NEW PROBLEMS IN GLOBAL HEALTH

A.P.R.Aluwihare
University of Peradeniya, Kandy, Sri Lanka; Human Rights Commissioner, Sri Lanka

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Summary

The new and emerging health threats the world faces are those that are global in extent and needing global solutions, new problems, and old and new ones whose magnitude will be new. They arise from sources inside and outside the "health" system. The new problems include new infections, and resurgence of old infections with resistant pathogens, new clinical and sub-lethal toxic effects of agricultural and other toxins, consequences of food chain alterations, new genetic diseases, and new consequences of family system and lifestyle changes. The extent of environmental degradation and climate change seem unpredictable and uncontrollable. The older problems are tuberculosis and other infections and infestations, violence, accidental trauma, the consequences of smoking—to name a few. The methods of spread are new and involve the electronic and print media and the information technology revolution, and very fast physical spread with increasing air travel. The consequences to health of politicization, corruption, and the unfair distribution of resources are likely to increase. Newer

methods of modifying and producing food may have unexpected but foreseeable health effects. The effects of globalization and structural adjustments are also posing new health threats. Poverty remains an illness, with other health consequences. The human rights debate has effects on equity, but both rights and humanitarian laws are being transgressed, with adverse health consequences, by various groups and governments trying to crush each other. The technologies and attitudes needed to solve problems must be modern, affordable, and global in scope, offering solutions based on evidence from research. The final arbiter in limiting disease may be the capacity of humans to express humanity in private and public life.

1. Introduction

1.1. A State of Health

Health is increasingly recognized as a positive state that has to be maintained both for its own sake and in order to maximize the potential of individuals or communities to develop in a positive manner that is sustainable and without damage to the environment. A holistic understanding of the word "sustainable" is important as it is increasingly realized that the milieu interior and the outside environment are inextricably linked; preservation of the one has to accompany preservation of the other. It is therefore more relevant, from every point of view, to be concerned about preempting ill health arising from any cause whatsoever than to consume resources solely to restore health when it has broken down. This article is written assuming prevention to be the desired goal. The wide range of subjects referred to, sometimes at the expense of those within the health sector, is justified by the oft forgotten complex intersectoral nature of emerging and future threats and necessary preventive or corrective action

1.2. New Interactions (see also *Determinants of Health and Their Interactions*)

As the older diseases causing mortality and morbidity are controlled and better understood, there are new problems that emerge for a variety of reasons, including the changing behavior of bacteria, environmental pollution, effects of the media, substance abuse, violence, demographic change, changing macroeconomic policies, changing microenvironmental factors, new balances in sociopolitical and value systems, and so on. All require further research in different disciplines to identify mechanisms of cause and effect at macro and micro levels, to develop strategies for prevention, and cure ill health when it arises. Most need interagency, international, and inter- and transdisciplinary cooperation and coordination for both research and implementation. Sadly, it will be apparent that lack of access, mal-distribution of resources in spite of increasing wealth, and individual, corporate, and political selfishness will become the biggest threats to health, leading to new diseases, increases in old diseases, and huge shifts of patterns if illness as, *inter alia*, poorer populations change to eating unhealthy foods, driving too fast, fighting, and smoking.

1.3. A Context for This Article

Preceding articles in this theme—***Determinants of Health and Their Interactions***, ***Epidemiology: Health, and Disease in Populations***, ***Health Care Systems***, and ***Ethical***

Issues in Health—set the stage for this article. The articles on ***Global Aging***, ***Urban Growth and Health***, ***Implications of Atmospheric and Climate Change for Human Health***, ***Health in Border Areas***, ***Conflicts and Disasters***, and ***Vaccination in Developing Countries: Problems, Challenges, and Opportunities*** ably amplify some of the subjects mentioned here. Each part of this article could well be expanded upon in a similar manner, but the examples provided will have to suffice to give an indication of the depth and global extent of the problems and solutions required to improve health in the present and future.

