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## If AIDS Went the Way of Smallpox

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What would an [AIDS](#) vaccine mean to the world?

In some ways, it would outshine a cure for the [common cold](#). After all, even if the cold and its stealth wingman, [pneumonia](#), kill more people, they don't do it quite so grimly.

People with AIDS tend to die after years of suffering, often screaming from the agony of [cryptococcal meningitis](#) or [choking](#) on [thrush](#) fungus. In poor countries, they too often leave behind a blighted harvest of orphans, coldly furious infected spouses and spiteful neighbors cackling with schadenfreude and lying about their own H.I.V. status.

Those who slip away from pneumonia are usually very old and weak or very young and weak. Families may be bereft, but less often financially and spiritually broken.

On a larger scale, a vaccine would mean so many things: The end of an age of fear that has loomed since the 1980s and has gnawed at Africa the way the Black Death once gnawed at Europe, only more slowly. The savings of billions of dollars. An excuse for the vast new disease-specific institutions like UNAids, the President's Emergency Plan for AIDS Relief and the Global Fund to Fight AIDS, Tuberculosis and Malaria to hold their medal ceremonies, play their anthems, pack up and head home. (Fat chance, since bureaucracies are immortal — though, admittedly, there is no UNSmallpox.) But there is nothing to suggest in the news from Thailand this past week that such an age is dawning.

A vaccine is not just around the corner, and no expert will say it is. In the '80s, top officials embarrassed themselves by predicting one in five years. At the time, the epidemic had killed a few hundred gay American men, [hemophiliacs](#), drug users and transfusion recipients. No one imagined its death march would entrain 25 million as it circled the globe.

Still, for vaccinologists, last week's news was momentous — after 20 years of constant failure, a vaccine appeared to have, for the first time, offered some protection. And it was the largest-ever clinical trial of its type.

But only the numbers that could be wedged into headlines were big. “One Third Protected” was a common one.

In the data itself, the real margin of success was razor-thin: 23 Thais out of 16,395.

That is, three years after getting the vaccine or a placebo, 74 in the placebo arm of the trial became infected while only 51 in the vaccine arm did.

Bloggers with a taste for biostatistics — and one rival AIDS vaccine specialist who declined to be quoted — said it would take only a handful more infected Thais in the vaccine column to shift the results from “statistically significant” to meaningless. Even one more would have weakened the data enough to make headlines saying “One Quarter Protected” more likely, given the way journalists round off numbers.

Which is to say: something as simple as a couple of broken [condoms](#) could have altered the conclusions of the trial.

Moreover, even the experts overseeing it — the [United States Army](#), the [National Institutes of Health](#) and Thailand's health ministry — could not say why blending two experimental vaccines that had previously failed had suddenly worked. Or sort of worked.

More oddly, the infected people in both arms of the trial had the same amount of virus in their bloodstream. That's unexpected, because normally even a weak vaccine kills some virus.

A few skeptics began to grumble that even faintly rosy conclusions sounded too good to be true.

“One dud plus one dud doesn't make a firecracker,” said Gregg Gonsalves, a longtime AIDS activist, referring to the two vaccines by Sanofi-Aventis and Genentech. “They performed pitifully in the past. It's biologically implausible that they would do so well now.”

Other groups began to express doubts, not about the data, but about the real-world practicality of what it took to generate it.

This trial was nothing like the recent [swine flu vaccine](#) trials: one shot and bingo, protection for a year. Nor like the long-established [measles vaccine](#): one shot and bingo, protection for life (though most children now get a booster to make sure). This was six shots, spaced out over months, ending in weak protection. The next step, some experts suggested, might be even more shots, or the addition of a third vaccine.

That might be practical in rich countries, but the burden of AIDS is in the poorest ones.

“Millions of children across Africa still die of [measles](#) simply because the vaccine doesn’t reach them,” said Barry Coleman, founder of Riders for Health, a British charity that buys and fixes motorcycles for African health workers. People with AIDS don’t need, he added, “another breakthrough that does not reach those who need it most.”

The next scientific step is obvious. Any time researchers declare a miracle — cold fusion, stem-cell cloning — the first test is whether a rival laboratory can reproduce the results. But this trial defies reproduction: it took six years and \$105 million of U.S. taxpayers’ money. And there aren’t many Thailands in the world — countries that have AIDS circulating widely, but where the health care system is so good and the population so dependable that 90 percent of patients can stick with a study for six years.

So researchers will have to come up with another model. Until then, a vaccine for AIDS remains a dream deferred.