Editorial

The Social Determinants of Health in the Age of Genomics

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One of the most basic principles of public health is providing benefit to everyone in a community, encompassed in the idea of “health for all” and reflected in the Vision of the Asia Pacific Academic Consortium for Public Health (APACPH) “to achieve the highest possible level of health of all the people of the nations of the Asia Pacific region.” This implies that health is for all people, not just those living in the wealthiest countries. This commitment goes back to the origins of APACPH. In the first issue of the Asia Pacific Journal of Public Health, Prof Bruce Armstrong wrote of the importance of lifestyle factors in chronic disease and how the health outcomes were closely related to socioeconomic status.¹ At the 1987 meeting of APACPH just 4 years after its establishment, Professors John Hayakawa and Walter Patrick from the University of Hawaii, USA, discussed future directions in public health education and emphasized the importance promoting equality in health outcomes across all populations.

In 1960, the gap in life expectancy between the best and worst performing countries in our region was 32.3 years between Papua New Guinea (38.5 years) and Australia (70.8 years). Now the gap between these countries has narrowed, but only to 19.9 years leaving a large difference in health between neighbors only a few kilometers apart. The widest intercountry gap in life expectancy in our region is now between Japan (83.7 years) and Papua New Guinea (62.9 years). Improvement in child health has also been impressive; for example, Nepal from 141 deaths under 5 years per 1000 live births in 1990 down to 36 deaths in 2015. China has experienced declines from 54 to 11 deaths over 5 years per 1000 live births in 1990 down to 36 deaths in 2015. China has experienced declines from 54 to 11 deaths over 5 years per 1000 live births.² But, a lot more needs to be done as child deaths reflect suboptimal conditions for child development. There remain large differences in health indices between countries and within countries. In China, for example, infant mortality varies from 4 per 1000 live births in the richest province to 32 in the poorest area.³ These differences cannot be explained on the basis of biological differences or specific disease epidemics, but reflect socioeconomic differences.

In 2005, Sir Michael Marmot wrote “A burgeoning volume of research identifies social factors at the root of much of these inequalities in health. Social determinants are relevant to communicable and non-communicable disease alike.” He highlighted the difference in life expectancy of 34 years in Sierra Leone compared with 81.9 years in Japan.⁴ He used examples of within-country differences, where in Indonesia, the child mortality in the upper socioeconomic quintile was 34 compared with 110 in the lowest quintile.⁵ Australia has a life expectancy almost as high as Japan’s, but there is still a 10-year gap between the majority population and the minority Aboriginal groups and

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the gap is even wider in rural areas. In our region, the differences within countries are often greater than the differences between countries. In 2005, the World Health Organization established the Commission on Social Determinants of Health, which identified “three overarching principles to reduce health inequalities nationally and globally: improve daily living conditions; tackle the unequal distribution of power, money, and resources; and measure and understand the problem.” The Lancet editorial concluded “All societies must strive to close their gaps in health equity in a generation. Too much is at stake not to do so.” More recently, the World Federation of Public Health Associations has developed “The global charter for public health” describes the components of public health and health services and emphasizes the importance of social determinants. At the 2016 APACPH Conference held at Teikyo University, the keynote address was delivered by Prof Ichiro Kawachi who emphasized the same issues in an address “Evidence from social epidemiology for the creation of a healthy future”.

The need has been obvious for several decades. We have the technical tools to address most of the major causes of morbidity and mortality in region. Why can’t every country have the same health parameters as Japan and Australia? All citizens need access to good nutrition, education, clean water and environment, reasonable income, developmental opportunities, access to health services and specific health promotion. Is closing the gap in a generation possible? This question has 2 clear answers. If we continue as we are, there is no chance at all. But if there is a genuine desire to change and public health and poverty alleviation are prioritized then the disparities can be overcome. A national vision is needed to create a better and fairer world where people’s life chances and their health will no longer be blighted by the accident of where they happen to be born, the colour of their skin, or the lack of opportunities afforded to their parents, then the answer is: we could go a long way towards it.

Several recent trends in medicine threaten this vision and public health services in our region. Private pharmaceutical companies are continuously seeking greater profits. The example of the massive increases in the cost of the life-saving “Epipen” in the United States was too much even in the home of free enterprise. Adverse publicity led to the company reducing costs, but it still allows for very large profits. The cost of pharmaceuticals is always a major equity issue, as the rich can afford what they need while in a country like Indonesia only 32% of the estimated active tuberculosis cases get treatment. Asia has a history of successfully negotiating and bending patent requirements to make essential drugs, such as for HIV treatment, available for all. Before saying massive price rises could not happen to our region, see the article in this issue of the journal on the potential to raise pharmaceutical prices if the Trans Pacific Trade Partnership comes into force.

Personalized medicine has the potential to deliver gains in health and contribute to public health, but has the risk of diverting funds to individual services. This may simply increase health disparities rather than improving health for all. In medicine and public health, we are constantly reminded that this is the age of the genome. Major laboratory-based projects such as the “Moon Shot” are launched to try and conquer a disease with one costly treatment. In the long term (perhaps very long term), these projects may bring benefit, but in the short term, they may divert resources away from public health programs that bring immediate benefit to all and overcome health disparities. In the meantime, whole generations of children have increased likelihood of premature death and lose the opportunity of reaching their true potential due to deficiencies in their early nutrition and development.

APACPH and this journal want to promote more public health. We want equity in public health across our region and between the regions and socioeconomic quintiles of our countries. Give everyone an equal chance at a healthy life before we let genomics research and personalized health push public health aside. Some progress in decreasing disparities has been made, for example, in neonatal mortality in India. An analysis of demographic trends shows that 2 states of India, Kerala and Tamil Nadu, have been able to reduce disparities between socioeconomic status quintiles in low-income settings with sensible health and social policies. We need to promote public health and reduce disparities all across our region.
Before we close the year, we should also mention another important publication anniversary, an important article on ethics in the New England Journal of Medicine by Henry Beecher.\(^\text{18}\)

Across the Atlantic, Maurice Pappworth was similarly collecting examples of violations of the principles of ethical medical research.\(^\text{19,20}\) The work of these 2 activists led to a tightening of ethical requirements in research involving humans. Of course, medical ethics did not begin in the 1960s having been discussed for centuries, and the Helsinki Declaration was already in existence following the tragedy of World War II and the Nuremberg Trials.\(^\text{21}\) But, the work of Pappworth and Beecher ensured that ethical considerations were foremost in all medical research, a requirement that this journal continues to strictly enforce.

We also want to thank our reviewers. The journal is now one of the top regional public health journals in the world. We thank all those who have voluntarily helped review articles throughout 2016 and we hope that you will continue to assist in maintaining our standards in 2017.

References