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Smallpox: a happy ending

by John Wickett

A vast intemational campaign spearheaded by WHO between 1967 and 1979 rid the world of smallpox. The disease was eradicated; it WIIII't come back. The fact was certifieo by the best scientific experts in the worhllll 1979. Smallpox vaccination no longer appears in the Intemational Hel1lth Regulations nor in the Inter·natillllul Certificates of Vaccination. NeVl'rtheless WHO still receives ro·mours of suspected cases of smallpox. Every single one proves to be false.

Stllilllpox strock a small village in Bangladesh in 1974. The village *chokidar* or watchman knew what to do. Ilc reported the cases to lhe health cenl rl' nnd set about isolating the cases in their homes and vaccinating the village. Everyone entering or leaving the village was vaccinated. When the smallpox leam arrived they were impressed by his conscienlious work. Thl' oulbreak was quickly conlained and vcry few dealhs occurred. There only one thing lhe chokidar forgot to vaccinate himself. He got smllllpox and died.

There is no moral to this story. The internntional consultant had tears in his eyes as he recounted it. I guess we both worked even harder afterwards.

following year the last case of sml1l1pox in Asia, the virolent form which killed one in four of its victims, occurred in Bangladesh in October. 1t was 11 two-year old girl and she survived. The world's last endemic case was in Africa in October 1977; lhis was In Somalia where the disease had a milder formo The programme to globally eradicate smallpox was hailed as a public health miracle. For the first time in the history of man a major killer disease had been eliminated. The dreams of a great many inspired people had been realised.

The eradication of smallpox is now a part of medical history... almost. You do not forget such a disease in just a few years. Large numbers of people still wear the disfiguring scars of smallpox. It was a disease which terrified people for thousands of years and decimated entire populations.

Vast sums taken from scarce health resources had been spent on smallpox vaccination. The cost of producing and

A *sight the world wlJl never see again-a young woman dying {rom smaJlpox.*

administering the vaccine, the maintenance of quarantine measures, and the treatment of complications (albeit rare) from vaccination carne to an estimated US$ 1,000 million ayear worldwide. The elimination of smallpox vaccination and smallpox vaccination certificate requirements for international travellers was obviously desirable. And what a return on investment! The eradication effort undertaken by WHO together with the amounts spent by Member Stales was estimated lo total only US$ 300 million between 1967 and 1977.

Plenty remained to be done after 1977. It was one thing to eliminate the disease. but quite another lo convince the world that it had gone for ever. In order to free the world from smallpox vaccination regulations, national authorities had to be absolutely sure it was gone and could not come back. SO WHO initiated procedures for the certification of smallpox eradication by international experts from all over the world, independently even of WHO itself. The first international commission certified eradication in South America as early as 1973. Subsequent commissions reported each time that large, previously endemic geographlc areas became smallpox-free. These independent experts examined detailed reports and records and visited areas of lheir choice in a given country. Their role was lO make 100 per cenl certain that no smallpox case had occurred during the previous two years, and that the existing surveillance system would have detected a case had it occurred.

At the end of 1977, a Global Commission for the Certification of Smallpox Eradication was formed. This panel of experts reviewed the resulls of previous Commissions and set up a stringent programme for global certification which would be so convincing that no one would hesitate to cease vaccination.

At the end of 1979, two years after the last case in Somalia, the Global Cornrnission submitted their final report. Since 1973, 77 experts from 49 countries had participated in 22 international commissions, 79 countries had undergone special review either

WHO keeps a global reserve of smal1pox vaccine, suffjcient for 300 mil1ion persons.

Photos WHO!Herrhch and WHO/M Vanappelghem

through commissions, expert vislts or special reports, while the remaining countries in the world had submitted declarations of their smallpox-free status.

The Global Commission was convinced; but in their recommendations they also provided for continumg assurance for the world community. They said the number of laboratories retaining vanola (smallpox) virus for scientific study should be severely reduced to limit the risk of any possible escape; WHO should establish a global vaccine reserve; WHO should continue to investigate rumours of suspect smallpox cases which would inevitably continue to be reported; human monkeypox, an exceedingly rare disease which clinically looks like smallpox but is caused by a different virus, should contmue to be investigated; and, of course, smallpox vaccmatlOn and vaccination certificates should be done away with.

Solemn declaration

In May 1980, the World Health Assembly adopted the Global Commission's report to WHO's Director-General and endorsed its recommendations. The Assembly resolution "declares solemnly that the world and all its peoples have won freedom from smallpox, which was a most devastating disease sweeping in epidemlc fonn through many countries since earliest times, leaving death, blindness and disfigurement in its wake and which only a decade ago was rampant in Africa, Asia and South America." It was an intensely satisfying moment.

