

DEADLY CONTACT

1 In September 1994, a violent
disease erupted among a group
of racehorses in a small town in
Australia. The first **victim** was a
5 female horse that was last seen
eating grass beneath a fruit tree.
One of her caretakers noticed
that the horse didn't appear
to be well and brought the
10 animal back to her stable¹ for
observation. Within hours, the
horse's health declined rapidly.
Three people worked to save the animal—the
horse's trainer, an assistant, and a veterinarian.²
15 Nevertheless, the horse died two days later,
leaving the cause of her death uncertain. Had
she been bitten by a snake or eaten something
poisonous?

Within two weeks, most of the other horses in
20 the stable became ill as well. All had high **fevers**,
difficulty breathing, facial **swelling**, and blood
coming from their noses and mouths. Despite
efforts by the veterinarian, 12 more animals
died. Meanwhile the trainer and his assistant
25 also became ill, and within days, the trainer was
dead too. Laboratory analysis finally discovered
the root of the problem: the horses and men
had been infected by a previously unknown
virus, which doctors eventually labeled Hendra.
30 This virus had originated in bats that lived in
the tree where the first horse had been eating
grass. The virus passed from the bats to the
horse, which then **transmitted** the virus to other
horses and to people—with disastrous results.
35 Infectious disease is all around us. Disease-
causing agents, such as viruses, usually have
specific targets. Some viruses only affect

A young rhesus macaque monkey is tested to see whether he carries human diseases, or diseases that could be passed to humans.

humans. Other viruses live in or affect only
animals. Problems start when animal viruses are
40 able to infect people as well, a process known
as zoonosis. When an animal virus passes to a
human, the results can be deadly. Often our
immune systems are not **accustomed** to these
viruses and are unable to stop them before they
45 harm us.

In the last three decades, more than 30
zoonotic diseases—the kind that live only in
animals but somehow pass to people—have
emerged around the globe. HIV is an example;
50 it evolved from a virus originally carried by
African monkeys and later chimps. Today,
conservative estimates suggest that HIV has
infected more than 40 million people, though
this number may be higher. SARS, a type of
55 flu which jumped from chickens to humans, is
another type of zoonotic disease.



◀ Hendra survivor Ray Unwin still suffers from the aftereffects of the disease. "I can't get the tiredness out of my body," he says.

¹ A **stable** is a building where horses are kept.

² A **veterinarian** is an animal doctor.

But how do these viruses—like Hendra, SARS, and HIV—pass from animals to humans? Contact is crucial. Human

60 destruction of animal habitats,³ for example, is forcing wild animals to move closer to the places people live—putting humans at risk for exposure to animal viruses. The closer
65 humans are to animals, the greater the risk of being bitten, scratched, or exposed to animal waste, which can enable a virus to pass from an animal to a human. Raising animals (for example, on a farm) or keeping certain kinds of wild animals (like monkeys) as pets
70 increases the risk of exposure. Eating animals that are diseased can also result in a virus being transmitted.

The factor that is probably most responsible for the spread of zoonotic diseases worldwide
75 is international travel. In 1999, for example, a deadly disease—one that had never been seen before in the Western Hemisphere—appeared in the United States. There were several **incidences** that year of both birds
80 and people becoming sick and dying in New York City, and doctors couldn't explain why. Subsequently, they discovered that the deaths had been caused by the same thing: the West Nile virus, found typically in birds and
85 transmitted by mosquitoes that live in parts of Northern Africa. Somehow, this virus—



▲ Scientist Eric Leroy studies another very serious disease, Ebola. At his lab in Gabon, his research points to fruit bats as carriers of the disease.

probably carried by an infected mosquito or bird on a plane or ship—arrived in the U.S. Now birds and mosquitoes native to North
90 America are carriers of this virus as well.

West Nile cannot be transmitted from person to person. But zoonotic diseases, which can be spread by a handshake or sneeze, create medical **emergencies**: they can potentially
95 circle the world and kill millions of people before science can find a way to control them.

Today, researchers are working to create vaccines for many of these zoonotic diseases in the hope of controlling their impact
100 on humans. Other specialists are trying to make communities more aware of disease prevention and treatment, and to help people understand that we are all—humans, animals, and insects—in this together.

³ An animal's or plant's **habitat** is the natural environment where it normally lives and grows.

◀ Hendra was eventually traced to fruit bats, like this little red flying fox, living in a nearby tree.

