

Gets AIDS and Survive? The “Perverse” Effects of Aid:

Addressing the Social and Environmental Determinants of Health, Promoting Sustainable Primary Care, and Rethinking Global Health Aid

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“The influx of AIDS funding can indeed strangle primary care, distort public health budgets, and contribute to brain drain . . . [t]hese untoward or ‘perverse’ effects are not inevitable; they occur only when programs are poorly designed.”

—Paul Farmer, MD, PhD¹

There are Haitians who see a positive HIV test as the easiest—and often the most straightforward—path to survival. If Haitians contract HIV, they qualify for job programs, free health care, food, and housing. No other disease, diagnosis, social program, or policy guarantees these basic and essential services. These services are only available to AIDS patients.² A Kenyan physician reported the case of a woman presented to a President’s Emergency Plan for AIDS Relief (PEPFAR) hospital with heavy vaginal bleeding from placenta previa. After telling the hospital personnel that she was HIV-positive, she was immediately admitted and cared for. All services were free. However, after testing negative for HIV several days later, she was presented with a large bill and told that

she needed to leave the hospital unless she could pay for all of the services that she received. Could instances like these be evidence of a major structural problem with health aid interventions?²

Today, the central paradigm of international health aid centers on technical disease-specific interventions (generally referred to as “vertical” approaches) that fail to tackle the underlying causes of ill health in the developing world.* The vertical approach stems from the dominant philosophy of contemporary biomedicine, which privileges technical treatments of disease in individuals with drugs, devices, and surgery, while paying little attention to the social and environmental causes of disease. Medical professionals’ role as architects of international health bolsters this relatively narrow technical perspective, which has been reproduced in government, nongovernmental organization, and private philanthropic policy on international aid. As a result, interventions give limited or no consideration to the underlying causes of disease including illiteracy, poverty, nutrition, or changes to the sociopolitical power structure: Almost all resources are dedicated to vertical disease-specific schemes.

*While beyond the scope of this paper, the same holds true for “health interventions” in developed countries.

Vertical interventions involve massive spending but are rarely compared to alternative approaches that involve socioeconomic, environmental, and political change. Although drugs have treatment benefits, drug-focused interventions are rarely sufficient to treat or prevent disease in populations. For example, drug treatment of pneumonia in a malnourished patient fails to address the underlying determinants of disease, such as chronic and acute food insecurity, and as a result, is often ineffective. Similarly, vertical approaches to aid fail to address the root causes of individual and population health problems, such as inadequate health systems, public health issues such as water and sanitation, education, and underlying social and economic inequalities. Although global health authorities discuss the primary determinants of health, these problems garner a tiny share of funds.³

The Declaration of Alma-Ata, adopted at the International Conference on Primary Health Care in 1978, articulated a competing vision of medicine that emphasized the importance of social conditions, human rights, and equality in achieving health for all people of the world. Subsequently, a number of critiques have urged closer attention to the social conditions that foster ill health. These critiques—which range from independent articles by health care workers and academics to the World Health

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Organization's 2008 papers on the social determinants of health and primary health care—have not been adopted by aid decision-makers.^{4,5} This paper takes a closer look at the efficiency of our aid practices, arguing that vertical, technical approaches are not cost-effective when compared to other alternatives. We advocate radical change to the way funding decisions are made and a shift from disease-specific projects to projects that target the root causes of disease, including addressing the distribution of power and resources between rich and poor countries and within low-income countries.

In a world of limited resources, more funds and energy need to be allocated toward efforts that will address the environmental, social, and economic determinants of health—including water, sanitation, food, women's empowerment, and education. These efforts will also help countries strengthen their health workforce, health systems, and communities from the bottom up.

SOCIAL VERSUS TECHNICAL APPROACHES TO DISEASE

“Waiting for disease to arise in the individual, and then attacking it, involves an enormous economic waste, a waste of time, energy, earnings, efficiency, of life itself, to say nothing of the suffering, which causes a waste of nerve force, or of the tax on those immediately surrounding the individual and charged with his care. Likewise, philanthropy, state or private, directed to the relief of individual suffering and disease due directly or indirectly to faulty sociologic or industrial conditions, even though at present commendable and necessary from the humanitarian standpoint, means a tremendous waste. The vast public appropriations for hospitals and sanatoriums for the care of individuals suffering from contagious and infectious diseases—tuberculosis for instance—when weighed against prevention really constitute a waste. Prevention means the saving of most of this waste.”

—*Journal of the American Medical Association*, 1911⁶

Improvements in socioeconomic status, reduction of income disparities, and improved environmental conditions are historically responsible for the decline of many diseases that are now uncommon in the developed world.⁷ Today, these factors continue to affect health in low-income countries and communities. Although the social determinants of health are not the primary domain of contemporary biomedicine, a minority of medical professionals have long recognized that physicians should be responsible for improving the primary determinants of health. In the midst of the social upheaval of 1848, the most respected pathologist of the time, Rudolf Virchow, described medicine as “a social science, and politics is nothing else but medicine on a large scale. Medicine, as a social science, as the science of human beings, has the obligation to point out problems and to attempt their theoretical solution: the politician, the practical anthropologist, must find the means for their actual solution. . . .” He asserted that physicians are not solely arbitrators of technical interventions but are “the natural attorneys of the poor, and social problems fall to a large extent within their jurisdiction.”⁸ One such example is illustrated by Dr. Thomas Southwood Smith who encouraged the working class to organize over sanitation in 19th-century Britain. Such efforts bolstered public health initiatives, such as Britain's 1848 Great Public Health Act, which addressed improvements in water and sanitation.

In 1882, Koch, a student of Virchow's, helped radically alter the direction of medicine when he discovered the tuberculosis bacillus, and asserted that the bacillus (“a germ”) was the actual cause of tuberculosis (TB).⁹ The ascendance of germ theory in the latter half of the 19th century brought with it a shift in attention from social and environmental causes of disease toward narrowly focused, technical approaches to disease treatment. More than 50 years after Koch's dis-

covery, researchers developed antibacterial treatment and a tuberculosis vaccine. The idea that treatment of the biological cause of disease is the best way to fight diseases such as tuberculosis came to define Western medicine.¹⁰ In 1910, the Flexner Report, which proposed standards for medical education in the United States, was based on the belief that “scientific medicine” practiced on individuals was superior to other approaches, including public health efforts.^{11,12} Despite the dominance of “scientific medicine,” some groups and individuals continued to espouse a social perspective. In the 1940s, Sidney Kark developed the successful Community Oriented Primary Care (COPC) approach to health interventions, a philosophy that incorporated cultural and social belief systems as well as the local environment of a patient and their family.¹³ In the 1970s, social turmoil again stimulated physicians to challenge Koch's simple explanation of disease causation. Upon assuming the Presidency of the Society of Microbiology, Edward Kass, one of the most prominent vaccine and antibiotic researchers of the 20th century, reported that tuberculosis and other infectious disease rates declined at a constant rate from 1845 to the 1970s and demonstrated that “the overall decline in deaths from tuberculosis was *not* altered measurably by the discovery of the tubercle bacillus, the advent of the tuberculin test, the appearance of BCC vaccination, the widespread use of mass screening, the intensive anti tuberculosis campaigns, or the discovery of streptomycin” (*italics added*).⁷ Instead, he concluded that social change in the form of improved housing, sanitation, and living standards had caused the disease rates to decline. In 1979, Dr. Thomas McKeown, a well-known critic of curative and scientific medicine, showed that “improved nutrition, better hygiene, and contraception” were the primary factors that advanced health historically. He observed that “it is

Major causes of death in children younger than 5 years of age

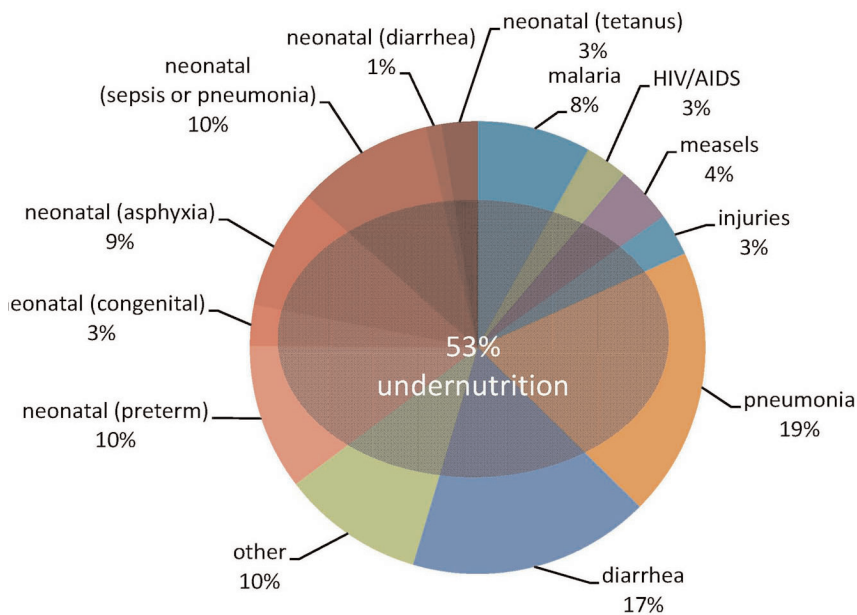


Figure 1—Malnutrition is a contributing cause of the majority of childhood deaths.^{16,32} In Africa, 45% of deaths occur in children under 14.³³

unlikely that medical intervention would have been effective if the other advances had not occurred.”¹⁴