At that time only 64 countries had stopped routine vaccination. On the other hand, only 12 countries still demanded vaccination certificates from all travellers. There were still six laboratories retaining stocks of variola virus, and WHO vaccine reserves stood at only 44 million doses. As predicted by the Global Commission, rumours of smallpox cases continued.

At present, all but one of WHO's 165 Member States and Assocl3te Members have officially discontinued routine smallpox vaccination. Only in Albania is vaccination being con-

In 1979, *members oI the Global Commission rode Ior hours on muleback in Ethiopia to venIy that eradication oI smallpox was indeed total.*

Photo WHO

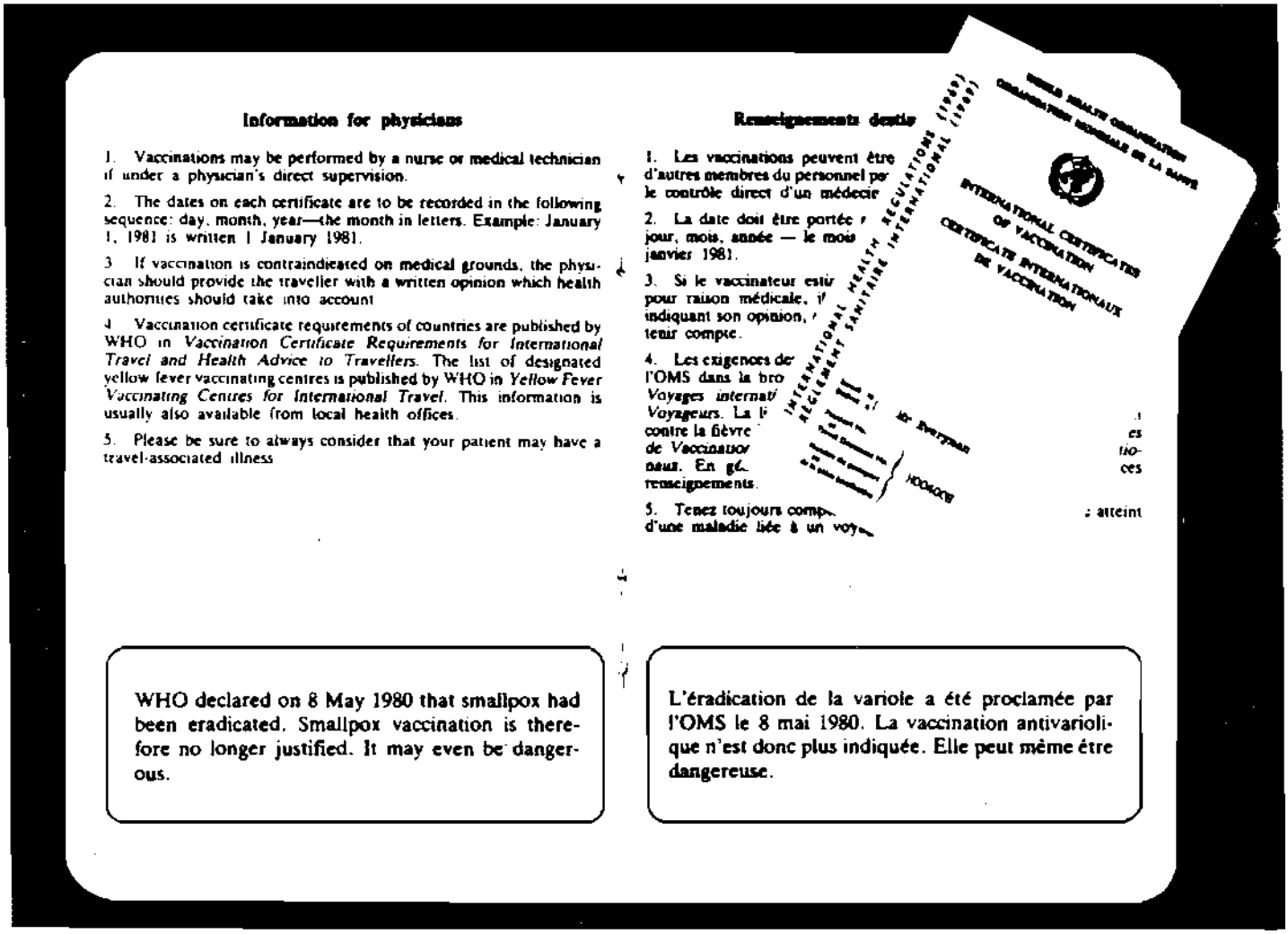
tinued. No country in the world requires smallpox vaccination certificates from intemational travellers. In May 1981 the World Health Assembly formally struck smallpox from the Intemational Health Regulations. As of 1983, smallpox vaccination does not exist in the new edition of the Intemational Certificates of *'/ac*cination.

