

## ► COMMENTARY

# It is a Small World: Global Medical Education for the Twenty-first Century

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Last year's epidemic of the Severe Acute Respiratory Syndrome (SARS) virus in Asia and the present world-wide concern about the spread of the H5N1 avian flu virus has brought international health concerns to the front pages of national and international newspapers, newsmagazines, and health journals around the world. Add to this the global Human Immunodeficiency Virus (HIV) epidemic, the global resurgence of tuberculosis (TB), and the disturbing increases in antibiotic-resistant bacteria, and it becomes difficult to imagine the compartmentalized world of even 30 years ago when diseases of different continents stayed in their place. Today, more than one million people cross international borders each day (not including refugees and displaced persons). Air transport guarantees a rapid transit of both person and pathogen well within the incubation period of many diseases. Body-heat detectors used recently at immigration points (e.g., Singapore and Hanoi) to detect febrile passengers are symbolic of the coarse screening attempts being used to control the movement of contagious diseases.

As the mobility and transportability of diseases have changed, so has the idea of international health, from the arcane study of rare communicable and usually tropical diseases to a concept of global health for the global public good. Global public goods are defined by 3 general criteria: nondivisibility, nonexcludability, and nonrivalry in consumption. Nondivisibility indicates that all members of society will benefit from the good; nonexcludability means that it is not possible to exclude any group or individual from the benefits; nonrivalry in consumption means that the ability of one person to benefit from the good does not interfere in any way with another person's ability to do the same (Kaul et al., 1999; Chen et al., 1999). Dr. Thomas Frieden, Commissioner of the New York City Department of Health and Mental Hygiene described a global public good when he recently said of TB, "Unless we are able to support global TB control, we will not eliminate TB in the United States. We are all connected by the air we breathe" (Manning, 2004). The control of TB is a public good: all members of society will be safe from its effects if everyone contributes to its control. Marshall McLuhan's term 'the Global Village' where "time has ceased, space has vanished.... a simultaneous happening," has found new and almost prophetic significance in the area of international health (McLuhan, 1964).

This places considerable pressure on doctors and health

workers in all parts of the world to keep up with the rapid change. In particular, the widening range of possible and now plausible diagnoses will eventually require changes in the educational content of medical student training. Educational offerings are already evolving as curricula are being adapted to diagnose and treat a wider range of diseases. For example, a decade ago West Nile virus was not even found on the North American Continent. Today it may be one of the most common contaminants found in donated blood (Susman, 2004). The Lancet recently published a series of three articles on health and human trafficking. One article entitled, "Is trafficking a health issue?" discusses the treatment needs of vulnerable women, as well as "the pre-existing realities, especially poverty and unemployment, that drive women into a trafficking situation" (Beyrer, 2004). The whole series signifies a new concern with a topic that was hardly discussed in medical circles ten years ago (although the problem has been around for considerably longer than that). Causal concerns must expand to include detailed travel histories, broader and more sensitive social issues, and some knowledge of the global epidemiology of diseases. More and more medical schools are establishing programs or departments of international health with the inclusion of international health courses in their curriculum (American Medical Student Association, 1998). More importantly, judging from the increasing coverage of these diseases in the lay-press, a worried public is indicating its increasing sensitivity toward the interface between personal and global health concerns.

From the perspective of those working in health in developing countries, however, the contribution of the Western medical system is often represented less by the interests of the medical establishment in supporting public goods than by the private sector and donors, often perceived as driven by their own motives (Ford et al., 2004). The problem is that what some people define as public goods (e.g., drugs for HIV or malaria) become caught in the profit structures of private industry. These perceptions are only somewhat offset by the successful partnerships between Western schools of public health and counterpart institutions in the developing world; the result of which is important research on a range of nutrition and health topics. Despite these collaborations, health research and Western medical interactions lag behind in their analysis of and contribution to the structure of health and other social services that benefit the poor, possibly because this lack of integration between

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the medical sciences and other social sciences related to the public good is present in all societies.

The reality is that health problems of the poor persist. What is changing is that now they are increasingly affecting the rich, a characteristic of a public good. TB mentioned above offers one such instance. Another excellent, although unique example is the eradication of polio. Rarely has a global public good been so clearly defined. The developed world, long free of polio, cannot stop immunizing its children against polio until the last pockets of transmission are stopped (e.g., in India and in Nigeria) and the disease is eradicated from all reaches of the globe. The financial cost alone to the developed world, of continuing to immunize against polio, is estimated at \$1.5 billion per year. The personal cost is the cases of vaccine derived paralytic polio that occur, although rarely (approximately 1 case per 2 to 3 million doses), in areas where the oral vaccine is still in use. Or the logistic costs where killed vaccine is used by injection and yet another needle and syringe must be safely disposed.

