

Fighting Disease in a Globalised World: What Does the Future Hold for Kazakhstan?

We live in an increasingly globalised world and we increasingly face health challenges of a global nature. Some of these represent hazards of an unprecedented nature for mankind. This is all too clearly reflected in the outbreaks of relatively recently discovered viruses such as Ebola, Marburg, and HIV. However, we are also witnessing the re-emergence of diseases previously thought largely vanquished or significantly curtailed, such as TB and certain types of sexually transmitted disease, and even diphtheria, measles and polio.

Currently Kazakhstan faces an impressive number of health issues, some in the shape of disease epidemics, which have coalesced to place a major health burden on society, on local communities, on hard-pressed medical staff and on the infrastructure of medical care [1-2,4-5,7-8,10-11,15-20]. Alarmingly the spread of drug-resistant forms of diseases, such as TB-MDR and TB-XDR and there also remain problems with treatment adherence, due in part to the chaotic lifestyles and poor health behaviours of risk groups. In addition, there are hazards such as the high incidence of blood-borne viruses including HIV, and hepatitis B and C, as well as co-infections of HIV and TB. Furthermore, there is the heavy burden imposed by non-communicable diseases, such as cancers, by high rates of maternal mortality, and by severe environmental pollution and damage (see also Aringazina *et al.* 2102; Katasaga *et al.* 2012).

To meet these challenges, Kazakhstan has at least four weapons. The principal weapon in the human arsenal in the war against disease remains vaccination. Vaccination efforts in Kazakhstan stalled in the early 1990s and have improved through programmes such as the Hepatitis B Immunization Programme. Antibiotics have also represented another powerful weapon, but their efficacy is being undermined by poor prescribing practice and poor adherence to treatments. Kazakhstan should consider banning the sale of antibiotics in pharmacies without the issue of a prescription of a family doctor and consider changing the prescribing behaviour of medics. Our international health community faces a new difficulty, due to the emergence of antibiotic resistance [19]. The world

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is headed for a post-antibiotic era and Kazakhstan is currently heading there at a faster pace than other countries with tighter regulation and controls.

The third weapon in the war against disease is the mobilisation of public health measures for intervention, combined with preventive efforts through health education and health promotion. Health promoting efforts should be aimed, in the first place, at the general population. For the latter, good health education in schools is an essential and cost effective measure, which deserves a higher priority. Efforts also have to be directed at those sub-groups, sometimes called Most At Risk Populations, whose adverse health behaviours place them at greater risk than the general population. These include men who have sex with men, but also groups such as illegal drug users, prisoners, and commercial sex workers. The AIDS Centre in Almaty is also doing essential work with women and children infected with HIV, providing antiretroviral therapy without charge, courtesy of the Kazakhstan government. One notable success in the medical world has been the reduction of mother-to-child-transmission. However, early results of research undertaken by the author and staff at KAZNMU indicate that women and children need other forms of support, including social support

The fourth weapon is the most formidable one within the human arsenal, but it is a weapon much underused, often neglected and indeed often abused. It is our ability to think [13]. We are faced, in the fields of global health and social care, with rich opportunities for learning and for sharing knowledge, skills and experience within countries and between countries. As the first rector of KAZNMU, S.D. Asfendiyarov, rightly emphasised, history is important in science and social science. Consider the story of the Victorian physician John Snow, puzzling over the appearance

of cholera in London and his systematic tracing of an outbreak to the public water pump on Broad Street [14]. Men like Asfendiyarov and Snow combined social activism with deep thinking about the issues and problems of their day, bringing together a commitment to improvement and rigorous standards of social and social science.

Ebola virus disease (formerly known as Ebola haemorrhagic fever) is a severe and usually fatal illness, up to 90% in some outbreaks, and is transmitted via direct human-to-human contact. This virus is a remarkable entity, able to transform and evade human immune systems: thus it has been described by some as the “transformer” virus, able to transform and mutate in unexpected and as yet unpredictable ways. What is clear is that the longer it remains in humans, the more it learns about our immune system and how this can be weakened and overcome. There is presently a rush to create and produce an effective vaccine. In Africa have been failures at all levels, from WHO level down to local level, including shortfalls in basic public health measures and in health infrastructure, staff training, and public education [18].

We need to study and reflect upon such examples, to look carefully at the evidence and what we can learn, for application in other contexts and countries, such as outbreaks of infectious disease in Kazakhstan. Moreover, when we talk about such diseases, there must be no room in the worlds of science and medicine for prejudice of a political or religious kind. There is no conspiracy or ‘cover up’ at work here: on the contrary, the evidence – the facts - are very clear for those prepared to look impartially at them. Reason and rationality must form our guiding principles, not ignorance, superstition and prejudice.

There is, nonetheless, room for rumination about the lack of balance between modern man and his environment, about his relentless and thoughtless exploitation of the world, and about the role of infectious diseases driven by the mutation of micro-organisms, of which viruses constitute the smallest form. New hazards from such diseases will always emerge, both in Central Asia and worldwide, particularly if mankind fails to curtail his greed. In the late 1950s, Rene Dubos, the French microbiologist, as the medical historian Mark Honigsbaum has noted, criticised this lack of balance and pointed to a future where mankind would always be faced with such

threats: as Honigsbaum (2014) writes, ‘the fault lies with man and his insatiable demands for the world’s natural resources’, which disturbs fragile ecosystems and parasitic microbes [6, 9]. This suggests that we need to be asking difficult questions about the dominant model of development for transitional countries: alternative economic models with greater respect for these ecosystems are urgently needed. We need to therefore consider the ‘reframing’ of the expectations and demands that are placed upon modern medicine. The British physician and medical historian Thomas McKeown (1976) was another thoughtful critic of the limits of the latter and helped to forge what has become known as ‘social medicine’ [3, 12]. This takes into account a broader set of economic and social factors than in traditional medical models and makes us think about the more fundamental determinants of health, rather than say just the symptoms or sequelae.

Let me therefore pose these questions for you, the reader, to think about. What can we learn from the specific epidemiological patterns of HIV, hepatitis and TB infections, or those of Ebola virus infections? What are the noteworthy microbiological features of such viruses and where do they reside between outbreaks? What do they tell us about human health behaviours, especially risk behaviours, and its determinants? And here are some very pertinent questions to ponder: If a ‘transformer virus’, like Ebola or similar, was to be set loose in the cities of Astana and Almaty, or in the remote regions of Kazakhstan, could local health care and social services cope?

The students and staff I have met in Kazakhstan have the curiosity, flair and energy to explore these questions and to address the problems they expose.

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