



## **WORLD HEALTH ORGANIZATION**

### **Chronic Disease in the Developing World**

**By Krishna Prabhu**

#### **Introduction**

Consider the case of Sifiso Mkhize, a 45-year-old South African male living in the province of KwaZulu Natal, an area with one of the highest prevalence rates of **HIV/AIDS**. Sifiso Mkhize is a domestic worker in a wealthy suburb of Durban, the largest city of KwaZulu Natal. Mkhize often takes taxis to and from work, as he is unable to afford the enormously large rents charged in the neighborhood in which he works. While working in the suburb of Berea, Mkhize started eating high-energy chips instead of maize meal, and began drinking Coca Cola, as they were relatively inexpensive foods. Mkhize was able to send the money he earned, minus food and living costs, to his wife and children in KwaXimba, a remote village 30 km outside of Durban.

Recently, Mkhize was diagnosed with both HIV/AIDS and insulin-dependent **diabetes**. While Mkhize has a good chance of receiving **antiretrovirals (ARVs)** for his chronic condition of HIV/AIDS, unfortunately, he will not likely find insulin at his local government-run clinic. This is because diabetes, among other health problems, is not a top priority for the South African Ministry of Health, even though it affects many poor people within South Africa. Although Mkhize can live up to 40 more years on ARVs, if his diabetes is left untreated, he may only expect to live for five years from the time of diagnosis. It is a sad reality that in developing countries only certain health problems, like HIV/AIDS, are high priorities

**HIV/AIDS**—a lifelong viral disease that is incurable, but treatable, which is most prevalent in sub-Saharan Africa

**diabetes**—a chronic illness that is characterized by a deficiency in insulin, a substance which allows cells in the body to store carbohydrates absorbed by food

**antiretroviral (ARVs)**—medications used to treat HIV/AIDS

#### **Explanation of the Problem**

##### *Non-Communicable Diseases and Epidemiological Theory*

The case of Sifiso Mkhize may seem surprising. The common image of a diabetic patient is a white, middle-aged man living in the United States or Britain. Part of this image is rooted in **epidemiological** theory. Indeed, the **transitory** epidemiological theory commonly posits that human societies have experienced three major epidemiological transition states. The first occurred when humans went from hunting and gathering to living in agricultural societies, increased population sizes enough to allow for the spread of infectious disease. Social inequality within agricultural societies exacerbated the spread of these diseases, not to mention increased contact with animals and ecological changes due to human environmental impact. The second transition has been a shift from infectious disease to chronic diseases, enabled by increased

**epidemiological**—the spread of disease

**transitory**—a brief duration

nutrition and better technology. The third epidemiological transition has been characterized by “reemerging infectious disease,” diseases that are becoming increasingly prevalent as a result of increased social stratification, social inequality and changes in ecology (Armegalos 755-65).

The widespread perception of the disease burden of developing countries is that it is one plagued with infectious disease. The HIV/AIDS pandemic has been devastating, with the WHO reporting 2.1 million deaths due to HIV/AIDS (WHO, HIV/AIDS). Another 1.6 million deaths due to tuberculosis and 880,000 deaths due to malaria occur *every year* (WHO Tuberculosis, WHO Malaria). Infectious diseases are a force to be reckoned with, and seemingly indicate that certain societies in the global south have not completely undergone the second epidemiological transition towards the increased prevalence of chronic diseases.

However, the disease burden for developing countries is more complex than theoretical epidemiological models would posit. Contrary to conventional wisdom, individuals in developing countries have been found to be suffering from a double burden of disease – *both* chronic and infectious diseases. The World Health Organization writes “Chronic diseases are now the major cause of death and disability worldwide. **Noncommunicable** conditions, including cardiovascular diseases (CVD), diabetes, obesity, cancer and respiratory diseases, now account for 59% of the 57 million deaths annually and 46% of the global burden of disease.” (WHO Chronic Disease). Indeed, the second leading cause of death in developing countries is due to coronary heart disease, which is the leading cause of death in high-income countries. It is estimated that 35 million people will die in 2005 from heart disease, stroke, cancer, and other chronic disease, with 80% of those deaths occurring in low and middle-income countries (Strong K, et. al 1578)

**noncommunicable**—  
*cannot be transmitted from person to person but is acquired due to one’s environment, life-style, or genes*

