Frequently Asked Questions

Preventing the Next Pandemic: Zoonotic diseases and how to break the chain of transmission

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What are zoonotic diseases?

- Zoonotic diseases (also known as zoonoses) are illnesses that are caused by germs that spread between animals and people.
- Examples of zoonoses include HIV/AIDS, Ebola, Lyme disease, malaria, rabies, West Nile virus, Severe Acute Respiratory Syndrome (SARS) and Middle East respiratory syndrome (MERS), in addition to the novel coronavirus (COVID-19).
- Certain animals are more likely to harbor zoonotic pathogens. These include rodents, bats, and non-human primates, as well as economically important livestock such as pigs, cows and chickens.
- The pathogens most likely to jump species from animal to human are those that are widely distributed, mutate rapidly and have multiple hosts.

What is driving the spread of zoonotic diseases?

- In the last hundred years, the world has seen massive increases in human populations, resulting in massive decreases in natural environments. These two parallel trends are critical parts of the complex chain of events that has triggered a rise in the emergence and spread of new zoonoses.
- Many of the new zoonoses have emerged in low- and middle-income countries.
- Seven specific factors are driving this trend:
    - Increasing demand for animal protein
    - Unsustainable agricultural intensification
    - Increased use and exploitation of wildlife
    - Unsustainable use of natural resources accelerated by urbanization, land use change and extractive industries
    - Travel and transportation
    - Changes in food supply chains
    - Climate change

What are the impacts of zoonotic diseases?

- Historically, the emergence of new human diseases from animals has been associated with major societal change: epidemics of European diseases spread across the Americas shortly after the arrival of Europeans in the 16th century; the tuberculosis outbreak of the 19th century followed widespread industrialization and urbanization in Western Europe; the expansion of colonial rule in Africa facilitated outbreaks of zoonotic sleeping sickness, which killed one third of the population in Uganda and up to one fifth of the people living in the Congo River Basin in the first decade of the 20th century.
- Neglected zoonoses persist in communities experiencing complex development problems—typically a mix of poverty, poor sanitation, poor access to water and waste removal services, isolation, socio-political insecurity, political marginalization, low literacy levels, gender inequality and degraded natural resources.
- The burden of a selection of important food-borne diseases is comparable to that of "the big three" major infectious diseases: HIV/AIDS (human immunodeficiency virus-acquired immune deficiency syndrome), malaria and tuberculosis.
- According to the International Monetary Fund's chief economist, the current pandemic is expected to cost the global economy $9 trillion over the next two years.

Africa has an opportunity to lead pandemic prevention efforts

- Many African countries have significant experience managing pandemics - including the recent Ebola outbreaks in the Democratic Republic of the Congo - and can use this experience to prevent future pandemics. In Uganda, for example, officials have been able to reduce sickness and deaths caused by zoonotic diseases, including Ebola, malaria and Rift Valley fever. Their techniques include using satellite systems to anticipate heavy rainfall events, which can produce mosquito swarms that can trigger outbreaks.
- By adopting a One Health approach that unites human, animal and environmental health, African countries can take the lead in developing and implementing strategies to prevent future pandemics.

Why have previous efforts failed to stop outbreaks of zoonotic diseases?

- To date, most efforts to control infectious diseases have been reactive rather proactive. It's time for this to change.
- Because zoonoses are complex and fall across three sectors—environment, agriculture and health—sectoral policy frameworks for dealing with these diseases are often inadequate.
- Incentives for countries to declare outbreaks early remain weak, especially in developing and emerging economies.
- Effective strategies already exist for controlling zoonoses; in many cases the main constraint is lack of investment or implementation rather than a lack of understanding or method.

What can decision-makers in government, business and civil society at all levels and in all regions do to prevent future outbreaks of zoonotic diseases?

- The One Health approach is the optimal way to both prevent and respond to zoonotic outbreaks. One Health is an inter-disciplinary approach that unites expertise from the realms of public health, veterinary medicine, and the environment.
- Start by addressing the root cause of disease emergence: we need to change humanity's relationship with nature. That means ending the over-exploitation of wildlife, farming sustainably, reversing land degradation, promoting ecosystem health, and taking urgent steps to reduce climate change.
- Ensure the security of our systems of food production.
- Ensure sustainability of wild meat consumption by careful monitoring of animal populations, strengthened tenure and management rights of local populations, provision of technical expertise, and ecosystem conservation.
- Invest in improvements in the safety and security of both industrialized food production and traditional food markets.
- Build robust public and animal health systems; take decisive, early action to combat disease outbreaks; promote collaboration across the sectors of environment, agriculture and human health; and develop research-based control programs.
- Employ new technologies – especially biotechnologies and information and communication technologies – in disease surveillance, rapid response and control.
- Raise political awareness of the need for greater investments in preventing and controlling emerging diseases