

International health lecture 2010

This is a summary of the Academy of Medical Sciences' 2010 International Health Lecture on '*HIV and global health 2011*' that was delivered by **Dr Kevin M. De Cock MD FRCP (UK), Director of the Center for Global Health at the US Centers for Disease Control (CDC)** at the Institute for Physics on 11 November 2010.

The summary is set out below in the left hand column. It can be read on its own or in parallel with the slides that accompanied the lecture, which can be found alongside this summary. The right hand column indicates which slides are relevant to which sections of text. This summary is also accompanied by a video of the lecture.

Summary

Slide

From tropical medicine to global health

Global health reflects the reality of globalization; and with it comes the globalization of public health risk. Our world is changing rapidly. Air travel means that people, microbes and disease can travel further and more easily than before. Urbanization, climate change and dwindling natural resources affect the global spread of disease, as do international trade and the industrialisation and transport of food. As we travel, so too do our cultural, behavioural and medical practices, influencing public health risk on a global scale. So what can we as a society do to ensure that people are healthy?

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Strategies that tackle socioeconomic factors such as poverty, inequality, education and housing have by far the greatest global impact, followed closely by interventions that promote healthy choices, such as safe roads and clean water. Long-lasting protective interventions, such as male circumcision for HIV and bed nets for malaria, yield smaller but significant effects. And it's humbling to realise that clinical treatments for infectious and non-communicable diseases have but a smaller influence still. Counselling and education remain the hardest strategies to implement successfully and yield the smallest but still significant impact on global health.

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30 years of HIV/AIDS

2011 marks the 30th anniversary of the first published description of AIDS, and the 15th anniversary of Highly Active Antiretroviral Therapy (HAART) – *the* treatment to revolutionise patient care.

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Genetic analyses suggest that around 80 years ago, a related virus called SIVcpz crossed from chimpanzees (*Pan troglodytes troglodytes*) into humans. The resulting virus, HIV, then began infecting people and started to spread around the world.

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Since the epidemic began, around 60 million people worldwide have been infected with HIV. Some 25 million, most of whom remain anonymous, have

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died from AIDS. In 2008, an estimated 33.4 million people were living with HIV, mostly in low- and middle-income countries. And the same year saw around 2.7 million people newly infected, and 2 million deaths. Today the number of new infections and deaths are slowly declining but the number of people living with HIV remains largely stable extending into the long-term future and highlighting the need for effective interventions.

Over 30 years, there has been progress and many milestones achieved. The World Health Organization (WHO) established its first programme on AIDS in 1986, later named the Global Programme on AIDS. The World Bank became increasingly active in health as demonstrated by its 1993 World Development Report highlighting the need for relevant clinical and preventive services in low and middle income countries that address the true burden of disease. The 1996 Vancouver International AIDS Conference (IAC) brought effective antiretroviral combination therapy (ART) to the attention of the world, whilst the Durban IAC of 2000 highlighted the injustices of AIDS in Africa, triggering a much needed boost in global funding.

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Epidemiologically, HIV follows two broad themes. The generalized population epidemics of sub-Saharan Africa resulted in unique social, political and economic impacts, including epidemics of orphans and of tuberculosis. Meanwhile, in the rest of the world, concentrated epidemics are mainly restricted to those at special risk – men who have sex with men (MSM), injecting drug users, and sex workers and their clients.

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We have various tools to help prevent and contain HIV, yet success has been mixed. HIV transmission through blood and blood products has been essentially eliminated in industrialised countries and greatly reduced in low and middle-income settings. We have had some success at containing HIV amongst injecting drug users, at least where political will exists to do so; where there is no commitment, epidemic transmission among injectors continues. Strong programmes can contain HIV infection among female sex workers, and there has been considerable, albeit inadequate, progress in preventing mother-to-child transmission. But the spread of HIV amidst heterosexuals, including within stable couples, in Africa and between MSM worldwide is proving harder to tackle.

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The biggest question in HIV medicine

ART, received by an estimated 6 million people worldwide (including persons in high income countries), lowers viral load and makes people less infectious. Yet there remains a lack of consensus on how best to use it – both for prevention and treatment, and for individual and public health. The decision of when to start treatment, for example, is based on guidelines that reflect expert opinion and observational data, with limited insight from randomised trials. A co-ordinated global approach is needed to resolve these issues, to provide funding and to conduct the necessary studies.

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On a global level, AIDS has elevated health as a new political priority, highlighting the need to balance human rights and social justice with our interventions. It has proven the power of advocacy and community

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involvement, taught us the need for sustainable interventions, and shown how chronic disease management can be approached in low income settings.

Initiatives such as the Global Fund to Fight AIDS, TB and Malaria and the President's Emergency Plan for AIDS Relief (PEPFAR) have committed billions of dollars towards large-scale prevention, treatment and care programs. But funding has since become less generous, with the recent Global Fund replenishment meeting securing just 11.7 billion USD for use over the next 3 years – a far cry from the 20 billion USD called for by activists. The shortfall has implications for programme sustainability and the diffuse, global nature of funding makes co-ordinated decision making difficult with nobody seemingly in charge.

