Apes Need Vaccines, Too

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Published: August 1, 2013

SAN ANTONIO — BIOMEDICAL research with captive chimpanzees, an enterprise that has helped save millions of human lives, is being dismantled. The National Institutes of Health, citing a reduced need for chimps in research as well as their “likeness to humans,” recently decreed that all but 50 of the 451 chimps that are federally owned or supported will be retired and moved to sanctuaries.

As the chief scientific officer at a research institute that has 90 chimps supported by the N.I.H., I bemoan this development. In my view, the benefits of such research outweigh the costs. Many people disagree with me, citing their commitment to animal welfare.

But here is a fact about animal welfare that my opponents fail to consider: research with captive chimpanzees is vital to the development and testing of vaccines that can help save the lives not just of humans but also of wild chimpanzees and gorillas. It could even help those species from becoming extinct.

Wild great ape populations are being decimated by diseases. Over the last 20 years, Ebola hemorrhagic fever has killed a third of the wild gorilla population and nearly as high a fraction of the wild chimpanzee population. Of the chimps in Gombe Stream National Park, in Tanzania, more than 40 percent are affected by chimpanzee AIDS; their death rate is 10 to 16 times higher than that of uninfected chimps. Human respiratory diseases, which are transferred to great apes in areas where they have close contact with people, are the most destructive: 48 percent of all recorded disease-related deaths at Gombe from 1960 to 2006 were from respiratory illness.
All these *infectious diseases* are potentially preventable in apes by administering prophylactic or therapeutic vaccines. Such vaccines are under development, and research programs with captive chimpanzees are critical to further advancing them, not only to ensure their safety and efficacy but also to develop the practical means of delivering them in the wild.

Many people are unaware that vaccines have been administered to wild great apes. In 1966, a *polio* epidemic among the chimpanzees at Gombe Stream National Park was halted when the chimps were given the oral *polio vaccine* in bananas. Captive chimpanzees had been instrumental in research that developed the vaccine.

More recently, an Ebola vaccine underwent testing in chimpanzees at the *New Iberia Research Center* at the University of Louisiana, Lafayette. The vaccine was effective in inducing an *immune response* that would be expected to be protective against the virus that causes the disease. But for the vaccine to be practical for delivery to wild great apes, more research is required to develop an oral formulation that is safe, effective and stable for long periods of time when distributed in great-ape habitat areas. Fieldworkers consider oral delivery (using food treats, for example) key to mass *vaccinations* of wild apes; injection by dart gun works only with ape populations habituated to close human contact.

Captive chimpanzees have also been used for developing and testing candidate vaccines for the human *respiratory syncytial virus*, or HRSV. As early as 1995, investigators at the N.I.H. reported that a candidate vaccine intended for human use provided a high level of protection to chimpanzees. Since HRSV is prevalent only in those apes that have high exposure to humans and are amenable to close human contact, this vaccine could be delivered via dart gun, a method that has successfully vaccinated wild gorillas against *measles*.

A candidate therapeutic vaccine for chimpanzee AIDS is also available. The lead researcher, *Beatrice Hahn*, a professor of medicine and microbiology at the University of Pennsylvania, has expressed hope that H.I.V.-infected captive chimpanzees at research facilities will become available for the vaccine’s further development and testing. While the motivation for creating such a vaccine is ultimately to help humans, the viruses that cause AIDS in humans and apes are different, and this vaccine is designed expressly for chimps.

Policy makers are thwarting the opportunities that such vaccines represent. The 50 chimpanzees that the N.I.H. has allowed for use in future research are too few for the work that needs to be done. Hundreds of chimpanzees were required to develop the *hepatitis B* vaccine and for uncompleted work toward a *hepatitis C* vaccine.

While technical and medical advancements have reduced the extent to which chimps are needed for biomedical research, chimps continue to be vital for certain research purposes, as the N.I.H.’s working group on this issue has conceded. (*And some of those technical and medical advancements, It should be noted, were themselves developed from research with chimpanzees.*)

The N.I.H. has not permitted a single chimpanzee that it owns or supports to be enrolled in a new research study since December 2011. For the time being at least, and maybe forever, we as a society must accept that humans — and chimpanzees and gorillas — may continue to die from diseases that could have been prevented or treated by medical products developed from research with chimpanzees.

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