2. The World Order

2.1. Global Village

The term "global village" is used today to signify the impact of the communication and information revolution in informing people of each other's problems, and making nations more interdependent. The new threat here is that there are many international bodies—both treaty and non-treaty—that have remits of their own (for example, the World Health Organization, for health). Each such body acts vertically through regional groupings with individual countries. However, in any country the policies of several organizations may clash. An example of this is the structural adjustment policies of the lending organizations and their adverse impact on education and health in the poorer sections of the world. To minimize this new threat to health, very much more coordination is required at a horizontal level between these international bodies (and even the uncontrollable multinationals) to ensure that such coordination and holistic planning minimize clashes that can occur within a country. Together with this, the monitoring and even controlling role of the international community on policies and actions inimical to health has to be strengthened within the dilemma of having to respect national sovereignty in each country. At country level the importance of an understanding of economics as applied to factors affecting health, and use of the private and public sectors in imaginative ways, are needed to make sure that all individuals have the benefit of measures to promote and restore health. The value of modern communication and information technologies will also have to be, and are being, harnessed in both the research efforts required to identify causes of ill health and in efforts needed in prevention and cure of ill health **(see *Epidemiology: Health and Disease in Populations*; *Epidemiology and Surveillance*; *Family Health*; *Mental Health*; *Prevention and Control of Communicable Diseases*; *Prevention and Control of Noncommunicable Diseases*; and *Primary Health Care: The Key to Health for All*; *Quality Assurance*; *Preventive, Therapeutic, and Diagnostic Technologies: Development and Perspectives*; *Health Technology Assessment*; and *Health Telematics and its Societal Implications*).**

2.2. Politicization and Corruption

Within countries, the detrimental effects of politicization of the fabric of society and of corruption have to be seen as a huge threat to health in particular, and to the political, economic, and social rights of the people.

2.3. Demographic Transitions and Multiple Disease Burdens

An increase in life expectancy due to reductions in mortality both at lower age groups and in the 50-plus age group creates tensions in both social and health services. There are more elderly **(see *Global Aging*)**, and fewer people to look after them and generate the wealth to help the state. There are fewer elderly with their families as well, because there are more nuclear families, and also because families are spreading themselves between town and rural areas. There are thus shifts in population between age groups and locations **(see *Urban Growth and Health*)**, for many reasons. Disease patterns of the old, the industrial societies, and the poor (malnutrition, diarrhea, chest infections) are seen as together causing big economic burdens for the developing countries in particular **(see *Family Health, Mental Health, Prevention and Control of Communicable Diseases,* and *Prevention and Control of Noncommunicable Diseases*)**.

2.4. Climate and Environment

The link between these lies in part in fossil fuel consumption producing greenhouse gases, and the destruction of forests to provide the fuel. However the global warming, ozone layer loss, and climate problems are only beginning to be appreciated as causes of ill health and poverty (by affecting sources of income). The loss of forest cover and changes in rainfall, and desertification, are also alarming as they cause population shifts and displacement—with again poverty and disease. These problems are simply mentioned briefly here, as they are part of the new world order.

3. New Microbial Threats, the Environment in Which They Develop, and Related Matters

3.1. Germs

New viral and bacterial threats can emerge for several reasons, some of which are outlined and discussed in the following paragraphs. The link between infections and societal complexities are illustrated in the fact that in this section it is impossible to discuss infections without referring to many other subjects. Some important subjects, for example malaria, the Ebola virus, and tuberculosis, are not discussed at length as these and other infections are dealt with elsewhere **(see *Prevention and Control of Communicable Diseases*)**.

3.2. Mutations

Natural mutations occur as they do in all living cells, and bacteria and viruses are no exception. No one has found a way to control or predict the mutation of either the common cold or the influenza virus, and they both cause much harm. There may now be a way to produce a cold virus by inducing the production of an antibody to a part of the virus that does not change but this is still very experimental. With regard to influenza, the best that can be done is to monitor the viruses causing it in any given year and very quickly produce a vaccine against any new and dangerous forms that appear. Natural

mutations are also one of the mechanisms by which bacteria develop resistance to antibiotics (the other being the transfer of genetic material). Sometimes a bacterium becomes more or less virulent than before: the vibrio cholera is an organism whose virulence has changed from time to time, and it seems that the reduction in mortality in more recent epidemics is at least in part due to such a drop in virulence and not only to better fluid therapy.

