

Canine vaccinations effective deterrent to rabies in Africa

January 22 2014, by Michael Greenwood



(Medical Xpress)—Yale School of Public Health researchers have found that annual canine vaccination campaigns not only stop the spread of rabies, a potentially deadly disease, but are cost-effective and may actually save money. The research is published in *Annals of Internal Medicine*.

Furthermore, the scientists recommend the continuation of canine vaccinations in areas where it is already used, and the expansion of the practice in areas where it is not now used.

Rabies remains a widespread threat to [public health](#) throughout much of rural Africa and other parts of the world. Spread to humans primarily by [dogs](#), the virus quickly invades the victim's central nervous system and, ultimately, the brain.

The disease predominately affects children and is responsible for 61,000 deaths worldwide each year, a third of which occur in rural Africa. Another 7.5 million people are treated annually for [rabies](#) with life-saving drugs.

While a recent conference in Africa on the health threat suggested that the most effective way to contain the disease is to simply keep dogs tied up, research led by the Yale School of Public Health concludes that annual canine vaccination campaigns are a more effective [public health intervention](#).

The researchers developed a mathematical model for rabies transmission that determined the cost-effectiveness of canine vaccination in rural Tanzania. Despite a perception that such campaigns are too expensive in certain rural settings, the researchers found that annual vaccinations "dramatically" curtail the health burden of rabies and confer "extraordinary value" in doing so.

"Rabies campaigns are often a low priority, because of perceptions that there are more important health issues to tackle or that it's just a veterinary issue," said lead author Meagan C. Fitzpatrick, a doctoral student at the School of Public Health. "But in fact we find that, in many rural settings, canine vaccination saves both lives and money."

A [vaccination campaign](#) for rabies saves money by reducing the need for expensive post-exposure vaccinations in humans. In Tanzania, for example, a single canine [vaccine](#) can be administered for under \$2 per dose, but a regimen of human vaccination will cost more than \$110. On

balance, vaccinating most dogs is less expensive than waiting for humans to be bitten, says Fitzpatrick. In addition, many bite victims in rural sub-Saharan Africa cannot afford this regimen, or in some cases are unable to access it within two days of a bite, as is required. These lives could be saved by annual vaccination campaigns, adds the researcher.

In settings such as rural Tanzania, domestic dogs are generally very common and the incidence of rabies is also very high. These dogs are usually working animals, so the conference's recommendation of keeping the dogs tied is impractical, the researchers said. Regular vaccinations are needed, they note—not only a one-time campaign, as the disease can be easily reintroduced from dogs and wildlife in neighboring unvaccinated regions.

Provided by Yale University

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