As a global public good, the self-interest of all nations will benefit from their investment in the eradication of the polio virus in these outlying pockets of where transmission persists. In the meantime, which medical student sitting in a small clinic in the US is able to answer the question fully as to why he or she is still immunizing children against a disease that has not been seen in the US since 1979? And in the explanation, how many students will know that among the reasons viral transmission persists is that religious groups in remote towns of north India refuse vaccines because they are skeptical of the government's intentions in immunizing their children? Or how many students will know that a growing sense of fear arising from misinformation about the safety of the vaccine in key northern states of Nigeria has led to families' refusal of the vaccine (World Health Organization, 2004)? And yet, the reason today for immunizing children everywhere in the US is tied up in those two remote areas.

The globalization of health problems has been matched by the globalization of their basic causes. Cities in the US and Europe also have health problems rooted in distrust of government, fear, and misinformation, as well as poverty and inequity, unemployment, immigration, gender inequality, trafficking, and failure to fulfill human rights. The problems of north India can be brought to New York City on the next plane, if the local New York population is not kept fully immunized against polio. What can be learned from studying the diseases of the developing world can help to answer the problems plaguing the cities (and remote rural areas) of the West. As the world contracts, sustainable good health in every country will depend upon the control of these expanding diseases whose control is no longer a local phenomenon. As the problems of the developing world are the problems of the whole world, without global changes in the

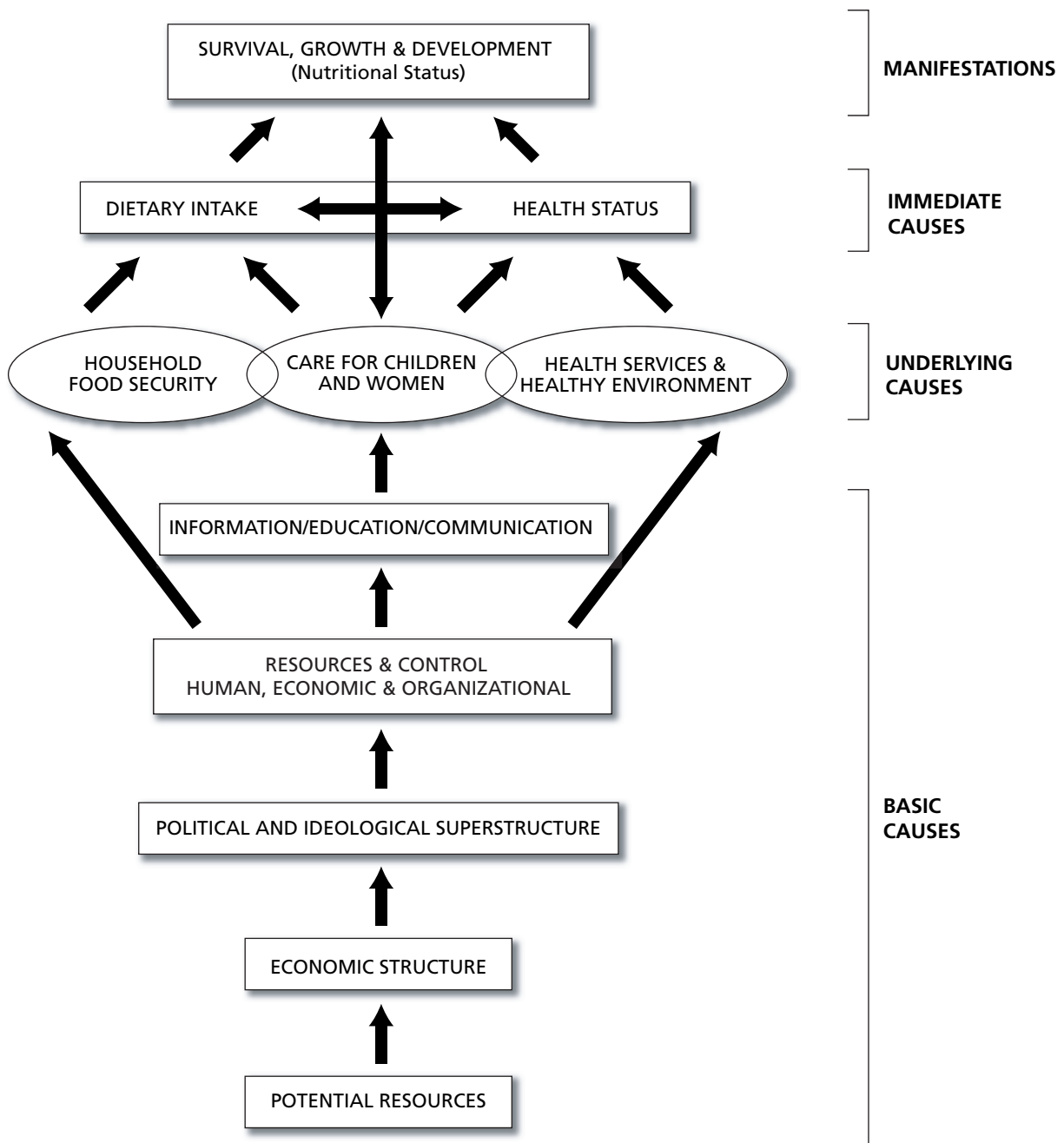
way we pursue them, local solutions will only be temporary. In every situation, care of patients will improve as the care provider has a broader view of what is necessary to improve health and prevent disease.

