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INTER-REGIONAL SEMINAR ON SURVEILLANCE
AND ASSESSMENT IN SMALLPOX ERADICATION

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SMALLPOX SURVEILLANCE IN AFGHANISTAN

by

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1.0 Introduction

Afghanistan is a mountainous country with a population of about 15 million which includes nearly two million nomads called "kuchis". The climate is dry with wide variations in temperature and frequent snow falls in winter. Main towns can be reached by motor vehicles; however, access to remote villages, especially in mountainous areas, is difficult.

Smallpox has been prevalent in the country for centuries. In late 1968, the government seriously viewed the problem and decided to undertake an eradication programme. Accordingly, a mass vaccination campaign with concurrent assessment was launched on 1 April 1969 in the Kandahar zone. The Central Directorate and the remaining three zones were subsequently established. From Table 1 and figure 1, it will be noted that whereas only 500 000 vaccination were done during 1969, nearly 2.5 million vaccinations had been carried out by 1 October 1970. Priority for vaccination has been accorded to the provinces bordering Pakistan, where the danger of importation of the disease exists. Figure 2 graphically represents the current status of the vaccination programme.

2.0 Surveillance

Although the vaccination programme was started in a planned and organized manner in April 1969, we were not able to give much attention to the surveillance aspect of the eradication programme until the beginning of September 1969.

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2.1 Notification of cases

First, an attempt was made to improve the reporting of suspect cases. Past experience showed that notification was extremely poor and that perhaps only one out of a hundred cases was ever reported.

The following measures were taken:

1. During an orientation course for Provincial Senior Medical Officers, all aspects of the Smallpox Eradication Programme were explained and the importance of developing a network of reporting sites in the provinces was stressed. It was agreed that the provincial medical officers would report suspect smallpox cases by telephone or telegram to the Zonal Headquarters or to the Central Directorate of the Smallpox Eradication Programme and also would continue to submit weekly reports on notifiable diseases, including smallpox, to the statistical section of the Ministry.

2. A detailed directive under the signature of the Health Minister was issued to all chief medical officers of the provinces outlining their tasks such as early reporting of cases and immediate containment action.

3. The President of the Malaria Institute sent instructions to his regional officers and through them to all the surveillance workers requesting their cooperation in early reporting of all suspect cases.

4. The programme staff began regular visits to the provincial hospitals, health centres and MCH clinics all over the country to explain the need for prompt regular reporting and to distribute educational material such as smallpox picture folders, posters and so on.

Notification of cases improved considerably but was still by no means complete. An example is an outbreak of 14 cases in a village only a few kilometers from the provincial hospital in Zabul province and of which the chief medical officer had no knowledge.

One problem is the lack of health centres. Of the 326 woleswalis and alaquadaries in the country, only 69 have health units, of which only 47 have medical officers. Because of this, we have had to resort to additional measures for obtaining reports of cases.

2.2 Additional measures taken to obtain reports of cases

As Health Centres are few and far between and Malaria surveillance workers are not ubiquitous, we decided to contact village leaders, who usually know immediately of cases or illness among their people. The leaders, known as Maliks or Arbabs, are frequently in contact with the sub-governors, who are the woleswali chiefs. The leaders thus could inform the sub-governors of any suspect cases and the sub-governors could transmit the information by telephone to the provincial medical officer.

With the object of instigating such a system, all Zonal surveillance and outbreak containment teams are visiting all woleswalis according to a scheduled programme. At each woleswali headquarters, the sub-governor, previously informed of the visit by telephone, assembles the village leaders in his area. The team leader explains the objectives of the eradication programme, emphasizes the importance of early reporting and speedy containment action, enquires of any recent or current smallpox cases, elucidates the valuable role the leaders can play in surveillance and requests their cooperation. After discussion, the team visits all major villages and large schools in the area to further appraise the situation and to determine if there have been recent smallpox cases. Also rapid scar surveys are carried out among school children to check their immunity status. The school children are also asked to report any cases in their villages to their teachers who, after confirmation, can inform the sub-governor. If, while on tour, any cases are reported, the team proceeds to the area to investigate and to take appropriate containment action.

