



CHRISTIAN BRÉCHOT

President of the Institut Pasteur

Welcome to this session on health and governance. It is a pleasure to be with Louise Fresco, President of Wageningen University, and Bernard Badré, Managing Director and CFO of the World Bank. I am Christian Bréchet, the President of the Institut Pasteur, and I will start by setting up the context regarding what we call global or 'one health' and governance.

We know that we have entered the era of global or one health, that is, the interplay between humans, animals and the environment. However, when we discuss governance and health, we have to build on success, and in the context of the 20th century this has been vaccines. I will not go into detail, but we know that vaccination has been the most effective medical intervention ever introduced, we know that this has saved billions of lives and that it is cost effective. This is an issue of governance, because it involves scientific topics in terms of increasing the efficacy of vaccines, but we have the key issue of acceptance, and this is something which needs coordination and is one major threat for the future.

We have had antibiotics, and sometimes we forget that this has been a fantastic success. Altogether, we have fantastically reduced death due to infectious disease, yet we all know that we are still facing, obviously, emerging and re-emerging infections. Louise Fresco will discuss the importance of zoonosis. We are facing a major threat to humanity, which is resistance to therapy, resistance to antibiotics but also to antivirals and to treatment against parasites.

When we discuss governance and health, we must remind ourselves that the bulk of deaths worldwide are due to infectious disease, but we should never forget that 34 million of the 52 million annual deaths are attributed to what we call non-communicable diseases such as cancer, neurodegenerative disease, obesity, diabetes and chronic pulmonary disease, so when we speak of governance and health, we should not focus only on infectious disease. This is another major paradigm shift, the increasing burden of non-communicable disease in low- and middle-income countries, and actually nearly 80% of global non-communicable disease occurs in low-income and middle-income countries. The epidemic of diabetes is one of the major examples, whether in India or in Africa, and this is a completely novel paradigm.

Finally, we should not always separate microbes and non-communicable disease. 25% of cancers are associated with microbes, such as hepatitis. There is a strong link between the intestinal bacteria and metabolic disorders such as obesity and diabetes, and between the brain and microbes, so when we want to set up governance for health we should link these two discussions. Now we have entered the era of what we call the two genomes, the whole genome and the intestinal bacteria, and this is one of the major foci which we have to embrace globally.

We are living in the context of a new era of technology. Technology is transforming biomedical science, and we know this. It has a major impact for surveillance, for monitoring, and we have new players, companies like Google, Amazon, IBM, Microsoft and others, including small biotechs, which are playing and will play a major role. I visited Google a week ago, and there are other examples to show that they are part of this governance strategy, with some challenges.

Let us just take two examples of governance in very different contexts, SARS, Severe Acute Respiratory Syndrome due to coronavirus in 2003, and Ebola. SARS has been a prototype in terms of epidemics, starting from Hong Kong and disseminated all over the world, and it was not the first epidemic, but it helped convince the world of the need for governance. What did we learn? We learned about the vulnerability of our societies, obviously, but we also demonstrated the capacity to respond, with the setting up of international networks with new detection tools and the advent of international health regulations.

We were extremely lucky, given that the infectious agent was not easily transmissible and was only contagious after the onset of symptoms. This has led to the capacity to respond much more quickly, such as in 2009 in China, with only



one month between the identification of the H1N1 virus and the intervention, and in 2013, when there were six days between the identification of the virus and the first setting up of diagnostic tests. Therefore, this is progress in governance.

The other case is very different, which is the Ebola case. We learned yesterday that, in contrast to what we hoped, Liberia has not been cleared for Ebola but has additional cases, Guinea is not cleared, and we are in a situation where Ebola has obviously slowed down a lot but is not finished. This is a case of an epidemic where we have faced a lot of problems, and this is what we have to build on for the future. There was a lack of preparedness, and we need vaccine stocks, though this is only one example. There was a lack of education and training, including diagnosis, including in so-called developed countries, and it is interesting to see that the time to diagnosis in US and in South Korean hospitals. There was lack of communication, lack of coordination between surveillance, politics, financial support and care, and, a key point, lack of onsite capacity and infrastructure.

A number of actions have been taken in the past few years. You now have networks of surveillance and intervention systems such as the Global Outbreak Alert Response and Network, which has worked effectively in some circumstances. The US has set up the Assistant Secretary for Preparedness and Response, which is interacting with many other countries. We now have the international health regulations and the global health security agenda, which are real progress, which obviously do not meet all the challenges but which provide some solid ground on which we can build this governance.

Therefore, we need a combination between preparedness, education and training, communication between local, regional and central offices, coordination and onsite capacity and infrastructure. The main difference between SARS and Avian Flu is that there was onsite capacity and infrastructure in China, although there were challenges, obviously. There was the problem, in the case of Ebola in Africa, of a lack of onsite capacity and infrastructure, and you can have the most sophisticated research institutes, the best will and the best financial support, but if you are not able to convey actions to the field, you are useless.

This is where an institute such as the Institut Pasteur stands. I will not go into detail, but this is a multidisciplinary research institute based in Paris which is dedicated to very basic research, public health with a reference centre, and education and industrial partnerships, but the main point is that this is an international institute, with 33 institutes in 26 countries, institutes which have been in these countries for a long time and have the trust of the local governments, and which provide capacity, infrastructure, education and research. Next year we will celebrate the 125th anniversary of this network.

I am not saying that the Institut Pasteur is the only solution, but it is an example of how you need to combine basic research, public health, education and industrial partnerships with real contact and trust from local government. This is the situation of the Institut Pasteur with regard to the major public health threats.

I mentioned the international health regulations, and you can now link these general regulations with real actions, such as, for example, WHO collaborative centres. You can have networks where you can associate a number of partners to work on surveillance. Now we have different tools which can be extremely efficient but which might still be under-utilised. We need to have a global view, a global vision, where we provide capacity onsite for bio-banking and sample analysis, which means sharing by bio-informatics, the integrative biology of the data, and this is key to having a real impact in terms of governance. We need education, and the Institut Pasteur is seeking partners to set up a training coalition in research and public health.

Finally, we should discuss in the context of this conference what challenges and opportunities to combine all these requirements in order to be efficient, keeping in mind that we always think, for obvious reasons, of infectious disease, but as I said, we also must always have in mind that in the future this governance for health will handle the major cases of non-communicable disease worldwide, including in low- and middle-income countries. We want to reach this point following the Ebola crisis.