Infectious Diseases: Research and Treatment

PERSPECTIVE

Fighting the Battle Against Infectious Diseases: Contributions of Selected Social Science Disciplines

Kai-Lit Phua

School of Medicine and Health Sciences, Monash University Sunway Campus, Selangor, Malaysia.
Email: phuakl@hotmail.com

Abstract: In spite of the "epidemiological transition", infectious diseases remain as major threats to the health and well-being of human populations. Social factors are related to the emergence and spread of infectious diseases. However, except for diseases which are more obviously social in their origin and patterns of spread (e.g. sexually-transmitted and blood-borne infections such as HIV/AIDS), social scientists are less prominent in the battle against infectious diseases vis-à-vis their counterparts from the natural sciences. Sociologists and other social scientists from disciplines such as history, political science, economics, anthropology and mass communications can contribute significantly to the battle against infectious disease outbreaks.

Keywords: infectious diseases, epidemics, social sciences

Infectious Diseases: Research and Treatment 2009:2 5–9

This article is available from http://www.la-press.com.

Introduction

In spite of the "epidemiological transition" or change in the pattern of diseases such that chronic and degenerative diseases have become more important as major causes of morbidity, disability and mortality in wealthier countries, infectious diseases remain as major threats to the health and well-being of human populations. Recent examples include SARS, avian influenza (H5N1) and swine flu (H1N1). There is also the ongoing HIV/AIDS epidemic which continues to infect and kill large numbers of people worldwide.

Social factors are related to the emergence and spread of infectious diseases. However, except for diseases which are more obviously social in their origin and patterns of spread (e.g. sexually-transmitted and blood-borne infections such as HIV/AIDS), social scientists are less prominent in the battle against infectious diseases vis-à-vis their counterparts from the natural sciences. Sociologists and other social scientists can contribute a lot more in the prevention and control of infectious diseases. In this paper, I present specific examples of how social scientists from disciplines such as history, political science, economics, sociology, anthropology and mass communications can contribute to the battle against infectious disease outbreaks.*

Specific Contributions from Selected Social Science Disciplines

History

Historians deal with past events and they also attempt to analyze these events in terms of what led to their occurrence and how these events can continue to affect the present. Seminal works by medical historians include "Plagues and Peoples" by William McNeill[1] and "Rats, Lice and History" by Hans Zinsser.[2] Much can be learned from past and present outbreaks of infectious diseases such as the Black Death (bubonic plague) and HIV/AIDS. Studies carried out by historians of the Black Death indicate that during outbreaks of a deadly new infectious disease with unknown etiology, vulnerable social groups such as religious and ethnic minorities (e.g. Jews) can be made the scapegoat and be subjected to severe discrimination and persecution by frightened members of majority groups.[3]

More recently, the appearance of HIV/AIDS was regarded by some as divine punishment for "sexual deviance", i.e. homosexuality. As documented in the book "And the Band Played On", the U.S. federal government was slow to take action against the new infectious disease when it first appeared in the homosexual community of America because of the disapproval of homosexuality on the part of certain influential politicians.[4] This delay allowed the epidemic to spread throughout the rest of society with serious, ongoing consequences in terms of morbidity and mortality.

More recently, in South Africa, HIV/AIDS prevalence has increased to an alarming degree partly because the then President subscribed to the belief that HIV is not the pathogen responsible for the development of AIDS.[5] Therefore, without political support, the South African public health authorities' efforts were hampered.

Thus, lessons can be learned by studying the history of serious infectious disease outbreaks, why public health authorities were slow to react and thus, how these diseases got out of hand.

Historical knowledge can also help us to take note that so-called "tropical diseases" such as malaria and yellow fever once were serious threats to the health of Southern European cities and American seaport cities such as Philadelphia.[6] Malaria is, of course, a continuing cause of significant morbidity and heavy mortality in certain regions of the world today.

Sociology and anthropology

Sociology and anthropology are "sister disciplines". They deal with how humans behave in social groups and how these are shaped by social institutions and socially-derived cultural norms, values and beliefs (including religious beliefs that impact upon the health-related behavior of individuals).

One of the strengths of sociology is its focus on how social change can have differential impact on people categorized according to variables such as ethnicity, class (as measured by income and occupation), gender, age, geographical location, educational attainment, marital status, sexual orientation, disability status and religiosity.[7]

*This author has left out social sciences such as psychology and education because of his lack of familiarity with these disciplines.

Thus, sociologists can study if infectious disease outbreaks have different impact on different social groups, and also attempt to find out why this is so. The impact includes both short term and long term effects.

