



POLICY GUIDELINE: CONFIRMATION OF MENINGOCOCCAL MENINGITIS OUTBREAKS AND MASS VACCINATION AGAINST MENINGOCOCCAL MENINGITIS IN SUDAN



5 March 2005

1. Strategy for Meningococcal Meningitis Outbreak Control in Sudan

The overall strategy for meningococcal meningitis outbreak control in Sudan aims at four pronged approaches:

- (i) Early detection of the outbreak through enhanced surveillance for meningococcal meningitis;
- (ii) Rapid laboratory confirmation of outbreaks through systematic collection, transportation and processing of CSF samples collected from the suspected cases;
- (iii) Effective case management with appropriate microbial therapy ensuring early treatment at every level of health facilities as recommended by the national protocol;
- (iv) Reactive mass vaccination of the high risk population against circulating meningococcal serogroup once the outbreak is confirmed.

2. Detection of meningitis outbreaks:

2.1 Stable population: For detecting meningococcal meningitis outbreaks in a stable population, two types of weekly incidence thresholds would be used- (i) alert threshold and (ii) epidemic threshold for distinguishing an emerging epidemic from a simple seasonal rise in incidence.

2.1.1 In order to detect localized outbreak, the localities or administrative units in Sudan would be divided into smaller geographic areas called “sectors” which will have population ranging from 30,000 to 100,000 for the purpose of calculating meningitis incidence. For areas having population less than 30,000, an absolute number of cases would be used to define the alert and epidemic thresholds.

2.1.1.1 Alert threshold: A stage of “ alert” would be signaled when the case incidence reach/cross the following benchmarks:

- Area having population between 30,000 to 100,000: An attack rate of 5 cases per 100,000 inhabitants per week
- Area having population less than 30,000 inhabitants: 2 cases in one week or an increase in the number of cases compared to the previous non-epidemic years;

2.1.1.2 Epidemic threshold: A stage of “ epidemic” would be signaled when the following thresholds are reached:

- Area having population between 30,000 to 100,000: An attack rate of 10 cases per 100,000 inhabitants per week *or* 5 cases per 100,000 per week for two consecutive weeks *or* doubling of number of cases over a 3 week period;
- Area having population less than 30,000 inhabitants: 5 cases in one week or doubling of number of cases over a 3 week period;

2.3 Special situations: In refugee or displaced camps, the presence of **two laboratory confirmed cases**¹ of meningococcal meningitis **in one week** would be considered as synonymous of an epidemic in this situation.

3. Confirmation of meningitis outbreak:

The strategy for confirmation of meningococcal meningitis outbreak would be based on the findings of rapid case investigation as well as on the result of outbreak verification conducted by the rapid response team of the SMOH/FMOH.

3.1 Case Investigation: The FMOH/SMOH would send the Rapid Response Team for outbreak verification and confirmation to an area whenever:

- There are report of cluster of suspected cases from the area
- The area has crossed the alert threshold ;
- There are reports of “unconfirmed” deaths in the community from an area which are not reported in the health facilities.
- There is a “ rumour” of an outbreak in the area

3.2 Outbreak verification: The Rapid Response Team (RRT), following quick field investigation, will verify the existence of the outbreak, assess the extent of the outbreak and identify the population at risk. The confirmation of the outbreak would be made after analysis and validation of a number of several epidemiological factors. Such as:

- a. By confirmation of cases using the standard case definition for suspected cases of meningitis
- b. By reviewing hospital/health care facilities records for identification of suspected cases in the previous month
- c. By survey of households (active search of meningitis cases) in particular situations
- d. By comparing the current number of cases for the same period during the previous years,
- e. By estimation of the attack rates by sector/locality and determining whether the attack rate has crossed the alert or the epidemic thresholds

¹ Laboratory confirmation by culture and sensitivity test

- f. By collecting CSF specimens for sero-group confirmation and analyzing the laboratory report;
- g. By estimating daily hospital admissions or attendance to treatment centers; and .
- h. by conducting analysis of the followings:
 - In terms of time: when the first case occurred; is the number of cases increasing; draw simple graph daily/weekly by geographic area number of cases and attack rates by week, by age group and by geographic area (administrative unit, sector/locality).
 - In terms of place: where the first cases/cluster occurred; is the meningitis outbreak spreading to other areas; map the cases; map accessible health facilities and transport routes and links to mass gathering points/places with roads and railways.
 - In terms of person: what is the age distribution of cases (percentage of cases by age group), what are the most affected age groups (attack rates by age group), what age group presents the highest case fatality ratio.

4. Reactive Mass Vaccination:

- 4.1 Stable Population: Mass vaccination against meningitis would be considered in an area as part of emergency response to the outbreak when:
 - The area has reached the epidemic threshold and the causal pathogen of the outbreak has been identified (*Neisseria Meningitidis* A, C, or W135 strain)
- 4.2 Special situations: In special situations where displaced populations live in crowded conditions, i.e., camps and settlements, mass vaccination would be considered whenever, at-least, **two cases have been laboratory confirmed² in a week.** .
- 4.3 Type of Polysaccharide vaccine: The decision on the type of PS vaccine to be used would, ideally, be based on the results from at least 10 *Nm* positive specimens. (Decisional tree attached in Annex-1)
 - 4.3.1 Use of meningococcal polysaccharide bivalent A/C vaccine : Meningococcal polysaccharide bivalent AC vaccine would be used when *Nm* serogroup A or C is confirmed as the epidemic serogroup.
 - 4.3.2 Use of meningococcal polysaccharide tetravalent vaccine A/C/Y/W135: The use of meningococcal polysaccharide tetravalent vaccine would be considered when the number and proportion of *Nm* W135 positive samples are at-least:
 - $\geq 30\%$ of W135 out of 10-19 *Nm* positive samples
OR
 - $\geq 20\%$ of W135 out of 20 or more *Nm* positive samples.

² Laboratory confirmation By Culture and Sensitivity Test Report

- 4.3.2.1 In situations where a full blown epidemic is reported and where the minimum percentage of *Nm* W135 has not been reached, the use of trivalent vaccine would be considered when one or more *Nm* W135 strain has been identified in the concerned area(s) and there are reports of concurrent W135 epidemic in contiguous area(s).
- 4.4. Geographic coverage of mass vaccination in stable population: When a “sector” having population between 30,000 to 100,000 crosses the epidemic threshold and the circulating causal pathogen has been identified, mass vaccination with the appropriate type of vaccine would target all the high risk population (between 2 to 30 years) living in the “sector”.
- 4.4.1 In situations when one “sector” of a locality has crossed the epidemic threshold and has been considered for mass vaccination and the neighbouring “sectors” within the same locality are also in either “alert” or “epidemic” stage, the high risk population (between 2 to 30 years age) living in the entire locality would also be considered for mass vaccination. provided that enough resources are available. In case of limited resources (e.g. limited number of vaccine available), vaccination could be limited to areas with the highest population density.
- 4.5 Geographic coverage of mass vaccination in special situations: When the epidemic has been confirmed in a camp or settlement³, the entire at risk population of that camp or settlement would be targeted for mass immunization. Extension of mass vaccination to surrounding villages and neighboring camps would be decided on a case by case bases using available epidemiological and geo-demographic information.
- 4.6 In any other situation, decisions on geographic extension of mass vaccination coverage would be evaluated on a case-by-case basis and would take into account all epidemiological and laboratory information available.
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³ Using the criteria mentioned in section 2.3

ANNEXE A: Decisional tree for Bivalent (AC) or Trivalent (ACW) polysaccharide (PS) Vaccine use