All sub-governors and the village leaders contacted have been enthusiastic and have promised cooperation. Thus an additional reporting network is being developed and, concomitantly, an active search for cases is being instituted. In addition, the Army, police, peace corps volunteers and community development workers have been encouraged to report any cases they might encounter. The following table shows the sources of notification of the various outbreaks in 1969 and 1970.

Reported by	No. of outbreaks during 1969	No. of outbreaks during 1970 (up to 1 October)
Provincial Medical Officers	13	26
Hospital and MCH Clinics	5	8
Basic Health Services staff	2	4
Programme staff	-	13
Local leaders	-	6
Total	20	57

Improvement in reporting and the intense search for hidden foci naturally brought to attention increasing numbers of cases and, not surprisingly, this initially perturbed some government officials. It was necessary to point out that the more outbreaks detected and contained, the sooner would the reservoir of infection be reduced and the faster would we be able to achieve eradication.

2.3 Investigation of single case reports

As previously mentioned, since September 1969, the programme staff has investigated all reports of smallpox cases. In January 1970, a single case was

reported in the far-away province of Badakshan. The question arose, when we decided to send a team, as to whether the journey was really necessary. One of the provincial Medical Officers felt that a single case could easily be dealt with by local staff. However, the team was sent and discovered nine additional cases in Badakshan and, in the course of investigation, an additional 24 cases in the very province of the critical Medical Officer. This investigation clearly emphasized the need to investigate properly each and every case.

2.4 Promptness of response to notification

We have insisted that the outbreak containment teams on receipt of any notification should proceed promptly to the affected area whether or not it is a holiday period. We feel that any delay between case notification and its investigation will not only reduce the chances of successful containment of an outbreak, but will also give local officials the impression that immediate reporting of cases is not important. This has become so routine that nowadays team members are usually en route to an outbreak within 24 hours of receipt of any report.

2.5 Case incidence

The number of known cases in Afghanistan since 1960 by month as well as by province is shown in Tables 2 and 3. Table 4 indicates the number of reported cases per 100 000 population by province during 1968, 1969 and 1970. The age distribution and the vaccination/variolation status of cases during 1969 and 1970 are indicated in Table 5.

Two points are particularly worth noting.

1. In both 1969 and 1970 more than 80% of cases have occurred among those less than 14 years of age, whereas this age group constitutes only 48% of the total population. The importance of proper vaccination coverage of this group is apparent.

2. Most important of all, the effect of improved reporting and the active search for cases from September 1969, is clearly evident by the subsequent increase in the number of cases.

2.6 Confirmation of diagnosis

The personnel, particularly of the outbreak containment teams, have been trained in the clinical diagnosis of smallpox and no difficulty has been experienced in confirming the diagnosis of suspect cases. As one would expect, a certain number of reports have turned out to be false. However, the team members have been instructed not to condemn incorrect reporting. The details of the false reports received during 1970 are shown below:

Cases incorrectly reported as smallpox:	No. of cases
Chickenpox	19
Measles	9
Skin infections	9
Nil cases	12
Total	49

False reports received from:	No. of cases
Provincial Medical Officers	8
Basic Health Services staff	12
Local people	23
Smallpox patients	6
Total	49

2.7 Source of infection

Many lessons have been learned as to how to determine the source of infection. Of particular importance, we have learned that while taking the history, we should not be naïve enough to believe everything told to us. All information should be rechecked with others in the community. People give wrong information for various reasons, e.g., if they fear some harmful consequences from others or from government authorities; if they are indifferent or apathetic; if, in the case of institutional staff, their reputation for efficient administration is likely to be affected; and if their memory is really poor. Perseverence and a keen discernment of human nature are needed to elicit a correct history.

