Participation of the Public in Global Smallpox Eradication

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GLOBAL SMALLPOX ERADICATION is imminent. With the certification of Bangladesh as smallpox free on December 14, 1977, the Horn of Africa (Somalia, Ethiopia, and Kenya) remains the only possible reservoir of smallpox infection. And transmission there may already have been interrupted. Certification of smallpox eradication will, however, require 2 additional years of intensive surveillance. The progress of the global program in reducing the number of countries reporting smallpox, from 42 in 1967 to 0 in 1978, is summarized in figure 1. This success, which has been achieved despite war, natural disaster, and famine, is a testimony to the commitment and coordination of local, national, and international resources. Little, however, has been written about the people of the infected countries whose active participation in the eradication effort is making the victory over smallpox a reality.

Historically, the public's attitude toward smallpox control has not always been cooperative. The smallpox patient—his skin denuded by open smallpox sores and his every movement, even swallowing, causing intolerable pain—for centuries has accepted the disease as one of life's trials. In some cultures, its prevention and cure have been attributed to the supernatural. In West Africa, worship of the god Sopono, not vaccination, was considered the effective way to prevent smallpox. Among the Hindus of Asia, the goddess Shitlamata was believed by many to control the processes of infection and cure. Moslems accepted smallpox as the will of Allah, an affliction for which

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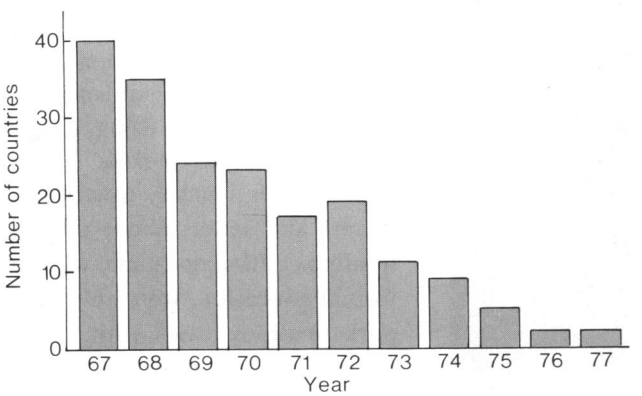
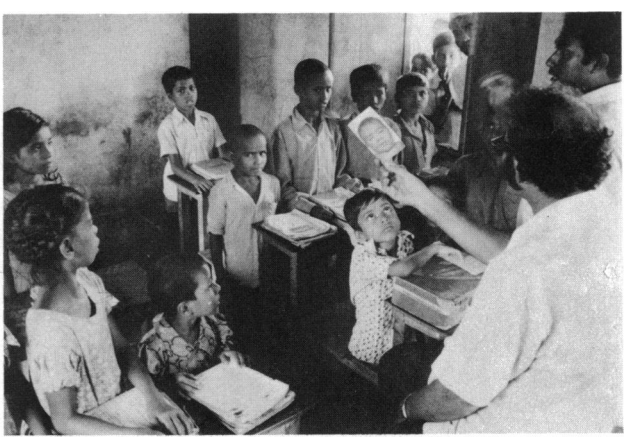
Figure 1. Countries reporting smallpox 1967-77