In the case of HIV/AIDS, research has shown the following:

Higher prevalence among certain ethnic groups, e.g. blacks vis-à-vis whites in the USA (partly because of high rates of drug abuse through injections and needle-sharing among the former).

Higher risk for the poor, the young and the less well-educated.

Higher prevalence in nations such as Botswana and South Africa.[8]

Both sociologists and anthropologists can help to identify social norms and values as well as cultural practices that inadvertently help to facilitate the spread of infectious diseases such as HIV/AIDS (and co-morbid conditions such as tuberculosis), e.g. the view that it is acceptable for males to indulge in sexual relations with female commercial sex workers; it is acceptable to have multiple sex partners; economic opportunities are limited for single mothers with children in a particular society; large numbers of male migrant workers are present in the society; lack of strong religious sanction against premarital and extramarital sex; disapproval of religious authorities against sex education in schools and against the distribution of condoms; etc.

The anthropologist-cum-clinician Paul Farmer has shown how training in the social sciences can help one to understand better the sociocultural determinants of health so as to redesign and come up with more effective medical and public health intervention programs in developing countries such as Haiti and Rwanda. Farmer understands that lack of social justice is linked to ill health (including the presence of infectious diseases) among the lower classes in Third World societies.[9]

Political science

Political science is the social science discipline that deals with questions of power, authority, legitimacy and the struggle for control of and access to resources by different interest groups. One of its sub-disciplines – International Relations – deals with relations between larger entities such as individual nations.

The discipline – including other sub-disciplines such as public policy analysis and public administration – can contribute to the battle against infectious diseases by studying the impact of governance (through the public health system and public health laws and regulations) on the prevention of outbreaks and on the formulation and implementation of quick and effective interventions to end infectious disease outbreaks that spread quickly because of globalization. Thus, poor public health governance in China as indicated by the attempt by its public authorities to downplay and even coverup the severity of the SARS outbreak allowed the disease to spread to other nations such as Singapore and Canada. In contrast, good public health governance in Singapore led to its quick containment and elimination as a threat to the health of the people of the small island state.[10]

Political scientists can study if lack of centralized authority or poor co-ordination (or even bureaucratic turf battles) between different government agencies is a factor in delayed or poor control of infectious disease outbreaks. Lack of centralized authority would translate into lack of proper allocation of power/authority/responsibility and confusion in terms of public sector responses to the outbreak.

Political scientists can also study how public safety and public order was preserved (or undermined) during the social chaos arising from the outbreak of a previously unknown infectious disease.

International governance issues such as the role played by multilateral organizations such as the World Health Organization and government-to-government cooperation (including technical cooperation provided by agencies such as the Centers for Disease Control in Atlanta, USA to foreign health ministries) can also be studied. In an increasingly globalized world, infectious gastro-intestinal disease outbreaks in different physical locations – caused by contaminated food products exported from a single source to other places nationwide or worldwide – can also be a real cause for concern.

Economics

Economics as a social science discipline deals with issues related to efficient allocation of scarce resources so as to maximize output and consumer utility.

It also deals with the role of the market and the role of the government in the production, distribution, consumption and regulation of goods and services.

Nations that are poor (as measured by the size of the Gross National Product in relation to the size of the population, i.e. GNP per capita) tend to have poorly-developed public health infrastructure. They are likely to have inadequate sentinel systems to monitor infectious disease outbreaks (including zoonotic disease outbreaks). Economists, through their expertise in economic evaluation, can assist in helping the Ministry of Health to allocate scarce health resources in a more rational manner, e.g. showing evidence that spending more money on immunization against infectious diseases is more cost-effective than building another hospital.

Ex post facto economic analysis may also demonstrate that it is more cost-effective in the long run to be honest and not attempt to coverup or downplay the appearance or severity of a new infectious disease in an attempt to prevent a drop in tourist arrivals and other related negative economic effects.

Health economists have attempted to estimate the cost of epidemic disease outbreaks. An example is the attempt by researchers to estimate the cost of a recent dengue outbreak in Panama.[11] Studies such as these help to strengthen the case of public health practitioners who argue for higher allocations of funds by the authorities to the prevention and control of infectious diseases.

These infectious diseases can also include the so-called "neglected diseases" such as Chagas disease, filariasis, leishmaniasis, onchocerciasis, schistosomiasis, trachoma etc. Although these diseases may not result in quick death, economic evaluation can show that they are costly because they can cause life-long impairment and severe disability and thus result in heavy productivity losses and contribute significantly to the burden of disease in affected countries.