An analysis of outbreaks during 1969 and 1970 (up to 1 October) according to the source of infection is given below:

Source of infection	No. of outbreaks during 1969	No. of outbreaks during 1970
Pakistan	1	11
Variolation	3	18
Kuchis	2	5
Hospitals	3	3
Fellow travellers	-	2
Undetermined	11	18
Total	20	57

Pakistan, variolators and the kuchis have accounted for two-thirds of the outbreaks. Some of these problems will be discussed in a subsequent paper. A matter of great concern, however, has been the discovery that a few hospitals in Kabul have facilitated the spread of smallpox. In one hospital, three children admitted for other illness contracted smallpox while hospitalized and about 10 days after discharge developed fever and rash. One of these children not only developed the disease and died in another province, but also spread the infection to five others in his village. Another case you all know of, was the Norwegian student who contracted the infection while a patient in a Kabul hospital and developed the disease on arrival in Denmark 10 days later. The Ministry has issued a directive to all hospital authorities indicating measures for the prevention of such occurrences in the future.

Another problem that caused consternation is the number of cases that have occurred in Kabul city itself. Almost all cases have been among poorly vaccinated, low socio-economic groups living in congested areas around the city, where people from rural areas stay when they come for sight-seeing or to seek employment. The migrants get infected and carry the disease back to their rural areas. In one instance, a migrant contracted the disease in Kabul, returned to his village in Bamian Province and initiated an outbreak which ultimately resulted in 24 cases. Because of this, a special vaccination programme has recently been organized in Kabul city and its suburbs.

2.8 Detection of additional cases

Investigation of a reported case is, of course, only a starting point. Our teams frequently find additional related cases as well as other outbreaks by questioning the patient and his relatives, checking at the local schools and hospitals and enquiring from local leaders and in neighbouring villages.

As an example, during a recent investigation of the source of infection of a single case admitted to a Kabul hospital, just by asking people at market places and examining and questioning the school children, four distinct focal outbreaks totalling 18 cases were discovered in Ghazni and Zabul provinces.

The number of cases officially reported and the additional number discovered through investigation during 1969 and 1970 are shown below.

Year	Cases reported	Additional cases found	Total
In 1969	79	171	250
In 1970 (1 Oct.)	112	321	433

2.9 Containment action

For containment of the outbreaks only home isolation has been possible in the villages. All family members are vaccinated and instructed to admit no visitors. Usually, everyone in the affected village is vaccinated and also

the population in nearby villages. In the towns, only the segment that includes the infected household is covered. More than 210 000 were vaccinated this year during containment actions against 57 outbreaks, or an average of 3 700 vaccinations per outbreak. Wherever possible, return visits to the affected area are made after an interim of approximately 2 to 4 weeks.

A summary form is prepared for every outbreak (Annex 1). Each outbreak in a province is given a code number and is consecutively numbered for ready reference.

3.0 Conclusion

We in Afghanistan do strongly believe that with further intensification of our surveillance activities and of course with the continuing mass vaccination programme, we will be able to eradicate smallpox in the not too distant future.

TABLE 1

Afghanistan - Number of vaccinations done by the project staff by month and zone, January 1969-September 1970

	Kandahar Zone	Kunduz Zone	Kabul Zone	Total
1969				
January	34 397	-	-	34 397
February	12 000	-	-	12 000
March	4 368	12 000	-	16 368
April	28 287	73 720	-	102 007
May	43 290	-	-	43 290
June	37 263	-	-	37 263
July	15 591	14 973	-	30 564
August	-	12 168	-	12 168
September	42 782	6 557	-	49 339
October	50 464	22 445	-	72 909
November	65 294	41 304	29 000	135 598
December	-	-	-	-
Total	333 736	183 167	29 000	545 903
1970				
January	19 454	69 000	79 363	167 817
February	86 901	84 075	67 700	238 676
March	46 739	88 919	61 037	196 695
April	115 817	134 878	28 941	279 636
May	82 059	100 120	81 524	263 703
June	70 323	42 234	68 001	180 558
July	130 366	126 518	146 435	403 319
August	136 567	65 759	173 764	376 090
September	82 944	78 379	141 870	303 193
Total 1 Oct.	771 170	789 882	848 635	2 409 687

Note: The above figures do not include vaccinations performed by the Provincial staff: 744 612 during 1969 and 292 649 to 31 August 1970.

