GUEST EDITORIAL

PUBLIC HEALTH IN THE NEW MILLENNIUM.: CHALLENGES AND RESPONSES

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INTRODUCTION

Winslow in 1920 has defined Public Health as science and art of preventing disease, prolonging the life and promoting physical health and efficiency through organised community efforts for the sanitation of the environment, the control of community infections, the education of individual in principles of personal hygiene, the organisation of medical and nursing services for the early diagnosis and preventive treatment of disease, and the development of the social machinery which will ensure to every individual in the community a standard of living adequate for the maintenance of health. This definition is still valid and use widely around the world¹. It embraces all aspects of human development and stressing the importance of prevention and health promotion. Naisbett in his book *Megatrends* 1984, suggest that there are 10 major transformations taking place in USA. He described these changes² as :

1. industrial to information society – there will be a change from economy based on industrial products to an economy based on the knowledge creation and distribution of information.
2. high technology, high touch
3. national to global economy – direct effect of globalisation
4. shorter to long term – more efforts done to restructure the society for long term benefits
5. centralization to decentralization – more independent small organisations will be developed and run various services.
6. institutional help to self-help – more self care and self control of own health (empowerment)
7. representation to participation – sharing information and resources.
8. hierarchy to network – more informal relationship between various stakeholders.
9. North to South - migration and shift of development from north to south.
10. either/or to multiple choices – society have multiple options .

Even though the trends were observed in USA, the similar changes has been shown in many countries and many parts of the world. These megatrends have posed great challenges in all aspects of our life including public health. McKeown hypothesis indicated that previous trends showed that the dramatic increase in the population is accounted for by reduction in death rate especially in childhood. Most of the deaths in the past were to a large extent attributable to infections and malnutrition. The reduction of exposure to infections such as tuberculosis, chest infection, diarrhoeal diseases and nutritional deficiency has reduced the mortality rates significantly. Efforts such as provision of clean water supply and higher standard of hygiene and housing has been successfully in bringing up the health status of the population. Immunization and therapeutic measures came into the picture only at the beginning of 20th century and are responsible for a small reduction of mortality rate of about 2%³.

PUBLIC HEALTH TRENDS

Public health has been the major contributor to the increase in health status in 19th century, however its importance has been eroded because of the discovery of vaccination and therapeutic especially antibiotic. Curative and personal health care has become very popular and acceptable core values in most health care system in the world. However, the system has failed to provide equitable, accessible, cost-effective and relevant care to the population. Public health is reincarnated with the new dimension to solve the challenges of the new millennium³.

If the old public health is concerned with conditions or diseases related mainly to consequences of unhealthy settlements, safety of food, air and water, infections, toxic and traumatic causes of death esp. among young and poverty then the new public health is giving more attention to problems related to increasing longevity, overpopulation, industrialisation, inequities in health, environmental degradation and ecological imbalance³. The need for the new public health intervention is in response to various reports about inequalities of services and health outcomes among different sectors of the population. Black report in UK for example has indicated major differences in environmental factors, personal risk factors and access / use of preventive & treatment services

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among the population. The main reason for inequalities was poverty and material deprivation and the people's response accords with Maslow's hierarchy of needs.

As providers of health care, the need to develop a good quality team-based primary medical care is of great demand, however the values and the importance of self-care/self-help has been neglected. The health professional has been too successful in medicalization of life that it has undermine the role of individuals in the process of improving and maintaining health. Unfortunately, "inverse care law" exist everywhere, of which those most in need of services are those who are less likely to receive them. In some countries, this group of people will suffer from disability or even death without mercy.

CHALLENGES OF PUBLIC HEALTH

The challenges or issues in public health in this century is inherited from the 20th century. The intensity of challenges differs between countries depending on the stage of development, their economy and political stability. In general, most countries confronted with issues of changing lifestyles, increasing consumer awareness and right, demographic transition, environmental degradation/pollution, maldistribution of services, the explosion in knowledge and technology, increasing health care cost and increasing private sector growth in health care.

Demographic transition

With increase in life expectancy and better quality of life, many people survives to their old age. This will lead to the ageing society. This may increased burden of social security and health care including physician visits, hospital care, nursing homes and pension. Ageing and dynamic increases in stressful life events such as divorce, family breakdown, loss of job and financial security, values disintegration has become threat and challenge to mental health of the population in this millenium. It is expected that more people will suffer from stress-related diseases such as suicide, depression and psychosomatic illnesses.

