



Zoonoses

Zoonotic Infectious Diseases (ZIDs)

Diseases that spread between animals and humans, with causal agents being pathogenic microorganisms such as viruses, bacteria, fungi, or parasites.

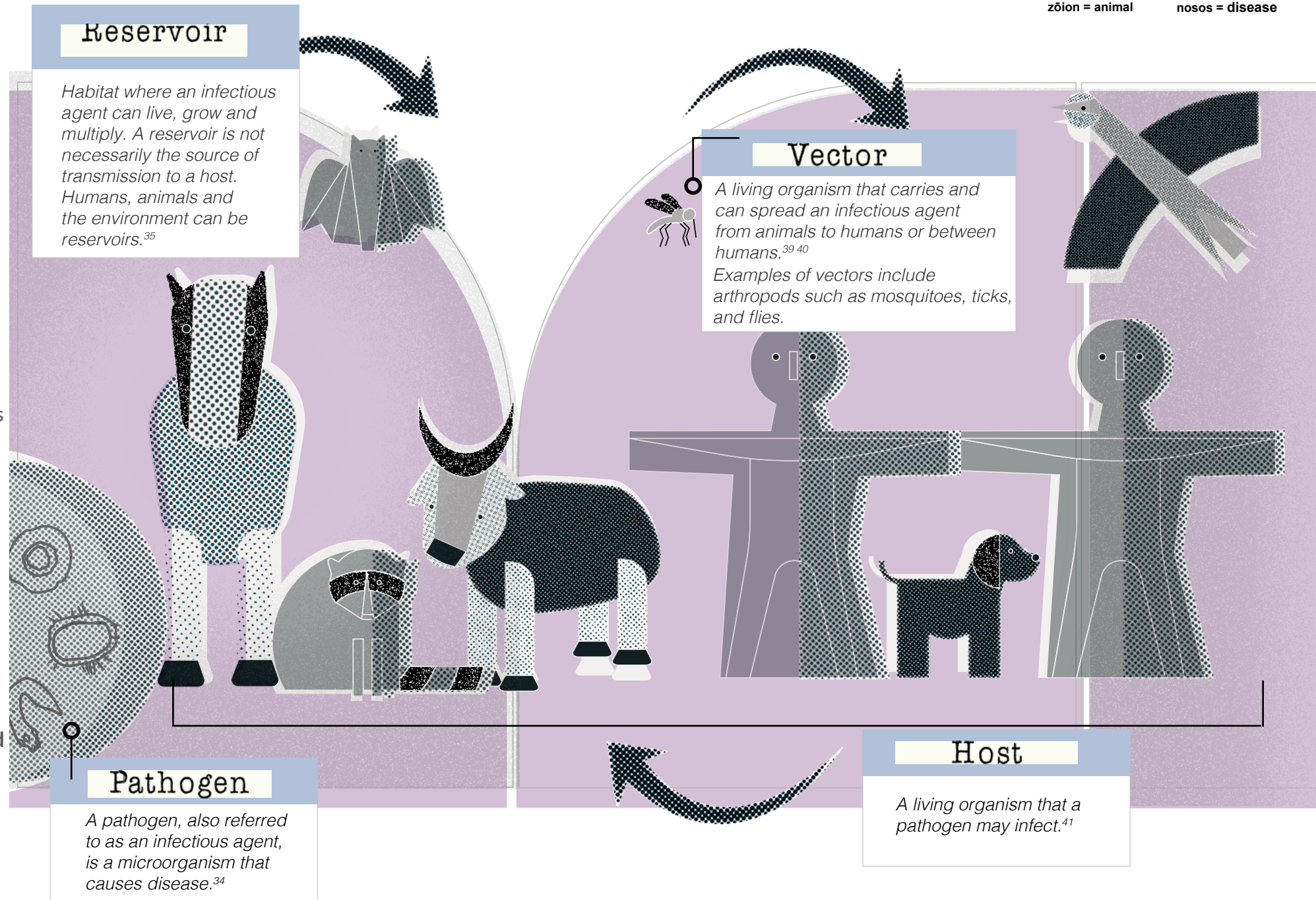
Origins and Health Impacts

ZIDs transmission involves interactions among at least three components: a pathogen and two host species.

Zoonotic infections often span diverse host species and may include vectors or parasites with complex life cycles, reflecting systems where multiple hosts, environmental sources, and even multiple infectious agents interact. As well, multiple factors can be involved that shape the diversity and transmission of zoonotic agents, including the local availability of potential animal hosts and vectors, and their spatial distribution, population density, and population dynamics.^{30 31}

For example, directly transmitted zoonoses can have diverse reservoir hosts, serving different roles in pathogen dynamics, such as amplification or transmission to humans and other animals. For vector borne diseases, ecology is complex, as vector and reservoir host species and other factors can change transmission dynamics.³²

When conditions support pathogen amplification and transmission, infectious diseases can expand in scale, progressing from localized outbreaks to epidemics and pandemics.³³



Zoonoses (pl.)

Zoonosis (sing.)

From Greek
zōion = animal nosos = disease

SARS-CoV-2

The emergence of SARS-CoV-2 (Covid-19), provides an example of how pathogen transmission from other species reflects human-animal-environment relationships.

Initially circulating in wildlife, the virus exploited ecological niches created by wildlife trade and live animal markets, adapting to humans as novel hosts. These conditions, driven by human activity such as globalization, urbanization, population density, and habitat encroachment, opened pathways for spillover and facilitated rapid spread.

Adding to this complexity, as the disease progressed, evidence suggests SARS-CoV-2 spilled over from humans to several animal species such as white-tailed deer and farmed mink, and was later able to spill back to humans, creating new transmission pathways and highlighting the dynamic, bidirectional nature of pathogen ecology and evolution.^{36 37}

Zoonoses Nomenclature

Zoonotic disease names follow the International Classification of Diseases (ICD), which was developed to prevent naming practices that stigmatized people, regions, or animal species. Such naming practices often produced misleading and epidemiologically inaccurate information, given that zoonoses emerge from complex interactions.³⁸