TABLE 2

Afghanistan - Reported smallpox cases by month, 1960 - 1970

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970 at 1 Oct
January	11	28	28	98	33	7	7	45	107	18	112
February	12	37	26	34	19	11	8	56	97	14	43
March	11	18	25	36	4	2	4	23	59	19	31
April	4	6	7	25	26	5	5	10	6	23	40
May	10	8	7	20	14	4	3	11	2	4	36
June	9	2	8	13	4	5	3	9	7	9	35
July	5	6	8	41	9	3	2	6	83	6	37
August	2	3	9	6	9	5	3	5	3	3	85
September	2	13	28	31	14	4	4	63	3	7	14
October	9	18	42	36	14	4	2	45	15	43	
November	11	23	69	145	12	10	15	33	151	56	
December	23	16	31	92	20	12	10	28	206	48	
Total	109	178	288	577	178	72	66	334	739	250	433

TABLE 3

Afghanistan - Reported smallpox cases by province, 1960 - 1970

Province (or major admin. area)	Number of cases										
	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970 at 1 Oct
1. Bamian	-	26	8	21	-	2	5	-	-	-	24
2. Ghazni	10	3	-	-	-	-	2	2	5	-	34
3. Kabul	18	8	19	21	30	28	37	49	40	33	49
4. Kapisa	-	-	-	-	-	-	1	16	5	-	26
5. Kunar	-	-	-	-	-	-	-	15	18	3	9
6. Laghman	-	-	-	-	-	-	-	-	-	-	1
7. Logar	-	-	-	-	-	-	-	2	16	11	12
8. Nangarhar	-	2	3	31	-	-	11	-	1	88	44
9. Paktia	-	-	12	5	1	-	-	45	22	5	12
10. Parwan	11	13	13	52	2	5	6	1	16	9	-
11. Wardak	-	-	-	-	-	-	-	-	-	-	8
12. Chakansor	-	-	-	-	-	-	-	3	3	-	-
13. Farah	4	28	6	41	13	2	-	116	176	-	-
14. Helmand	-	-	34	183	9	14	2	3	5	9	-
15. Kandahar	8	9	3	18	49	11	-	19	19	-	-
16. Orozgan	-	-	20	-	5	1	-	9	8	-	-
17. Zabul	-	-	-	-	-	-	-	3	4	1	20
18. Badakshan	5	8	21	14	2	1	-	-	-	5	5
19. Baghlan	-	33	67	27	6	-	-	7	45	31	173
20. Balkh	4	6	37	121	17	4	-	4	60	-	-
21. Jauzjan	-	-	-	-	14	-	-	6	2	-	-
22. Kunduz	-	-	-	-	-	-	-	14	281	43	1
23. Samangan	-	-	-	-	-	-	-	4	-	-	-
24. Takhar	-	2	-	12	-	-	-	6	13	-	14
25. Badghis	-	-	-	-	-	-	-	10	-	11	-
26. Ghor	-	-	-	-	21	-	-	-	-	1	1
27. Herat	18	2	12	26	3	4	2	-	-	-	-
28. Fariab	31	38	33	5	6	-	-	-	-	-	-
Total	109	178	288	577	178	72	66	334	739	250	433

TABLE 4

Afghanistan - Population data and smallpox cases per 100 000 population 1968 - 1970

