Building global healthcare capacity

CONSORTIUM OF UNIVERSITIES FOR GLOBAL HEALTH, Chair Dr Timothy Brewer
Noncommunicable diseases have become the most common cause of morbidity and mortality worldwide. Consortium of Universities for Global Health Chair Dr Timothy Brewer highlights the organisation’s efforts to address these and other global health challenges through research, training and advocacy.

**THE CONSORTIUM OF Universities for Global Health (CUGH)**

was formed in 2008 to create a platform for academic-based individuals conducting global health research, global health education and global health service programmes to come together and share ideas and best practices. Essentially, the CUGH enables academics to exchange knowledge to better address complex and challenging health problems.

CUGH members are working with partners to build healthcare capacity in low-resource settings and to create research programmes addressing pressing societal questions relating to health. These could include new treatments for chronic diseases, for example. Eighty per cent of all deaths in the world from noncommunicable diseases occur in low- and middle-income countries, and there are inadequate systems in place to treat pain, cancer or cardiovascular disease. CUGH-affiliated universities explore these and other topics. Our job is to generate knowledge and to train the next generation of researchers, educators and practitioners; that is what we do. At CUGH our aim is to bring together people who share common interests and make discoveries that result in practical solutions for the world’s challenges.

**GLOBAL HEALTH PRIORITIES**

I think one major evolution in health priorities has been the switch away from infectious diseases and communicable diseases towards noncommunicable diseases. If you look globally at the burden of disease, about two-thirds of all deaths in the world now occur from what are called noncommunicable diseases; deaths from infectious diseases have dropped about 45 per cent over the last 20 years. Another area where the global community has made tremendous progress is in childhood mortality. Over the last 20 years childhood mortality globally has dropped by about 50 per cent. It is still terribly high; approximately 17,000 children under the age of five will die every day from essentially preventable diseases, and while we still have a long way to go there has been tremendous progress. Life expectancy since 1990 globally has increased by about six years, which is another success.
One of the challenges is that we’re now seeing a shift to more chronic diseases; for example, the prevalence of diabetes globally is estimated to double between this year and 2030. Cancer rates are also going up in a number of low- and middle-income countries. Tobacco use rates are increasing, and trauma and road accidents remain a major problem. The latter account for about 10 per cent of all deaths worldwide and that hasn’t really changed over the last 20 years, so that’s an area where improvements are needed. We still have a maldistribution of healthcare workers and this came out fairly clearly with the Ebola crisis in Guinea, Sierra Leone and Liberia. Their public health infrastructures were inadequate to begin with – the little health services they did have were decimated by Ebola.

ADVISING POLICY MAKERS
Part of our commitment to improving global health involves working with policy makers in a number of different ways. One way is by bringing the evidence to policy makers by which they can make the most well informed decisions. Our members are primarily academics; while CUGH has few members based within governments, our members are often called on by governments to provide expert evidence on policy decisions. We try to make sure that the evidence is there and that it is presented in a way that the public and the policy makers understand. The evidence can help make better informed decisions, such as introducing new vaccines for children, developing an international aid programme or providing research funding to develop new antimicrobial agents to halt the spread of resistant bacteria in hospitals and clinics.

Some policy issues that CUGH members have been actively involved in include trying to maintain support for the National Institutes of Health and the Centers for Disease Control and Prevention in the US. Another area has been advocating for continued support for the President’s Global Health Initiative. Recently the Office of the Global AIDS Coordinator was reviewing whether they should continue funding for medical education programmes in sub-Saharan African medical schools. A group of CUGH leaders met with Ambassador Deborah L Birx, the Coordinator of the US Government Activities to Combat HIV/AIDS, to explain why we thought that was an incredibly valuable programme. We gave our support to her to continue funding for that programme, and for the role that education has in building capacity within communities.

