

CANCER IN DEVELOPING COUNTRIES

Cancer – A Neglected Health Problem in Developing Countries

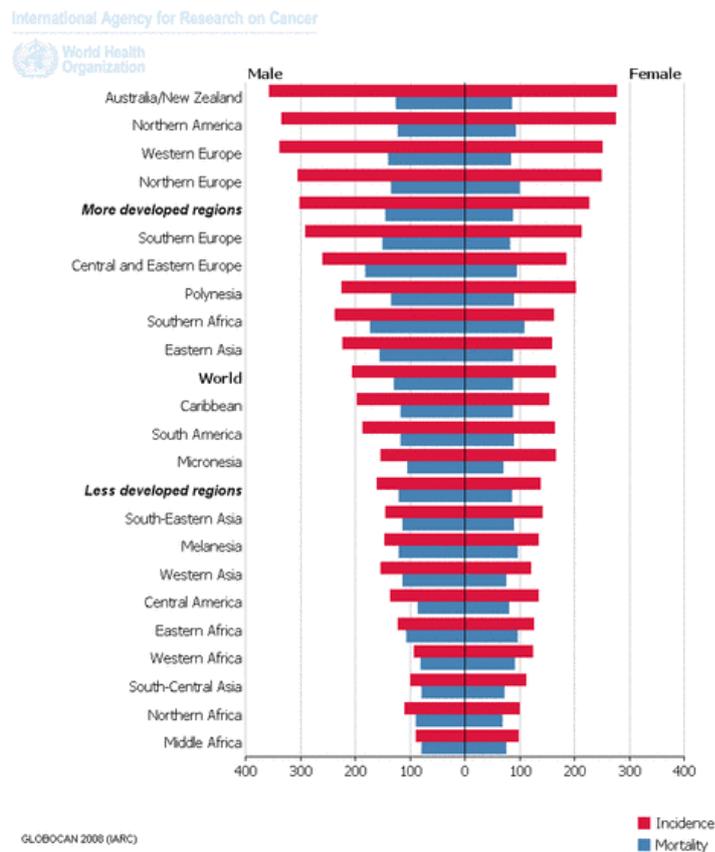
The World Health Organization (WHO) recently projected that in 2010, cancer would overtake ischemic heart disease as the leading cause of death in the world. Between 2005 – when some 7.6 million people died from cancer, accounting for 13% of global deaths – and 2015, it is anticipated that 84 million people will die of cancer. In 2008, approximately 72% of cancer deaths occurred in low and middle income countries where, although cancer has a lower incidence, survival rates are also much lower, largely because of delays in diagnosis leading to presentation with advanced disease. Many poor patients receive affordable (by their standards) or available treatment rather than optimal treatment, and those with little chance from benefitting from cancer treatment, or without financial support, are not infrequently sent home to die – without even the comfort of palliative care. Many patients – who remain uncounted – never reach a center capable of providing appropriate treatment. This catastrophe will soon become a crisis, since the global cancer burden is increasing rapidly in developing countries where populations continue to expand and communicable diseases are better controlled, resulting in longer life spans. Even so, approximately 50% of cancer in developing countries occurs in individuals less than 65 years of age. Moreover, the global economic cost brought about by disability or death that does not include the cost of patient care stands at approximately 900 billion US dollars per year – higher than that of heart disease.

Cancer Replacing Infection as a Major Cause of Death

Large declines in mortality are projected to occur between 2008 and 2015 for all of the principal communicable disease, maternal, peri-natal and nutritional causes, with the exception of HIV/AIDS. Global deaths of HIV/AIDS are projected to rise from 2.8 million in 2002 to 6.5 million in 2030 – under a baseline assumption that antiretroviral coverage reaches 80% by 2012. Although age-specific death rates for most communicable diseases are projected to decline, the aging of the global population will result in significant increases in the total number of deaths caused by most non-communicable diseases (NCDs) – such as cancer – over the next 30 years. Overall, NCDs will account for 70% of all deaths in 2030 under the baseline scenario and, in 2010, cancer will become the leading cause of death. In high, upper and lower middle income countries, cancer deaths exceed all infectious deaths combined. However, low income countries in particular, which continue to contend with a heavy burden of infectious diseases are also struggling to deal with an ever increasing burden of cancer. These differences reflect the broad range of development across the world; the gap between high income and other countries remains large.

