

NTS ALERT

Poverty and Diseases: A Dangerous Liaison?

In the second issue of the NTS Alert for February, we turn our attention towards the complex interactions between poverty and diseases. We briefly summarise the state of the world's health, identify linkages between critical health issues, poverty and under-development, and end by posing challenging questions that span the domains of health, human security and policy

A brief history of poverty and diseases

The past century has brought about notable achievements in **global health**. Life expectancy has increased by an average of 25 years and mortality rates of children under five years old have decreased substantially. Smallpox has been eradicated, and the elimination of polio and measles is now within reach. Biomedical research and technological innovations have expanded enormously and the world we live in today is one of greater personal wealth than that of our grandparents' generation. However, while overall survival prospects of the world's population have improved, there is still a long way to go and disparities in health levels have, in many cases, increased.

One fifth of the world's population today – approximately 1.2 billion people – subsist on less than US\$ 1 per day, and the poorest 10 per cent of the world's citizens participate in less than 0.5

per cent of global trade in goods and services (World Bank, 2001). Indeed, to say that there is no greater problem facing us than that of **world poverty** is not an understatement.

What are the linkages?

Poverty has long been thought to be associated with health status in a **complex and bi-directional** relationship. Ongoing ill health is one of the main reasons why the poor stay poor and individuals, families and communities become caught up in the perpetual poverty trap (CMH 2001).

Poverty leads to poor health

Ill-health has been found to be a **consequence of considerable poverty**. The poor are not only



those with the lowest incomes, but also those who are most deprived of adequate sanitation, hygiene, nutrition, education, housing, medical facilities and other services. For example, poor mothers are more likely to die in childbirth, and children of poor families are more likely to be malnourished and receive less education and hence be more susceptible to stunted growth, mental retardation and premature death. Gender imbalances are more pronounced among the poor. Housing that the poor can afford is more likely to be located in noisy, polluted neighbourhoods, and blue-collar occupations tend to pose a higher risk than white-collar occupations. Hence, poor health may result from an inability to afford various aspects of human well-being and also from poverty-related lifestyle factors that increase disease risk and/or decrease access to timely and effective health care.

Poor health leads to poverty

Ill-health is also a major **cause of considerable poverty** in developing countries, particularly in Sub-Saharan Africa. For the poor, more than the non-poor, incomes are likely to be adversely affected by ill-health, conflict, natural disasters and economic fluctuations, as well as by increases in food prices and the increasingly visible effects of global warming. Hence, ill-health may lead to a decrease in expendable income due to high medical bills and/or *via* a direct reduction, or loss of wages throughout an illness.

Poverty – relative or absolute

In the case of industrialized countries, where individuals are relatively well-fed, adequately housed and have access to public services, ill-health may still be a consequence of relative poverty. This can be largely a result of increased negative psychosocial factors, such as stress, which may be heightened amongst individuals

who are further down the social hierarchy. However, while the precise nature of the complex relationship between health and poverty – relative or absolute – is yet to be fully understood, it can be said that poverty is the **number one killer** in today's world.

Indeed, overcoming the fundamental health crises facing the poorest countries represents one of the most effective ways to alleviate poverty and to promote **global economic progress and stability**.

Among the poorest fifth of the world's population, communicable diseases cause 59 per cent of deaths and 64 per cent of disability-adjusted life-years (DALYs) lost (See Box 1 for an explanation of the DALYs). Although vast quantities of significant research results are being generated, they are still largely failing to be translated into interventions that are applicable to the **most vulnerable populations** and in the poorest countries.

The burden of diseases

Communicable diseases

The major burden of **communicable diseases** is caused by the human immunodeficiency virus and the resulting acquired immune deficiency syndrome (HIV/AIDS), tuberculosis (TB) and malaria ('the big three') and, among others, a group of 13 bacterial, protozoan (single celled organisms) and helminth (parasitic worms) infections that are collectively known as the neglected tropical diseases (NTDs). The following paragraphs briefly introduce these diseases.

HIV/AIDS has become one of the most devastating infectious diseases of all times. At present, more than 40 million people are infected

with the virus, over 90 per cent of whom live in developing countries, in particular in sub-Saharan Africa. There is no single HIV/AIDS epidemic worldwide, but many regions and countries are experiencing diverse epidemics, some of which remain in early stages. Women now represent half of all people living with HIV/AIDS, a result of combined biological, social, cultural and economic factors.

TB remains a leading cause of morbidity and mortality worldwide, with over 9 million new cases each year. It accounts for more than 2 million human lives per year, from which approximately 98 per cent are in developing countries. TB is associated with overcrowding, poor ventilation and under-nutrition. With the rise in drug-resistant strains of the disease, the threat of TB is on the rise, and establishing an adequate network of quality assured laboratories for performing drug susceptibility testing (DST) remains a key challenge. Recently, the availability of the complete genomic sequence of *Mycobacterium tuberculosis* has provided new opportunities for the development of an effective vaccine.

