



A West-African fruit bat of the *Pteropodidae* family.

2014–16 Ebola outbreak, the Guinean toddler index case was thought to have been infected by fruit bats dwelling in the towering reeds and oil palm cultivations that surrounded his isolated village.

### **Human-to-Human Transmission**

Ebola is spread from person to person through **direct contact** with bodily fluids (e.g., blood, semen, urine, stool, or saliva) of an infected person or objects that have been contaminated with these fluids (e.g., soiled bedding). Direct contact means that in order to become infected with the Ebola virus, the fluid must enter the person's body through contact with damaged tissue (e.g., a cut) or a mucous membrane or by entering the bloodstream (e.g., a needle stick). People become infectious only after they develop symptoms of the disease, typically four to ten days after exposure. No evidence indicates that Ebola can be spread in the air or via insect bites.

Given Ebola's mode of transmission, individuals who are at highest risk of infection during an outbreak include healthcare workers, family members of infected people, and mourners involved in burial rituals.

### **HEALTHCARE WORKERS**

Among other symptoms, Ebola often causes the individual to abruptly release infectious bodily fluids by vomiting, diarrhea, and, in some cases, external bleeding. Thus, unsurprisingly, without proper use of appropriate protective equipment and other control measures, healthcare workers who care for

Ebola patients are at high risk of contracting the disease. The WHO reports that healthcare workers are twenty-one to thirty-two times more likely to be infected with Ebola than people in the general adult population.

Over eight hundred cases of Ebola were reported among healthcare workers since January 2014, and two-thirds of those infected died. This had a devastating impact on affected countries. Also, this was especially difficult for Liberia and Sierra Leone as years of conflict and political instability had left both countries with weak healthcare systems and limited workforces. Liberia had only one doctor for every 100,000 people, while Sierra Leone had only two. This shortage hindered the nations' ability to stop the outbreak as medical professionals began to die of the disease.<sup>36</sup>

### *Nigeria's Hero Doctor*

In July of 2014, a Liberian man named Patrick Sawyer was admitted into a hospital in Lagos, a densely populated city in Nigeria. He had traveled from Liberia and brought with him the Ebola virus. All signs pointed to Nigeria becoming the next African country to be devastated by the disease: around 21 million people live in Lagos—almost as much as the populations of Guinea, Liberia, and Sierra Leone combined—and at this point the country was ill-prepared to control this new outbreak. Yet only eight people died of Ebola in Nigeria, and by October of 2014 the country was declared Ebola-free. How did Nigeria avoid such a devastating fate? Many claim it was the work of Dr. Stella Ameyo Adadevoh, the physician who first diagnosed Sawyer. She and her colleagues fought hard to isolate the Liberian man, despite his violent attempts to leave the hospital. Sawyer later died in the hospital from Ebola, along with Dr. Adadevoh and three of her colleagues who were infected while caring for Sawyer and protecting the nation from the virus.

### **FAMILY MEMBERS OF INFECTED PEOPLE**

In the 2014 Ebola outbreak, transmission was linked to certain aspects of West African culture, including the tendency to have strong family ties