B05 *Measles*

RATIONALE FOR SURVEILLANCE

Measles is targeted for a reduction by 90% for incidence and by 95% for mortality (9GPW 6.2). Surveillance for measles evolves with each phase of measles control.

Countries in the initial "measles control" phase are endemic and should concentrate on raising routine measles immunization coverage and on focusing extra immunization efforts in areas with high measles morbidity.

Countries in the more advanced "measles outbreak prevention phase" are achieving high routine measles coverage and low incidence, with periodic outbreaks. In these countries, surveillance must be used to predict potential outbreaks and identify high-risk areas and populations.

Countries in the final and most advanced "measles elimination phase", where the objective is to completely interrupt measles transmission, require very intensive case-based surveillance to detect, investigate, and confirm each and every case of measles suspected in the community.

RECOMMENDED CASE DEFINITION

Clinical case definition

Any person with:

- fever, **and**
- maculopapular (i.e. non-vesicular) rash, **and**
- cough, coryza (i.e. runny nose) or conjunctivitis (i.e. red eyes).

or

Any person in whom a clinician suspects measles infection.

Laboratory criteria for diagnosis

- At least a fourfold increase in antibody titre **or**
- Isolation of measles virus **or**
- Presence of measles-specific IgM antibodies

Case classification

Clinically confirmed:	A case that meets the clinical case definition.
Probable:	Not applicable.
Laboratory-confirmed:	*only for outbreak confirmation and during elimination phase* A case that meets the clinical case definition and that is laboratory-confirmed or linked epidemiologically to a laboratory-confirmed case.

RECOMMENDED TYPES OF SURVEILLANCE

Control phase*:* When measles is endemic, routine monthly reporting of aggregated data of clinical cases from peripheral to intermediate and central level. Only outbreaks (not each case) should be investigated.

International: Routine reporting of aggregated data according to regional specifications (geographical area, month of onset), from central level to WHO Regional Offices.

Outbreak prevention phase*:* When low incidence is achieved with periodic outbreaks due to accumulation of susceptibles, routine monthly reporting of aggregated data of clinical cases from peripheral to intermediate and central level. All suspected outbreaks should be investigated immediately and case-based data collected. Suspected epidemics must be confirmed through serology on the first few cases only.

International: Routine reporting of aggregated data according to regional specifications (geographical area, month of onset, age group, immunization status).

Elimination phase*:* Case-based surveillance should be conducted and every case reported and investigated immediately from peripheral level to intermediate level, and also included in the weekly reporting system. Laboratory specimens should be collected on every case.

International: Routine reporting of aggregated data of clinical cases according to regional specifications (area, month of onset, age group, immunization status).

Zero reporting required at all levels during each phase

RECOMMENDED MINIMUM DATA ELEMENTS

Control phase (aggregated data)

- Number of cases
- Number of measles vaccine doses administered to infants or 1 year old children (depending on immunization schedule)

Outbreak prevention phase (aggregated data):

Same as control phase, plus

- Number of cases by age group and immunization status
- % of known outbreaks that have been investigated

Elimination phase (case-based data)

- Unique identifier
- Geographical area
- Date of birth
- Date of rash onset
- Date of notification
- Date of case investigation
- Date of specimen collection
- Number of measles vaccine doses received: 99=unknown
- Source of infection identified (1=yes; 2=no; 9=unknown)
- Results of serology (1=positive; 2=negative; 3=no specimens processed; 9=unknown)
- Final classification (1=clinically confirmed; 2=confirmed by laboratory; 3=confirmed by epidemiological link; 9=discarded)

Completeness / timeliness of weekly measles reporting to be monitored in each phase

RECOMMENDED DATA ANALYSES, PRESENTATION, REPORTS

Control phase

- Incidence rate by month, year, and geographic area
- Measles vaccine coverage by year and geographic area
- Completeness / timeliness of monthly reporting
- Proportional morbidity (compared to other diseases of public health importance)

Outbreak prevention phase

Same as control phase plus the following:

- Age-specific incidence rate
- Cases by age group and immunization status

Measles elimination phase:

Same as Outbreak prevention phase plus the following:

Performance indicators	***target***
% of weekly reports received	80%
% of cases* notified ≤ 7 days of rash onset	80%
% of cases* investigated ≤ 48 hours of notification	80%
% of cases* with adequate specimen**and lab results	80%
% of confirmed cases with source of infection identified	80%

* all cases that meet the clinical case definition

** adequate specimen is one blood specimen collected within 3-28 days of rash onset

PRINCIPAL USES OF DATA FOR DECISION-MAKING

Control phase*:* Monitor incidence and coverage to monitor progress (decreasing incidence and increasing coverage), and identify areas at high risk or with poor performance.

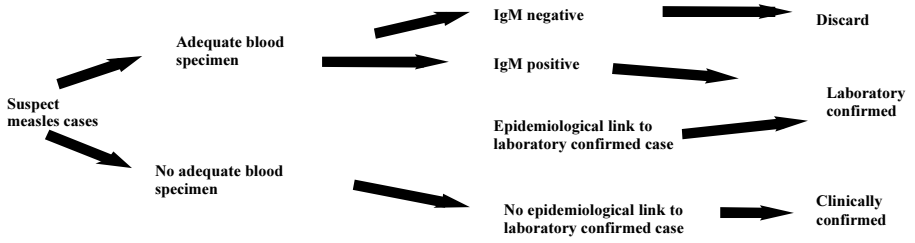
Outbreak prevention phase*:* Describe the changing epidemiology of measles in terms of age and inter-epidemic period. Identify high-risk populations. Determine when the next outbreak may occur through a build-up of susceptibles, and accelerate activities beforehand.

Elimination phase: Use data to classify cases (see Special Aspects). Determine where measles virus is circulating or may circulate (i.e. high risk) and the performance of the surveillance system (e.g., reaction time for notification, and specimen collection) to detect virus circulation or potential importation.

During all phases*:* Detect and investigate outbreaks to ensure proper case management. Determine why the outbreak occurred (failure to vaccinate, vaccine failure, accumulation of susceptibles).

SPECIAL ASPECTS REQUIRING EXPLANATION

Final classification of measles cases (Elimination phase)



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