

How the Timber Industry Can Address Emerging Infectious Diseases



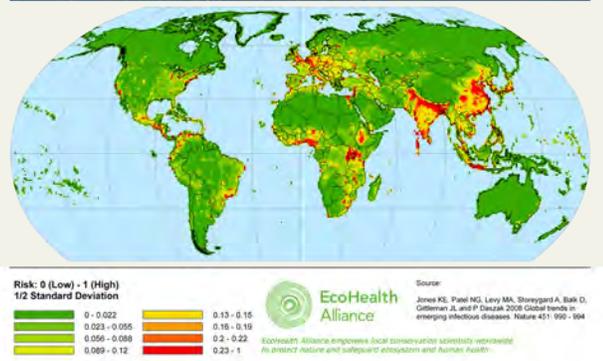
Why should the timber industry be concerned about emerging infectious diseases?

Emerging infectious diseases occur in “hot spot” areas throughout the world where timber industry activities occur. Emerging infectious disease can affect industry by:

- Causing outbreaks or illness, resulting in productivity losses
- Requiring quarantines that could close or suspend operations
- Killing employees or community members, contributing to systems breakdowns, damage to corporate image, and possible project closure



Hotspot Risk Map of Wildlife EIDs



The timber industry can address emerging infectious diseases

Environmental and social changes affect how people, pets, livestock, and wildlife interact and can create conditions that favor the emergence and spread of infectious diseases, such as Lassa fever, Marburg fever, Ebola, and SARS. Most emerging diseases are zoonotic, transmitted between animals and humans. By understanding how to minimize the risk of zoonotic disease transmission, timber companies can safeguard worker and community health.

IMPORTANT FACTS:

- Timber operations can change interactions between people, domestic animals, and wildlife in ways that lead to conditions favorable for disease emergence.
- Nearly 75 percent of emerging infectious diseases are zoonotic (originate in animals).
- Incorporating an evaluation of zoonotic disease risk factors in Environmental, Social, and Health Impact Assessment protocols can help identify disease emergence risks and point to prevention and mitigation options.
- The timber industry can adopt best management practices to mitigate the risks of zoonotic disease emergence and improve worker and community health.

What wildlife transmit zoonotic diseases?

Nearly three-quarters of emerging infectious diseases originate from wildlife. Three wild animal groups, which comprise approximately 70 percent of mammal species, are considered most likely to spread new infections to people: bats (coronavirus responsible for SARS and Marburg, Nipah and rabies viruses), rodents (Lassa, hanta, and monkeypox viruses) and non-human primates (Ebola and yellow fever viruses). People contract these diseases by inhaling aerosolized contaminated feces and urine, through direct contact via scratches, bites, and bodily fluids—such as blood and saliva—that can occur during hunting and food preparation, and by ingesting contaminated food, water, or undercooked meat. The following table lists some viruses, animals, and transmission routes found in Africa, the Americas, and Asia.



| Virus Animal | Common Transmission Routes | Location |
|--|---|---|
| Lassa Virus  | Contaminated food and water—most common; direct animal contact (consumption or bite); inhalation of aerosols. | Africa |
| SARS Virus   | Direct contact with the blood, body fluids, and tissues of infected bats and other small mammals. Direct contact with human respiratory droplets through coughing, sneezing, or touching the surface of a contaminated object with infectious droplets. | Asia |
| Monkeypox Virus    | Direct contact with the blood, body fluids, or rashes of an infected animal or person; prolonged close contact with an infected person. | Africa |
| Ebola Zaire Virus   | Direct contact with the blood, body fluids, and tissues of an infected animal or person; prolonged close contact with an infected person. | Africa |
| Guanarito Virus (Venezuelan Hemorrhagic Fever) Machupo Virus (Bolivian Hemorrhagic Fever)  | Aerosol transmission through inhalation of rodent urine or saliva and direct contact with the excretions or materials contaminated with the excretions of an infected rodent (e.g., ingestion of contaminated food, or by direct contact of broken skin with rodent excrement). | South America |
| Lake Victoria Marburg Virus  | Direct contact with the blood, body fluids, and tissues of an infected animal or person; prolonged close contact with an infected person or animal. | Africa |
| Rabies Virus  | Transmission occurs through the bite and virus-containing saliva of an infected host. Aerosol transmission is suspected. | Worldwide |
| Yellow Fever Virus  | Transmitted by infected mosquitoes (species of <i>Aedes</i> and <i>Haemogogus</i> mosquitoes) from non-human primates to other non-human primates and humans. Transmission can also occur between humans by an infected mosquito. | Africa, The Americas |
| Nipah Virus  | Direct contact with the blood, body fluids, and tissues of an infected animal or person; prolonged close contact with an infected person or animal. | Southeast Asia, Africa (recently <i>Pteropodidae</i> bats were found to carry antibodies) |
| Hantavirus  | Transmission occurs through the bite of an infected host or inhaling contaminated dust from nests, urine, and droppings. | Worldwide |

