

WORLD HEALTH ORGANIZATION

Regional Office for the Eastern Mediterranean

SEMINAR ON SMALLPOX ERADICATION

EM/SEM.SE/30

Dacca, 29 October - 5 November 1969

English Only

ASSESSMENT OF SMALLPOX VACCINATION
ACTIVITIES

By

Dr. Don Miller*
WHO Temporary Adviser

* Director, Smallpox Eradication Program, National Communicable
Disease Center, Atlanta, Georgia, USA

INTRODUCTION

The term "assessment" refers to a series of activities designed to gather data by which to objectively measure the progress of a smallpox eradication program. The ultimate measure of success is the interruption of smallpox transmission. "Assessment" provides guideposts along the way to assure that the ultimate objective will be met.

There are three basic types of assessment: (1) systematic concurrent assessment, (2) "spot-check" or non-systematic assessment, and (3) terminal assessment. Although the WHO Manual lists tally data collection as an assessment method and consider that tallying is a good day-to-day means of gauging general progress, it is not designed to uncover errors in site selection, missed villages, and other gross errors.

The fundamental objectives of assessment are: (1) to determine if the population is being adequately reached by vaccination, (2) to determine if those reached are being immunized, particularly the "non-immunes," (3) if the population is not being reached or is not being immunized, to determine why not, (4) to initiate corrective action based on the findings, either immediate action to correct areas of poor coverage and/or alteration of program operations to avoid repetition of such errors in the future.

METHODS OF ASSESSMENT

Within this framework, one may discuss the various methods which can be employed.

A. Concurrent Assessment

Concurrent systematic assessment assures a continuous flow of information on the performance of mass vaccination. Generally, data are gathered by one or more specially trained assessors working independently of the vaccination teams; they evaluate the work in an area after the vaccination team has left the area. Assessors collect their data by "sampling." (Several sampling procedures are described in the WHO "Handbook for Smallpox Eradication Programs in Endemic Areas"). In short, a statistically representative sample of the population is drawn, and those individuals are (a) questioned as to whether or not they were vaccinated by the teams; (b) primary vaccinees (usually children 0-4 yrs.) are examined to determine whether or not a vaccination received resulted in a "take."

Concurrent assessment may be simple, conducted on a village-by-village basis, or elaborated to cover a large geographic area. While the design of the survey requires expert statistical advice, the mechanics are translated into a series of simple steps which can be carried out by health workers with limited training. Throughout the 19-country West and Central African Smallpox Eradication and Measles Control Program, nine countries are conducting systematic concurrent assessment procedures with formally constituted assessment teams. All have confirmed the ability of their assessors to determine an accurate picture of vaccination coverage and "take rates," using methods such as those suggested by the WHO Handbook.

B. "Spot-check" or Non-systematic Assessment

These are activities providing a quick and superficial (or "quick and dirty") look at program function. While substantially less desirable than systematic concurrent assessment, "spot-checks" can provide information of a very useful nature. "Spot-checks" can be performed by people at any level in a program but are most effectively carried out by supervisory personnel, especially program directors. A brief visit to a team in the field reveals important information on the organization of the vaccinees, vaccination technique, the accuracy of the recorded tally information, the geographic area covered, brief walk round the village can determine whether or not there are missed individuals. In "spot-checks" no attempt is made to obtain statistically precise data. The objective is a reasonably sound impression of the team function and vaccination coverage. If that impression indicates a problem, statistically valid sampling procedures can be done.

C. "Terminal" Assessment

"Terminal" assessment refers to the thorough appraisal of a smallpox eradication program on a nationwide, provincewide, or statewide basis. Data are collected from a large sample of the total population; and an appraisal of the structure and function of the organization is made. Operations, surveillance, assessment, and administration are investigated.

The purposes are several: (1) to obtain a single total program review, (2) to provide at a point in time, an accurate appraisal of current immunity levels in the total population, (3) to provide a means for estimating the history of smallpox in the area (by means of the age specific smallpox

scar rate), (4) to provide an estimate of the total costs of the program, (5) to permit each of the above factors to play a role in future planning for the area.

While laborious, difficult, and sometimes monotonous, "terminal" assessments have proven intimately revealing of problems. There is no other way to provide the type and amount of information reaped from such procedures.

IMPORTANCE OF INDEPENDENCE

Irrespective of the type of assessment undertaken, it is important that the assessors be independent of the vaccinating teams and other operational components. The assessors must feel free to conduct a thoroughly unbiased appraisal, and to report frankly to persons in authority with responsibility for producing corrective change. Assessment teams should be responsible to senior program directors, rather than to the team leaders and field supervisors. "Spot-check" assessments should be carried out by persons of supervisory level who can insist that program changes be made, or that formal assessment techniques be carried out. "Terminal" assessment should be carried out by individuals who are independent from the program structure in the area being assessed. If a province is being assessed, a national assessment team should do its evaluation. If a nationwide assessment is being carried out, representatives from the WHO or other international agencies should participate.

Only when the principle of independence is thoroughly accepted, can assessment produce its greatest assistance.

RELATIONSHIP OF ASSESSMENT AND SURVEILLANCE

The elimination of smallpox cases is the ultimate measure of program success. However, achieving zero cases depends on a series of sequential events. The various assessment methods make it possible to assure the success of these sequential steps. Assessment and surveillance are intertwined: if cases are occurring in vaccinated areas, an assessment of vaccination coverage must be conducted as part of the basic epidemiological investigation to determine why the outbreak developed. Similarly, where assessments show poor coverage following a mass campaign, action to correct such poor coverage should include a higher level of suspicion and close scrutiny to surveillance data from such areas in the future.

RELATIONSHIP OF ASSESSMENT AND MAINTENANCE

All that has been said about assessment during attack phase activities is even more true during the maintenance phase. With repeated cycling, the expected turnout for periodic immunization will decline. In the maintenance phase, furthermore, the target group is selective, small, and principally includes young infants. This group is the one predominant source for new susceptibles; adequate coverage, and 100 percent "takes" must be assured in this group. The success or failure of maintenance activities in preventing the reestablishment of smallpox depend on persistence of successful vaccination with high levels of coverage. The only way to achieve this is through the persistence of effective concurrent assessment activities.