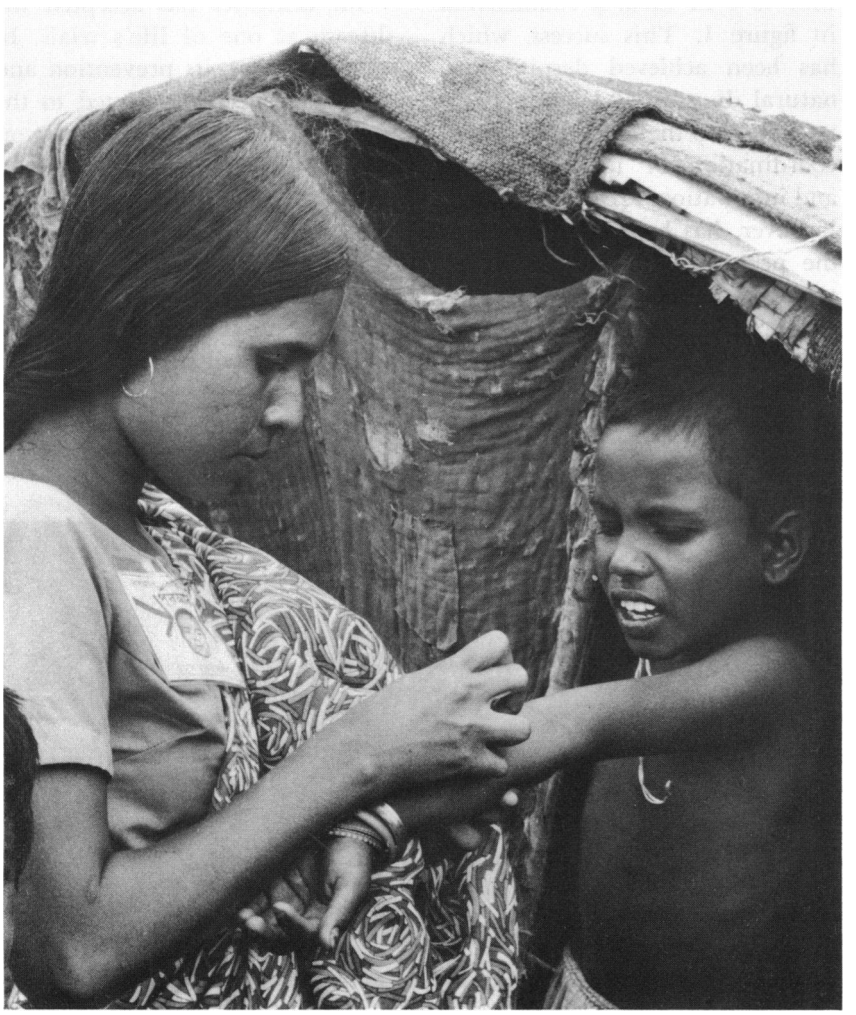
School search to get information on possible smallpox cases.

nothing could or should be done.

Based on studies of pockmarks (the residual scars of smallpox), it has been estimated that in the pre-eradication era, 95 to 99 percent of the smallpox cases in the world went unreported. That people who believed smallpox was caused by a deity were unwilling to report the disease is understandable. Others who feared that public knowledge of their disease would lead to social and economic isolation developed elaborate methods to hide cases. Even among the educated, past experience with health staffs that were unwilling or unable to respond effectively to reports of smallpox often gave them little incentive for reporting. As late as 1977, persistent rumors of past colonial smallpox control practices of house and body burnings deterred people from notifying public health authorities of smallpox cases.

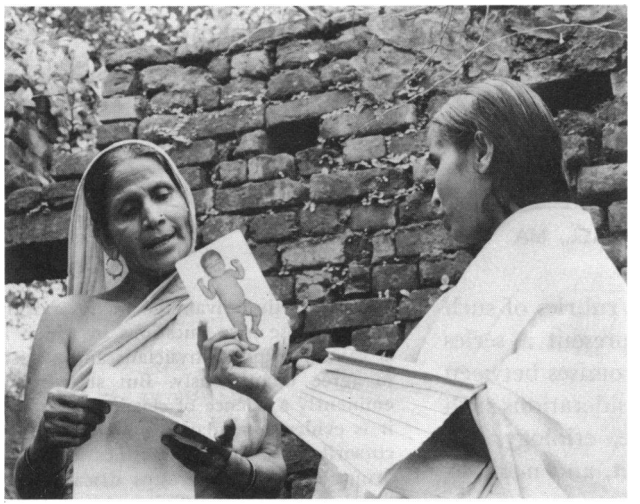
By 1967, it was apparent that mass vaccination, the strategy being used in the global smallpox eradication program, was ineffective. Based on field experience in Nigeria, a new strategy known as surveillance-containment was developed. The success of this new strategy required the detection and reporting of every smallpox outbreak. Since less than 10 percent of the cases occurring in the world were then being reported, new initiatives were needed to ensure complete reporting.

Volunteer vaccinator at work.