Health of young people

A part from problems related to ageing, lifestyles changes and environmental exposures, expose the youth in this millenium to higher risk of disease that include accidents, alcohol abuse, drug dependence, mental disorders, suicide, disabilities, unwanted pregnancy and smoking addiction. Most of these conditions are related to lack of parental and society guidance, family disruption and dissolution, "too much independent or liberal" lifestyles and social and values disintegration.

Changing pattern of diseases

In general, the problems and diseases in this millenium will be very much related to rapid modernisation and urbanisation, changing behavior due to sedentary living, excessive or ill-balanced diet, smoking and environmental deterioration. Trends from 4 countries in Asia (Japan, Singapore, Thailand and Philippine) showed that the death rate caused by infectious and parasitic diseases has declined whereas the death rate due to malignant neoplasm has increased⁴. In case of communicable diseases, the challenges that we are facing are the change in genetics of the infectious agents, their hosts and change in environmental factors. The interaction between human and potential vectors will be aggravated by the destruction of the environment, leading to massive outbreak with high casualties. Recent epidemic of Nipah virus encephalitis in Malaysia is one of the good example⁵. However old infections such as tuberculosis, malaria may create bigger problem in the future if steps to contain the spread is not taken seriously.

Non-communicable diseases (NCDs) increase with modernisation and are mostly related to lifestyles diseases, redundant this include ischaemic heart disease (IHD), cancer of the lung, breast, pancreas, colon and rectum, cirrhosis of liver, chronic obstructive Airway Disease (COAD), NIDDM, injury following MVA, peptic ulcer and suicide. However in most of developed countries, the rates of IHD has been declining in both sexes since 1970s⁶. What are the factors responsible for the decline? In fact, most of major risk factors involved in development of IHD has been identified and many experimental studies has been conducted to evaluate the effectiveness of intervention to alleviate these risk factors. Some of these experiment (RCT) has been metaanalysed recently⁷. These studies assessed the effectiveness of multiple risk factors intervention in reducing the risk factors, morbidity and mortality. Systematic review of literature using medline 1966-1995 was conducted and 14 RCTs has been selected and metaanalysed. The criteria of selection includes multiple intervention trial such as smoking cessation, exercise, dietary advice, weight control, antihypertensive drug, cholesterol lowering agents and minimum follow-up of 6 months. It was found that there was reduction in blood pressure, smoking rate and blood cholesterol following intervention, however the effect on mortality was small and not significant. Studies also found that intervention by individual and family counseling were more effective than mass health education and law enforcement were effective but of limited use. However in most of the studies, the constraints were short duration follow-up and poor controlled on compliance. In conclusion, most of these studies failed to obtain significant results, more studies

have to be conducted with better control on the compliance of intervention and with longer period of follow-up.

In general, incidence of cancer is still increasing in both developing and developed countries especially lung cancer. Even though some of the risk factors of cancers are common with those of other NCDs such as IHD and stroke, the trend of cancer does not follow the trend of CVS diseases. In fact, the number of cases will be almost double in 2015 as compared to 1985⁸.

Environmental health

Improvement in the standard of living for the current poor of the world will increase global demand for food, water, energy, housing, sanitation and waste disposal. Currently, an estimated of 1.2 billion people lack portable water and in 2025, 3 billion people will suffer water shortages. In terms of food supply, FAO reported that 64 of 105 developing countries, the population has been growing faster than food supplies. With the soil exhaustion and degradation of arable land for agriculture, the food supplies will be threatened in the future⁹.

Over 3 billion hectares of forests has been lost to development and each year 16 million hectares are cut, bulldozed or burned. Human activities causing many thousands of plants and animal species of which some with medicinal values into extinction. Contaminated and unclean water along with poor sanitation responsible for over 12 million deaths each year, mostly in developing countries. Air pollution also kills nearly 3 million or more per year. The industrialisation produced pollutants and toxic substances such as heavy metals. Illnesses associated with heavy metals are increasing, such as cancer due to arsenic and cadmium, genetic abnormalities associated with mercury etc. Burning of fossil fuels and forests produced greenhouse gases. These will contribute to increase the global temperature by 0.5⁰ Celsius (1.0-3.5⁰ C) by 2100. It is predicted that the increase in temperature will increase global sea levels, drought and flood (El-Nino). The adverse health effects will include the increase in incidence of water-borne and vector-borne diseases. More pollution and habitat destruction occurs especially with the expansion of cities, in many areas haze will occupy the atmosphere causing respiratory distress to the inhabitants.