Knowledge of economics can also help public health personnel to understand how proponents of globalization through free trade such as the World Trade Organization can inadvertently facilitate the spread of certain infectious diseases by disallowing "barriers to free trade" such as strict national public health laws regulating the quality of imported food and beverage, animal feed, and diseases associated with foreign plants and animals (e.g. the Agreement on Sanitary and Phytosanitary Measures or SPS).[12]

Mass communications

Mass communications deals with issues and challenges associated with the transmission of information to large numbers of people. Experts in mass communications can also contribute to the battle against infectious disease outbreaks. It is clear that it is absolutely essential to have a properly functioning system of mass communications to disseminate information – including warnings and other public advisories – during an outbreak.[13] This is necessary to prevent panic, provide accurate and essential information and to promote appropriate care-seeking (i.e. how to reduce the risk of contracting the disease, when to seek medical help, where to go to seek help, what to do in terms of self-care and to reduce the chances of spreading the disease to others). Such a system will help to prevent the problem of the "worried well" going to medical facilities or the "bunching" of patients at the nearest or most conveniently located medical facilities and prevent health care workers at such facilities from being overwhelmed.

An effective system of mass communications will also help to coordinate the work of essential personnel such as health care workers (including ambulance drivers), the police and so on.

In the midst or even the aftermath of an infectious disease outbreak or a natural disaster (such as the Indian Ocean tsunami of 2004),[14] people with malicious or criminal intentions may attempt to spread false alerts and warnings to already traumatized victims. A properly functioning system of mass communications would help to counteract this.

Additional Questions that can be Investigated by Social Scientists from the Various Disciplines

It has been argued that it is also necessary for social scientists to investigate the *aftermath* of infectious disease outbreaks.[15] For example, what are the health effects (physical and mental) on those who were infected but survived? How were their family members affected? Did the outbreak result in negative short term and long term effects (non-health effects) as measured by reduced household income, employment problems, financial loss, indebtedness, family discord,

stigmatization, outmigration, population decline? Was there any rebound (rebuilding and recovery) from the disaster? Did strong community bonds (social capital) help in the recovery?

Knowledge gained from investigation of these additional questions by social scientists can be used to develop better programs to help individuals, families and communities to better cope with the aftermath of infectious disease outbreaks.

Conclusion

In the battle against infectious diseases, the social dimension should not be neglected. From the discussion above, it can be seen that the various social sciences can not only be used to carry out research to accumulate knowledge that will be helpful in the battle against infectious disease outbreaks, but also in recovery from these outbreaks.

Disclosures

No funding was required for the research and writing of this paper. The author declares that there is no financial conflict of interest in the writing of this paper.

References

1. McNeill WH. Plagues and peoples. Garden City, New York: Anchor Press, 1976.
2. Zinsser H. Rats, lice and history. New York: Little, Brown and Co., 1935.
3. Aberth J. The Black Death: the great mortality of 1348–1350. New York: Bedford/St. Martin's, 2005.
4. Shilts R. And the band played on: politics, people, and the AIDS epidemic. New York: St. Martin's Press, 1987.
5. Asser M. Analysis: Mbeki and the Aids skeptics. BBC News. April 20, 2000. http://news.bbc.co.uk/2/hi/africa/720995.stm Accessed on May 27, 2009.
6. Powell JH. Bring out your dead: the Great Plague of yellow fever in Philadelphia in 1793. Philadelphia: University of Pennsylvania Press, 1949.
7. Levy BS, Sidel VW, eds. Social injustice and public health. New York: Oxford University Press, 2006.
8. UNAIDS. 2008 report on the global AIDS epidemic. www.unaids.org/en/HIV_data/KnowledgeCentre/HIVData/GlobalReport/2008/2008_Global_report.asp Accessed on March 10, 2009.
9. Kidder T. Mountains beyond mountains: the quest of Dr. Paul Farmer, a man who would cure the world. New York: Random House, 2004.
10. Ooi GL, Phua KH. SARS in Singapore – challenges of a global threat to local institutions. *Natural Hazards*. 2008;48(3):317–27.
11. Armien B, Suaya JA, Quiroz E, et al. Clinical characteristics and national economic cost of the 2005 dengue epidemic in Panama. *Am J Trop Med Hyg*. 2008;79(3):364–71.
12. World Trade Organization and World Health Organization. WTO agreements and public health. Geneva: WTO and WHO, 2002.
13. Drabek TE. The social dimensions of disaster. Emmitsburg: EMI, FEMA, 1996.
14. McGeown K. Criminals target tsunami victims. BBC News Online. January 4, 2005. http://www.news.bbc.co.uk/2/hi/asia-pacific/4145591.stm Accessed on May 27, 2009.
15. Phua KL, Lee LK. Meeting the challenge of epidemic disease outbreaks: an agenda for research. *J Public Health Policy*. 2005 Apr;26(1):122–32.