More recently, the ideas stressed in the Declaration of Alma-Ata in 1978 have been taken up by researchers, activists, and policy-makers urging attention to the social determinants of health, defined by World Health Organization (WHO) in 2003 as “the conditions in which people are born, grow, live, work and age, and the systems put in place to deal with illness, including the health system.”¹⁵

THE SOCIOECONOMIC AND ENVIRONMENTAL DETERMINANTS OF HEALTH: WATER, SANITATION, NUTRITION, AND EDUCATION

“[I]t is not possible to provide health and knowledge to a malnourished people, dressed in rags and working under merciless exploitation.”

—Salvador Allende

In 2008, the WHO Commission on Social Determinants of Health concluded that, “social injustice is

killing people on a grand scale.”¹⁵ Indeed, current research indicates that addressing the socioeconomic and environmental causes of disease is vital for global health. Many deaths are easily preventable by “horizontal” approaches that prioritize across-the-board improvements in sanitation, water, and nutrition.^{16,17} Bartram and Cairncross note that “while rarely discussed alongside the ‘big three’ attention-seekers of the international public health community—HIV/AIDS, tuberculosis, and malaria—one disease alone kills more young children each year than all three combined. It is diarrhea.”¹⁸ Inadequate sanitation is a primary cause behind diarrhea as well as many other communicable diseases, including some neglected tropical diseases such as trachoma, helminthiasis, and schistosomiasis.¹⁹ Furthermore, some acute respiratory infections are also linked to diarrhea. However, the best-known aid organizations rarely prioritize sanitation as an approach to disease prevention. Instead they promote expensive pharmaceutical interventions delivered to individuals.¹⁹

The benefits of hygiene, sanitation, and water are also linked to other development projects including education, economic growth, and general health. Malnutrition and diarrhea are synergistic and often make children susceptible to other diseases, such as pneumonia.¹⁸ Water systems have the ability to boost livelihoods, including agriculture, thereby linking water to food production and malnutrition.²⁰ Data show that improvements in water and sanitation also raise school attendance.¹⁸ Furthermore, community hygiene, sanitation, and water not only affect mortality rates, but radically improve disability-adjusted life years (DALYs).¹⁸ DALYs measure disease burden and take into account disability, ill health, or early death (see Figure 2).

Inadequate nutrition (malnutrition/undernutrition) and food insecurity are also major contributing causes of deaths, primarily affecting children (Figure 1). Food security refers to food availability, access and use, distribution, and quality.²¹ According to the World Hunger Education Service, there are two main definitions of malnutrition: protein-energy malnutrition (PEM) and micronutrient malnutrition.²² They report that the causes of malnutrition range from poverty and unjust economic systems to conflict and climate change, all socioeconomic and environmental factors.²² Most world hunger initiatives focus on PEM but micronutrient malnutrition has recently garnered more attention (such as the World Food Programme).²³

The world produces enough food to feed everyone. However, the means of production and the means of delivery of food and farming products (seeds, fertilizer) from donor-countries into impoverished areas can have severe unintended consequences for both recipient countries and the environment.²² For example, a 2009 diarrhea outbreak in Nepal was linked to food distributed by the UN’s World Food Programme (WFP) by numerous

human rights organizations claiming that the WFP rice had become stale after being left in the open air for months.²⁴⁻²⁶ Within the vertical model, preference is given to mass-distribution of food stock to impoverished areas, mass-produced agriculture, and genetically modified organisms (GMOs), all components that lead to the destruction of local food systems, put small farmers out of business and don't take into account greater structural inefficiencies, such as irrigation systems.²⁷⁻³⁰ Interestingly, WHO reports on the 2009 Nepal outbreak concluded that the major risk factors were poor sanitation, hygiene, and water, (and not the WFP). Their report showcases the important links between these environmental determinants of health and disease.³¹ In all likelihood, there were several socioeconomic and environmental causes of the outbreak.

The education and empowerment of women and girls, beginning with literacy, are among the most cost-effective interventions, and are crucial to overall health and economic prosperity.^{34,35} For example, within El Salvador “the infant mortality rate is 2% for children of educated mothers, but 10% for those whose mothers have no schooling.”¹⁸ An international study of 175 countries concluded that “of 8.2 million fewer deaths in children younger than 5 years between 1970 and 2009 . . . 4.2 million (51.2%) could be attributed to increased educational attainment in women of reproductive age.”³⁷ Furthermore, technical interventions targeted at HIV prevention, including condoms and/or abstinence, and/or vaginal microbicides, are inadequate and inefficient absent the empowerment of women.³⁸ When men control decision making, they can—and do—refuse to abstain and/or use condoms.

Many prominent global health workers recognize that female empowerment and literacy are major determinants of health status.^{35,39-42} However, the general

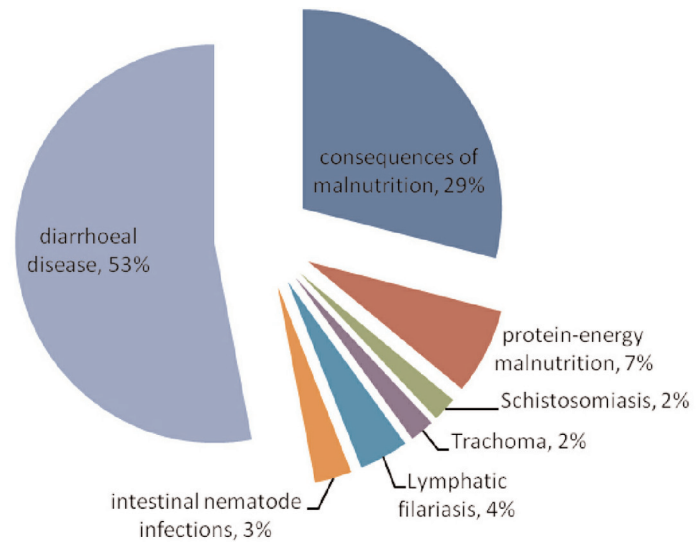


Figure 2—DALYs and disease burden¹⁸

education of girls is not considered a health intervention and receives little funding from traditional health funders. For example, education** and empowerment are not mentioned in the “Gates Foundation’s strategy document on Maternal, Neonatal, and Child Health,” which instead focuses on technical solutions.⁴³ Some organizations focusing on educating women utilize methods to circumvent illiteracy, such as using drawings to describe the issues associated with HIV, instead of funding literacy programs directly.⁴⁴ Why isn’t basic education, the most effective means of improving overall health, a priority for all health-related aid organizations?

WHAT GETS FUNDED, AND WHY

While there is a rich history of dialogue and extensive data about the importance of environmental, economic, and social determinants of health, global aid continues to fall short of implementing effective programs to address these issues.

**The Bill & Melinda Gates Foundation does donate a significant amount of money to education in the United States.

Where is the money actually going? Although large global health-aid organizations discuss the need to address the underlying causes of disease, only a small percentage of their funds pay for programs that focus on these problems. Instead, “vertical” programs narrowly focused on just three diseases received the lion’s share of global health funding. A 2009 survey of global spending (including private-sector investment) on neglected diseases, funded by the Gates Foundation, found that “funding was highly concentrated, with HIV/AIDS, TB, and malaria receiving 80% of the total.”³ Of the money given to HIV/AIDS, 63.9% was given to vaccine research, and labeled “preventative”; no money was listed under basic preventive measures, such as education or woman’s empowerment.³ Furthermore, WHO has little flexibility to allocate resources because 80% of its funding is already designated either by donors or donor countries to fund specific disease interventions.^{3,45}

Why is there such a disconnect between funding and the most cost-effect socioeconomic interventions? Clearly the focus on three diseases with identifiable causal microorganisms—and the concomitant neglect of problems with more diffuse

causes—reflects hegemonic beliefs in technomedical, rather than social/environmental, solutions. Funders and their consultants (physicians who often have pharmaceutical experience) are attracted to technical solutions based on their own experience in health and non-health arenas. They fit within the current popular definition of medicine in the United States and Europe; supplying a country with a drug for a specific ailment is a believable solution because it is how we approach health in donor countries, where basic public health initiatives (water, sanitation, education, housing, and food) are often taken for granted. Further, donors have a need to document successes of their programs; the impact of specific-disease interventions are easily evaluated through process (e.g., number of vaccinations) and outcome measures (e.g., number of new cases of malaria) over a relatively brief interval (weeks or months).