The environmental impact is directly related to size of the population, level of affluence and level of technology. It reflects the need for balance between the number of people and the environment. How many people that earth can support before it become overcrowded and its resources eventually depleted of its "carrying capacity"? At present the population grows at 1 billion every 13 years and based on Malthus theory 1798, it has been predicted

that the population growth inevitably would outstrip the food and water supply at some point, and that nature will take its course to stabilized it through war, natural catastrophe, famine etc. Before that happened, the early sign of depletion and disruption of natural biophysical processes could be identified and this is called "environmental distress syndrome". There are 4 symptoms associated with this syndrome.

- i. Reemerging of infectious diseases especially water-borne and zoonotic diseases.
- ii. Loss of biodiversity (lack of medicinal plants)
- iii. The decline in pollinators such as bees, birds, bats, butterflies and beetles.
- iv. Proliferation of harmful algae along the coastline.

Information and communication era

The other trend as mentioned in Naisbett's megatrend was transformation from industrialisation era to information era³. The availability of abundance and meaningful information and technologies will increased the ability of individuals and society to make informed choices. The use of internet and smart card (networking) has change our ways of doing things and making decision on health choices. That includes choices on health information, health products, therapeutics, consultation etc. Even though there was a fear that the "human touch" of health care system will be lost due to the information technology but with good knowledge and experience, the system will become more efficient, focus on wellness and increase people empowerment of their own health.

Naisbetts in his Megatrend shows that knowledge-based technology will be the trend in the coming years. In fact, the technology produced increases the application in prevention, diagnosis, therapy and rehabilitation of the disease. One example is genomic research, the data bases on human genome would be important in early detection of disease and the treatment or therapeutic or health intervention given could be tailored to the genetic predisposition of the disease. Other technology development will be on cybernatic and nanotechnology. Interaction between man and machine will be much closer and its application in occupational and environmental health will prevent unnecessary death due to intense exposures among the population and workers. However, issues of ethics need to be explored to prevent abuse and practices that are against our universal values and religion. The technology developed should benefit all population, it should not widened the gap between the rich and the poor. Quality of care should be based on humanity and health needs,

rather than the novelty and sophistication of the technology used.

GLOBALISATION

This is the process in which nations increase their interrelatedness and interdependence¹⁰. The process which is started as bilateral and multilateral trade between countries, has grown into global partners in various aspect of life. The world has become a global village of which people can interact without virtual barriers and interference. These will definitely threatened nation-state, sovereignty, culture and well-being of the people. With close relationship between countries, there will be coordinated global cooperation and exchange information on monitoring and treatment of emerging infections and new disease, rising transboundary pollution of the environment, drug resistant and monitoring and surveillance of infectious disease. There will be a forum to build consensus on controversial issues especially on human rights, women status etc However, due to disparity between countries, poor countries will face widespread drug resistance, lack of resources and poverty to fight against malaria and tuberculosis etc. There will be issues arising from lack in human resources, health financing and ethics, issues in biotechnology including cloning, gene manipulation and patenting.

Globalisation will also increase disease burden of the vulnerable groups due to deepening poverty aggravated by unemployment, social exclusion and insecurity, increase people movement (legal and illegal) and communication, rapid movement of goods and services (contamination of food stuff, spread of localised outbreak, transfer of vectors), the movement of indigenous medical practitioners, the movement of patients seeking better treatment, increase privatisation of health care, deny the right of the poor, health inequalities due to financing mechanism, concentration of health facilities and practitioners in urban areas etc and social exclusion and marginalisation among unemployed in urban areas. Globalisation will also attract many new players, interested stakeholders to be involved in International Health such as NGOs, development banks, bilateral agencies, private sectors and foundations, pharmaceutical and insurance company. In international trade, health has been considered as a commodity that can be sold, traded or purchased just like any goods. These will influence the national policies on health in one way or other.

The worse scenario of globalisation will be interference of sociopolitical orders of the countries by external forces such as mega NGOs, multinational companies and economic superpowers. War will destroy all including human life, health infrastructures, food security, environment and

human relationship and interaction. Recent political instability in many part of the world, not only causing death of the people but disruption of the health system of the country. It will take a long time to rebuilt and established the system after the war. War causes migration of the people within the border and cross-borders. The refugees will not only suffer from inadequate basic needs, but they have always been denied their right to health care.

