development and transformation of educational leadership emanating from Africa. Some of these remarkable achievements and ongoing efforts are highlighted in the following sections, including the formation of the African Science Academy.

### SAMSS

This pathbreaking study examined the challenges, innovations, and emerging trends in medical education in sub-Saharan Africa. This study made 10 recommendations (**Box 1**)[43,44] relevant to universities in Africa and their current and prospective partners, including donors, policy makers, and governments (especially the ministries of health, education, and finance, which often do not work cohesively in ensuring the needs of their populations). The study resulted in funding to transform African medical education. It is important to mention the leadership role of Francis Omaswa, the Director of

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**Box 1**
**Recommendations of the SAMSS**

1. Launch campaigns to develop medical school faculty capacity, including recruitment, training, and retention

2. Ramp up investment in medical education infrastructure

3. Institute structures to promote interministerial collaboration for medical education

4. Fund research and research training at medical schools

5. Promote community-oriented education based on principles of primary health care

6. Establish national and regional postgraduate medical education programs to promote excellence and retention

7. Establish national or regional bodies responsible for accreditation and quality assurance of medical education

8. Increase donor investment in medical education aligned with national health needs

9. Recognize and review the growing role of private institutions in medical education

10. Revitalize the association of medical schools in Africa

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The African Center of Global Health and Social Transformation, who has also been a significant force in the global health workforce development.

### GCSA: A New Paradigm of Medical Education

An International Reference Group of 130 organizations and individuals was formed to create a consensus document on the social accountability of medical schools. Sixty-five delegates from medical educational and accrediting bodies around the world, including GHEC and the Training for Health Equity Network, recently met in East London, South Africa, to finalize the document. A clear consensus was achieved on the direction of action on 10 interlinked areas (**Box 2**), in order that medical schools will have a greater impact on health system performance and on health status globally.[45]

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**Box 2**
**Areas of action from the GCSA of medical schools**

Area 1. Anticipating society's health needs

Area 2. Partnering with the health system and other stakeholders

Area 3. Adapting to the evolving roles of doctors and other health professionals

Area 4. Fostering outcome-based education

Area 5. Creating responsive and responsible governance of the medical school

Area 6. Refining the scope of standards for education, research, and service delivery

Area 7. Supporting continuous quality improvement in education, research, and service delivery

Area 8. Establishing mandated mechanisms for accreditation

Area 9. Balancing global principles with context specificity

Area 10. Defining the role of society

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The next phase will address the implementation of these guidelines internationally. The WHO Guidelines on Transformative Medical Education are also in preparation. An exciting prospect is to make practical and institutionalize these ideas and to create global nodes of Centers of Excellence in Social Responsiveness and Accountability to guide the academic community, society, and governments.

### The African Science Academy Development Initiative

As an element of civil society, science academies play a critical role in molding policies, advising the government, and "enabl[ing] citizens to better hold their democratically chosen representatives accountable by illuminating in a dispassionate fashion the science pertinent to issues of national importance."[46] How countries in the MLCs access their scientific minds both within their countries and in the diaspora is a true measure of maturity of governance and the democratic process. Several consensus studies by the various African Academies are currently underway or completed, such as studying the impact and policy formulations addressing infectious diseases such as HIV-AIDS, malaria, and tuberculosis; under-five mortality; health and nutrition; and food, water, and health security.[46]

Sub-Saharan Africa has an abundance of natural resources and scientific talent. Its economy is predicted to grow 5% to 5.5% in 2011, faster than the Organization for Economic Co-operation and Development and several other economies.[47] Recently, I had an opportunity to discuss various problems in global health and solutions from the perspective of the Africans with Gotlieb Monekosso, the father of African medical education and the emeritus director of the WHO Africa Region, while we traveled together in the last row of a bus from Mthatha to East London, South Africa. As Monekosso related, before independence, medical education in Africa was closely linked with Africa's political fortunes and misfortunes—there was no brain to drain, no research, no plans for the future. After independence, universities experienced very rapid exponential growth, with all its excitement and risks. However, universities, which Monekosso referred to as the nation's electric power generating unit, are still not used to their fullest potential. Universities are also the conscience of the nation, and paradoxically, the focal point of dissent, reaction, and sometimes conservative immobility. Because Africa is very rich in resources, it should be self-sustaining in various aspects of development.[48,49] In contrast to universities, there is a dearth of public health schools, and the Africans rightfully lament that there are "only 493 full-time faculty in public health for the entire continent…and only 42 doctoral students…the total academic public health workforce in Africa could fit into the department of epidemiology at Johns Hopkins."[50]