Vertical initiatives for specific diseases are also “identifiable.” In his research on decision making and genocide, Paul Slovic explains the identifiable victim effect: “people are much more willing to aid identified individuals than unidentified or statistical victims.”⁴⁶ Donating to an identifiable victim (particularly those with a name) or singular cause (particularly of a well-advertised disease) is more personal and is less overwhelming than the bigger picture (as noted by Mother Theresa: “If I look at the mass I will never act. If I look at the one, I will”).⁴⁶ Specific interventions also allow people to donate based on personal experience with a disease or on a whim, without much thought for long-term involvement. As vertical programs focus on specific problems they can use (often exploitative) images of identifiable victims and garner emotional support. Images of large stretches of inadequate housing with poor sanitation are far more overwhelming and are less likely to attract emotional appeal than an image of a sin-

gular child with an easily fixable deformity or an identified disease. The use of identifiable victims make vertical approaches more visible in the mainstream media while systematic structures that need massive attention (e.g., primary health care) are easily overlooked. Further, as Hemenway notes, “the beneficiaries of public health measures are generally unknown. Whereas medicine typically deals with identifiable people (patients), public health typically deals with statistical lives.”⁴⁷

Ideological “medical” investments in identifiable diseases and technical solutions are accompanied by material interest. In analyzing the ongoing battle to promote primary care after the declaration of Alma Ata, Evelyne Hong wrote, “the emphasis on addressing the root causes of poor health and the efforts to put health in the hands of the people posed a threat to entrenched economic interests, namely the medical and nursing establishment, the elites, and the governments that claimed a monopoly on knowledge and the power of healing.”⁴⁸ Haldan Mahler, the head of WHO in 1978, and the architect of the Alma Ata, noted that promoters of globalization and free trade recognized that the primary-care approach constituted a political threat to their power. He recently explained the demise of the primary health care movement: “We were crushed by the IMF. The hammer that was used to crush us was the vertical intervention—‘selective primary care.’”⁴⁹

The current system also yields financial benefits. More than 80% of US aid is given to US companies, funding nonprofit and for-profit “beltway bandits.”⁵⁰ These institutions and the academic and private “consultants” who charge hundreds of dollars per day are the unquestioned beneficiaries of aid programs. Running global health nonprofits and consulting on global health is such big business that the State of Washington developed a plan to increase their share of global health funding (see Appendix 2).⁵¹

Current global health funding priorities can also be linked to the economic interests of the major private philanthropic organizations that invest in global health. A 2011 report by Stuckler et al. reveals extensive conflicts of interest between philanthropic work and private corporations. Vertical interventions validate large expenditures on pharmaceuticals and medical equipment. Unsurprisingly, the Gates Foundation is heavily invested in GMOs (e.g., Monsanto) and pharmaceutical corporations and its leadership overlaps with various corporations who will benefit from spending on technical disease-specific interventions. This network results in a hidden sphere of influence on global health aid that escapes significant public critique and lacks transparency.⁵² For example, “the Bill and Melinda Gates Foundation held stock in Merck at a time when it developed partnerships . . . with the Merck Company Foundation to test Merck products.”⁵² Partnering with large for-profit drug and device manufacturers blocks critical analysis of hegemonic technical interventions.

Gates’s and others’ belief that high-tech solutions are the answer to global health is a significant driver of vertical interventions. Due to his visibility as one of the most successful men in the world, Gates’s endorsement of these interventions reinforces the belief in the value of vertical interventions and focus on three singular diseases (HIV, malaria, and TB). The power of this technology-oriented belief-system is evident in the fact that, even though the Gates foundation’s global health program gives some attention to important underlying causes of death (i.e., diarrheal disease) and preventive care, the foundation’s emphasis remains focused on vaccines and treatment drugs for specific diseases. Primary care is mentioned once in their Global Health Program Overview and only in connection to vaccines and maternal and child health

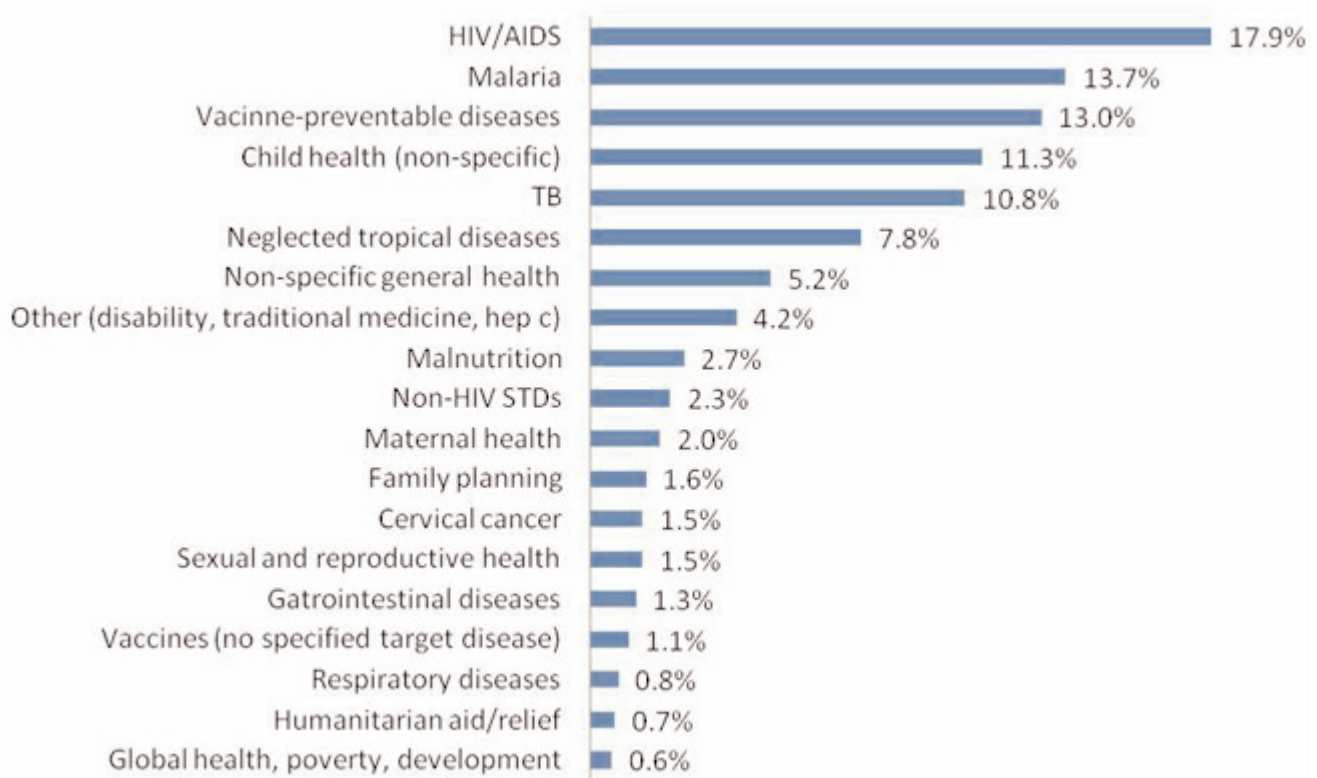


Figure 3—Adapted from “Allocation of grants from the Bill and Melinda Gates Foundation during 1998–2007 by disease or health issue”⁵⁸ (DLC1)

(Figure 3).⁵³ Water, sanitation, poverty, and hunger are addressed by their global development program, which receives a significantly smaller portion of the total budget: From 1994 to 2010, 12.8% was given to global development while 57.8% went to global health.⁵⁴ The Gates Foundation’s total budget is greater than that of the WHO and, as a result, has significant power to influence the direction of health aid funding.⁵²

The sheer spending power of foundations and large NGOs based in the United States and Europe sculpts funding to assuage donors, not recipients. For example, the Gates Foundation’s first “guiding principle” reads: “This is a family foundation driven by the interests and passions of the Gates family,” revealing a focus on personal interest and beliefs regarding global health.⁵⁶ In this way, the majority of global health spending follows a neocolonial model and many

donors fail to listen to experts from developing countries. The neocolonial approach is well known to the recipients. A dean at a school of medicine in Kenya stated that funding “should be decided bilaterally . . . not unilaterally from the funder, because if you come, for example, directly to where I work, I should be able to say what are priority health areas” and the funding and resources can be directed accordingly.⁵⁷