ADDRESSING HEALTH DISPARITIES
In addition to advocating for medical education programmes, CUGH members have also been addressing the problem of brain drain, which is severe in many low- and middle income countries. Here, efforts have been focused primarily on the supply side, including providing support for educational initiatives like the Medical Education Partnership Initiative (MEPI) and the Nursing Education Partnership Initiative (NEPI). These are US government programmes that were created specifically to expand training capacities in sub-Saharan Africa. That’s where the brain drain problem is most severe. For example, it was estimated that Rwanda and the US state of Wyoming had roughly the same number of physicians in 2010. They both had about 600 doctors but in Rwanda there was only one doctor for every 18,700 people, while in Wyoming it was one doctor for every 1,000 people. These are huge disparities. CUGH members in high- and low-income countries are working together with support from the UK, the US, Canada and others to help low-income countries build their educational capacity.
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An answer is not to take high-priced, expensive American and British physicians and place them in low-income countries; that’s a temporary solution. What would be much better is if Ethiopia or a number of different countries where our universities work had the capacity to train enough physicians, nurses and healthcare workers, and actually support them so they stayed. For example, Ethiopian universities do a terrific job in training physicians despite fewer resources. However, these physicians then become in very high demand, not only in countries like the UK and the US, but also in African countries like Botswana or South Africa. Therefore, one challenge is building systems so that doctors and nurses trained in Ethiopia feel like they have viable job prospects at home and they do not have to move to other countries in order to receive reasonable salaries and enjoy good working conditions.

CUGH members work across the spectrum – whether that is improving the education of tomorrow’s practitioners and researchers, as well as building systems and programmes that support education, or asking research questions that create new knowledge, new treatments and new ways of helping populations and individuals to stay healthy or become healthier.

**PARTNERING WITH INDUSTRY**

Another important partner for CUGH members is industry – it’s essential we work with companies in order to obtain solutions that are affordable and effective for a variety of problems. For example, Merck has donated onchocerciasis treatments [ivermectin] for millions of people to eliminate river blindness. There are programmes involving azithromycin to treat chlamydia, another cause of blindness, and there is a Yaws eradication programme being conducted in New Guinea among other places. There are a number of important global health programmes in place that include CUGH members and industry partners.

One obstacle that researchers at CUGH-affiliated universities face is how to engage industry in addressing problems for which there is not a clear immediate market need in high-income countries. A key area is in neglected tropical diseases. CUGH members are trying to stimulate companies to become interested in creating new treatments, for example, for African sleeping sickness (trypanosomiasis). This is a terrible disease that can be fatal, and the treatments can be very toxic. Yet because there is not a big need for African sleeping sickness treatments outside selected areas in sub-Saharan Africa, companies are not really interested in investing the time and the effort to come up with new treatments. That remains a challenge for us – how do we get industry to engage in some of these problems where new treatments are needed but there are not necessarily big markets or high returns?

**PLANET UNDER PRESSURE**

The major challenges we face moving forward are going to be demographic and environmental. We continue to rapidly grow as a population. The world’s population is now over 7 billion people, and within 20 or 30 years it will be over 9 billion people. We are seeing tremendous growth of settlements called megacities, primarily in low- and middle-income countries. These are cities with populations in excess of 10, 15, or even 20 million people that often lack basic services for many inhabitants. One of the real issues in the future will be providing services – whether it’s water, sanitation, education or electricity – for these huge populations of tens of millions of people rapidly moving into urban environments.

A related issue is the effect of climate change. Many people are rapidly losing access to fresh water. Where I live in Southern California, we are in the fourth year of major drought. Los Angeles County has a population of 18 million people and you can’t have 18 million people with no water. CUGH member universities are therefore seeking solutions to these issues, looking at where to source fresh water and how to transport it.

Environmental degradation is another critical issue moving forward. Numerous Chinese cities have high rates of air pollution, and Delhi, India, has the poorest air quality of any city in the world – so we must find ways to protect the health of populations within these cities where millions of people are repeatedly exposed to unacceptable high levels of toxic particles and chemicals.

In summary, population growth and the health of the environment are major global health challenges that remain unaddressed. We need better ways to protect the environment, generate energy, transport people and goods, and recycle water. All these challenges can be solved, and CUGH university partnerships are leading the way for solutions.