There were over 250 million acute cases of **malaria** in 2006. Malaria causes between 1 and 1.5 million deaths annually; at least one death every 30 seconds. The vast majority of cases occur in children under the age of five years – 25 per cent of child deaths in Sub-Saharan Africa are due to malaria – and pregnant women. Insecticide treated bed nets (ITNs) are vital tools in malaria prevention and have a double impact. Firstly, they protect those sleeping under the net from mosquito bites – *Anopheles* mosquitoes bite only at night – and thus reduce the under-five mortality by about 20 per cent. Secondly, they kill the mosquitoes that come in contact with the netting and thus reduce their numbers drastically, providing an added benefit for the entire community.

The 13 infections known as the **neglected tropical diseases** (NTDs) include hookworm, ascariasis, trichuriasis, lymphatic filariasis, onchocerciasis, dracunculiasis, schistosomiasis, Chagas' disease, human African trypanosomiasis, leishmaniasis, Buruli ulcer, leprosy and trachoma. These all occur primarily in rural areas, or impoverished urban areas, of sub-Saharan Africa, Asia and Latin America and they are among the most common infections in the estimated 2.7 billion people who live on less than US\$ 2 per day. Although the number of deaths is considerably less than that resulting from the big three, in terms of DALYs lost they rank closer together as the most important health problems in the developing world.

Emerging Infectious Diseases

While centuries-old threats – e.g. malaria, TB and pandemic influenza – continue to pose a threat to health through a combination of improper use of antibiotics, development of resistance, mutations and weak health systems, we are also faced with new and **emerging infectious diseases** (EIDs), as well as other health threats linked to potential terrorist attacks, chemical incidents and radio nuclear accidents (WHO 2007).

Since 1967, at least 39 new pathogens have been identified, including HIV, Ebola hemorrhagic fever, West Nile virus, Marburg fever and SARS. Factors linked to **globalisation**, including climate change, changes in food production and large-scale migration, have resulted in EIDs appearing around the world at an unprecedented rate, crossing international borders rapidly and spreading faster than ever before.

Non-communicable diseases and other issues

The SARS outbreak caught us by surprise, and its potential health and economic impact became





clear in 2003, when the outbreak cost Asian countries an estimated US\$ 60 billion of gross expenditure and business losses. However, while it claimed 774 lives across the globe during a nine-month period between 2002 and 2003, this number easily compares to the toll of **other public health issues**, for example road traffic accidents which claim as many lives worldwide in just eight hours – every eight hours, every single day.

Furthermore, changing patterns of diseases, a result of the epidemiological transition, have left many countries faced with the added **double burden** of multiple communicable and non-communicable diseases, the latter of which are characterised by increased sedentary behaviour, unhealthy diet trends and the uptake of smoking and excess alcohol consumption.

Box 1: The Disability Adjusted Life Years

The disability-adjusted life year (DALY) was conceptualized by Chris Murray and Alan Lopez and developed by work carried out with the World Health Organisation and the World Bank. It was published in 1996 as the global burden of disease study. It is a time-based measure of overall disease burden that quantifies the impact of premature death and disability by combining years of life lost due to premature mortality and years of life lost due to time lived in states of less than full health. In so doing, mortality and morbidity are combined into a single, common metric used by policy makers and health practitioners in assessing the impact of disease and evaluating cost-effectiveness of interventions.

Traditionally, health liabilities were expressed using one measure, the expected (or average) number of Years of Life Lost (YLL). This measure does not take the impact of disability into account, which can be expressed by the Years Lived with Disability (YLD), where conditions of less than full health are ranked along a scale from 0 to 1 (perfect health is given a disability weight of 0 and death is given a disability weight of 1). DALYs are then calculated by taking the sum of these two components, in the formula:

$$\text{DALY} = \text{YLL} + \text{YLD}$$

Japanese life expectancy statistics are used as the standard for measuring premature death, as the Japanese have the longest life expectancies.

The DALY relies on an acceptance that the most appropriate measure of the effects of chronic illness is **time**, both time lost due to premature death and time spent disabled by disease. One DALY, therefore, is equal to one year of healthy life lost.

A new millennium

To address these issues, in September 2000 the United Nations (UN) Millennium Declaration was adopted by 189 nations-and signed by 147 heads of state and government during the UN

Millennium Summit. In doing so, the international community pledged to 'spare no effort to free our fellow men, women and children from the abject and dehumanizing

conditions of extreme poverty.’ From the declaration, eight goals were particularly promoted and have become known as the **Millennium Development Goals (MDGs)**, of which five are directly related to health (See Box 2 for a list of the eight MDGs).

While setting targets and goals is a useful starting point, poverty alleviation and increased well-being require **long-term commitment**. Reaching the goals is not only vital to building better, healthier and more adequate lives for millions of people around the world, it is also essential to building enduring global peace and security.