THE UNINTENDED CONSEQUENCES OF “VERTICAL” AID

Unfortunately, the vertical aid model has repeatedly adversely impacted on global health. Laurie Garrett of the Council on Foreign Affairs noted that as a result of massive funding of HIV interventions, between 2002–2006 HIV prevalence in Haiti plummeted from 6% to 3%. However, “during the [2002–2006

period] Haiti actually went backward on every other health indicator” other than HIV, perhaps shedding light on the question of why one might try to “get AIDS to survive.”⁵⁹ Paul Farmer, co-founder of Partners in Health (PIH), noted while critiquing Garrett that “the influx of AIDS funding can indeed strangle primary care, distort public health budgets, and contribute to brain drain.” He claimed “these untoward or ‘perverse’ effects are not inevitable; they occur only when programs are poorly designed.”⁶¹

However, we argue that the system of vertical aid is problematic by design. Vertical programs waste resources because they generate inefficient delivery structures, impose a foreign model on aid recipients, and divert qualified local health care practitioners from more efficient intervention and delivery settings, as demonstrated by AIDS programs in Haiti. As a result, programs that focus atten-

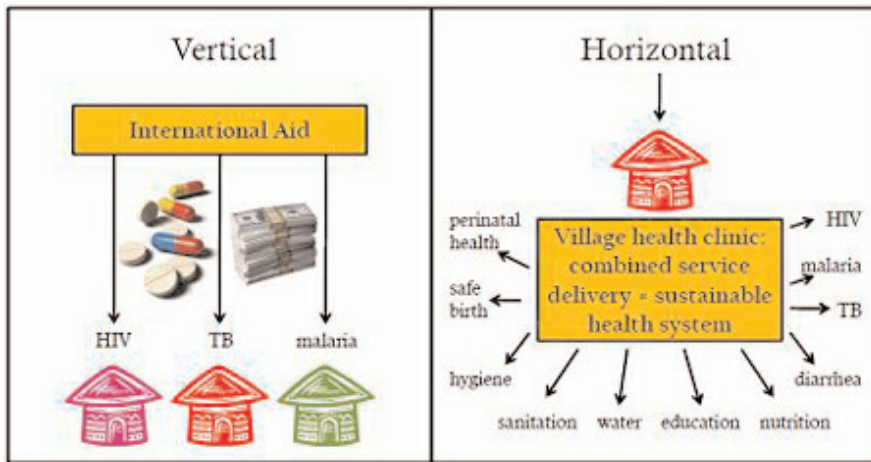


Figure 4—Vertical model disease-specific delivery, multiple locations vs. horizontal model, holistic care, single location

tion on preventing and treating a single disease may actually worsen overall health conditions for the whole population even when they successfully impact on a particular disease; this is what economists call “opportunity cost.”⁶⁰ Opportunity costs are the benefits that would have accrued if alternative programs and approaches were funded—in other words, the cost of the road not taken. Opportunity cost is assessed not only in monetary or material terms, but also in terms of anything that is of value, such as the displacement of primary health care by large-scale, disease-specific interventions. (See Appendix 1 for a more comprehensive list of articles on vertical approaches to aid.)

Inefficient Structures. Vertical programs duplicate infrastructure and underutilize human resources because each disease control program develops its own bureaucracy, buildings, and staff. In 1993, the World Bank called for public policies, which promoted diversity and competition in health care provision, particularly through the use of NGOs as health care providers. The World Bank “experts” believed that profit-driven interventions were always more efficient and effective. These expert recommendations are unfortunately based on

beliefs but not on facts; the United States has one of the most profit-driven health systems in the world, yet this system is the least cost-effective in the world and hardly serves as a model for efficient delivery. Uganda has so many “independent” AIDS NGOs that it has an NGO whose sole mission is to organize other AIDS NGOs.⁶¹ In October 2010, its membership included over 1,600 organizations and 44 district networks.

As noted in the introduction, resources offered by various NGOs may be exclusionary—offering services only to people affected by a given vertical initiative’s disease. Disease-specific aid interventions, like PEPFAR, allow some countries in Africa to dedicate entire hospitals—including MRI, CAT scan, and echo equipment, laboratories and computers—to the treatment of a single disease: HIV. This leads to inefficient facility utilization and gaps in care. For example, patients with co-morbidities (such as concurrent TB and HIV infections) may have to visit several clinics/providers to meet their multiple needs (see Figure 4).

Not only is this a waste of resources, but it can lead to problems in patient care. For example, a colleague in Uganda visited a patient who had TB, malaria, and HIV.⁶¹ He received treatment for each disease

at different clinics, which were located miles from each other and lacked communication. There were no common medical records. The patient kept his medication for all three diseases in a large bowl. He took blue pills when he felt “warm,” red pills when he felt “cold,” and yellow pills when he felt “nauseous.” He took all medication on an “as needed” basis. He was not informed of what medications might be dangerous to mix with others.⁶²

While on rare occasions, Western nations have sufficient resources to dedicate entire hospitals to the treatment of specific diseases (i.e., cancer), many countries in the developing world stand to gain more by strengthening their health systems and investing in primary care than by investing in specialized facilities. Funding general hospitals and community-based clinics, which often lack basic equipment as well as an adequate health workforce, would permit countries to efficiently treat their populations for a variety of ailments including those that make the greatest contribution to death and disability rather than only HIV, TB, and malaria.

Brain Drain. One of the major opportunity costs associated with vertical programs is the promotion of internal brain drain, occurring when donor-funded projects entice health care workers from the primary health care sector and rural locations with better pay and working conditions.⁶³ De Maeseneer et al. found that:

“Salaries of healthcare providers working for donor funded vertical programs are often more than double those of equally trained government workers in the fragile public health sector. This lures government workers to the higher paying vertical programs and creates an internal ‘brain drain.’ But it is the underfunded primary care clinics and health centers that care for all diseases, including common illnesses such as diarrhea, malnutrition, and respiratory tract infections, which take many more lives than HIV, tuberculosis, and malaria.”⁶³

In 2000, the Gates Foundation and Merck pharmaceutical company set out to show that “mass AIDS treatment and prevention could succeed in Africa,” using Botswana as a testing site and spending US\$100 million. The *LA Times* reported:

*“While deaths from AIDS fell sharply . . . HIV continued to spread at an alarming pace. Meanwhile, the rate of pregnancy-related maternal deaths nearly quadrupled and the child mortality rate rose dramatically. Despite improvements in AIDS treatment, life expectancy in Botswana rose just marginally, from 41.1 years in 2000 to 41.5 years in 2005. Dean Jamison, a health economist who was editor of Disease Control Priorities in Developing Countries, a Gates Foundation-funded reference book, blamed the pressing needs of Botswana’s AIDS patients. But he added that the Gates Foundation effort, with its tight focus on the epidemic, may have contributed to the broader health crisis by drawing the nation’s top clinicians away from primary care and child health.”*³⁸

In another example: In the 60-plus years that the United Kingdom’s Medical Research Council (MRC) has been involved in Gambia, many valuable health professionals moved from the Gambian health service to the MRC. In 2008, “28 of the 96 nurses and midwives in the poorest Upper River Region (serving a population of over 250,000) and trained by the government were working for the MRC.”⁶⁴

A primary-care doctor, born in the United Kingdom and working in Nepal for over 14 years, described a man who was very sick in a rural village—the people there assumed it was AIDS and told him that there was nothing he could do about it. “Any competent doctor could have told him he had a completely treatable disease”—if a doctor had been present.⁶⁵ She continued to explain how UNICEF and other training programs have contributed to doctor shortages:

“One of the biggest problems is that there are constant training programs, and . . . the doctors are called to these

*training programs—and they’re paid to go, so they like to go there . . . but that means that those doctors aren’t present in rural areas. It often takes three to four days to get from where they’re supposed to be working to the city where the training is being held. And then they’d spend a few days with the family and then they go back. So even in places where there are officially doctors posted . . . they’re not able to do their work. . . . It’s not just one training they go to, it’s multiple trainings by multiple different donors . . . there is no time to implement any of the training that they’re given, and that isn’t the point of going anyway, the point of going is to sit there and get some money, for sitting there. And in the meantime patients, like my patient, are dying . . . of very treatable diseases.”*⁶⁵

She explained that although some of the independently run trainings are relevant; they have an adverse impact on health because they are not integrated into the health system.