## Recent Developments

### *Diabetes Treatment*

While there have been some advances in the development of therapeutics for conditions like diabetes and heart disease, the application of those therapeutics still remains a largely ignored problem in many developing countries. However, developments in diabetes treatment have not always been positive. Therapeutics have been developed by pharmaceutical companies to address rising blood sugar levels, and some of these therapeutics have actually proven to *increase* the risk of mortality over the long term and have been recalled from markets. In 2008, the type II diabetes drug rosiglitazone, manufactured by **GlaxoSmithKline**, was actually found to increase the risk of mortality from congestive heart failure by 11-13% (Peck). The failure of this drug to combat diabetes in the long term actually led to a massive recall of the

therapeutic on the grounds that it was unsafe and inefficacious. Nevertheless, despite the lack of data for the efficacy of newly developed therapeutics, doctors within Western countries tend to prescribe newer drugs more often. Though some may prove to be effective in the long term, it may still be too soon to tell.

While there have been some advances in **therapeutics** for diseases like diabetes, it has still been neglected in the developing world in terms of widespread treatment. Most recently, in a study done by the International Diabetes Federation, after conducting interviews with 2,300 men and women with type 2 diabetes, the study concluded that people suffering from diabetes were much more likely to suffer from other health problems and were also more likely to be unemployed or underemployed compared to men and women of a similar age and economic background (Citizen News Service). A study conducted in Zimbabwe found that 50-80% of those with diabetes in developing countries are unaware of their condition (Sifelani Tsiko). Most patients suffering from diabetes must pay for the cost of their treatment in full (Debussche). There largely remains lack of treatment and proper diagnosis of diabetes in developing countries, despite the fact that its incidence and prevalence is expected to continue to grow over the next two decades.

### Focus of the Debate

#### *Millennium Development Goals*

The Millennium Development Goals, which are the common rallying point for projects targeted to developing countries, forcefully included targets for the reduction in child and maternal **mortality**, as well as calling for the increased treatment and prevention of HIV/AIDS, malaria, tuberculosis, and “other diseases.” Unfortunately, despite the growing epidemic of chronic disease in developing countries, it is conspicuously absent from the Millennium Development Goals, with no specific global target for the reduction of the burden of global chronic disease (Ebrahim, 225). In response to this deficiency of a global target for chronic diseases, WHO has issued a target of reducing chronic disease by 2% every year from 2005 to 2015, which would avert 36 million deaths in total (Abegunde DO, et. al, 1929). It remains to be seen whether robust public health programs will be implemented to achieve this global target.

#### *Financing: Reallocation or New Money?*

It is clear that people in developing countries live under an enormous burden of chronic disease. In addition chronic disease accounts for a large proportion of those who die every year from such diseases. It is

**GlaxoSmithKline**—A pharmaceutical and healthcare company based in the United Kingdom

**therapeutics**—medications used to improve the health of patients

**mortality**—death

also clear that action must be taken urgently to prevent the needless deaths of millions of patients with chronic diseases, as there are effective therapeutics that can be distributed to help prevent the **contraction** of disease as well as contain the progression of disease within individuals already suffering from chronic diseases. Despite the need for urgent action to be taken, the question remains, whose responsibility is it? Who should pay for such costly interventions that will require health systems to distribute more services? From where will this money come? To whom will this money be distributed?

Achieving the global goal of a 2% reduction in chronic disease from 2005 to 2015 would require the dedication of approximately \$5.8 billion per year for the 23 low and middle-income countries with the highest burden of chronic disease, a considerable amount of money given the current financial crisis that plagues developed and developing countries alike. Many Western countries are cutting back on foreign aid, and it is difficult to ask health systems of developing countries to reallocate their budgets given that only 2-3% GDP is spent on public healthcare in many nations (Ebrahim and Smeeth, 966)

The current global health agenda has primarily been focused on addressing the HIV/AIDS epidemics around the world. Under President Bush, the United States launched an ambitious program to treat HIV/AIDS in developing countries called the **President's Emergency Plan for AIDS Relief (PEPFAR)**, which consisted of \$15 billion over five years and was the largest health foreign aid program in history. In 2009, President Obama announced an extension of PEPFAR to include supporting maternal and child health programs, in addition to HIV/AIDS programs, and pledged \$63 billion over six years.

Many HIV/AIDS activists are quick to point out that HIV/AIDS still needs an exceptional amount of money in order to handle the exceptional nature of the epidemic. Indeed, in a recent speech in Cape Town, former UN Envoy Stephen Lewis said "So when, as now, there's a backlash against funding for AIDS, with mindless charges against **AIDS exceptionalism**, you should find a way, collectively, to shoot down the pinched bureaucrats and publicity-seeking academics who advocate exchanging the health of some for the health of others.

