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Smallpox - Prev. + cont. - Nepal

THE SMALLPOX ERADICATION PROGRAMME IN NEPAL¹

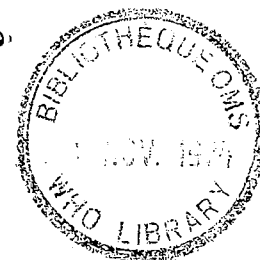
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Country description

Nepal is a landlocked Himalayan kingdom sandwiched between India and China. With an area of 54 177 square miles and a population of about 12 million, Nepal extends for 500 miles along the Himalayas. The flat terai districts adjoining India comprise 17% of the total area and account for 30% of the total population. Two-thirds of the terai population is concentrated in the eastern half (adjoining Bihar).

There is virtually free movement of people to and from India, particularly from the terai districts while the movement of population into China from the northern border is greatly restricted.

The country is administratively divided into four regions, 14 zones, 75 districts and about 4000 panchayats. The panchayat, the basic unit, has a population of about 2500 and is further divided into nine wards.

Organization

The Smallpox Eradication Programme (SEP) is a special project in the Department of Health Services. There are senior zonal supervisors in nine zones. Vehicles have been provided to senior supervisors for field supervision, but these are useful only in the terai districts and valleys.

There are 50 District SEP offices covering all 75 districts. In each District SEP office, there is one district supervisor, one or two assistant supervisors and four to eight permanent vaccinators. The District SEP staff functions mainly as a surveillance team. In the winter season the annual vaccination programme is carried out. Temporary vaccinators are utilized for this programme. One temporary vaccinator is recruited locally from each panchayat for a period of one month. Temporary vaccinators visit all houses and carry out vaccination and also active searches for suspect smallpox cases. The District SEP staff organizes and supervises this programme.

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All outbreaks are investigated and contained by District SEP staff. They report the outbreaks telegraphically to SEP headquarters and to the Zonal office. All outbreaks are investigated by SEP headquarters staff (including WHO staff). Weekly telegraphic reports of cases (including nil reports) are received from all District SEP offices. The surveillance teams from headquarters are also sent to assist District SEP staff in outbreak areas.

Reports of epidemiological investigations are annexed routinely with the weekly reports sent to WHO. The "Smallpox Unit" in WHO SEARO cross-notifies the sources of importations to the appropriate districts and states.

The outbreaks are detected either by District SEP staff on routine monthly surveillance visits to the panchayats or on investigation of suspect reports from various sources.

The District SEP staff spends several days in the outbreak area and carries out containment vaccinations and epidemiological investigations. They also carry out intensive surveillance in the adjacent panchayats. Weekly follow-up visits are made to the outbreak area for a period of six weeks after the last case. However, in a few outbreaks it has been found that this procedure of follow-up visits has not been carried out, probably as a result of many outbreaks occurring simultaneously in the same district.

Milestones

1962:	Commencement of Pilot Control project in all three districts of Kathmandu valley.
Fiscal year 1967-68:	Commencement of Smallpox Eradication Programme in 15 districts.
Fiscal year 1971-72:	Eradication Programme covers 58 districts including all terai districts and adjacent hill districts.
Fiscal year 1972-73:	Eradication Programme covers all 75 districts.
1971:	The eradication programme was reorganized. The surveillance-containment aspect was emphasized and the vaccination programme was carried out with temporary vaccinators for a limited period.
July 1971:	A new training manual was produced. The entire SEP staff was retrained in surveillance-containment technique.
July 1972:	Since July 1972, all outbreaks in Nepal are traced directly or indirectly to importations.
August 1972:	In addition to telegraphic reporting of all outbreaks by District SEP offices, weekly reporting of cases by post was instituted.
October 1972:	Refresher training of SEP staff was carried out.
March 1973:	Nepal was classified as a non-endemic country in the WHO weekly Epidemiological Record.
July 1973:	Weekly telegraphic reporting of smallpox cases (including nil reports) from all District SEP offices was instituted.
September 1973:	Refresher training of SEP staff was carried out.
1974:	Year of massive importations from Bihar.

