BACKGROUND INFORMATION

This image shows the mouthparts of a female mosquito under a powerful microscope. The mosquito uses these mouthparts to drink blood from other animals, called hosts. The mouthparts help the mosquito pierce a host’s skin and suck out blood, which the mosquito needs to make eggs. The red parts of the image indicate blood cells from the host.

Sometimes, a mosquito drinks blood from a host infected by a pathogen: a disease-causing microbe such as a virus, bacterium, or parasite. The pathogen may enter the mosquito and can then be transmitted, or passed on, to the mosquito’s future hosts.

An organism that transmits pathogens (and the diseases they cause) from one host to another is called a vector. Examples of vectors include mosquitoes and other biting arthropods, such as flies, fleas, lice, and ticks. Vector-borne diseases are diseases caused by pathogens that are transmitted from one host to another by vectors. Mosquitoes are the main vectors for a variety of vector-borne diseases — including dengue, chikungunya, West Nile fever, and Zika — that lead to the deaths of more than 700,000 people worldwide each year.

Many emerging diseases, diseases that are becoming more common or of concern, are transmitted by vectors. Biologists and medical experts work to control the spread of vector-borne diseases by studying vectors, such as mosquitoes. Learning about the biology of a vector — including its life cycle, physiology, and behavior — can help us better understand how diseases spread and how we can develop effective management and control strategies to reduce disease transmission.