Unfortunately, death from infection is all too often replaced by death from smoking, which along with an unhealthy diet- lacking in fruits and vegetables with a high overall calorie intake, coupled to a sedentary life style, predisposes to a number of NCDs. Tobacco and diet, together account for up to 60% of cancer in high income countries. These risk factors, which are, in theory, avoidable, will take an increasing toll on the health of the emerging middle class, particularly in those countries which are rapidly developing, such as India and China. The increase in cancer deaths will not be small; the International Agency for Research on Cancer (IARC) predicts that by 2030 there will be 27 million new cases and 17 million deaths per year – an extra 10 million deaths compared to 2005.

FIGURE 1



Incidence of cancer in more and less developed countries – Globocan estimated rates adjusted to the age structure of the world population. The differences in incidence and mortality rates provide an indication of the efficacy of therapy.

The lower incidence of cancer in developing countries (Figure 1), even using age-adjusted rates, is largely due to the much smaller impact in these countries, to date, of tobacco and diet/exercise. The tobacco epidemic is not yet at its height and fruits and vegetables generally comprise a higher fraction of the overall lower caloric intake in low income populations – who lead anything but sedentary lifestyles. But, even in developing countries, the fraction of overweight people is steadily increasing (although malnutrition also remains a problem). The increased risk of cancer with age is, to a large degree, a function of prolonged exposure to risk factors. Unfortunately, any reduction in cancer incidence resulting from better control of chronic infections will almost certainly be overwhelmed by the consequences of failure to preempt the effects of smoking and dietary factors.

In less developed countries, the fact that a higher fraction of patients die from cancer demonstrates that their attempts to control cancer are much less effective – which is hardly surprising, given the remarkable disparities in resources between the lowest and highest income countries. The poorest populations, particularly those in Africa find themselves trapped in a vicious cycle (Figure 2) from which escape is difficult, but essential if their socioeconomic status and health care is to improve.

FIGURE 2



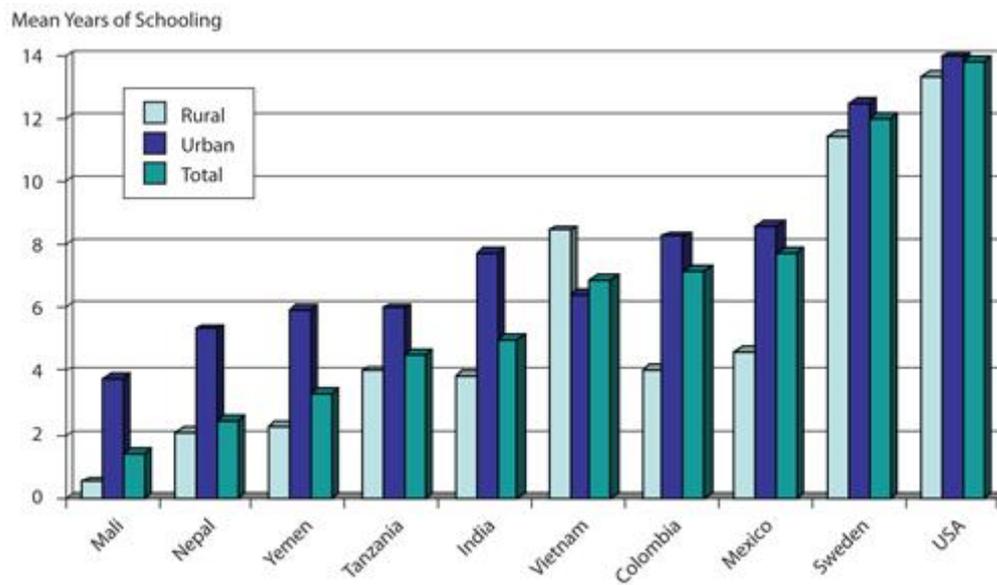
Vicious cycles that feed off each other – poverty, education, knowledge, evidence, access to care, prevention, early detection and treatment outcome.