How do timber industry activities affect the risk of zoonotic disease transmission?

Timber industry activities and associated environmental and social changes such as the following can create conditions that favor disease emergence:

- Deforestation
- Road and linear corridor construction
- Temporary and permanent labor camps and other facilities
- Project-induced migration
- Expansion of surrounding local communities and agriculture



These activities fragment wildlife habitat and reduce biodiversity, which some scientists believe can alter the distribution and abundance of wildlife and their associated pathogens, and amplify the risk of pathogen “spillover” into human populations. Many timber companies in Africa operate in remote locations. During logging activities, as vegetation is removed and corridors are built, biodiversity can decline and wildlife population dynamics can change, bringing wildlife in closer contact with people. Some rodent populations will grow because they begin feeding on new food sources created at logging camps, canteens, and settlements. Like rodents, certain bat species can occupy man-made structures and feed on fruit trees. Non-human primates may raid crops in fields that border their habitat, invade labor camps and homes, or become violent.



Some literature suggests that wildlife with diseases that people can contract can adapt to change easily, thrive in different environments, and use diverse resources. As habitats fragment and

people enter previously undeveloped areas, wildlife species are adept at using alternate food and shelter resources, bringing them into closer contact with people.

In addition to the concession workforce, timber concessions can attract others who follow workers to seek jobs or establish businesses to serve the area’s new population. Such project-induced migration can increase the likelihood of disease transmission.

- Strains on existing housing and infrastructure can lead to overcrowding, poor sanitary conditions, improper storage of waste, and insufficient potable water. These conditions create habitats and food sources that attract pests—including insects and wildlife—carrying diseases that can be transmitted to people.
- The growing population creates pressure for agricultural expansion into previously undeveloped areas.
- Demand for meat may lead to increased numbers of domestic animals and increased hunting and marketing of wild animal meat.

All these factors exacerbate the potential risk of “spillover” by increasing contact between people, domestic animals (e.g., livestock and pets), and wildlife populations. This can increase the likelihood of cross-species disease transmission.





How can the timber industry prevent disease emergence and improve worker and community health?

The timber industry can prevent emerging infectious disease and other public health threats by identifying activities that increase the risk of disease transmission and adopting management practices to mitigate those risks. In fact, best management practices to prevent disease transmission may already be planned or in place. The following are some key measures that can be implemented:

Minimize wildlife disturbance and contact

- Limit habitat fragmentation by reducing footprint size and numbers of roads and corridors constructed
- Develop an inventory, regularly monitor the local fauna, take action to prevent loss of diversity
- Prohibit onsite hunting



- Discourage waste accumulation and dispose of waste regularly and properly to deter wildlife
- Reduce/eliminate exposed standing water to remove potential vector breeding sites

Monitor and improve employee health

- Ensure employees are properly vaccinated
- Conduct surveillance for any unusual diseases
- Conduct health promotion campaigns about infectious diseases

Use good housekeeping measures at the facility and any camps and canteens

- Maintain clean working and living facilities
- Ensure clean, protected water sources and good sanitation
- Establish management procedures to prevent disease transmission to domestic animals
- Build/retrofit facilities (with special attention to food storage) to exclude rodents, bats, and other pest/scavengers
- Use standard public health measures for sanitation and food handling

Participate in protecting the local community's health

- Assist local government to engage in community planning, especially in designing waste management services
- Conduct health promotion campaigns about infectious diseases, bushmeat, sanitation, etc.
- Engage community leaders and other stakeholders in discussions about safe methods to hunt bushmeat, expand communities, develop infrastructure, etc.

Ensure workers can access affordable protein

- Provide sources of protein for work force to reduce the potential for bushmeat hunting and consumption

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