In order to address these problems, there is a clear need for medical educators to change the program of studies increasing student exposure to a way of thinking that moves beyond the differential diagnosis of newly transplanted diseases. What is needed is educational change through disciplines that examine the root causes of these diseases (Figure 1). It is clear that other factors must be included that are not customarily emphasized in the medical school curriculum: the relationship between health, nutrition, and poverty, the effect of poverty on migration and displacement, violence against women, trafficking of children and women, the impact of globalization on equity in health care delivery and access to medicines and services, issues of human rights and gender equality, and the elements of health and nutrition that constitute global public goods. These are topics traditionally seen as 'soft' or marginal by medical students who, studying for qualifying examinations, burdened with patient care on a busy clinical rotation, worried about having answers to faculty questions on rounds or in class are understandably more concerned with mastery of the burgeoning literature on pathology and disease processes, diagnosis, and treatment. The Dean of Students at the Albert Einstein College of Medicine commented that even when courses or lectures on these topics are offered, students do not participate or will do so only half-heartedly (Anonymous, 2003).

The final answer to the question of need-to-know is that the issues of global health assume a new priority in medical schools when viewed from a human rights perspective. In a human rights-based approach, all families everywhere are recognized as claim-holders to the right to health. Similarly, all medical and health workers serve in the role of duty-bearers tasked with the obligation to fulfill their rights. The recognition of these roles must be followed by an analysis of emerging problems that traces each to its underlying causes. Through this analysis all aspects of health care, health economics, sociology, environmental studies, epidemiology, law, ethics, and so on, can be identified that must be added to traditional topics to give the students of the twenty-first century the capability to fulfill their obligations to solving the rapidly expanding problems of a significantly contracting globe. Armed with the results, the leaders of medical education can identify the role and responsibility of the medical school to each of its students. The schools must value mastery of these new components enough to give them the time, place and resources in the curriculum that will be needed, and to reward those who excel in these pursuits with deserving recognition.

The most important agents of change in this transition are clearly the faculty. They in turn will need time,

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**FIGURE 1** | The conceptual framework of the United Nations Children’s Fund (UNICEF) as illustrated by the causes of malnutrition and death.

resources, and recognition (and in some cases, capacity development) for including these topics wherever germane in their own teaching, in every course, and in every subject. Funding for this overarching change will clearly be essential. One possibility would be to target the Global Funds or Foundations for support.

The reorientation of teaching that mainstreams these topics and issues in all aspects of the curriculum implies a

different strategy to the current trend of developing special schools or departments of international health. Although important, these departments are more prone to marginalization in the eyes of students who see them as geared toward a specific sub-group of the student body intent on working overseas. The point of this new education is that all students must master this body of knowledge regardless of where they intend to practice medicine or public health. The goal is a medical student

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of the twenty-first century who would emerge from an undergraduate medical school education, much as an undergraduate from a liberal arts college, well versed in a new vocabulary, in new ideas, and with new knowledge and skills to carry them into their future in training, practice, or public health.

### NOTE

This commentary is based on a presentation by Dr. Atwood following his receipt of the distinguished Alumnus Award from the Albert Einstein College of Medicine in the winter of 2003.

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