Challenges Facing Developing Countries

Poverty

According to the World Bank, approximately 1.3 billion people live on less than a dollar a day, and almost half of the world's population lives on less than 2 dollars a day. While these numbers are somewhat arbitrary, as is the definition of "poverty", they clearly indicate that the bulk of humanity is extremely poor (85% of people live in low and middle income countries). Poverty at the level of individuals is reflected in the poverty of governments, resulting in major negative impacts upon education and health care. At the turn of the millennium, for example, a billion people were unable to read or sign their own name. According to UNICEF, some 11 million children die each year as a direct consequence of poverty, and the United Nations Development Program (Human Development Report, 2006) states that a million children a year die for want of clean water and adequate sanitation. Poor health (malnutrition, anemia and common infectious diseases) also causes frequent interruptions in education, and reduces the ability to learn. Many children never go to school (which is rarely free), and the lack of even a basic education (Figure 3) condemns most to a life of perpetual poverty and potential catastrophe; in this setting, natural disasters or inter-ethnic violence precipitate serious added health problems.

FIGURE 3

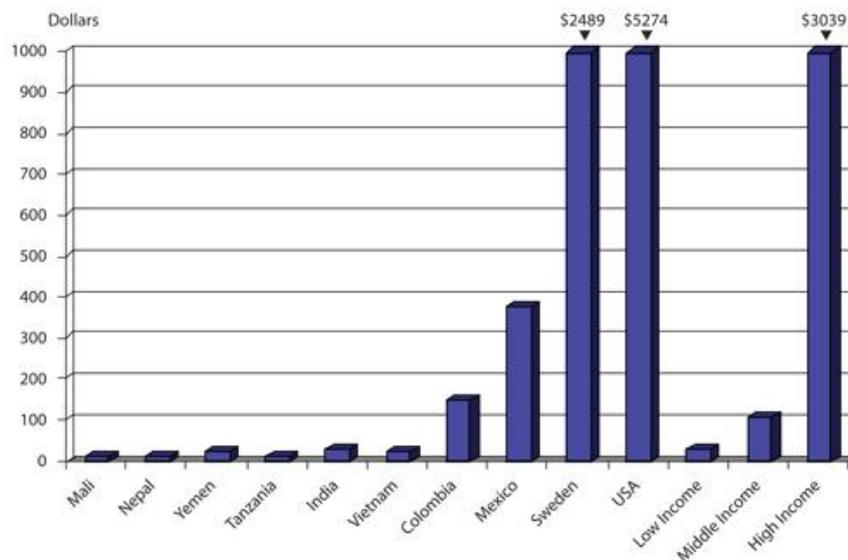


Mean years of schooling in selected countries between 1991 and 2001. Source, World Development Indicators, 2005.

Limited Government Funds for Health Care Expenditure

Difficult decisions must be made by governments regarding priorities for their limited budgets in resource constrained countries. Health expenditure is usually just a few percent of total government spending – in absolute terms, sometimes hundreds of times less than is spent per capita in high income countries (Figure 4). Health workforces are correspondingly small and unable to cope with the burden of disease. The WHO reports that sub-Saharan Africa, with 11% of the world’s population and 25% of the global burden of disease, accounts for less than 1% of global health expenditure. In contrast, the Americas, with 14% of the worlds’ population and 10% of the global burden of disease, account for more than 50% of the global health expenditure.