Only two maximum security laboratories in the world now retain variola virus for scientific purposes. Reserve stocks of vaccme held in Geneva are sufficient to vaccinate more than 300 million people. Reports of suspected cases of smallpox continue to be received at the rate of about 20 per year. Each one has been thoroughlv gated. Each one has been proved false and tumed out to be chickenpox, measles, sorne other rash or a record-error.

The other day a woman telephoned me from France. She was going to join her husband in one of the countries of West Africa and he had told her to get their young son vaccinated against smallpox. She was a little concerned as she thought that smallpox had been eradicated. "Yes, Madame, that is absolutely correct" I replied. "Small· pox vaccination no longer even appears on the Intemational Certificates of Vaccination."

She was still uncertain since her husband had insisted, and she still had an old edition of the certificate. Yet she wanted to avoid unnecessary discomfort for her child. She decided to check with the West African country's embassy in Paris. We agreed she should do so ; if there should be any problem whatsoever, she would phone back and WHO would take up the matter. She didn't phone back. It gives me a good feeling to compare this story with the first one in this article.

WHO can reassure the world wlth 100 per cent confidence of the success of the elimination of smallpox. It is quite an adventure story, and there were sorne pretty dramatic moments. Preparations are well under way for a definitive work. "Smallpox and its Eradication ". to be published by WHO in 1986. It may never reach the best-seller list but parts of it read like a novel. And in the best classic tradition it has a happy ending !



Information for physicians

1. Vaccinations may be performed by a nurse or medical technician if under a physician's direct supervision.

2. The dates on each certificate are to be recorded in the following sequence: day, month, year—the month in letters. Example: January 1, 1981 is written 1 January 1981.

3. If vaccination is contraindicated on medical grounds, the physician should provide the traveller with a written opinion which health authorities should take into account.

4. Vaccination certificate requirements of countries are published by WHO in *Vaccination Certificate Requirements for International Travel and Health Advice to Travellers*. The list of designated yellow fever vaccinating centres is published by WHO in *Yellow Fever Vaccinating Centres for International Travel*. This information is usually also available from local health offices.

5. Please be sure to always consider that your patient may have a travel-associated illness.

Renseignements destin

1. Les vaccinations peuvent être
d'autres membres du personnel pa
le contrôle direct d'un médecin

2. La date doit être portée
jour, mois, année — le mois
janvier 1981.

3. Si le vaccinateur estim
pour raison médicale, il
indiquant son opinion,
tenir compte.

4. Les exigences de
l'OMS dans la bro
Voyages internati
Voyageurs. La l
contre la fièvre
de Vaccinatior
naux. En gé
renseignements.

5. Tenez toujours comp
d'une maladie liée à un voy

INTERNATIONAL CERTIFICATE OF VACCINATION
CERTIFICAT INTERNATIONAL DE VACCINATION

INTERNATIONAL HEALTH REGULATIONS (1969)
RÈGLEMENT SANITAIRE INTERNATIONAL (1969)

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WHO declared on 8 May 1980 that smallpox had been eradicated. Smallpox vaccination is therefore no longer justified. It may even be dangerous.

L'éradication de la variole a été proclamée par l'OMS le 8 mai 1980. La vaccination antivariolique n'est donc plus indiquée. Elle peut même être dangereuse.

Can smallpox ever come back?

The VIruS WhICh causes smallpox can only live in man, Once people are mfected, either they die and the virus dies with them, or the immune system 01 the body kllls Lhe ViruS and the vlctim survives, or one mfected persan mfect5 another.

Smallpox vaccmatlOn wlth vaCClma virus (which is not the same as variola virus which causes smallpox) protects agamst mfechon. Thus, ii ao mfected persan is surrounded by vaccmated people, the virus has nowhere lo go and dies out. In isolated populations. the VIruS runs out of victirns and dies In larger populatlOns the virus dies out when 1t i5 lsolated by being surrounded by vaccmated persons or by survivors who have had the disease and have become irnmune.

There are no subclimcal cases of small·pox-you eilber have it or you don't. It must be passed on from one person lo another at least every three weeks or it dies out. That would mean an absolute minimum of almost 20 cases per year. and smallpox just doesn't go unnoticed.

So when competent worldwide surveillance systems cannot detect anyone with smallpox, we can be sure it doesn't eXIsto And il it doesn't exist, it canoot come back,