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By Cathy Tran

SCIENTIST TO WATCH

Nathan Wolfe: From Bench to Bush

With his curly locks, beard, and swarthy complexion, epidemiologist Nathan Wolfe seems to fit right in with the hunters he works with in Cameroon. Sometimes, he even wears one of their traditional robes, blue with gold embroidery, just in case.

"He's quite well-accepted," says Don Burke of Pittsburgh University, his former postdoctoral adviser who met Wolfe at a conference on emerging diseases. They shared a common interest in the role of nonhuman primates in transmission, and Wolfe joined Burke to help start a study in Cameroon.

Upon arriving at a tiny village, Wolfe meets with elders, holds



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tribal meetings, and befriends the townspeople while learning dialects and how to wheel and deal like a local. Burke vouches that Wolfe's a "ferocious bargainer."

JASON

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Local villagers help Wolfe study human disease back to its source: possibly the bushmeat favored by Cameroon hunters or the live and freshly butchered animals sold in wet markets in Asia. He and colleagues collect blood blots from the hunters and their prey, looking to molecular biology to tell the epidemiologic story. One big story emerged in 2004: Gorilla-to-human transmission of retroviruses occurs under natural circumstances as primary infections. ¹

Traditional thinking in epidemiology held that successful cross-species transmission is a rare occurrence. "Nathan puts some old ideas on their head," says Linda Rosenstock, dean of public health at the University of California, Los Angeles. His continued partnerships in the region led to the discovery of two AIDS family viruses, HTLV-3 and HTLV-4, not previously documented in humans. ² "Our knowledge of the diversity of those viruses must be pretty limited if we can sample a thousand individuals and double the number of known deltaretroviruses," says Wolfe. "It means that we're just sort of scratching the surface."

Wolfe worries how the current era of discovery will be judged: "In a hundred years, people will look back at this period and say that we spent quite a bit of time and energy in the important task of controlling diseases that became already established and not on how we can forecast the new pandemics in the future."

In hopes of more predictive information, the National Institutes of Health granted Wolfe a \$2.5 million Pioneer Award to create a global surveillance system that would catch and mitigate potential epidemics. With about 20 collaborators, Wolfe is now expanding his projects to other parts of Africa and in Southeast Asia.

Burke says the work represents a new way of thinking. "If you just think that medical research is stopping at the bedside, that isn't a very broad view. Nathan goes from the bench to the bush."

Title: Professor of Epidemiology, University of California, Los

Angeles

Age: 36

Representative Publications:

1. N.D. Wolfe et al., "Naturally acquired simian retrovirus infections in central African hunters," *Lancet*, 363:932-7, 2004.

(Cited in 61 papers) | [[PubMed](#)]

2. N.D. Wolfe et al., "Emergence of unique primate T-lymphotropic viruses among central African bushmeat hunters," *Proc Natl Acad Sci*, 102:7994-9, 2005. (Cited in 23 papers) |

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comment:

Our fixations!

by Dr. Vinod Nikhra, New Delhi, India

[Comment posted 2007-01-24 02:03:10]

Many times the science and scientists work in strange ways! It is good to think that HIV came from a zoonotic source. There is nothing wrong in the idea or the thought. But after so many years, we are still fixed to that possibility. What if I say that to begin with all the viral infections might have come from animals. With the evolution, as creatures were evolving, the viruses were also evolving and jumping from one species to another in search of more suitable hosts. The viral genomes were probably also modifying to become more virulent for the species in question but more fit to survive in their on context. Anyway, the basic research is ok. But sometimes it takes so much resources to be spent which would have been spent otherwise in a more useful way.

'The medical research is stopping at the bedside' or perhaps stooping bedside. But the genetic research gives you a tool to trace the very source of a particular genome. Agreed. But, don't you think that sometimes this wild thought can be carried too far. Sometimes going from 'the bench to the bush' may be a sheer waste of resources.

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