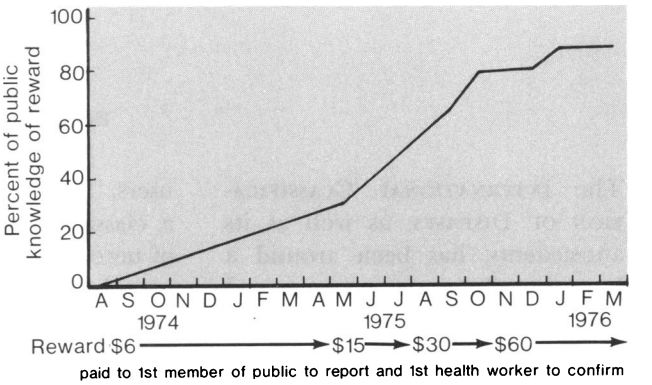
The first step was to examine the attitudes of health workers. Much to the surprise of higher level health officials, it was discovered that some health workers reporting smallpox were being disciplined by their immediate supervisors for not having prevented the disease. Thus, the nonreporting of smallpox to preserve their jobs had become the norm for many workers. Changing this pattern of behavior required a major reorientation at national, regional, and field levels. The introduction of the policy of giving a small monetary reward for each new smallpox outbreak reported provided, for the first time, a positive incentive for reporting. Widely publicized recognition and reward for field staff who reported outbreaks and just as widely publicized discipline for those who suppressed information radically changed the response of health workers toward the reporting of smallpox cases.

To convey to the public this new attitude of their governments, an active program of outreach was initiated. In countries such as Bangladesh, where nearly every family was represented at a weekly market, a search program was set up at the markets. Using megaphones to attract attention and a picture of a patient with smallpox to show what was being sought, four-man search teams visited market after market, questioning buyers and sellers about possible smallpox. Villagers, many without formal education, were able to report smallpox cases with an accuracy of more than 50 percent. During a 2- to 3-hour search, teams



In house-to-house search, worker shows smallpox picture, announces the reward, and collects reports of suspected smallpox.

Figure 2. Public knowledge of reward for reporting new smallpox outbreaks, Bangladesh, 1974-76



were routinely able to detect 80 percent of the smallpox outbreaks within the 25-square mile catchment area of the market. All reports of suspected smallpox in the local area were investigated. In villages where smallpox was confirmed, contact vaccination was performed. As sellers at the markets often came from different parts of the country, smallpox outbreaks at distances of 100 to 200 miles were also detected. These outbreaks were followed up through cross-notification to the responsible local official.

To improve still further the efficiency of reporting, an additional method of public outreach was developed in India: the house to house search. For 1 week every 2 months, all health workers, malaria control workers, and in some States family planning workers, had as their only responsibility the searching of 700 to 1,500 houses for smallpox. Equipped with a list of villages and houses to search and a picture of a patient with smallpox, the searchers walked from house to house, showing the picture, publicizing the reward, and investigating suspected cases. In the first search in the Indian State of Uttar Pradesh, 5,989 smallpox cases were detected in 1,483 villages and 42 municipalities. It was consistently documented by survey methods that 90 percent of the households were covered by such searches. During the years 1974–76, health workers in India and Bangladesh made approximately 1 billion household visits. For Bangladesh, this figure represented 14 million household visits in a 7-day period. As can be seen in figure 2, public knowledge of the reward for smallpox reporting increased to 90 percent. Of the last 100 smallpox outbreaks in Asia, 46 were voluntarily reported by the public. The same search process is currently being used in Somalia, Kenya, and Ethiopia. Its implementation among nomadic groups, where villages are continually on the move, provides a constant challenge.

Smallpox eradication requires not only the detection of cases (surveillance), but effective control of the disease (containment). Again, a change in the public's attitude was necessary. Early in the global eradication program, vaccinators encountered only passive acceptance and sometimes outright hostility as they moved from house to house, often at night, to vaccinate a village. To increase local cooperation, local villagers were recruited to aid health workers in containment. Provided with 2 to 3 hours of on-the-job training, these villagers served as isolation guards, enumerators, and vaccinators. The ability of these locally recruited village workers to prevent through vaccination the suffering and death that smallpox might cause among their own people stands as a major accomplishment of the global smallpox eradication program.

As the world approaches its first success in disease eradication, it is important to recognize the vital contribution of the people of the previously infected countries. International cooperation, national commitment, managerial expertise, and the field workers' dedication were all essential. It was, however, the ability to win the active participation of the public that is bringing success.