Other health professionals, such as award winning writer Laurie Garrett, have criticized the amount of funding dedicated to HIV/AIDS treatment and prevention, arguing that this funding should go into health systems strengthening to help provide higher-quality, more comprehensive care to patients for all diseases, including chronic disease. HIV/AIDS funding has sometimes weakened health systems, as it draws away talented health workers from the public health system into NGOs dedicated to treating only HIV rather than HIV and other diseases. Garrett writes "At a minimum, therefore, donors and UN agencies should strive to integrate their infectious-disease programs into general

**contraction**—  
*acquiring*

**President's Emergency Plan for AIDS Relief (PEPFAR)**— *A US foreign aid program that is the largest global health program in history, amounting to \$48 billion USD over five years. Funding goes mainly towards the prevention, treatment, and management of HIV/AIDS in 15 focus countries and is responsible for treating 2.1 million people around the world*

**AIDS exceptionalism**—*giving HIV/AIDS a disproportionate amount of support compared to other health problems*

public health systems. Some smaller NGOs have had success with community-based models, but this needs to become the norm. **Stove piping** should yield to a far more generalized effort to raise the ability of the entire world to prevent, recognize, control, and treat infectious diseases - - and then move on to do the same for chronic killers such as diabetes and heart disease in the long term. Tactically, all aspects of prevention and treatment should be part of an integrated effort, drawing from countries' finite pools of health talent to tackle all monsters at once, rather than dueling separately with individual dragons” (Garrett, 966)

Many of those who agree with Mr. Lewis argue that both HIV/AIDS funding, funding for the treatment of chronic diseases, and neglected diseases should increase. They contend that poor people need a better primary healthcare system that treats a variety of illnesses, one of which is HIV. However, many who agree with Laurie Garrett argue that the HIV/AIDS activists are unrealistic and that money that was once dedicated to HIV/AIDS should be reallocated and spread out among treating other diseases, like diabetes or heart disease. The debate brings up a provocative question: should health professionals push for more new funding for prevention and treatment of all diseases or should they advocate for a redistribution of funds already dedicated to global health? How will countries respond to the requests of public health experts? What will happen in the wake of the global financial crisis?

### *Vertical Approach*

A **vertical intervention** means that health programs are targeted to a specific disease or illness. Vertical health programs can be advantageous due to increased efficiency that is associated with launching a public health program aimed at preventing or treating a single disease.

Perhaps one of the greatest accomplishments of mankind was the eradication of **smallpox** in 1979, which was done through a **vaccination** program that could be classified as a vertical intervention. The eradication of smallpox was due to a variety of factors – an effective vaccine that could be transported without being refrigerated, a dedicated team concentrating only on smallpox, and the fact that inoculation with a vaccine conferred lifelong immunity to patients, rendering it a one-time health intervention (Torshavn 150).

Despite the fact that vertical interventions may be efficient at eradication programs, there exists no uniform vaccine for diabetes, heart disease, or most types of cancers. Chronic diseases can often require lifelong care as opposed to a one-time intervention. Indeed, there are even problems associated with vertical programs, despite their advantages. Regarding the smallpox eradication campaign, Meredith Turshen found that even though smallpox contributed to the deaths of 1-2 million people, it is not clear whether the eradication efforts “improved world

**stove piping**—a colloquial phrase meaning that raw information on a subject is presented without the proper context

**Vertical intervention**—health projects targeted to a specific disease or illness

**smallpox**—a once fatal infectious disease that killed 1-2 million people every year, but was completely eradicated in 1979

**vaccination**—a therapeutic that bolsters the immune system of those to whom it is given, allowing the body to more easily combat infectious disease without the need for other medications

health” (Turshen, 155). The eradication of smallpox was indeed a statistical success, since the amount of people who died *predominantly from smallpox* declined from around 2 million to zero. But the validity of the standards used to measure success for health interventions is open to criticism. Turshen and others point out that smallpox eradication may not have improved health overall, since people who normally died of smallpox were likely to die of other diseases that were not addressed by the vertical program. Indeed, vertical interventions can often be narrowly focused on a single aspect of health, which may not be well suited to addressing chronic diseases, as people often suffer from multiple chronic diseases simultaneously. It would make little sense to set up parallel, yet separate, programs addressing diabetes, cardiovascular disease, and mental health.

