

Transcription - The eradication of smallpox

Part 1

When you think about virus and diseases, and you think about treatment, it really is a war. That's a battle for survival, that's a game of move and counter-move.

And that's why smallpox is such an important virus, because it did show people that you could do something about these things, these weren't visited upon us from an evil god: they were viruses that you could defeat with science.

The whole story of the World Health Organisation's smallpox eradication campaign, I think, is one of the most amazing and moving stories in 20th century medicine.

This is one of those great endeavors where human intelligence and goodwill across the world came together.

When the eradication program began, we were losing too many people a year to smallpox. And remember only a third of the people died, while the other people were horribly scarred, and then many of them were left blind.

At the time, the smallpox eradication program started: there were 5 regions of the world that had smallpox: South America - mainly Brazil, West and Central Africa, East and Southern Africa, the Indian subcontinent, and Indonesia.

In 1958, at the World Health Assembly, it was proposed by the Russians to eradicate smallpox. This is the first time the Russians had been in the World Health Assembly for years, so all the countries said 'okay, if this is what the Russians want, let's keep the Russians happy, and so we'll approve it.'

Nothing like the eradication had ever been attempted before.

The rumor is that then Director General thought, for sure, this would fail and so he decided: "Let's make the head of it in American! Then when it fails, we can pin it on this guy Henderson."

In the early 1960s, I was in the Center for Disease Control. And my name came up to go. I didn't want to go.

DA Henderson got dragooned into going to Geneva and running the smallpox eradication. And he scratches his head and tries to figure out, "OK, you know, how are we gonna do the equivalent of a moon landing with this virus?"

It was plunging into deep waters to take this on.

They started with 23 countries in Africa that were known to have smallpox.

Our strategy was to vaccinate the entire population. You're talking about hundreds of millions of people. At one point we had 6,800 outbreaks and you know each outbreak could be hundreds of cases. Even in retrospect, it seems impossible to deal with 6,800 outbreaks of smallpox at one time. But we believed it could be done.

This was a disease with a very good vaccine and you can't hide it : if a person gets smallpox, you're going to be able to find them.

Part 2

West Africa was deemed to be the most difficult because it was relatively densely populated. And it also had the worst infrastructure.

In December of 1966, we got notice of a smallpox outbreak in Eastern Nigeria. But we didn't have enough vaccines. We had a little bit, but not enough, so we couldn't do mass vaccination. So what we did was we used the network of missionaries who would get on the radio every night and report new outbreaks. And with the map in front of me, I divided up the area to ask each missionary to send runners to the villages in their area the next day. 24 hours later, I knew exactly where the smallpox cases were. And so we were able to take our small amount of vaccine and go into those villages. We vaccinated them and the outbreak stopped so fast that it took our breath away.

So Bill Foege stumbled upon the notion of what is called "surveillance and containment" or "ring vaccination". And it happened because they simply ran out of enough vaccine.

They just vaccinated around the cases and, lo and behold, bingo! It disappeared because the virus had nowhere to go.

In one sense, we out-thought the smallpox virus, which shouldn't be hard to do when you realize they don't have a brain. But that's what we were trying to do. One by one, other countries were able to accomplish this. And by 1973, India was the biggest problem left.

In 1974, India had about half a billion people. They lived in about 120 million houses. In about 500,000 villages in 21 states. And to eradicate smallpox, it meant that we would have to visit every single house in India.

And ultimately we did. We visited 120 million houses. In India, every month for about 20 months. We did more than a billion house calls.

It was a crusade. They were inspired not only by one another, but by the fact that - my goodness! - we can actually get rid of a disease.

We chipped away at it with our Indian team until we were able to show that we were containing more outbreaks than we were getting new ones. And that was the tipping point.

It looked like it was coming together: it was in February of 1974, and finally (we) decided with Bill : we can do it.

I think that last year was probably the most incredible public health story that I have seen in all of global health history.

Across the world we had managed to go from 10 million cases and two million deaths a year in just 10 years down to 0. You feel pretty good about it.

Smallpox eradication was one of the greatest accomplishments of the human race.

I am sure there are literally billions of lives that have been saved as a result.

Good news from Geneva! The World Health Organization has made it official : smallpox throughout the world has been virtually eliminated.

After eradication was declared in 1980, there was still samples of variola virus around the world. One accident, one confirmed case is a pandemic. Smallpox is still a threat.