Aid not only affects health care at a micro level (internal brain drain) but also has counter-productive macro effects on health organization and spending. For every US dollar given to developing countries, governments decreased their own health spending by 43 cents to \$1.14.⁶⁶ In addition to reducing the total amount of money that is spent on health, foreign aid shifts funding from more effective public health measures to less effective interventions. As the majority of foreign aid is designated (to specific diseases, hospitals, or programs) the result of the decline of in-country health spending can be devastating.⁶⁷

Programs Are Implemented without Recipient Input. In most cases, vertical programs are implemented without consulting with local populations regarding the health services they feel are most needed. This means that such programs intervene at the price of community and cultural knowledge. As discussed earlier, the delivery is often based on “Western” ideas about medicine, hierarchy, and economics. We

will revisit this topic later in this article.

Unmeasured Impacts. Evaluations of vertical interventions typically emphasize process, participation rates, and disease-specific outcomes rather than their impact on the entire disease burden or overall health of a country. For example, the effectiveness of cleft palate interventions is measured against locations where there are no such interventions and are not measured against the incidence of other diseases. What is surgical treatment of a cleft palate worth if the patient dies of malnutrition within months? Within this narrow evaluation frame, unintended negative (or even positive) consequences of programs are usually overlooked. To an extent, unintended consequences are inevitable and working in global health requires constant checks and balances, but there are methods that programs and individuals can use to reduce adverse side effects and improve outcomes (as we will discuss later).

One example of a usually unmeasured negative consequence of aid is the increase in nosocomial infections that can accompany immunization programs. Contaminated injections in health care settings are a problem in many developing countries.^{68–70} Deuchert and Brody’s “findings suggest that unsafe health care is an important factor in the spread of HIV in lower-income countries. Across multivariate models and specifications, the lack of auto-disable syringe use is associated robustly and powerfully with greater HIV prevalence.”⁶⁸ Another study, conducted for WHO, noted that “39.3% of [injections] were given with reused equipment. In 2000, contaminated injections caused an estimated 21 million HBV infections, two million HCV infections and 260,000 HIV infections, accounting for 32%, 40%, and 5%.”⁶⁹ The real difficulty is that many programs do not measure the adverse side effects of interventions. Vertical-aid pro-

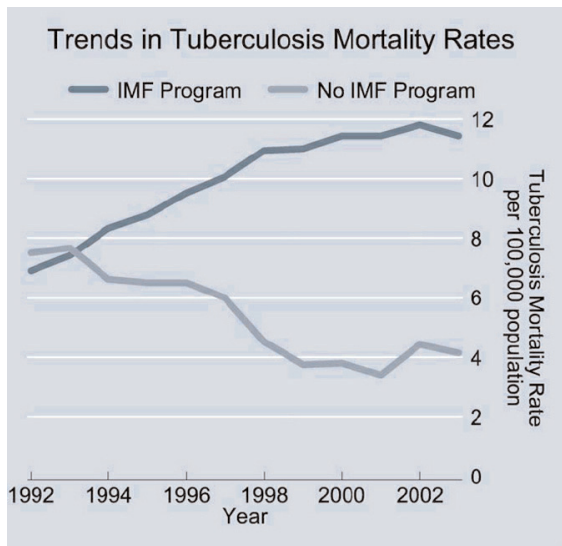


Figure 5—Adverse impact of structural adjustment programs on health. IMF = International Monetary Fund (Figure: “Trends in Tuberculosis Mortality Rates in Post-Communist European Countries, By Region” from Stuckler, et al., *International Monetary Fund Programs and Tuberculosis Outcomes in Post-Communist Countries*, *PLoS Medicine*)⁷³

grams’ failure to provide sufficient needles for safe, single-use needs contributed to this disaster. For example, evaluations of immunization programs are limited to counting the number of immunizations provided. A birth control program in Mexico provides an example of externalities related to depo provera injections. The traditional birth attendant administering the shots received only two new needles every two months—and stored them by sticking the needles into her plywood wall.⁷¹ Her work was evaluated by counting the number of shots administered but did not include an evaluation of resultant HIV or hepatitis C infections. Separate vertical programs count the HIV and hepatitis C rates but fail to consider the negative impact of the immunization programs in another office.

Evaluations of vertical programs can also fail to assess positive externalities (unexpected and unmeasured benefits). Banerjee and Duflo have promoted the use of randomized control trials (RCTs) of health interventions comparing communities where interventions are implemented with control communities that are left “untreated.”⁷²

RCTs are akin to drug and medical device evaluations; unfortunately, Banerjee and Duflo do not compare various interventions with each other but instead compare interventions to an untreated, control village or population (without a placebo component). Like drug trials, their RCTs often do not examine the side effects (negative externalities) of so-called “silo” or vertical interventions on other health indicators. Such (micro) evaluations often ignore less-measurable, long-term (macro) effects such as women’s empowerment, literacy, and community engagement in health. The education of girls improves health outcomes so dramatically because it inspires social, economic, and political change. Unfortunately, aid organizations focus on programs and outcome measures (such as RCTs) that do not address social, economic, or political barriers to health.

In the following section, we will show how cultural changes (at home and abroad) are necessary for rethinking how we distribute global health aid to limit harmful vertical initiatives and place more power in the hands of the recipients.

RETHINKING HEALTH “AID”/ REFRAMING THE PROBLEM

“Public health is not a branch of medicine. Rather, medicine is a branch of public health. There is overwhelming scientific evidence that the public’s health depends primarily on political, economic, social, and cultural factors. Medical care, as its name suggests, takes care of people when they are ill or injured, but it does not do much curing”

—Vincent Navarro⁷⁴

Given the various failures of vertical aid initiatives, it is essential to redefine the role of medicine in health aid, with the goal of supporting horizontal initiatives. Horizontal initiatives focus on the socioeconomic and environmental determinants of health and are driven by community-professional partnerships, utilize local expertise, maximize the impact of limited resources, and adequately address negative side effects.

As discussed previously, the root of the problem with “health aid” lies in the fact that “medical and health” interventions, defined primarily by US and European doctors and medical institutions, have been restricted to medical tools: drugs and surgery. To rethink health aid, we must first examine our construct of medicine and health, emphasizing the social model embraced by Virchow, McKeown, and the Alma-Ata signatories. As many public health professionals have argued, water, sanitation, hygiene, food production, education, women’s empowerment, and poverty are clearly linked to overall health and must come to be seen as integral aspects of medical intervention.^{18–20,37,75}

If the purpose of medicine is to reduce suffering and prolong meaningful life,^{†‡} the tools of med-

[†]The World Health Organization (WHO) defines health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.”⁷³

[‡]The definition of meaningful should be determined by the patient and/or his or her family.

The Cuba Example

Three thousand (about one-half) of Cuban physicians left Cuba between 1959 and 1961, following the Cuban revolution. Most affected was the medical faculty. By 1961, only approximately 16 out of about 400 physician faculty members remained.^{78,79} In the following decades, Castro made the development of health resources a national priority to meet domestic needs and as a tool for global diplomacy.

Castro was directly involved in the expansion of the medical education system. He assembled a small group of foreign volunteers and domestic academics. One of the authors (FM) was involved in the development of the medical curriculum. According to FM, Cuba would need about 7,000–8,000 physicians to have the then WHO “magic ratio” of one physician per 1,000 people. This could be achieved in about 15 years. All these figures were challenged by Castro, who believed that Cuba was capable of providing thousands of physicians to Cuba and the world. By 2005, Cuba had one doctor per 156 people.⁸⁰

Cuba is now the leading exporter of physicians to developing countries, collaborating with 68 countries.⁸⁰ It is also the single largest trainer of physicians from developing countries with over 10,661 foreign students from 27 countries enrolled in the Latin American Medical School (ELAM) in Havana, which was established in 1998 to train physicians from poor countries in Africa and Latin America; in exchange for full scholarships, physicians promised to practice in low-income areas in their home countries for five years.⁸⁰

icine should include whatever interventions are required to accomplish these purposes in the most effective manner possible. The job description for health workers should include the implementation of all interventions that achieve these objects, such as encouraging changes to the socioeconomic status of a population and the environment in which they live. The job description for health workers should include the implementation of all interventions that will achieve these objectives.

In addition to recognizing that the primary determinants of health of any population are the living conditions that they experience, we must also recognize that aid interventions are not sustainable unless people at a community level are empowered and physicians are encouraged—and expected—to find the most efficient ways to reduce suffering and prolong meaningful life.

Horizontal initiatives can only be implemented through the development of health systems that maximize efficiency of resource distribu-

tion and allocation. Strengthening health systems and global health aid can begin with the implementation of three strategies: promotion of community empowerment to advance health; incorporation of the most cost-effective health interventions into individual country health plans; and encouragement of rethinking of health aid within donor countries.

Community Empowerment to Advance Health and Promote Sustainability

[Health initiatives need] real empowerment and development of these communities . . . integrated health improvement and health promotion of the community, increasing their awareness, increasing their empowerment—and [external donors need to] let them participate for their own health, and help them to have the decisions to integrate their lives in a more healthy way. . . .