### *Horizontal Approach*

A **horizontal health intervention**, which has also been called **primary care**, aims to address multiple diseases and health problems within the same health intervention. It is necessarily more holistic and encompasses a greater amount of ailments that affect patients. Further, horizontal interventions are often ongoing as opposed to a single, one-time health program. This requires greater amounts of funding dedicated for an indefinite period of time, making it difficult to achieve politically.

One example of the launching of a horizontal health intervention is the Primary Health Care (PHC) movement that arose after the Alma Ata Conference in 1978, with the slogan “health for all by the year 2000.” The principles of PHC “addresses the main health problems in the community, providing promotive, preventive, curative, and rehabilitative services accordingly” (Lawn, et. al, 918) PHC was intended to be intersectoral, addressing the social determinants of health in addition to providing technical interventions to improve health outcomes. Furthermore, PHC was supposed to involve local participation and community involvement in setting health goals as well as community-based delivery of care. Unfortunately, PHC is not very precisely defined and did not have measurable targets, making it difficult to implement. In addition, some countries were not prepared to offer such comprehensive care, as they lacked even basic health infrastructure. “Health for all by the year 2000” was unfortunately not achieved. Though PHC constitutes a viable way to address chronic disease in the long term, it is important to keep in mind that some low-income countries will be unable to immediately deliver a variety of complex services through an integrated and comprehensive health system.

**horizontal health intervention**— a health program that treats a variety of illnesses and diseases within the same health system  
**primary care**— the first level contact of individuals, the family, and community with the national health system bringing health care as close as possible to where people live and work, and constitutes the first element of a continuing health care process

## **NGO Perspectives**

### *Greenpeace*

Organizations such as Greenpeace are pushing for greater regulations on corporate polluters, and document the taxing health and security effects chemical production can have on populations around the world. Many of the chemicals found in high-energy, fat-dense foods that induce chronic diseases like diabetes and cardiovascular disease are produced artificially, posing multiple threats to public health and safety. Greenpeace would likely support greater, pro-health regulations on corporations, including tobacco companies and food companies.

### *Amnesty International*

Amnesty International is human-rights based organization and maintains that human rights abuses can also violate one's right to health. Amnesty International claims to work to "prevent the denial of health-care" and "promote the role of health professionals in defending human rights." Amnesty International emphasizes process as much as output, meaning that it values local participation and input into health programs. Given its emphasis on rights, Amnesty International will likely be willing to endorse the treatment of chronic disease in developing settings in order to prevent the "denial of healthcare" for many poor people in low and middle-income countries.

### *Center for American Progress*

The Center for American Progress (CAP) is comprised of a variety of academics and professionals with expertise in US domestic policy as well as US national security, covering a broad range of issues. One point consistently made by CAP is how development and national security of the US are closely related. Indeed, more healthy and stable populations are less likely to have grievances with relatively more wealthy Western countries, fostering lower levels of global terrorism. In a **Pew Center** study conducted in 2006, 63% of Americans polled thought that combating poverty in developing countries was an important way to also combat terrorism. Indeed, terrorist ideologies spread more readily in situations of social, political, and economic instability. But with the treatment of chronic disease, fewer premature deaths will tend to increase social stability and work to prevent disgruntled youth from turning to political violence that has proven to be so destructive.

## **Possible Solutions**

### *Tobacco Controls*

Smoking, which causes a variety of health problems, including cardiovascular disease and lung cancer, can be prevented on a population level through the implementation of tobacco taxes. One study

**Pew Center—**  
*American research center, which focuses on public opinion*

found that the implementation of just four population-level measures of the Framework Convention on Tobacco Control (FCTC) and reduction of population levels of salt consumption by 15% could avert 13.8 million deaths at an estimated total financial cost of roughly US\$1 billion (as of 2005) (Beaglehole, et. al, 2153). Furthermore, revenue generated from such a tobacco tax could be redistributed to health systems to pay for the cost of care for people with diseases associated with smoking (Beaglehole, et. al, 2155). However, given the power of tobacco and food lobbies in developing and developed countries alike, the implementation of such cost-effective and life-saving measures does not seem viable, despite the fact that many countries have signed on to the Global Framework on Tobacco (Ebrahim, 226).