Box 2: The Millennium Development Goals (MDGs) were developed out of the eight chapters of the United Nations Millennium Declaration, signed in September 2000. There are 21 targets listed within the following eight specific goals:

1. Eradicate extreme poverty and hunger
2. Achieve universal primary education
3. Promote gender equality and empower women
4. Reduce child mortality
5. Improve maternal health
6. Combat HIV/AIDS, malaria, and other diseases
7. Ensure environmental sustainability
8. Develop a global partnership for development

Challenges ahead

There are many **challenges** on the road ahead and much work remains to be done in the following three areas, in particular: 1) Generating new tools and products to fill existing gaps in knowledge; 2) Working with, and understanding, local communities; and 3) Strengthening health systems.

1) New tools and products

The first of these areas addresses discoveries and developments generated by bio-medical and other **scientific research**. Research must be targeted towards current gaps in preventive, diagnostic and therapeutic procedures, including the innovation of drugs and vaccines which has benefited from advances in genomics, proteomics and bioinformatics. Scientific research is also essential for monitoring the spread and distribution

of diseases, which has profited from new technologies such as geographical information systems (GIS) and remote sensing (RS), and Bayesian geo-statistical modelling. However, while new technologies may provide many opportunities, research should also focus on appropriate-technology methods for low income settings.

2) Working with local communities

The second area involves a **bottom-up process** of empowering and working with communities and households to increase our understanding of who is most vulnerable and most at risk within the communities, and which factors determine their vulnerability/risk. Local solutions, which may be based in traditional beliefs or long-standing social structures, must be taken into





account in order to balance objective population needs and subjective population demands. This is crucial since there are often mis-matches between people's experience of disease and their perceptions of illness, the latter of which may hold greater influence in triggering health seeking behaviours and practices.

3) Strengthening health systems

The third of these areas requires advances in problem-based and evidence-based planning and resource allocation, and improved ways of setting priorities. New models of service provision are necessary to increase quality of care, scale-up interventions and improve the financing of health care, particularly for the poor. Increasing inequities and disparities in access to health care can be tackled via focussing on underlying determinants of health – including 'upstream' and 'downstream' factors. In an increasingly globalised and interconnected world, strengthening of existing health systems will require dealing with the **complexity of pluralism and syncretism** in health around the world.

A multi-sectoral approach

According to the WHO, health systems include 'all actions whose primary purpose is to promote, restore or maintain health' (WHO 2000). Scaling up and strengthening health care systems involves the mobilisation of **multiple partners from many sectors** although partners in the health sector may be faced with the added responsibility of providing leadership and co-ordination.

The **health sector** is wide ranging and encompasses organised public and private health services (including those for health promotion, disease prevention, diagnosis, treatment and care), health ministries, non-governmental

organisations (NGOs), community groups and professional associations, as well as institutions which directly input into the health care system (such as the pharmaceutical industry and teaching and training institutions).

A multi-sectoral approach by definition includes collaborations between different departments and bodies within and between governments, as well as between actors inside and outside of government, such as civil society organisations, for-profit private organisations and local community groups. Efforts must involve the **harmonisation and coordination** of actions from governments, multinational corporations, civil society, industry, workplaces, schools, the media, health professionals and individuals, together with activities of the partnerships devoted to the control or elimination of diseases, and linking the above with national health ministries and the WHO. The need for such endeavors and for global solidarity is especially clear in the case of contemporary infectious disease pandemics and future outbreaks of EIDs.

Looking ahead: security implications?

It has been increasingly proposed that **health, poverty and human security** are not independent concerns and hence should not be treated separately, particularly at regional or global scale. In order to act with the required level of urgency at the national level, and within the necessary scope of international collaborations or partnerships, numerous health issues are now becoming securitised through the concerted efforts of security analysts, health experts, NGOs and the media. Indeed, securitisation may provide the much-needed impetus and political will to respond to a multitude of global health challenges in a timely manner.

Within the field of international relations, **securitisation** is a means to specify whether a given subject is merely ordinarily politicised or whether it is considered essential for survival. In principle, anyone can succeed in constructing something as a security problem through speech acts. The ability to effectively securitise a given subject is however highly dependent upon the status of a given actor and whether similar issues are generally perceived to be security threats. Upon successful securitisation it is possible to legitimize extraordinary means to solve a perceived problem. Non-traditional security (NTS) is a subset of comprehensive security, which reflects the chronic and complex nature of such concerns. NTS deals with the security of individuals, societies and communities, rather than focussing on the military and the nation-state.

While securitisation of health may bring about numerous benefits and a positive impact on population health, one should note that it may also have negative outcomes. It must therefore bring with it an essential commitment and obligation to **minimise unforeseen and/or unintended consequences** of securitisation. Examples of such consequences may include intrusion of privacy and violations of human rights, as well as an increased stigmatisation of certain diseases which would hamper community-based diagnosis and control. Consequently, questions remain about how best

to approach such unknowns in the fast-changing context of global health and international relations.

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