Facts and figures

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Reasons for the successful efforts in combatting the massive importations

1. The main emphasis of SEP in Nepal is surveillance-containment. The District SEP staff virtually functions as a surveillance team.
2. The District SEP staff must spend several days in the outbreak area - partly due to transport difficulties. This naturally helps in containment vaccinations and through epidemiological investigations.
3. There is not much movement of people, particularly children, from panchayat to panchayat in the terai districts. The movement is mainly across the border to visit relatives. This helps in limiting an outbreak to a panchayat.
4. The vaccination programme has been in operation in the terai districts for more than four years and has been intensified with temporary vaccinators during the last three years. The immunity level of the population is relatively high. This accounts for the relatively slow spread of an outbreak.
5. The knowledge by the District SEP staff that Headquarters staff (including WHO staff) would visit all outbreak areas naturally contributes to their working efficiency.
6. The annual refresher training of supervisors by Headquarters staff and of other staff by supervisors has resulted in greater efficiency of all SEP staff.
7. The continuous service of most of the key staff in districts, zones and headquarters has also contributed to the efficiency of the programme.

TABLE 1. SUMMARY OF SMALLPOX OUTBREAKS FROM JULY 1972 THROUGH JULY 1974

Year	No. of districts affected	Number of outbreaks	Number of importations	Total cases	Sources of importations
July-Dec. 1972	5	5	5	34	Uttar Pradesh 4 *Bangladesh 1
1973	18	39	31	277	Uttar Pradesh 20 Bihar 8 Maharashtra 1 Himachal Pradesh 1 *Bangladesh 1
1974 till Week 31 (i.e. 3 August)	27	151	111	1 284	Bihar 85) Definite Uttar Pradesh 20) Bihar 3) Uttar Pradesh 2) Vague West Bengal 1)

* There was one importation from Bangladesh in December 1972 which resulted in two more cases in January 1973.

TABLE 2. SUMMARY OF SMALLPOX OUTBREAKS IN 1974 (THROUGH JULY)

District	Number of outbreaks	Number of importations	Total cases	Definite sources of importations		Vague sources of importations
				State	District	
1. Jhapa	15	14	131	Bihar 13	Purnea 9 Darbanga 2 Dumka 2 Bhagalpur 1	
2. Morang	25	21	156	Bihar 21	Purnea 11 Darbanga 1 Madhubani 2 Saharsa 4 Dumka 3 Rohtas 1	
3. Sunsari	5	5	74	Bihar 4	Purnea 1 Saharsa 2 Dabanga 1	Darjeeling, West Bengal 1
4. Saptari	10	5	57	Bihar 5	Purnea 2 Saharsa 2 Darbanga 1	
5. Sirha	5	5	41	Bihar 5	Madhubani 3 Darbanga 1 Sitamarhi 1	
6. Dhanusa	15	9	145	Bihar 7	Madhubani 5 Darbanga 2	Madhubani, Bihar 2
7. Mahottari	18	14	270	Bihar 14	Madhubani 5 Sitamarhi 10	
8. Sarlahi	6	6	31	Bihar 6	Sitamarhi 6	
9. Bara	1	1	1	U. P. 1	Azzangad 1	

TABLE 2. (Continued)

District	Number of outbreaks	Number of importations	Total cases	Definite sources of importations		Vague sources of importations
				State	District	
10. Parsa	2	2	7	Bihar 2	Darbanga 1 Muzaaffarpur 1	
11. Tanahu	1	1	1	Bihar 1	Singhbum 1	
12. Nawalparasi	1	1	2	U.P. 1	Gorakhpur 1	
13. Rupendehi	5	5	30	U.P. 4	Gorakhpur 1 Basti 3	Basti, U.P. 1
14. Kapilvastu	6	3	14	U.P. 3	Gorakhpur 1 Basti 2	
15. Rukum	1	-	1			
16. Kailali	7	5	113	U.P. 5	Kheri 5	
17. Kanchanpur	7	6	35	Bihar 3	Muzaaffarpur 2 Siwan 1	
				U.P. 3	Kheri 2 Pilibit 1	
18. Doti	2	1	9	U.P. 1	Kheri 1	
19. Bajhang	2	1	11	U.P. 1	Pilibit 1	
20. Dandeldhura	2	1	14	U.P. 1	Pilibit 1	
21. Dhading	1	1	9			
22. Sindupalchok	2	-	9			
23. Kabrepalanchok	5	3	37	Bihar 2	Gaya 1 Darbanga 1	Gaya, Bihar 1
24. Kathmandu	3	-	60			
25. Lalitpur	2	1	12	Bihar 1	Gaya 1	
26. Bhaktapur	1	-	3			
27. Ramechhap	1	-	11			
TOTAL	151	111	1284	Bihar 85 U.P. 20 TOTAL 105		Bihar 3 U.P. 2 W. Bengal 1 TOTAL 6