FIGURE 4

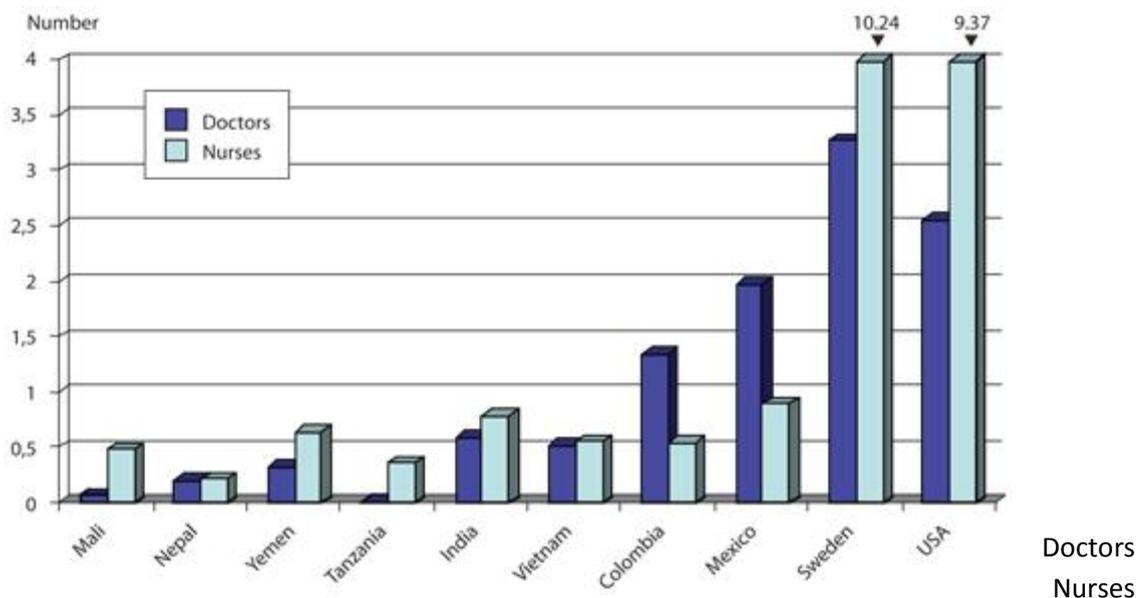


Health expenditure per capita (international dollars) in selected countries. Source, World Development Indicators 2005.

Overall Lack of Human Resources to Provide Health Care

Comparisons of the numbers of doctors and nurses per capita in selected countries are shown in Figure 5. Some populations in low income countries are considerably worse off than even these figures would suggest since the inadequate workforces are also mal-distributed (rural regions are particularly poorly provided for) and health services poorly structured and managed. Some countries have fewer nurses than doctors such that nursing tasks, to the extent possible, must be performed by family members, or not at all – an unthinkable situation in high income countries. There are simply too many patients for the available health care providers in these countries.

FIGURE 5



and
per 1000 people in selected countries. Source, World Health Report, 2006.

Lack of Health Care Professionals Trained in Cancer Care

Poorly organized health services and inadequate training for health workers often lead to delays in diagnosis, misdiagnosis, loss of clinical samples, inadequate investigations, poor recordkeeping and transfer of relevant information to referral centers, poor supportive care, poor palliative care, and limited or no patient follow up. Clinicians often lack the information needed to determine appropriate therapy, which may, in any case, be unavailable, and treatment is not infrequently abandoned prior to completion. Poor communication among specialists hinders effective combination of therapeutic modalities and lost opportunities for sharing experiences or discussing difficult cases. In rural areas of the poorest countries, people may have access only to traditional healers.

Professional education often leaves much to be desired. This gloomy picture varies markedly from country to country and institution to institution. Some centers provide the best quality services possible to their patients with the basic resources available. Some countries in the upper middle income category provide patient care and professional education that, at least in the best centers, can be equal or close to equal to the level of high income countries.

Lack of Resources for Managing Cancer

Resources for the three major modalities of cancer therapy are severely limited in low and lower middle income countries. Surgeons skilled in cancer surgery are in short supply and, like all other resources, more likely to be available in urban rather than rural regions. Radiation therapy, which evolved in the 20th century in Europe, has still not spread to all countries in the world, in part because of the capital costs of equipment, but also because of the lack of radiation oncologists and medical physicists. According to the International Atomic Energy Agency, half of the world's countries have 85% of all radiation therapy machines in the world – leaving 15% in the other half. Twenty countries in the world (mainly in sub-Saharan Africa and South East Asia) lack radiotherapy completely. Although the lower incidence of cancer leads to a lower requirement of radiotherapy machines per capita, there is still clearly an insufficient number to provide for the needs of many countries. Limited maintenance and outdated cobalt sources compound the problem.

Chemotherapy and hormonal therapy is available practically everywhere, although many countries purchase only “essential” cytotoxic drugs based on the WHO Essential Drugs list, and deficiencies in procurement procedures often lead to intermittent supplies. Cost is also a major factor in influencing access to drugs since much or all of the care, particularly drug costs, must frequently be paid for “out-of-pocket” by patients. Even generic drugs manufactured in developing countries such as India, and available at much lower costs, may be beyond the means of many families, particularly when import duties and other taxes are added to drug costs. In some developing countries there are no medical oncologists and/or pediatric oncologists, and few have an adequate number of specialists of any kind.

