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## **“We have to start preparing for the next deadly epidemic”**

*By Alain Mérieux, Opinion Contributor*

Much of the world is flying blindly as developing countries struggle to contain resurgent old infections and to identify new ones before they become epidemics. If we can enable Africa and Asia to detect and respond to these threats where and when they emerge, we can prevent millions of deaths there, and better protect ourselves in North America and Europe.

The new Director General of the World Health Organization, Dr. Tedros Ghebreyesus told Foreign Affairs that he sometimes lies awake worrying about what would happen if we faced anything like the catastrophic 1918 flu epidemic, which killed upwards of 50 million. “We have to do a lot, especially considering the serious gaps we have. I think the world should unite ... because viruses don’t respect borders, and they don’t need visas,” he said.

I couldn’t agree more — and the investments we need to make now to improve developing country surveillance and diagnostic capacity will make or break the world’s response to the next big outbreak.

The environment today is far more conducive to epidemics than it was a century ago. The global population has quadrupled and become more crowded. When I was born, the world was rural; in my grandchildren’s generation, more than 70 percent will live in cities, most without the infrastructure to provide decent sanitation or clean water. In megacities such as Dhaka, cholera is constantly endemic, and is now striking Yemen. And people move between cities at an astonishing rate.

Our world is becoming warmer. The Asian tiger mosquito is taking advantage of this; in North America, it is now present in over 30 states, and in Europe, it is moving steadily northwards up the Rhône Valley towards Lyon, where I live. More and more French and American people return from trips to places where mosquito-borne diseases are increasingly common. We are even starting to see transmission from person-to-person.

Like my father, I spent most of my professional life working on childhood vaccines. I am frustrated that we still do not have effective vaccines for diseases, such as TB or malaria, but I am even more frustrated that we fail to effectively use the vaccines we possess: despite the remarkable work of UNICEF and GAVI, the vaccines alliance, three million people a year still die from vaccine-preventable diseases.

If we cannot stop measles, what hope do we have against new threats such as Ebola or Zika?

Flying blindly also disarms weapons against infectious disease. Too often we are firing the weapons scattershot so that viruses, bacteria and parasites can recognize them and adapt their defenses. We run the very real risk that the bacteria that cause pneumonia and the parasites that cause malaria will adapt faster than we can find new medicines.

My late son Christophe saw immediately that we should be concentrating on building diagnostic capacity in developing countries when, as a young doctor, he started working with our family foundation in the 1990s. Had he lived to see our foundation's 50th anniversary this month, I think that he would have been proud of what we have achieved.

In the West African nation of Mali, for example, a national center of excellence works with a network of regional laboratory hubs with local spokes that stretch across that vast territory. This has allowed Mali to quickly understand the causes of meningitis or malaria outbreaks, respond rapidly with targeted treatment efforts, and closely monitor outcomes and adapt as needed.

Now there is a network of 7 West African countries building capacity in over 1,000 laboratories. In the wake of Ebola, we are working together with other partners on the ground to prepare for the next outbreak.

There are other beacon states such as Cambodia, where we established the Rodolphe Mérieux Laboratory in Phnom Penh as way of remembering another of my late sons. But it is not enough. We need a rapid development of affordable, simple diagnostics that can be used by health workers with basic training and can deliver results in a rural clinic where a child with a temperature of 104 degrees needs urgent treatment.

As in Mali or Cambodia, we need a national system for spotting anomalous patterns or unknown pathogens. And we need the head of that system sitting alongside the health minister so that the country can respond rapidly.

We have no idea what else is waiting to jump on a truck or a plane and pass unseen across our borders but we do know that, wherever we may live, we are all at risk. Stronger health systems and better international cooperation on infectious threats are possible but more countries and partners need to engage, and to do so with greater efficiency. It is the only way we can see the threats around us well enough to act, and to act fast.

*Alain Mérieux is President of the Mérieux Foundation, which provides support to fight infectious disease in developing countries, by building laboratory networks, investing in research and public health partnerships.*