TABLE 3. SOURCES OF SMALLPOX IMPORTATIONS INTO NEPAL IN 1974 (THROUGH JULY)

State	District	No. of definite sources of importations	No. of vague sources of importations
Bihar	Purnea	23	2
	Darbhanga	9	
	Dumka (Santhal Parganas)	5	
	Bhagalpur	1	
	Madhubani	14	
	Saharsa	8	
	Sitamarhi	17	
	Muzaffarpur	3	
	Singhbum	1	
	Siwan	1	
	Rohtas	1	
	Gaya	2	1
	Sub-total	85	
Uttar Pradesh	Azzangad	1	1
	Gorakhpur	3	
	Basti	5	
	Kheri	8	
	Pilibit	3	1
	Varanasi	0	
	Sub-total	20	
West Bengal	Darjeeling	0	1
	Total	105	6

TABLE 4. OUTBREAKS AND CASES IN 1974 (THROUGH JULY)

Number of cases in an outbreak	Number of outbreaks (%)
1	37 (24.5)
2-5	45 (29.8)
6-10	24 (15.9)
11-15	18 (11.9)
16-20	10 (6.6)
21-25	5 (3.3)
26-30	4 (2.6)
31+	8 (5.3)
Total	151

Note that one-fourth of all outbreaks were detected and contained as single cases.

TABLE 5. RESULTS OF CROSS-NOTIFICATIONS SENT TO INDIA IN 1974 (THROUGH JULY)

State	Number sent	Number confirmed	Number not confirmed	Address insufficient	Replies not yet received
Bihar	85	32	4	3	46
U. P.	20	5	1	0	14
TOTAL	105	37	5	3	60

RESULTS OF CROSS-NOTIFICATIONS RECEIVED FROM INDIA IN 1974 (THROUGH JULY)

State	Number received	Number confirmed	Number not confirmed
Bihar	12	6	6
U. P.	3	0	3
West Bengal	4	2	2
Assam	1	0	1
TOTAL	20	8	12

TABLE 6. SMALLPOX OUTBREAKS BY MONTHS IN 1974 (THROUGH JULY)

Weeks	Month	Number of new outbreaks	Number of new importations	Total cases
1 - 5	January	9	9	34
6 - 9	February	13	11	49
10 - 13	March	16	14	157
14 - 17	April	24	17	219
18 - 22	May	41	33	379
23 - 26	June	23	16	215
27 - 31	July	25	11	231
	Total	151	111	1284

The number of importations reached a peak in May. The problem of secondary spread from importations was acute in the densely populated Kathmandu valley.

TABLE 7. AGE-SEX DISTRIBUTION OF SMALLPOX CASES

Age group (years)	Male (%)	Female (%)	Total (%)
< 1	41 (4.1)	38 (3.8)	79 (7.8)
1 - 4	130 (12.9)	124 (12.3)	254 (25.2)
5 - 14	153 (15.2)	208 (20.6)	361 (35.8)
15 +	139 (13.8)	175 (17.4)	314 (31.2)
TOTAL	463 (45.9)	545 (54.1)	1008 (100.0)

Figures in parentheses indicate the percentage of total cases. Case investigation forms were available in Headquarters for 1008 cases (the remaining forms will be received later).

Vaccination status before exposure

Eighty-seven per cent. of cases were unvaccinated. Of the remaining 13% of cases, many were vaccinated during containment action (but were unvaccinated before exposure) and had been erroneously marked as vaccinated in the case investigation forms. Hence the percentage of cases who were unvaccinated before exposure is over 87%.

Headquarters staff, however, have observed smallpox in some children under 15 years of age (including a child one year old) who had primary vaccination scars before exposure.

FIGURE 1. NEPAL: Smallpox Importations from Bihar and Uttar Pradesh During 1974 as of end July

