



# Doctor's Orders

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**S**omewhere on the planet, usually from within an animal host, a microbe emerges to infect humans. As it spreads into a pandemic, life irrevocably changes. From SARS-CoV-2, the novel virus of the current pandemic, is rapidly challenging nearly every facet of our daily lives. It is also challenging our beliefs, changing mindsets, and leading many to appreciate the need to meaningfully invest in pandemic preparedness and disease prevention.

While we are absorbed in responding to the COVID-19 pandemic, we must also be looking ahead. Fortunately, our understanding of how, where, and even when an outbreak is likely to occur has advanced substantially in recent years. Human actions that bring people into close contact with animals are responsible for the vast majority of disease outbreaks. Changes in climate, land use, meat consumption, travel, and trade all significantly heighten outbreak risk. Places where multiple factors converge to increase the risk of an outbreak are known as planetary disease “hotspots.” Monitoring these hotspots must be a collective global priority.

The systematic monitoring of human, animal and environmental health, called One Health surveillance, is paving the way to significantly reduce pandemic risk in those pioneering countries that have adopted it. In Cambodia, for example, a farmer used a locally created, free national hotline to report two sick chickens to health authorities. Testing positive for highly pathogenic avian influenza, also known as “bird flu,” immediate action prevented this deadly

virus from spreading and potentially becoming a human disease outbreak.

Today, this same hotline responds to over 15,000 daily calls for COVID-19 and is being replicated by neighboring countries. Directly empowered communities are similarly driving action in Thailand, Tanzania, Brazil, and other hotspots where Ending Pandemics has infused catalytic funding combined with scientific and technical oversight.

Local communities, connected to their government disease authorities in early warning systems, are rapidly becoming the most effective, scalable, and sustainable method of One Health surveillance in disease hotspots. Although governments carry the responsibility for protecting animal and public health, they often lack the funds necessary to innovate with technology and test promising approaches like self-reporting of symptoms by the public. Innovations in early detection and rapid response are often only possible through the highly flexible, risk-tolerant funds provided through philanthropy.

In our work, we find that no country is too poor to innovate, no community is too hard to reach, and ingenuity outshines fear everywhere. One Health surveillance integrated across all planetary disease hotspots is an achievable goal. The data generated by such systems will dramatically advance our ability to accurately forecast and predict emerging diseases.

The opportunity to transform global pandemic preparedness and disease prevention lies within near reach through visionary investments to create a safer and healthier future for the planet. **LM**