—A female Egyptian doctor⁸¹

An early leader in combining empowerment with medicine and primary care was Sidney Kark. In the 1940s, Kark developed the Com-

munity Oriented Primary Care (COPC) approach to health interventions. COPC integrates epidemiology into the work of family physicians, effectively making local public health issues part of health service delivery. COPC systems incorporate the community as a whole into the practice of medicine, through research, intervention programs in hygiene, sanitation, and nutrition; and health trainings that were based on the needs articulated by the community.¹³ The practice of COPC emphasizes the integration of cultural and social belief systems and the local environment of a patient and their family into health care delivery.^{13,82}

The COPC approach is based in the premise that communities have valuable knowledge about their own health issues—both on an individual and community level. Effective approaches to health should create space for communities to articulate their own needs and priorities, rather than imposing a set of preordained interventions. Communities and health professionals can work together to identify and address issues together in a joint partnership that is based on multidirectional learning. Participants from developed, donor-countries can deliver what is needed based on the needs articulated by the community and not based on the priorities of donors.

COPC has been successful in improving general health indicators. For example, the program initiated by Kark in South Africa resulted in a decline of scabies or impetigo prevalence in school-children (from 82% in 1942 to 7.8% in 1950) as well as a dramatic reduction in infant mortality (from 270 to 100 per 1,000 live births).⁸² Using a series of articles and case studies, Jaime and Rosa Gofin’s “The Essentials of Global Community Health” record how more recent COPC approaches have been molded to address the health issues of particular communities, prioritizing locally articulated

Jack Geiger MD, who co-founded the first community health center in the United States, demonstrated the breadth of the physician job description. When a regulator in Mississippi questioned why Dr. Geiger wrote a prescription for food for one child, he said, "The last time I checked, the specific therapy for malnutrition was food."

Figure 6—The Physician's Job Whatever it takes⁷⁷

needs over Western impositions.⁸³ COPC's successes include reducing child trafficking, diabetes, and improving maternal and child health while strengthening primary care systems and local expertise.⁸³

Community-oriented approaches should ensure that a multiplicity of voices are included and expand beyond traditional leaders to include marginalized populations and progressive individuals. In particular, women's voices should be prioritized. General health outcomes can also be improved by focusing on programs that empower women. This empowerment can only be achieved through political work at the grassroots level through programs that are run by indigenous women, and supported but not controlled by donor-countries. Literacy is perhaps the most important factor in empowering women leaders; thus funding literacy programs as a health intervention is one of the most important assets that the donor-countries can offer.

The same need for grassroots organizing, education, and limited donor intervention apply to sanitation, water, and nutrition initiatives. The community-led total sanitation (CLTS), which was developed in Bangladesh, relies on the indigenous population to raise "community awareness" and encourage "a cooperative, participatory approach" to improve sanitation is an example of the COPC approach.¹⁹

On the other hand, donor initiatives that ignore local values and

resources are often doomed to failure. For example, vertical interventions to reduce hunger, such as the new "Alliance for a Green Revolution in Africa," (AGRA) led by the Gates and Rockefeller Foundations, overlook basic necessities of nutrition and community knowledge through their massive-farming initiatives, promotion of chemicals, monocultures of hybrid seeds, and concentration on genetically-modified organisms (GMOs).⁸²⁷⁻³⁰ Seventy African Civil Society Organizations signed a statement opposing AGRA in 2007.³⁰ According to their statement: "The push for a corporate-controlled chemical system of agriculture is parasitic on Africa's biodiversity, food sovereignty, seed and small-scale farmers."³⁰ Such massive farming initiatives are not as effective as "biodiversity-based organic agriculture" and the statement proclaims: "We reject these new foreign systems that will encourage Africa's land and water to be privatized for growing inappropriate export crops, biofuels and carbon sinks, instead of food for our own people."³⁰ Communities must be empowered to take control of their indigenous knowledge systems surrounding food production and foreign initiatives must incorporate this knowledge in efforts to help. Further, the medical

[§]For further reading, the Seattle-based campaign, AGRA-Watch, keeps a website with resources on this issue: <http://www.seattleglobaljustice.org/agra-watch>

community should be educated on the benefits of traditional, locally produced food, viewing food security as a key medical intervention.

The most valuable lesson of COPC is the incorporation of local leadership into the health system. Physicians and international aid professionals must be prepared to work with communities when their articulated health needs do not match donor expectations. This work requires a commitment to process and communication rather than simply an eye on what are traditionally considered measurable outcomes.

Advocate that All Aid Fit Within Local Health Plans and Be Monitored by Health Systems Impact Assessments

A comprehensive global health monitoring system, which addresses the primary determinants of health and strengthens indigenous leadership, is necessary to limit the proliferation of NGOs, misdistribution of funding, and governmental corruption.[¶] There are several components to such a model. The first step is the creation of viable health planning organizations, including representation from NGOs, large multinational aid programs (WHO, UNICEF), indigenous health care providers, and national governments. A coordinating council, composed of representation from various sectors, would serve to limit donor power and governmental corruption, while supporting health systems. The Global Business Plan, announced in 2007 by the Prime Minister of Norway, called for each country to develop its own national plan to achieve Millennium Development Goals 4, 5, and 6 (child

[¶]Corruption is a problem in many countries. For example, the massive theft of medicine and money from international donors caused Uganda to set up a unit to monitor the supply chain. However, governments and leaders themselves are a major part of the problem.⁸⁴

health, maternal health, and combat HIV/AIDS). Norway and the Netherlands offered 1.25 billion dollars to begin the program.⁸⁵ The program was designed to promote the “channeling of funds through existing mechanisms to support the delivery of essential health services, rather than earmark support for specific interventions.” The Global Business Plan proposed that low-income countries submit one national health plan to “a consolidated group of bilateral and multi-lateral funders” for review, rather than searching for funding from multiple sources.⁸⁶ Donors would be required to make their funding and projects fit the recipient countries’ priorities and plans. Just after this program began it was subsumed by the UK- and German-led International Health Partnership (IHP+). IHP+ “seeks to achieve better health results by mobilizing donor countries and other development partners around a single country-led national health strategy.”⁸⁷ Canada, Australia, and the majority of Western European countries, have joined this partnership.⁸⁷ The United States has not.

An important element that is not presently provided for in the IHP+ program is robust community involvement. Such involvement is a significant component in limiting national government corruption and neocolonial systems of aid. National health plans need to be built from the community level up and focus on primary care models that support the wide variety of health needs of local communities. Ideally, communities would participate in setting health priorities and program budgets (akin to the South African peoples’ budget process), a process that would begin with community meetings where the national health plan and budget would be discussed and amended.⁸⁵ This would be followed by regional and national level meetings where each level would elect representatives to the next level, ultimately electing civil sector rep-

resentatives to become members of the national planning counsel along with government, NGO, and international organization representatives. This system encourages a broader conceptualization of health, integrates civil sector input, and makes the decision-making process transparent. All resources (national and foreign) would then be distributed based on each individual country’s health care plan.

The third component to a comprehensive global health monitoring system involves national and international program evaluations. As we have shown, many disease-specific health interventions negatively impact health status, often making conditions worse and, thus, violating the first rule of medicine, “Do no harm.” Recently, several authors have suggested that health interventions should be evaluated prior to and after implementation to determine if they cause unforeseen detrimental externalities like internal brain drain.⁸⁹ Known as Health Systems Impact Assessments (HSIAs) (akin to environmental impact assessments), these evaluations will help ensure that programs follow and fit within national plans.⁸⁹ These assessments should be made by the same planning agencies that develop the national health plans, functioning to limit unintended negative consequences on national health systems, as well as an international body, functioning to monitor government corruption (such as the theft of medical supplies and money). Community voices must be integrated into these assessments and, as Swanson et al. write, “global health organizations should not wait for their development before thinking about the effect of their activity on future health systems.”⁸⁹

*What Is the Role of the “West”?
Rethinking Health Aid within
US and European Medical Schools
and Health Systems*

Although we feel strongly that south-south exchanges and voices

should drive global health, we realize that resources from developed countries are often needed to facilitate and fund interventions. Unfortunately, medical interventionists too often provide advice and direction based on a limited medicotechnical approach to disease rather than on broad health indicators and community input. Community input is the key to the creation of cost-effective, sustainable health systems. How can donor-countries best contribute to this process?

“Western” medical schools and physicians serve as a valuable platform to discuss the need for public health (socioeconomic and environmental concerns) in “medical” interventions. While some world-renowned global health professionals have stressed the importance of education and/or water and sanitation in improving health in developing countries, none have classified these as medical interventions. For better or worse, physicians, international organizations, and powerful NGOs propagate their limited view of “medicine” as treatment with pills or surgery when they set funding priorities and design programs for developing countries.