The 21st century can rightfully be called the century of global health, information, and knowledge because of the dramatic and complex pace and impact of globalization in several arenas. Knowledge translation is "the exchange, synthesis, and ethically sound application of knowledge—within a complex set of interactions among researchers and users—to accelerate the capture of the benefits of research…through improved health, more effective services and products, and a strengthened health care system."[51] This has become the foundation of the post-20th century society. Today it is not enough to generate knowledge; the connectivity that enables information to be widely and quickly available opens up corridors both in the real and virtual world for two-way or multiple-way sharing. Transformative education for medical, nursing, and midwifery health professionals has received increased attention a hundred years after the early reforms of the 20th century. Several recent reference groups and commissions on scaling up health education have focused on the inadequacies and imbalances of the global health workforce to meet the specific health

needs of societies in both the MLCs and upper income economies.[43–45,52,53] WHO and PEPFAR are working jointly on the long-term objective of transforming the education of health professionals so that social accountability is a norm for health professional schools. The launching of the Medical Education Partnership Initiative (MEPI) (http://www.fic.nih.gov/programs/training_grants/mepi/index.htm) and Nursing/Midwifery Education Partnership Initiative (NEPI) is anchored on the development of these principles at the outset.[54] MEPI is a 5-year, $130 million commitment by the United States' government to transform African medical education and significantly increase the number of health workers in sub-Saharan Africa. The initiative is designed to support PEPFAR's goal to train and retain 140,000 new health workers and strengthen the capacity of medical education systems in Africa. MEPI has awarded grants to African institutions in 12 countries, and has 30 regional partners as well as more than 20 United States' collaborators. Two other comprehensive reports on transformation of health professional education last year, the IOM report focused on nursing education[52] and the highly influential independent Lancet Commission on the transformation of professional education to strengthen health systems in an interdependent world,[53] have added considerable weight to the urgency of transforming health professionals' education. Scaling up of general education globally should include prekindergarten, primary, and secondary schools to prepare the current and future global health workforce. The dangers of education without future prospects of employment for the graduates are being exposed during the current crises in the Middle East. This situation is not unique to that region.

## GLOBAL HEALTH LAW, SOCIAL JUSTICE, AND DIPLOMACY

In the last decade, remarkable progress has been made in the fields of global health law, human rights, social justice, and diplomacy. We have previously reviewed some of these aspects under the rubric of Global Health Ethics.[7] How can rights be ingrained and made more relevant for health professional practice in global health? George and colleagues, referring to the thinking of the Indian-born Noble Laureate Amartya Sen and RC Solomon, state , "Justice is generated through a continued process of public engagement and rational analysis to incrementally improve the lives of the most vulnerable people, rather than being derived from abstract principles alone."[55–57] Furthermore George and colleagues, referring again to Sen, state, "More attention has been paid to *niti*, which denotes the development of rules and behavioral norms of justice, than to *nyaya*, the actual social 'realizations' of justice—the lives people lead, regardless of whether or not the institutional architecture and laws have been perfectly rendered."[55,56]

   A recent, skillfully crafted definition, that can be called "global health law with a face," includes the goal of global health law equity and health for all as outlined by the WHO, particularly to benefit the world's poorest populations, "Global health law is a field that encompasses the legal norms, processes, and institutions needed to create the conditions for people throughout the world to attain the highest possible level of physical and mental health. The field seeks to facilitate health-promoting behavior among the key actors that significantly influence the public's health, including international organizations, governments, businesses, foundations, the media, and civil society. The mechanisms of global health law should stimulate investment in research and development, mobilize resources, set priorities, coordinate activities, monitor progress, create incentives, and enforce standards. Study and practice of the field should be guided by the overarching value of social justice, which requires equitable distribution of health services, particularly to benefit the world's poorest populations."[58]

## SUMMARY

Today, the breaking down of barriers to global health development gives us an unprecedented opportunity, not only for a new intergenerational dialog, but for sustained focus and action on the evolving paradigm of global health, global health education, and emerging health-system and research agendas. The renewed focused attention and action on the Millennium Development Goals, health system strengthening, reinvention of primary care with its moral-ethical backbone and framework, action on chronic and infectious diseases, neglected tropical diseases, poverty, education, climate change, long-neglected mental health, trauma, and surgical and anesthesia needs will certainly change how we view health and education. We continue to advocate for a comprehensive definition and compass of "global health with a face" that is beyond a discipline or goal, has a moral underpinning, and is accepted worldwide. The hard lessons we have learned teach us that all of these activities in the field and vision of global health must be integrated and shared among all sectors for sustained human development and the social good of all humankind.

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