MedicalXpress

Primate disease field guide covers critical gap in global health

November 18 2008

Why are so many infectious diseases jumping from animals to humans? Why do we have so little capacity to predict epidemics, or avoid them? Some answers, and possible solutions, can be found in the first trench-to-bench guide to wild primate infectious diseases, published Nov. 17 in the *Yearbook of Physical Anthropology*.

"There is growing awareness that the majority of emerging pathogens in the world are coming from wildlife. And most of that wildlife is in tropical forests – in places where we have the least disease surveillance," says Thomas Gillespie, assistant professor of environmental studies at Emory University, and lead author of the article.

In addition to describing integrative approaches to studying primate infectious diseases, the article provides standardized, step-by-step guidelines for properly gathering and storing feces, blood and other specimens from wild primates for laboratory analysis.

"By giving researchers from a range of disciplines standardized guidelines for collecting data, and integrating that data across sites, we can build a baseline for patterns of primate disease. That may give us a chance to see something abnormal before it becomes an epidemic," says Gillespie, one of the world's leading primate disease ecologists.

The article was in response to a growing outcry among scientists for integrated approaches to studying how outbreaks get their start. A meta-analysis published in the journal "Nature" in February showed that more

than 60 percent of epidemics between 1940 and 2004 began when a germ jumped from wildlife to humans.

Gillespie's co-authors on the Yearbook of Physical Anthropology article were Charles Nunn, a biological anthropologist at Harvard University; and Fabian Leendertz a virologist at the Robert Koch Institute and Max Planck Institute for Evolutionary Anthropology in Germany.

Risk of Primate, Human Pathogen Exchanges Up

The specialized field of primate disease ecology began around 1999, when the global HIV/AIDS pandemic was traced definitively to SIV-1 from chimpanzees. While HIV/AIDS and Ebola are the two most dramatic examples of human diseases linked to primates, many other viral, bacterial, fungal and parasitic pathogens found in apes and monkeys are readily transmissible to humans. Recent studies have also shown that potential pathogens are passing from people and domestic animals to primates, bolstering suspicions that primate epidemics of polio, measles and respiratory diseases came from humans.

"The close genetic relationship between wild primates and people, coupled with growing human activity in forests, is increasing the opportunities for the exchange of pathogens," Gillespie says.

One of Gillespie's current research projects, funded by the National Geographic Society, is tracking the ecology of pathogens among people and wild primates at logging sites in the Republic of Congo. The project is gathering data to support sustainable logging methods, as well as to protect the health of people and animals.

Integrated Research Key to Interventions

Gillespie is among the founding scientists of the Great Ape Health Monitoring Unit, a cooperative effort of the United Nations, academic institutions and non-governmental organizations. The unit strives to integrate research from anthropologists, health professionals, biologists, ecologists and other scientists who are studying wild primates in remote locales with the work of lab-based scientists and computer modelers.

"We want to reduce the risks of a pathogen jumping from animals to people and vice-versa," Gillespie says. "And if a pathogen does make the jump, we want to have enough data to develop effective interventions."

Source: Emory University