RESPONSES TO PUBLIC HEALTH CHALLENGES

Public health requires different approaches in response to various challenges mentioned earlier. Eventhough most of the responses has been inherited from the last century, the commitment and willingness to perform the roles has to be strengthened. This will include efforts for sustainable development, development of the information society, healthy setting, healthy environment and health promotion. Emphasis should be given to development of healthy adolescence, women and ageing population, disease/ risk factors surveillance, healthy health care reform and financing, healthy policies, smart partnership and involvement's by the community and healthy foods

Comprehensive approach to health

Health is a prerequisite of development. It is always linked to the quality of human capital and the welfare of the community. High burden of disease always results in low average labor productivity. Health is also a results of development. Sustainable development in nutrition, education, income, clean water, sanitation will increase the health status of the population. Political stability is linked to social justice and equity in health. In response to the challenges, all determinant of health should be considered holistically in any program development. This includes genetic endowment because it causes residual mortality and morbidity, environmental factors such as introduction of toxic chemicals / hazards, nutritional factors especially among disadvantaged groups, occupational factors especially the right of the workers and lifestyles especially avoidable health risks associated with chronic NCD/CD.

Vision for health

To response to the various challenges in health, Malaysia has come up with its vision statements for health. This initiative is to make its people healthy through integrated and comprehensive services. The statement read as Malaysia is to be a nation of healthy individuals, families and communities, through a health system that is equitable, affordable, efficient, technologically appropriate,

environmentally adaptable and consumer friendly with emphasis on quality, innovation, health promotion and respect for human dignity and which promotes individuals responsibility and community participation towards an enhanced quality of life¹¹.

The vision has incorporated the New Public Health Strategy that bring together environmental changes and personal preventive measures, using appropriate intervention and recognised the importance of social aspect of health problems which are caused by lifestyles and presence of healthy public health policies to support the promotion of health. With the new public health approach and greater emphasis on wellness, new indicators of measuring health status should be discovered. The used of DALYs (Disability adjusted life year) and Quality of life indicators are probably more appropriate to show the health status of the country and the effectiveness of public health program in the future¹².

Health promotion

Health promotion has been selected by WHO as a main strategy to achieve health for all. It is a process of enabling people to increase control over and improve their health. The health promotion should be targeted to population at their setting either at home, school, work place or recreational places. It will be directed toward causes of ill-health and uses multiple approaches including personal counseling, group learning session and mass media. ICT will be used as an enabler to empower people to take full responsibility of their own health. While the public participation is critical for the success of this initiatives, the health professional should play leading roles in facilitating the process of learning and empowerment.

Ottawa Charter on Health Promotion 1986 initiated by WHO in 1986, outlined the objectives and common strategies for the countries to develop¹³. It urges member countries to build public policies which support health, create supportive living and working environments, strengthened community action, developed personal skill to make healthy choices and reorientation of health services toward "unity for health". The health promotion is also a tool to encourage people to adopt positive attitude toward health and practice healthy lifestyles.

Healthy lifestyles

Lifestyles that are recognised as protective to development of illnesses should be promoted and popularised in the population. The society should be reminded about the illnesses so that they are aware of the dangers of lifestyles disease and take necessary preventive measures. In Malaysia, National Healthy Lifestyles Program (NHLP) has

been running for many years¹⁴. Every year a new theme is selected and launched. They were categorised into two phases, of which awareness of the main health problems and diseases as the main concern in phase one, whereas change in behavior is in the second phase. In phase one, the theme was cardiovascular 1991, AIDS 1992, food hygiene 1993, promotion of child health 1994, cancer 1995 and diabetes 1996. In phase two, the topics are healthy eating 1997, exercise and fitness 1998, safety at home, office and on the road 1999, mental health 2000, healthy family 2001 and healthy environment 2002.

Healthy adolescence

Healthy children come from the healthy family and healthy society¹⁵. Adolescence and youth in this century need proper guidance from these two institutions. Healthy family demand equal status between men and women, husband and wife, sharing the responsibilities to the best qualities that they can. Effort should be made to strengthen the family ties and bonding and the parent should provide guidance in every aspect of life including sex education. Social ills among adolescence and youth nowadays indirectly reflect the failure of the family and the society in the upbringing.

Healthy ageing

Elderly people in this millenium requires more active lifestyles¹⁶. They should be involved in community activities, have a sense of identity and economic security. They should take more interest in self-care and improve their quality of life. To keep them occupied, they should engaged in diverse activities including part-time job, voluntary work, exercise club and play bigger roles in community development. Health service providers should also help them in assessing their health status and provide them with knowledge and skill so that they will be able to look after themselves.

Strengthening risk factors and disease surveillance

Globalisation will increased the cooperation of different countries in controlling communicable and non-communicable disease. The spread of diseases can be contained through strong national disease surveillance and control program, global networks of centres, organisation and individuals to monitor diseases, rapid information exchange through electronic links to guide policies, international colloboration, trade and travel and effective national and international preparedness and rapid response to contain epidemics of international importance.