Palliative care is another important aspect of treatment that is frequently not addressed. Doctors can be one of the biggest obstacles to improving palliative care due to their lack of basic training in the management of chronic pain. There is frequently poor availability of opioids because they are controlled substances and closely regulated by national and international laws. As such, governments must estimate the quantities of these drugs required to the International Narcotics Control Board - the body that monitors the implementation of UN drug control - before they can be brought into the country. More often than not, estimates are too low so that almost no one can be treated for pain. Once these drugs have been imported into a country, health care institutions require licenses to handle the drugs – these licenses can be restrictive and difficult to obtain. Therefore, many institutions do not stock these drugs, particularly in more rural areas. There are frequently restrictions that limit who may prescribe these medications and also on the quantity that can be given per prescription. Governmental policies promoting palliative care are largely absent in many countries, and in countries where national cancer control plans have been developed, palliative care, including psychosocial support is either not included or poorly addressed. Therefore, the paucity of palliative care services and pain-relieving medicines in developing countries results in tremendous suffering for those who cannot be cured and thus, are destined to die of cancer.

Migration

The multiple deficiencies in the ability to deliver effective cancer care are further compounded by the temptation of health care professionals to migrate in search of improved professional and financial rewards. Training fellowships given by high income countries that may have been established with the intent of improving the workforces of low income countries can significantly exacerbate this problem since after training, many fellows never return home. Health professionals from low and middle income countries are also actively recruited by high income countries. Similarly, an increasing number of trained

persons move partly or entirely into the for-profit sector – leaving the poorer elements of the population with even less access to health care. Some would argue that countries should simply train more doctors, nurses, or other health professionals than they themselves require, but this apparently simple solution presupposes a sufficient number of institutions of higher education, of teachers, of young people qualified to receive higher education – i.e., a higher level of socioeconomic development than currently exists. Although emigration rates vary markedly from one country to another, and statistics can be difficult to compile for various reasons, it would appear, according to the Center for Global Development that at least 40% of African born physicians work outside their country of birth. The migrants are more likely to come from countries with better health systems, such that as development proceeds, the situation will get worse before it gets better.

Summary

The WHO estimates that by 2010, cancer will be the leading cause of death in the world. In 2008, approximately 72% of cancer deaths occurred in low and middle income countries. In high, upper and low middle income countries, cancer deaths exceed all infectious deaths combined. Low income countries, while continuing to contend with a heavy burden of infectious diseases are struggling to deal with an ever increasing burden of cancer.

A higher fraction of patients in developing countries die of cancer. This is due to delays in diagnosis leading to presentation with advanced disease. Poor patients receive affordable care or available treatment, even if this is not optimal treatment. Many patients are sent home to die, but an unknown number of patients never reach a center capable of providing treatment for their disease.

The challenges facing developing countries in cancer control are poverty, limited government funds for health care expenditure in general, let alone for cancer care, a general paucity of trained health care professionals and even less trained in cancer care. Trained health care professionals in the delivery of cancer care migrate to other countries in search of improved professional and financial rewards or opt to practice in the for-profit sector – leaving the poor with even less access to cancer care. Resources for diagnosing and treating cancer are severely limited and there is a paucity of palliative care services.

In conclusion, cancer as a global health problem, particularly in developing countries where the burden of cancer is ever increasing has been neglected. Cancer control efforts have simply not kept up with the increasing cancer burden and health systems in these countries remain largely adapted to dealing with infectious diseases. INCTR was established in 1998 to address this problem. Its mission is to build capacity for cancer treatment and research in countries with limited resources for cancer control with a vision of developing an international network dedicated to education and emphasizing a scientific approach. INCTR believes that working together with colleagues from developing countries is the most efficient way to transfer knowledge to health care professionals in those countries. It employs a variety of strategies to achieve its mission which emphasize the development of an international network, including partnerships with institutions and organizations with overlapping interests and goals, and the conduct of activities through its programs that emphasize research.

Source:

