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ASSESSMENT OF THE SMALLPOX VACCINATION
PROGRAMME IN AFGHANISTAN

by

M. Y. Salehi, M.D.¹

Introduction

Prior to the launching of the Smallpox Eradication Programme, whenever smallpox cases were reported from any area a band of vaccinators was sent to vaccinate the population. After finishing their activities the team returned to base and the team leader reported the number of vaccinations performed. No-one could be sure of the veracity of the report; nor could anyone determine from the report whether the entire population in the affected area had indeed been vaccinated; nor could anyone ascertain whether the vaccine was potent or whether the technique of vaccination was correct. In other words, there was no supervision or check of the vaccinators' work.

In those days, it was suspected that the vaccination figures were, in many instances, fictitious. Some village leaders, unwilling to host a large number of vaccinators for prolonged periods, were only too willing to provide to the team leader a false certificate indicating that the population in their locality had been vaccinated by the team.

When the mass vaccination programme was begun in April 1969, it was decided to objectively evaluate its progress and thus a systematic concurrent assessment procedure was evolved and put to use. The methodology of this procedure and the benefits that have accrued from it are described in this report.

Assessment Procedures

Systematic vaccination in the provinces is carried out village by village and woleswali by woleswali. The team leaders are assigned specific areas and given time

¹ Director, Smallpox Eradication Programme, Kabul Zone, Afghanistan.

targets. A sketch map of the woleswali to be covered, and a list of the villages therein and their estimated population figures are issued as well. A team consists of a team leader and seven vaccinators. Vaccination is carried out by house to house visits. Only the number of vaccinations performed in each locality is recorded by the vaccinators, on the basis of the used needles in their possession. A summary of vaccinations by village is then compiled on a daily basis by the team leader and submitted weekly to the zonal office on the form shown as Annexe 1.

A team of five assessors headed by a sanitarian is responsible for independent and concurrent assessment of the work of 5-6 vaccination teams. The assessors are specially chosen from the best vaccinators and specifically trained for carrying out the survey and in the proper reading of vaccination reactions. They are made subordinate and responsible only to the Zonal Director.

Besides indicating the level of performance of the vaccinators in reaching the population, the percentage of population protected by age group and the efficiency of vaccination, our assessment survey also provides information about the current extent and frequency of variolation as well as disease activity in an area.

The assessment is by a vaccination, variolation and smallpox scar survey, performed on a continuing basis in a sample of areas systematically vaccinated by the teams. From the daily summarized reports of vaccination, a sample of villages of 150 or more population is selected. Thirty to forty per cent of the localities which have been visited by the vaccination units are chosen by the Zonal Director himself, either by drawing lots or by using a table of random numbers. None of the vaccination staff knows in advance which localities will be selected. A list of the localities to be assessed is prepared in duplicate; one copy is given to the assessment team for its work schedule, while the other is kept in the Zonal Office. Assessment is carried out approximately one to three weeks after the vaccination programme. The form used for recording the vaccination, variolation and smallpox scar survey is shown as Annexe 2.

The assessor visits all households in the selected locality if its population is about 200 or less, or every second or third household in increasingly larger localities. Assessment is continued on a house-to-house basis until all the spaces in the form are filled.

On arriving at a household, the assessor asks for the head of the household or whoever is the responsible adult at that moment. He explains that he has come to evaluate the work of the vaccinators who have been in the area earlier and as such he would like to know how many live in the house and how many were vaccinated by the campaign.

Each individual present in the household is checked first for pock marks on the face indicating previous smallpox infection. If present, a "P" is marked in the appropriate space on the form. If there are no pock marks, both arms are checked for a variolation scar, or a vaccination scar or a recent vaccination take, in that order. If a variolation scar is seen, a "V" is marked; if a vaccination scar is present, an "X" is marked; if neither a variolation nor a vaccination scar is observed, but if a primary "take" is present, then it is marked as ~~X~~. If there is no scar or vaccination take, a "O" is marked. However, if an individual with no scar or vaccination take gives a history of

recent vaccination, then a ① is marked. It should be noted that only one symbol is used for each person to indicate his immunity status.

The assessment team leader collects the survey forms from the assessors as soon as they are completed and submits them to the Zonal Director who examines the data. The Director calculates the percentage of unprotected in the locality on the basis of the "0"s and "①"s out of the total assessed. (Similar calculations are made for the different age groups of the population). The Zonal Director also works out the "take rate" from the number of "X"s out of the total of "X"s and "①"s, in the age group 0-4 years. Further, by checking the "V"s and "P"s if any, in the age group less than 1 year and in that 1-4 years, he obtains information regarding variolation and smallpox in the area in the past five years. Depending on the findings, remedial measures are undertaken as necessary.

Concurrent assessment has been a feature of our programme since its inception. The value of this systematic assessment may be illustrated by a few examples.

According to the assessment carried out first in Argandeb woleswali of Kandahar province, the take rate, 83%, caused concern. Investigation revealed that the assessment team members were then not fully conversant with the proper filling out of the form and also that this particular assessment was carried out more than a month after the vaccination coverage, thus resulting in incorrect readings. Assessments carried out subsequently in this woleswali showed 95% take rates. This experience emphasized the importance of ensuring that all assessors receive adequate training.

In Kandahar province again, the assessment carried out in Nesh woleswali showed the take-rate to be 78%. In Shorawak woleswali of the same province, however, the same batch of vaccine gave a take-rate of 97%. The low take-rate of Nesh could therefore only be attributed to improper vaccination technique of a group of vaccinators. It was decided to give further training to this group and also to revaccinate this woleswali.

During the initial stages of the programme, when assessment showed that some villages were missed by the vaccination teams and some were not covered properly, the assessment teams did mopping up vaccinations in order to save time, manpower and transportation. Later, when assessment revealed such lacunae, to improve the performance of the vaccination teams generally, it was considered necessary to instruct the team concerned to pay a second visit to the locality and to complete the vaccination.

In Helmand province, it was found that in Garmswel and Musaqela woleswalies, several villages had been missed. Return visits by the vaccination teams were recommended. The Sanitarians in charge were reluctant to send their teams back to vaccinate the missed population groups until it was pointed out to them that unless prompt remedial actions were taken on the basis of the assessments, the conduct of such assessments was a futile exercise.

In early 1969, some vaccination teams had operated in Khanabad woleswali of Kunduz province. There had been no concurrent assessment. When in January, 1970 vaccination teams were detailed to cover this woleswali in a systematic manner, the need for this was questioned. The WHO staff, therefore, carried out an independent overall survey of this woleswali. A random sample of 12 of the 126 villages was selected, based on

"probability proportional to population". The survey revealed the following:

Overall population protected	-	76%
Population below 1 year protected	-	35%
Population 1-4 years protected	-	74%
Population 5-14 years protected	-	85%

The coverage of the most vulnerable groups was obviously unsatisfactory and further vaccination was necessary. Confirming this need, as it were, a large outbreak of smallpox that had been raging in the area for more than three months, was discovered by the Assessment team.

The value of concurrent assessment to insure that any particular area was satisfactorily covered was evident to us many a time. In the Kunduz zone, assessments in Baglan province brought to light a large number of villages in different woleswalies that were entirely missed. The vaccination teams were sent back to cover these villages and repeat assessments were done to check up on their performance. Nowadays, when assessment shows that less than 80% of any age group in a selected locality had not been vaccinated, the erring team, as a rule, is not only sent back to the area to complete the vaccination, but also no per diem is paid to its members for the duration of the repeat visit. This disciplinary measure has had a salutary effect and, since its introduction, the efficiency of the vaccination teams as a whole has improved.

In the Kandahar zone, the extremely poor coverage of Wazarkhana and Wormi woleswalies of Ghazni province caused consternation. The population was said to be highly resistant. Support of the local leaders, government as well as public, was then solicited to induce a change in the peoples' attitude towards vaccination. In the Kunduz zone, Farkhar woleswali of Takhar province, poor coverage was noted and the reason given was the high resistance on the part of the female population. Besides the females, it was found that the children under four years had also been omitted. Special efforts had to be made which proved successful in obtaining satisfactory coverage.

From the above illustrations, it is evident how concurrent assessment had assisted in the continuous evaluation of the vaccination campaign. Not only has it been possible to verify the results obtained in the field, but also operational problems have been recognized as they arose and have been corrected expeditiously. The assessments have also often led to the discovery of an outbreak of smallpox or to the ravages of a variolator in various areas when prompt remedial measures were accordingly undertaken.

Not to be forgotten is that the work of the assessment teams themselves must often be checked. Not only should the assessors know their job thoroughly but their integrity should be beyond doubt. Recently an assessment team in the Kabul zone was found to be filling out forms without actually conducting the surveys in the concerned localities! It will be no surprise to you to know that this particular team was disbanded forthwith.

Conclusion

How an independent and concurrent assessment of the systematic vaccination programme is being effected in Afghanistan has been described. The efficiency of the vaccination

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programme, the technique of vaccination and also the potency of vaccine are being constantly and carefully controlled. Not less than 80% vaccination coverage of all age groups of the population and not less than 95% take-rates in primary vaccinations have been our objectives. The number of persons assessed and the findings in terms of overall vaccination coverage in the various provinces so far completed are shown in Table 1.

The utility of these assessment surveys is obvious in the context of the smallpox eradication programme. And of this utility, our experience in Afghanistan has been one of confirmatory evidence.

TABLE 1

Afghanistan - Assessment Results by Province

Province	Number Assessed	Overall Coverage (%)
Baghlan	8 198	93
Helmand	16 674	87
Kandahar	32 665	91
Kunar	19 926	98
Kunduz	8 090	93
Logar	11 137	95
Nangarahar	9 937	93
Orozgan	12 412	92
Paktia	49 787	97
Samongan	4 590	97

(Trial Form: 12/24/68)

Afghan Month _____
and Year _____

Afghan Date	Woleswali	Specific Area of Work: Village, School, etc.	Name of Vaccinator	Number of Vaccina- tions	Total Daily Vaccina- tions	Number of Man-Days

Field Assessment Report
(Trial Form: 12/24/68)

Afghan Date	Province
Assessor(s)	Woleswali
Vacc: Date and Team	Village

① No scars, but history of recent vaccination

[illegible][illegible]

Take-rate = $\frac{\text{---}}{\text{---} + \text{---}} = \text{---} = \text{---}\%$

Count of Recorded Symbols

P		
V		
X& XX		
O& (O)		
All	(10)	(30)

(45)	(30)	(30)	

[illegible]

			All Absent
Total			