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The broadening agenda – strengthening health systems

Focussed decision making, a broadened global health agenda and the strengthening of health systems are needed to promote global public health. But in low income countries, health systems are in crisis. Infrastructure is literally crumbling. Poorly equipped, at-best-basic laboratories and pharmacies are struggling to meet local needs. Human resources are stretched and record systems are disorganized. There is a shortage of practically everything except patients and people.

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How best to strengthen health systems is a matter of contentious, high level debate. Some critics argue that initiatives focussing on one disease create 'islands of excellence in a sea of misery,' whilst others point out that such strategies can promote positive, knock-on effects in other areas. A problem has been that discussion around non-targeted health systems strengthening has been vague, imprecise and without clear impact. A broad agenda that includes maternal and child health, communicable and non-communicable disease prevention and control still has to have specific interventions and actions, deliver specific services, and have supervision and accountability. Well run TB and HIV programmes can, for example, promote horizontal effects such as workforce strengthening and better-organized pharmacies.

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Trying to focus our own work, we at the CDC prioritize surveillance and health information systems, workforce development, laboratory strengthening, and research for programme and policy implementation, recognizing these are only some aspects of health systems strengthening. As discussed previously, health systems ultimately have to get away from the abstract and deliver services to real people with diseases that have names.

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Global health security

The relative ease with which disease can travel highlights the dangers of weak surveillance, and global health security is now a matter of high priority. The WHO's International Health Regulations (2005) aim to prevent, protect against and provide a public health response to the international spread of disease without unnecessary interference with international traffic and trade. And countries are now required to report public health events of international concern.

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The dangers of failing to do so are all too apparent with a retrospective look at SARS, the infectious respiratory disease that caused a global outbreak in 2003. News of the first cases in China's Guandong Province was not shared immediately, and an infected individual who travelled to Hong Kong unwittingly established secondary chains of transmission, triggering international spread. More than 7000 people became infected, and the virus claimed over 700 lives. The H5N1 strain of influenza ('bird flu') remains a pandemic threat. And the spread of frequently-lethal, extensively drug-resistant form of tuberculosis (XDR-TB) within HIV-infected communities or to their health care workers could change how casual contact with AIDS patients is perceived.

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Environmental issues also play a key role in health security. In 2010, at least 200 people were poisoned by lead-contaminated ore from artisanal gold mining in Nigeria's Zamfara State. More than 50 died, of whom many were children. And in 2004, a Kenyan outbreak of aflatoxin poisoning from contaminated grain claimed over one hundred lives.

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It is uncertain what the extent of health effects of climate change will be. Analyses of cholera epidemiology in Kenya (2009) raise the question of whether climate change was relevant. The most severe outbreaks occurred in the arid, drought-stricken regions of the north where people may have been forced to drink contaminated water they would otherwise have avoided. The exact influence of climate change remains uncertain, and the impact and associated challenges span many sectors beyond health alone.

43

Global health and non-communicable disease

Even as we face the unfinished business of communicable diseases, the world is changing. For the first time in global history, more people live in urban than rural areas and there are more people who are overweight than underweight. There are more deaths among adults than children, and there are higher rates of non-communicable diseases in low and middle income countries.

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Tobacco is now the world's leading single agent of death, killing more people every year than HIV, tuberculosis and malaria combined. Smokers face a 50% chance that their death will be related to their tobacco use. But although the WHO has a good strategy to tackle the problem, uptake remains low, especially in low and middle income countries.

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Cardiovascular disease (CVD) is the leading cause of death globally, with much related to tobacco use. Worldwide in 2003, CVD caused 17 million deaths and the proportion of people worldwide who die from heart disease and stroke is unlikely to change over the next few decades.

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Obesity and its related medical complications remain a major problem, whilst road traffic injuries are projected to become the fifth leading cause of death globally by 2030 and only 15% of countries have comprehensive road safety laws.

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To compound matters, vital registration data are missing in much of the world, and many people in Asia and Africa are born and die without any legal record of their lives. There remain many infectious disease challenges including polio eradication, HIV, tuberculosis, malaria, and lack of clean water and sanitation. Nonetheless, it is clear that non-communicable diseases, such as CVD, obesity and diabetes are likely to become pandemics of the future. **57-59**

Global health then, demands attention, and health system strengthening and health security remain vital issues. Global health is not about us and them, or how we deal with health abroad; it is about how our globalized world will deal with health and health care on the planet. Communicable diseases do not just affect the poor, and non-communicable diseases do not solely affect the rich. Problems do not just go from south to north, and solutions from north to south. And the epidemiological and demographic transitions are not abrupt; they are happening as we speak and require action. **61**

At present the attention of the global health community is focussed on the Millennium Development Goals, to be delivered by 2015. Now is the time to consider what the next aspirational goals should be in this shrinking world.

Internet links

WHO and HIV/AIDS: <http://www.who.int/hiv/en/>

The Global Fund: <http://www.theglobalfund.org/en/>

CDC Global Health pages: <http://www.cdc.gov/globalhealth/>