RX for Survival: The End of Smallpox
Part I: The Campaign Begins

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>>NARRATOR: With the development of vaccines for diseases like diphtheria, mumps and measles, old viral epidemics began to disappear. When Jonas Salk produced an injectable polio vaccine and Albert Sabin made an oral version, many countries organized massive inoculation campaigns that brought this relentless crippler to the brink of eradication.
Vaccines were winning the war against viruses. In the West.
But in poorer countries most viral diseases still flourished. Even smallpox, the first illness to have a vaccine, continued to claim more lives than any other disease in history.
It killed without mercy, bringing a mask of agony to the faces of the dying.
>>I remember seeing children with their faces swollen with hemorrhagia smallpox and thinking, Isn't this a shame that it's the last view the parents will have of this child.
>>We had a huge hospital ward filled with smallpox cases. And as you walked past the beds, these people looked so distressed, and you could identify at least half of them who were going to die.
The young British physician just put his hands on the balcony rail outside, then said, "I cannot again do rounds on a smallpox ward."
>>NARRATOR: In 1967 the World Health Organization decided to mount a global vaccination campaign to wipe out smallpox forever, but the disease was so widespread, experts predicted total eradication was doomed to failure.
Even its leader was skeptical.
>>It was such an overwhelming problem, there was a time where we really had our doubts that we were going to be able to succeed.
>>NARRATOR: For the mammoth task, Henderson recruited young idealists who immediately became known as the smallpox warriors. Later many would rise to prominent positions in the field of public health, but now they were just doing their job, which meant getting the vaccine to extremely remote places.
>>A number of these had rather long hair. They certainly weren't individuals who were likely to show up and be well received at an embassy cocktail party. But they worked tirelessly. They were real heroes.
>>NARRATOR: And they needed courage, because their task was truly daunting. But they were spirited, and they had a vaccine that could be easily administered by scratching the skin with a special serum-laden needle.
Smallpox also had characteristics that gave Donald Henderson realistic hope he could break the chain of transmission.
>>We always knew where it was. Wherever the virus was, the individuals had rash, and we could go into a village and immediately identify whether we've got a problem.
>>NARRATOR: And smallpox could only be transmitted from person to person. There was no animal or insect also carrying the virus, so immunizing as many people as possible could hopefully break the cycle of disease.
At the start of the initiative in 1966, 63 countries were reporting smallpox cases. One of the hardest hit was Nigeria. So the warriors went there first.
The plan was to vaccinate 80% of Nigeria's large and widely scattered population. They were relying on a concept called herd immunity, which means, if enough of your neighbors are vaccinated, you're unlikely to get the disease. But they soon discovered that vaccinating even 80% of Nigerians were impossible. There were far too many people and not enough vaccine.
>>We found ourselves looking for an alternative. How do we use the small amount of vaccine we have most efficiently.
>>NARRATOR: Bill Foege, who directed the campaign in Nigeria, was forced to rely on a strategy called Ring Vaccination to keep the program alive. When
they found a smallpox case, they'd vaccinate only those people in the immediate vicinity of the victim. These vaccination rings would still keep the disease from spreading even though only 15% of the population would be vaccinated. But if the warriors missed cases outside the rings, all would be lost.

The problem was how to locate everyone with smallpox. Bill Foege turned to Nigeria's extensive network of missionaries for help.

> Mission station calling all parishes. Over.
> We divided up the geographic area and asked each missionary if they would send runners to every village to find out whether they had smallpox.

>> NARRATOR: If the runners found a case, vaccinators would quickly move in and place a quarantine ring around that village.

>> Suddenly we were able to put a mark on every village with smallpox. The bottom line is that smallpox disappeared from this area in a period of weeks, even though we had vaccinated only a minority of the population.

>> NARRATOR: They also latched onto another valuable group who could provide intelligence. School children.

>> Is there anybody here that knows of someone that has this disease?

>> By holding up a picture of smallpox and saying, "Has anyone seen this," we soon found that little boys in particular between nine and 13 years of age knew pretty much everything that was going on and were quite prepared to tell you all about it.

> Over there.

>> NARRATOR: Region after region began to fall to the strategy, with Ring Vaccination always the cornerstone of the plan.

After three years of determined work, the smallpox campaign triumphed in West Africa.

Part II: The Last Case

>> NARRATOR: India, with the largest concentration of cases, became the next target for the warriors. But, with its massive population, they would need other strategies for success.

They recruited thousands of Indian workers to help them find cases. By 1973 they mounted a house-by-house campaign that was so well coordinated, they visited a hundred million homes in just six days.

But what they discovered alarmed them.

>> In one state where we were getting about 500 cases a week, suddenly the searchers found 11,000 cases in just this one week. It was a very black day indeed.

There were those who said, "You'll never get rid of smallpox in India."

>> NARRATOR: Worse, the disease could easily spread among such a highly mobile population.

>> In the 1970s, 1% of the Indian population was on a train at any one time. And so you're thinking of millions of people moving around the state.

>> NARRATOR: To try to overcome this problem, they created surveillance and vaccination posts at train stations, and they stood watch at markets and other gathering places.

>> There is a goddess by the name of Shitala Mata in Hindu mythology to whom villagers would make offerings for her to heal them if they were ill with smallpox. It seemed it would be a good idea to post people at the Shitala Mata shrines to learn where smallpox cases were occurring.

>> NARRATOR: They also went into the countryside where farmers worked long hours in distant fields. To get them to come into the villages to be vaccinated, Foege enlisted the help of a creative chief.

>> He said, "I'll get them back." And with that, he had his drummer begin pounding on a talking drum.

People came flowing into the village. Almost as fast as people move by
you, you can vaccinate them.

After two hours we finally finished everyone.

I said, "I am very impressed. How do you have such control over your people?"

He said, "I told them on the talking drum to come to the village market if they wanted to see the tallest man in the world." And I guess I looked that way to him since I'm 6 foot 7 inches.

>>NARRATOR: By 1975, after three years of hard work, India was smallpox free. This had been the hardest battle of all. The warriors could now smell victory.

By 1977 the only cases being reported were in Somalia, in East Africa, mostly among nomadic families who were hard to track down.

Later that year, two cases appeared in a group of nomads camped near the city of Marka.

The victims were children, and a smallpox volunteer, Ali Maow Maalin, was sent to bring them to the Marka hospital. Ali himself had been vaccinated, so he didn't fear helping the children. By the time Ali reached them, one child was dying, but he helped the other survive. And anyone who had contact with the children was vaccinated, so there were no more cases.

But then the unthinkable happened.

Ali Maalin himself came down with smallpox.

>>Ali was immunized, but he didn't have a take, so the immunization was not successful; and as a result, he was unprotected.

>>NARRATOR: While Ali lay in bed fighting for his life, there were no other cases in Somalia or anywhere else in the world. Could the virus that had plagued millions for centuries finally be confined in just one human body in a remote hospital in Somalia?

>>For weeks thereafter, we held our breath.

>>NARRATOR: When Ali Maalin finally emerged from the hospital, little did he know that he would become the last victim of this terrible disease, the endpoint in a smallpox chain of person-to-person transmissions stretching back thousands of years. The warriors had won.

>>I almost had the feeling like having been a soldier in the war. Suddenly there was no war, and you'd miss the camaraderie of your colleagues working out there.

>>This was the greatest public health accomplishment to date. Yes, smallpox eliminated a disease from the world. That disease is no longer present.