### *Pharmaceutical Innovations*

This overlap in the disease burden between developing and developed countries provides a tremendous opportunity to develop therapeutic tools that are relevant to patients all across the world. Already existing therapies can have a tremendous impact when effectively delivered in resource-poor settings. Even more, the wealth of patients in high-income countries constitutes a large enough market to incentivize innovation of *new* therapies for chronic diseases that are relevant to patients in developing countries as well. Unfortunately, 30% of people do not have regular access to health services, and ten million people die needlessly from diseases every year because they lack access to already existing therapies. Those who need access to *already existing* medicines most are least likely to be able to afford them (WHO, Equitable Access).

### *Distribution of Preventative Drugs*

A multidrug regimen for cardiovascular diseases has been proven to be a cost-effective and health-effective intervention (Asaria, et. al, 1). Taking a **prophylactic** regimen of anti-hypertensive, cholesterol-lowering statin, aspirin, and possibly folic acid would cost nearly \$1 per day if targeted to high-risk populations and would save an estimated 18 million lives every year. A **polypill** combining doses of a statin, aspirin, and anti-hypertensive could cut the risk of heart disease by 62 percent and the risk of stroke by 48 percent (Lim, et. al., 2054). The delivery of such medications constitutes a major challenge, but the therapeutics themselves are highly cost-effective and will improve health outcomes if delivered to those in need of them (Lim, et. al, 2056).

### *Advocacy*

Arguably, levels of funding for HIV/AIDS, the disease with the most funding dedicated to prevention and treatment in developing coun-

**prophylactic** —  
*preventing to spread of  
disease or infection*

tries, was achieved largely through the efforts of activists. These activists not only pushed for the entry of generic medications into developing countries, but rallied for larger amounts of foreign aid dedicated to PEP-FAR and the **Global Fund for AIDS, Malaria, and Tuberculosis** to fund HIV/AIDS prevention and treatment programs (Gregg Behrman, Invisible People). Many HIV/AIDS activists suffered from HIV themselves, and rallied for treatment within developed countries as well. However, there is currently no robust civil society coalition fighting for the prevention and treatment of other chronic diseases like heart disease, diabetes, obesity, cancer, and mental health. Activism and advocacy from such civil society groups could play an integral role in the disbursement of new funds for chronic disease management for the poor in low and middle-income countries.

**polypill**— *a medication combining a statin, an anti-hypertensive medication, an aspirin, and folic acid into a single pill. It gives patients an easier time to take their medicines and improves adherence to preventative regimens*

## Questions for Policymakers

There are a variety of debates concerning whether chronic diseases ought to be treated, and if they are to be treated, how to best implement health programs. The first major question is whether there are sufficient funds to treat chronic disease, despite the enormous improvement treatment and prevention will mean regarding mortality in developing countries. Should funding come from developing countries' governments themselves or grants from Western countries? Should funding be reallocated from already existing health programs or should there be more total funding in general? What are the advantages and disadvantages of either strategy? What will be politically viable?

**Global Fund for AIDS, Malaria, and Tuberculosis**— *multinational organization that distributes five year grants to countries to help improve health systems and build capacity to treat these major infectious killers*

If large donors do indeed decide to contribute funding, another question posed to policy makers is how ought we to design health programs to actually implement the delivery of care in resource-poor settings. Should care be delivered as a vertical intervention, separate from other services of the health system, or integrated into existing services as a horizontal program? What are the political advantages and disadvantages of advocating either type of health intervention?

Finally, how can public policy actually be changed in order to prevent deaths and promote health? Lobbying of the food and tobacco industries pose a challenge to health professionals seeking to prevent deaths through the use of taxes and through investment in the innovation of health technologies. How can resources and political will be marshaled to prevent the death of those who are most likely to die from chronic diseases?

## Conclusion

Chronic disease kills millions upon millions of people every year, with the most number of deaths occurring in developing countries. Sadly, those in most need of care are least likely to be able to afford and access it. The World Health Organization is charged with deciding whether to marshal resources to prevent and treat chronic illness and how to best implement such health programs. This will require taking into account global political context and local complexities that must be addressed to practically achieve greater coverage of the world's poor for chronic disease. It is now up to you to come up with an efficient, realistic, and successful resolution to this pressing global crisis. Good luck!

## Guide to Further Research

A good place to start your research is on the World Health Organization's website (<http://www.who.int/en/>). On the website you can look at the most recent activity of WHO in terms of chronic disease. Also, reference the sources used in the bibliography and perhaps read some of the sources in their entirety. Otherwise, keeping up with current events and looking out for new stories on chronic diseases, not only in terms of the developing world, but also in terms of cures that have been achieved for these diseases.

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