Zone - Province	1969 population (000) est.	Area (square kms)	Population density (per square km)	Cases per 100 000 population - 1968	Cases per 100 000 population - 1969	Cases per 100 000 population - 1970 as of 1 Oct.
I 1. Bamian	327	20 242	16	-	-	7.3
2. Ghazni	971	31 106	31	0.5	-	3.5
3. Kabul	1 242	3 280	414	3.2	2.6	4.0
4. Kapisa	622	4 658	122	0.8	-	4.2
5. Kunar	340	9 693	34	5.3	0.9	2.6
6. Laghman	206	8 334	26	-	-	0.5
7. Logar	261	4 334	65	6.1	4.2	4.6
8. Nangarhar	834	7 176	119	0.1	10.6	5.3
9. Paktia	838	15 762	52	2.6	0.6	1.4
10. Parwan	648	8 951	72	2.6	1.4	-
11. Wardak	425	10 675	39	-	-	2.0
II 12. Chakansor	118	54 336	2	2.5	-	-
13. Farah	307	59 590	5	57.3	-	-
14. Helmand	326	53 180	6	1.5	2.9	-
15. Kandahar	697	45 833	15	2.7	-	-
16. Orozgan	487	32 537	15	1.6	-	-
17. Zabul	308	20 671	15	1.3	0.3	6.5
III 18. Badakshan	336	44 998	7	-	1.5	1.5
19. Baghlan	478	13 493	35	9.4	6.5	36.0
20. Balkh	348	15 626	22	17.2	-	-
21. Jauzjan	380	21 726	18	0.5	-	-
22. Kunduz	487	8 085	61	57.9	8.8	0.2
23. Samangan	202	15 772	13	-	-	-
24. Takhar	510	17 537	28	2.5	-	2.7
IV 25. Badghis	269	25 497	11	-	4.1	-
26. Ghor	315	35 764	9	-	0.3	0.3
27. Herat	668	41 718	16	-	-	-
28. Fariab	413	21 030	19	-	-	-
Total	13 363	651 604	20	5.5	1.8	3.2

TABLE 5

Afghanistan - Distribution by age and variolation/vaccination status of smallpox cases, 1969 and 1970

1969

Age	Cases	Variolation/vaccination status			Deaths
		Variolated	Vaccinated	Unvaccinated	
< 1	6 (2%)	-	-	6	1
1 - 4	84 (34%)	10	3	71	11
5 - 14	115 (46%)	14	-	101	13
15 +	25 (10%)	2	2	21	4
Unknown	20 (8%)	-	-	20	1
Total	250 (100%)	26	5	219	30 (12%)

1970

Age	Cases	Variolation/vaccination status				Deaths
		Variolated	Vaccinated	Unvaccinated	Unknown	
< 1	22 (5%)	3	-	19	-	5
1 - 4	152 (35%)	21	-	122	-	38
5 - 14	189 (44%)	15	19	155	-	20
15 +	58 (13%)	7	11	40	-	11
Unknown	12 (3%)	5	-	-	7	12
Total	433 (100%)	58	32	336	7	86 (20%)

ANNEX 1

Code No. (Province - No.)

Village

Woleswali

Province

SMALLPOX OUTBREAK SUMMARY -

I Resume of Cases

Age	Cases			Deaths	Vaccination or variolation scar present			
	Sex							
	M	F	TOTAL		YES	NO	RECENT VARIOLATION	?
< 1								
1-4								
5-14								
15-44								
45 +								
?								

II Report of Case/s

Reported by _____ Date _____

Investigated by _____ Date _____

_____ Date _____

No. of cases initially reported _____

No. found by investigation _____

III Source of infection

Date of first case _____

Date of last case _____

Source of infection of first case _____

IV Vaccinations performed

In affected village _____

In neighbouring villages _____

V Repeat Visit - date _____

VI Brief note of findings:

FIGURE 1

AFGHANISTAN - SMALLPOX ERADICATION PROGRAMME

Number of Vaccinations by Project Staff 1969-1970, Cumulative Figures

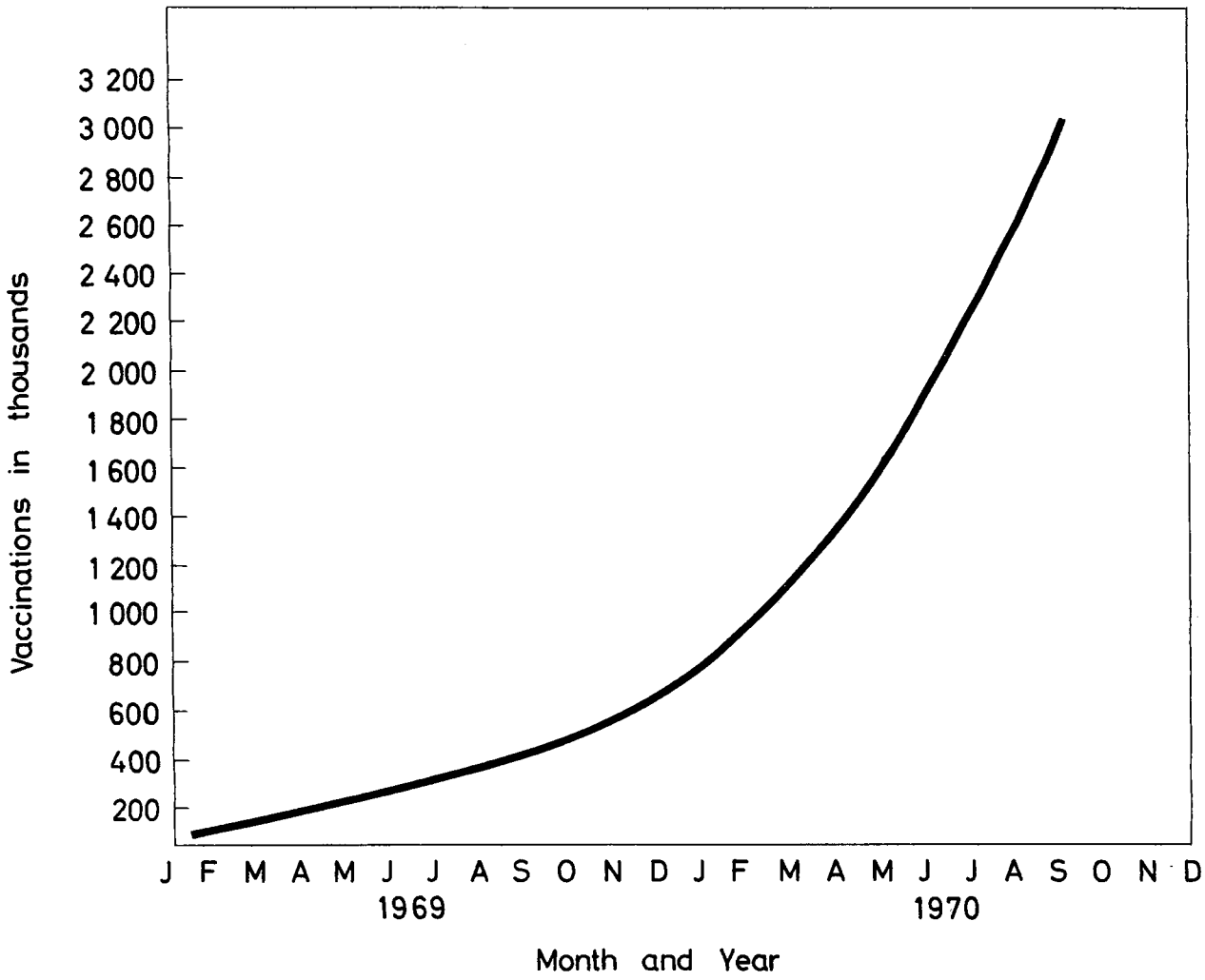

FIGURE 2

AFGHANISTAN - SMALLPOX ERADICATION PROGRAMME
Vaccination Coverage as on 1 October 1970

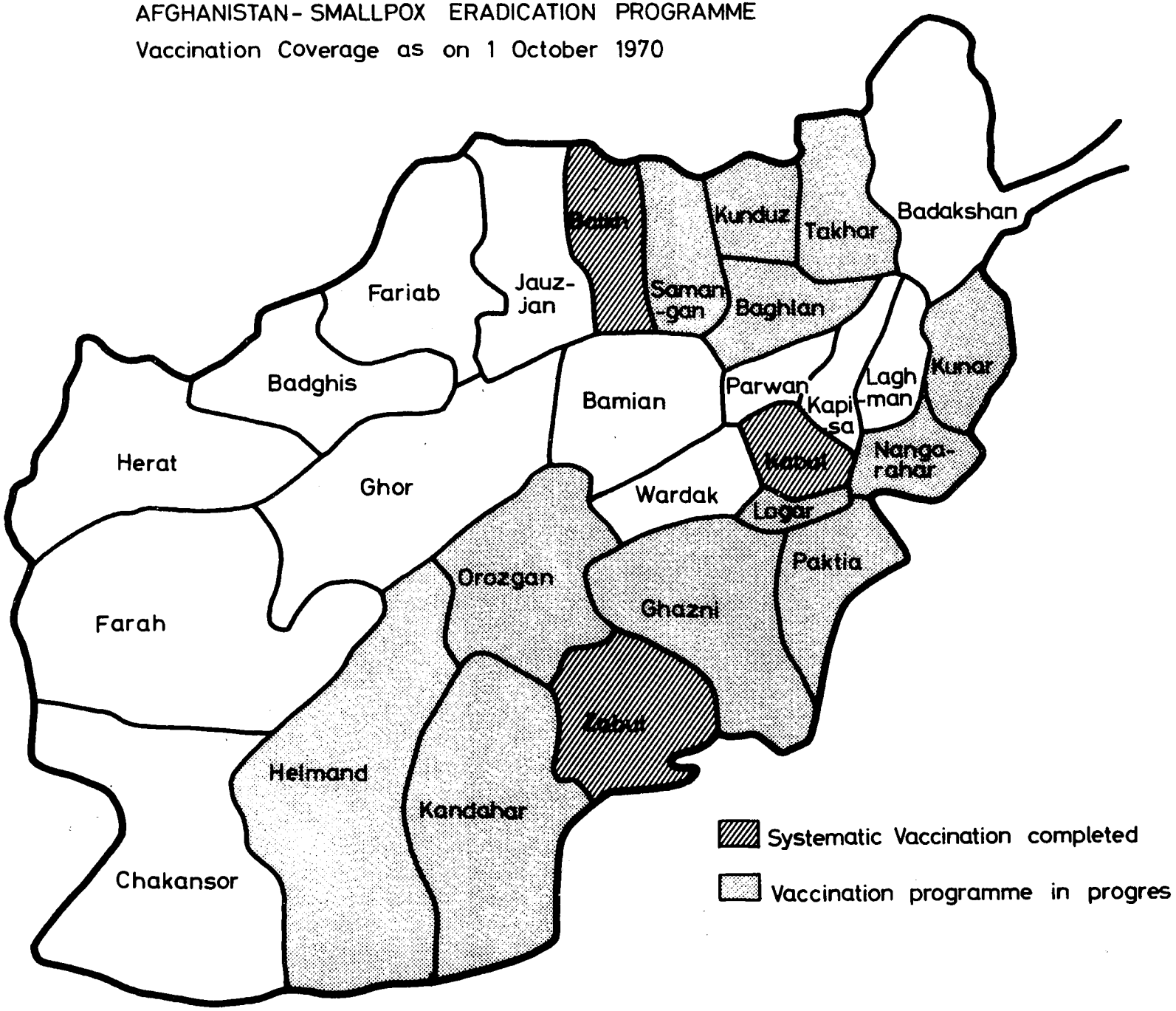

FIGURE 3

AFGHANISTAN - GEOGRAPHICAL DISTRIBUTION OF SMALLPOX CASES
1970 (up to 1 October)