Many physicians shy away from social interventions because they are viewed as political. Similarly, vertical programs are not perceived by the public to be political because the physicians and NGOs that promote them are viewed as neutral authorities. However, the promotion of vertical programs instead of public health is itself a political decision imbued with cultural values. If medical authorities define jobs and education as medical interventions, physicians will not squander their apolitical credibility; rather, their credibility will boost these initiatives. To accomplish this and effect change we must redefine medicine to include a wide variety of initiatives that impact on health. If we continue to limit our tools to hammers (drugs, surgery, and devices) then all problems will look like nails.

We propose that medical, nursing, and allied health professional students take the lead in changing our approach to aid, adopting an approach that more directly reflects the needs of those in low-income countries. Medical students are often idealistic, motivated, desiring of responsibility, and in the process of educating themselves on health issues. Many want to serve the poor and the sick in developing countries. Educating students about these issues can create the framework for a massive shift in global health.

We also call on academics to reflect on the course of health aid and act to change the direction of aid. Part of the solution is political; we must organize to change the dominant vertical aid paradigm. Academics, doctors, health professionals, and students must engage in a public discourse on the direction of aid and serve as advocates for change. This discourse can and should involve meetings, publications, speaking arrangements, lobbying, and simply talking about the issue and telling stories from the front lines of global health care.^{††}

CONCLUSION: REKINDLING THE DEBATE

Prior to answers there must be questions. In the questions raised, the viewpoint has (already) been chosen and the valuations implied.

—Gunnar Myrdal

Those who profess to favor freedom, and yet depreciate agitation, are men who want crops without plowing up the ground. Without a struggle, there can be no progress. . . .

—Frederick Douglass

^{††}Several organizations and many individuals have come together to create 15by2015.org to advocate for change. We call on all funders to contribute 15% of whatever they spend on their particular program to health systems infrastructure, training of community-oriented health practitioners and increasing salaries of local primary care health workers.

The current model of health aid follows a hegemonic belief system regarding health and medicine. Further, aid is often distributed based on popularity of specific health issues or images. This combination leads to overwhelming investment in specific diseases and technical solutions, leaving the socioeconomic and environmental determinants of health vastly underfunded. Because of the current aid practices, health systems are in ruins, primary care is usually unavailable, and the lack of basic public health measures fuels the spread of disease. Within the current system, when one disease becomes notable, the donor-world leaps to the rescue, shifting resources away from the necessary building blocks of sustainable health care: water, education, sanitation, food security, and community empowerment.

To improve health we must affect social change on a global scale. Physicians and other health leaders in the United States must reframe the hegemonic construct of contemporary biomedicine that dominates foreign health aid and our own failed health system. If we are to progress we must rekindle the debate on social medicine and re-legitimize physicians and other health workers as “lawyers to the poor.” We must treat health as a social problem that is properly addressed by sociopolitical initiatives.

Purveyors of aid must collaborate and communicate with experts and communities in host countries to encourage change that will positively influence health outcomes. When world health is at stake, both cultural sensitivity and an eye for positive cultural change are necessary to achieve holistic health improvements. Purveyors of aid must not force their models on others, but rather seek partnerships with groups in low-income countries to promote health more effectively.

Medical intervention must include community initiatives centered on COPC that target the envi-

ronmental, social, and economic determinants of health.^{7,14} If programs are implemented at the community level with local leaders, they become a sustainable and efficient foundation for national health systems. These programs are more cost-effective than programs that single out diseases or health problems because they address the root causes of many different problems affecting health. The integration of knowledge about sanitation, water, education, and food into medical and other health professions schools is essential if we are to rewrite the “medical” job description and add to our toolbox more powerful tools for improving health. Educational programs must emphasize the value of empowering women in promoting environmental and socioeconomic determinants of health and strengthening the health care workforce.

Health programs that fit within national health care plans or that are developed with a “bottom-up” approach will better support the needs of people and communities by taking into account the interests of local stakeholders. By accepting community knowledge and rejecting programs driven by donor priorities, we can develop a global health system that gives agency to those who need it the most.

In speaking against health systems funding, Jim Kim MD, co-founder of Partners in Health, asked, “My question to people arguing for broad-based health systems funding is, ‘What would you do with the money next week?’”⁹⁰

We would:

1. Develop a model emergency education program (similar to Cuba’s 1961 program) to achieve 80–90% literacy rates worldwide in 12 to 48 months.^{‡‡}
2. Support massive expansion of health training institutions and exponentially expand the ranks of physicians, nurses, paraprofessionals, community health workers,

^{‡‡}Fifteen countries were studying under the Cuban program in 2007.⁹¹

- and health-development experts in three to six years.
3. Seek real integration of health aid into national health systems.
 4. Dramatically expand the COPC model and encourage south-south exchanges.
 5. Stop programs that worsen health conditions based on HSIA or other evaluations.

Our question for Jim Kim is: “What are we going to do with the people next week, after the data is collected and the large organizations pack up and move on to another country or disease?” As a primary-care doctor explained regarding

Nepal, the large donors leave after they have collected their data, often with unfulfilled promises and angry communities in their wake. She said: “What the people say to me is ‘They’ve got the big cars, all the money goes to the staff working for the donors of the project, and absolutely nothing comes to us.’”⁶⁵ Her reflections of the people of Nepal reveal a frustration echoed in many parts of the world.

This is her message to large donors and NGOs:

We appreciate your money and we need your money but we need you to use it

wisely and we need you to think about long-term implications and long-term benefits to health, not just short-term can-we-get-enough-on-our-piece-of-paper to satisfy whoever is giving money to us. . . . Donors should be working through existing health care systems, primary health care systems, and building those up so that they will be there for the long term, for the local people. And that may not give instant gratification but they . . . would be saving lives now, and in the future.”⁶⁵

Acknowledgement

The authors would like to thank Susanna Bohme for her editorial comments.

APPENDIX 1: FURTHER READING

Some of the Important Articles Published on Underlying Causes of Disease, Distribution of Health Aid, and Health Systems and Health Workforce Strengthening

Article	Date	Summary
Black et al. “Accelerating the Health Impact of the Gates Foundation”	2009	The Foundation needs to shift its funding balance toward “low-risk, high-reward” funding and reevaluate measures to reduce child deaths.
Black et al. “Maternal and Child Under-nutrition: Global and Regional Exposures and Health Consequences” (first in series)	2008	Maternal and child undernutrition is a significant factor in child deaths, accounting for 35% of global child deaths. Undernutrition is attributed to vitamin and mineral deficiencies and “sub-optimum breastfeeding.”
Bartram and Cairncross, “Hygiene, Sanitation, and Water: Forgotten Foundations of Health” (first in series)	2010	“A massive disease burden is associated with deficient hygiene, sanitation, and water supply and is largely preventable with proven, cost-effective interventions,” but the value and necessity of these interventions is often overlooked in public health.
Caulfield et al. “Undernutrition as an Underlying Cause of Child Deaths Associated with Diarrhea, Pneumonia, Malaria, and Measles”	2004	“Fifty-two and a half percent of all deaths in young children were attributed to undernutrition,” calculated by low weight-for-age. “Efforts to reduce malnutrition should be a policy priority.”
WHO Maximizing Positive Synergies Collaborative Group, “An Assessment of Interactions Between Global Health Initiatives and Country Health Systems”	2009	This article details how collaboration between global health initiatives and country health systems can improve “efficiency, equity, value for money, and outcomes in global public health. . . .”
McCoy et al. “The Bill & Melinda Gates Foundation’s Grant-Making Programme for Global Health”	2009 <i>Lancet</i>	The Foundation’s focus on technology and vertical programs detracts from the sustainability of health systems and “accentuates existing disparities between developed and developing countries.”
The <i>Lancet</i> Editorial, “What Has the Gates Foundation Done for Global Health?”	2009 <i>Lancet</i>	Makes “five modest proposals” to the Gates Foundation to alter their structure
Southall, Cham, and Sey, “Health Workers Lost to International Bodies”	2010 <i>Lancet</i>	Illustrates how local medical professionals are recruited by international organizations, leaving the NHS of many countries in need for basic primary and emergency care professionals
Moran et al. “Neglected Disease Research and Development: How Much Are We Really Spending?”	2009 <i>PLoS Med</i>	Uses DALYs to compare disease burden with distribution of funds

APPENDIX 1 (continued).

Article	Date	Summary
Maeseneer et al. "Strengthening Primary Care: Addressing the Disparity Between Vertical and Horizontal Investment"	2008 <i>BJGP</i>	Outlines vertical and horizontal initiatives and explains the importance of community oriented primary care; introduces 15by2015.org campaign
Maeseneer et al. "Funding for primary health care in developing countries"	2008 <i>BMJ</i>	Further details 15by2015.org; strengthening primary care
Swanson et al. "Call for global health-systems impact assessments"	2009 <i>Lancet</i>	Outlines need for health-systems impact assessments (HSIA)
Swanson et al. "Toward a Consensus on Guiding Principles for Health Systems Strengthening"	2010 <i>PLoS Med</i>	Outlines ten guiding principles for health systems strengthening from review of literature

APPENDIX 2

Economic Impact Assessment of Global Health on Washington State's Economy in 2005

- \$4.1 billion of business activity was generated by global health activities
- Nearly 3,700 jobs involved global health research and service delivery directed at low-income countries, at an average annual salary of nearly \$77,600
- More than 10,100 jobs address the health needs of foreign-born residents and sovereign Indian nations living in Washington State at an average annual salary of more than \$48,100
- The global health sector generated an additional 30,000 jobs through its economic impact resulting in more than 43,800 total jobs created or supported by global health activities
- \$143 million of Washington's tax revenue was generated by global health activities
- More than 190 nonprofit organizations promoted global health through service delivery, research, training, education and public awareness, including the Gates Foundation—the world's largest foundation
- \$130.2 million in total business activity was generated by global health research and teaching at the University of Washington (UW) and Washington State Uni-

versity (WSU) (This activity is expected to grow substantially as a result of the recent \$105 million grant to the UW Institute for Health Metrics and Evaluation.)⁵¹

APPENDIX 3

Vertical Case Study: Smile Train, an Example of Lack of Efficiency and Misdirected Funding

As one of the largest international aid programs, endorsed by a wide range of famous individuals including Oprah, Cindy McCain, and *Freakonomics*, Smile Train focuses on the treatment of cleft lips and palates using a "teach-a-man-to-fish" strategy. Smile Train's pre-surgery images of children with facial abnormalities are prominently placed on major newspapers such as the *New York Times*, the *Boston Globe*, and appear all over the Internet; it has even funded an HBO movie: "Smile Pinki." Smile Train has literally become the face of international health aid to developing countries in the United States. Unfortunately, its marketing dominance may have distorted the public's perception of the efficacy of various health interventions. We use Smile Train as an example to illustrate the problems associated with vertical initiatives. These include inefficient use of resources, focus on treatment instead of prevention, and misuse of funds.

Following Slovic's model of the identifiable victim, Smile Train's advertising uses "before" treatment

images of deformed children. Smile Train explains that they do not show "after pictures" because "We test the results of all our advertising and our research and analysis demonstrates that advertisements that include only before photos significantly increases the amount of money we raise to help these children."⁹² The images and statistical reports fulfill Western donors' ideas of philanthropy; donors feel like they are making a difference because they can see the problem and imagine the improvement surgery can provide. Concurrent, life-threatening problems of hygiene, sanitation, and malnutrition, which remain the main causes of death and disability in this targeted population, are invisible and vastly underfunded.

In addition, Smile Train's program was generated by US personnel in response to their views of the type of health intervention needed in target countries. It never asked the recipients for their opinion of where scarce resources should be spent to impact most efficiently on the health of their populations.

Evaluation of Program

Effectiveness: What Is the Question?

Smile Train and *Freakonomics* authors claim it is the most "cost-effective" aid program "in the world."^{92,93} Smile Train defines "cost-effective" in two different ways: low administrative costs and low-cost surgeries. These are not the

correct measures of program effectiveness because they do not compare Smile Train's interventions with programs that target other diseases, or general conditions (food, education, etc.) or even alternative interventions to prevent facial deformities such as folic acid for pregnant mothers. The *Freakonomic* economists are not the first to recognize the price of interventions while failing to assess their value.

Low Administrative Costs. Smile Train claims it has zero administrative costs, "100% of your donation goes to program—0% goes to overhead." Smile Train justifies this assertion: "All non-program expenses, such as overhead and fundraising, are paid for with start-up grants from our Founding Supporters."⁹⁴ Because money is always fungible, most NGOs could make a similar assertion. Recently, Smile Train has changed this data to say that only 20% of your first donation goes to overhead costs and with any additional donation there is 0% overhead taken. Smile Train's real expenditures tell a different tale.

Smile Train's 2007 990 IRS form indicates that it received \$81.6 million in contributions and controls assets of \$98 million. Smile Train dispersed \$59 million in 2007. About one-quarter (\$14.9 million) went to fundraising compared to \$43.7 million on programs. Another \$25.6 million went unspent. During one fiscal year, CEO Brian Mullaney received more than \$386,000 in direct compensation plus \$190,000 from a Smile Train subsidiary.⁹⁵ He received \$656,254 in 2007.

Low-cost Surgeries. Smile Train provides two arguments to support its claim that its programs are cost-effective: They perform cleft surgeries for \$250 apiece and their main use of donations is to fund \$250 surgeries.⁹² Steven Leavitt of *Freakonomics* writes, "The typical model for cleft repair in developing countries has been to convince US doctors and nurses to volunteer a

week's time, fly to a country, and do 80 surgeries. . . . Smile Train instead partners with and trains local doctors to do the surgeries, which turns out to be far more efficient."⁹⁶

Smile Train's actual finances are not as straightforward as they would appear nor is their impact on facial abnormalities. Givewell, an organization that evaluates charities, examined these claims and found that they were not supported by Smile Train's annual reports. Simple math using Smile Train's numbers reveals that if they raised \$100 million and 90,000–95,000 surgeries were provided in 2008, with an average cost per surgery of over \$1,000. Givewell notes that "directly funding surgeries accounts for under half of Smile Train's expenses."⁹⁷ Nearly \$1.5 million goes to "mission groups" who send US doctors and nurses overseas.⁹⁷ Some of their funds go to US organizations, not directly to the low-cost surgeries.

In addition, their "teach-a-man-to-fish" strategy is inappropriate when the newly trained fishermen are diverted to capturing tiny minnows instead of large haddock. Some countries have less than one doctor per 10,000 population (Zambia, for instance, has approximately one doctor per 20,000).⁹⁸ If Smile Train diverts them from performing life-saving breach deliveries and appendectomies, death rates will increase and the first rule of medicine "do no harm" will be violated. These are externalities that Leavitt does not consider.

Smile Train's website states that "once you cure a cleft it never comes back!"⁹² Unfortunately, their treatment overlooks a key component: preventive care. Smile Train contributes to cleft palate research including "what causes clefts, ways to prevent clefts and how to improve the safety and quality of cleft treatment."⁹⁹ In an advertisement in *TV Guide*, they even provided conclusions of research done by the US government that advises that "women should take sufficient levels of folic acid (400 micro-

grams/day) during pregnancy to help prevent neural tube defects and reduce the risk for cleft lip and palate." Smile Train claims that it encourages "public awareness and advise[s] all pregnant mothers to take folic acid," but it does not appear to provide any funding for folic acid supplements or general nutritional awareness programs.⁹² Smile Train's current models of free surgery services do not help to prevent future clefts nor do they provide any change to the child's overall living conditions. Other research has shown that providing folic acid would be a valuable contribution to achieving Millennium goals in maternal and child health.¹⁰⁰ By adding this simple measure, Smile Train could help put itself out of business as folic acid has been shown to reduce the risk of cleft palates by 50–70%, as they claim in the fine-print of a Smile Train advertisement. No aid organization should be called "cost-effective" if it fails to implement low-cost preventive interventions. Any "cure" that Smile Train provides must be balanced by an evaluation of the externalities (brain drain) and opportunity costs of other programs that address the same problem (supplements).

In contrast to the *Freakonomics* assessment, we believe the most cost-effective programs are those that save the most lives and improve the quality of the most lives per dollar spent. Given the fact that there is a limited pool of money for improving health in developing countries it is critical that money is targeted to the interventions that efficiently reduce mortality and morbidity. For example, a population with a high rate of cleft palates is likely to have many other challenges, including vitamin deficiencies.

We suggest that a standard comparative measure of impact be used to determine efficacy. In the 1970s, Morris developed an objective measure (equation) of this QOL called the Physical Quality of Life Index (PQLI), which measures quality of life based on three,

equally-weighted statistics: literacy rate, infant mortality, and life expectancy.¹⁰¹ Neither Smile Train nor any similar NGO use PQLI to determine “cost-effectiveness.” A question any medical NGO should ask to help evaluate the basic “cost-effectiveness” of a program is how does the intervention impact on life expectancy—*how many useful years of life are saved per dollar spent?* Cost-effectiveness is a meaningless and dangerous characterization absent this or some similar analysis.

We are not trying to downplay the seriousness of living with a cleft palate. We are concerned that health donor dollars should be spent on truly cost-effective interventions. In a world of limited resources, we must emphasize programs that help the most people at a reasonable cost.

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