3.3. New Diseases, Lifestyle, Crime

Apparently new diseases, such as infection by the human immune-deficiency virus (HIV) followed by acquired immune deficiency syndrome (AIDS), can emerge as a result of a change in the genetic material of a virus. There is still debate as to whether this disease originated from a virus present in apes in Africa and spread to humans by non-contact methods. The subsequent spread in humans depicts the consequences of another kind of situation: an alteration in the norms of behavior, or at the very least an increase in a pattern of behavior subsequent to it being declared a variety of normal. Certainly the initial panic amongst the non-heterosexual communities represents such a problem. Heterosexual spread is aggravated by practices at variance with a holistic concept of a unitary family. Just as the cause of the present epidemic is multi-factorial, so research into methods of control has to be. Intense work on any part of the virus that may be able to be used to produce a vaccine is continuing. Equally, barrier methods of prevention are examined, and the best method at the moment is the condom. Advice on the importance of limiting sexual partners is also given (intravenous drug use is discussed below). What is more difficult is to decide whether there are moral imperatives and moral and religious arguments that are useful in the control of the epidemic. The fate of children affected though no fault of their own is tragic. The other factor is that the economic parameters of the sex industry also may affect the methods of modification of sexual activity as used for the control of AIDS. Big money is involved and any attempt to curb prostitution, or even to modify promiscuous sexual behavior, is likely to meet with opposition. There is also the matter of the demand for sex workers from clients. The difficulties that can arise are illustrated by the problems that human rights workers face when they seek to inquire into the trafficking of females as sex workers, and of children for pornography. A new dimension is the effect of web-based sexual material; even with child pornography, the overriding human rights considerations of the well-being of children get confused with the rights of free speech of the "media." There are therefore both rights dimensions and technical dimensions to the control of the Internet, which has only an indirect effect on AIDS through its effect on behavior. The balance between freedom of speech, the effect of the media on behavior, the health consequences of various kinds of behavior, the money and lobby behind practices inimical to health, and the psychology and technicalities of making behavior more "health friendly" must concern us with respect to many of the subjects covered in this article.

3.3.1. Human Immune-Deficiency Virus, Drugs

HIV infection and AIDS illustrate other problems that will continue to be of concern in the future. With AIDS comes hepatitis B infection, spread by the same methods, and of course other sexually transmitted disease, both new and old. They are all increasing.

Immunization is available for some (e.g. hepatitis B) but not for others like syphilis or gonorrhea. The ill health produced by the other venereal diseases, which are increasing, cannot be ignored.

However, another aspect of the AIDS pandemic is intravenous drug use. The patterns of drug use, especially amongst youth worldwide, are frightening. The least alarming are the spread of illnesses such as hepatitis B and AIDS. Much more alarming even than the deaths that arise from the effects of addiction and withdrawal is the horrible crime that accompanies the search for the money for drugs and the violence it spawns that affects millions of innocent homes and people. The crime and violence that accompany the activities of those who grow, refine, packet, transport, and market drugs are as bad. The lucrative nature of this industry means that it (and also prostitution) is used for making money for and by terrorists, among other nefarious actors. Although some may argue that the dividing line between freedom fighters and terrorists is a fine one, true terrorism exists with the loss of life and health that it produces. Thus the matter of causes and effects of AIDS has ramifications far beyond the disease itself. The interconnections between crime and violence, ill health, black money, and so on are a huge tangled web that can defy the best efforts to unravel it. In the future, attempts to interrupt the links between these purveyors of ill health must be made with increasing vigor.

3.4. Environments

There may be peculiar and particular environments that develop in which bacteria might grow and then cause disease in the humans in that environment. Legionnaire's disease is an example of this. The proliferation of climate control systems in buildings and their necessary water storage systems create places where bacteria can multiply without being leached out. Bacteria that in the usual more natural environment cannot multiply to the extent of causing disease, do so now; the very closed nature of the surroundings mean that once they get out, more humans are affected than were affected when more open environments were in use for work or play.

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Biographical Sketch

Professor A.P.R.Aluwihare, a national of Sri Lanka, is now professor of surgery at the University of Peradeniya. He was born in 1939, married in 1966, and has four children. He attended school at Trinity

College in Kandy, and took his basic medical degree with distinction at Kings College, Cambridge, and the London Hospital (U.K.) (1963). His postgraduate work was done in Sri Lanka and England with the FRCS attained in 1966, and the M.Chir.(Cantab) in 1970 at the Royal College of Surgeons of London and St. Marks Hospital. He joined the University of Peradeniya, Kandy, in 1971. He was at one time Vice Chancellor of the University (1988/1989), Chairman of the University Grants Commission of Sri Lanka (1989–1993), member of the Human Rights Commission of Sri Lanka (1997–2000), and member of the Regional and Global Advisory Committee of Health Research of the WHO (1992–2000). He is a Fellow of the National Academy of Sciences of Sri Lanka.

Professor Aluwihare has written widely on electron microscopy, surgical, community, and human rights. Particularly interesting is the interaction between surgical matters, new technologies, development, and health in general. He has traveled widely in connection with university and health matters, examining, delivering prestigious lectures, and participating in decision-making committees, in many countries in the East and West (including a Hunterian Lecture on a new operation for Imperforate Anus at the Royal College of Surgeons in London). The Sri Lanka Government honored him in 1998 with the Title Vidya Jothi for outstanding contributions to science.