Healthy environment

All countries should adopt a policy of sustainable development to get a healthier world for people and wildlife¹⁶. Action should be taken based on the Rio Declaration on environment and development adopted at the 1992 United Nation Conference (Earth Summit – Agenda 21). Based on this declaration, each country should preserve water catchment areas so that they could provide enough clean water to the population. They should make an effort to prevent air pollution, eliminate the use of POPs (Persistently Organic Pollutants –pesticide residues, industrial chemicals & hazardous product of combustion), saving forests, safeguarding biodiversity. The new global treaty aims to rid the world of its most hazardous chemicals (POPs) is set to be signed on May 22 by more than 100 countries in Stockholm, Sweden. Last but not least, stabilizing the population would help reduce the destructive impact to the environment in the long run.

Healthy settings

One of the strategy to increase wellness of the population, is by developing healthy places for people daily living such as healthy home, healthy workplace, healthy village, healthy market, healthy school, healthy campus, healthy district, healthy cities etc³. Healthy city is one of the important new public health initiatives. As more people lives in cities and as cities grows bigger and bigger, more public health problems emerged. In healthy city initiative, the main strategies are provision of basic amenities, adoption of city plans for health (local setting approach), environmental action to support lifestyles change, promotion of community wellness, monitoring & research of public health problems in cities, getting political commitment and community participation, providing mutual support, collaboration and exchange of ideas and materials.

Healthy policies

New public health also demanded the health providers to develop healthy policies to support promotion of wellness of the population and protection from risk factors. An effort should be made to integrate functions of various authorities related with people's health through common policies. Policies that are contradictory should be discarded or amended such as advertisement of tobacco and tobacco product.

Health care reform and health financing

Health system need constant changes and reforms¹⁷. Each country should evaluate their economy and ability to reform. With globalisation and market economy, the decentralisation of responsibilities in

health has to be done. This will include greater participation of private sector in provision of health care through corporatisation or privatisation and greater integration in health between specialities in medical care (clinical and public health), between medical and non-medical health-related specialities, between levels of care (primary, secondary and tertiary) and between types of care (curative, preventive and promotive care). Each countries should choose the best model of health financing based on their economy, people ability to pay so that it prevents the cost burden falling on individuals, ability to control cost without unacceptable rationing and achieve equity in health care delivery.

Healthy national and international partnership

To response well to the effect of globalisation, each country should recognise the local health situation and response to changes. Partnership should be generated between society and government, and between National and international organisations dealing with health directly or indirectly. Partnership should benefit all parties on win-win situation with appropriate sharing and mutual support. In 1977, the World Health Assembly decided that the major social goal of governments and WHO should be the attainment by all people of the world by the year 2000 (Health for All 2000) of a level of health that would permit them to lead a socially and economically productive life. In 1981, the Assembly unanimously adopted a Global Strategy for Health for All by the Year 2000¹⁸. This was the birth of the "Health for All" movement that promote self-care, intersectoral collaboration and integration of medical care with others (education, recreation, environmental & social welfare), integrating the promotion of good health with preventive medicine, treatment and rehabilitation, meeting the needs of underserved groups and community participation.

In 1995, World Health Assembly produce a consensus statements on "reorientation of medical education and medical practice for HFA"¹⁹. The efforts are expected to reduce the gap between medicine and public health and all parties, will collaborate or integrate at primary care level. This will create the individual and community health care based on people's need. The new funtions of public health workforce should be redefined to suit the new responsibilities and challenges. In general, they are expected to safeguard the health or well-beings of the people. Their functions can be categorised into administration, diagnosis/problem identification, management/intervention and research and program evaluation²⁰. In administration, they are expected to manage health care system and services, regulating and enforcing law, human resource development/ training and development of policies and planning of services. In diagnosis/problem identification, they are expected to do health monitoring and situational

analysis, epidemiological surveillance of diseases, quality assurance and improvement and quality of life measurement. In management and intervention, they should do health promotion activities, social participation and empowerment, disease prevention and control activities, and in research and program evaluation, they should conduct and use the research findings, as well as disseminating findings.

CONCLUSION

In conclusion, public health in the new millenium will face greater challenges especially directly from globalisation. New challenges will required new responses. The quest for a relevant, quality, cost-effective and equity in health care should be continued and strengthened by using the most appropriate and effective health promotion strategies and health care reform. New generation of health care providers especially public health professionals should play effective leadership roles, communicator, health provider, decision maker and health manager at the place or organisation they work with, to face ever changing challenges in the future.

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