Measles cases are confirmed either by laboratory test or by meeting the clinical case definition (i.e., illness characterized by generalized maculopapular rash lasting >3 days, a temperature of >101º F [>38.3º C], and cough, coryza, or conjunctivitis) and being epidemiologically linked to a laboratory-confirmed case.

For most countries in the Region, measles surveillance has been intensified after implementing the catch-up campaigns, emphasizing case reporting and laboratory confirmation of suspected cases. Every suspected measles case should be immediately reported investigated collecting integrates information epidemiological and specimen for laboratory confirmation and measles virus characterization

All countries in the Region have moved to case-based measles surveillance with laboratory confirmation with 19 countries implementing nationwide surveillance and two (Somalia and S. Sudan) implementing sentinel surveillance. The reported number of confirmed measles cases decreased dramatically from about 88,000 in 1998 to 15,800 in 2009 and measles mortality was reduced by 93% between 2000 and 2008.

Measles surveillance performance indicators

Towards measles elimination a set of surveillance indicators are recommended by the World Health Organization:

Reporting rate of at least 2 discarded measles cases per 100, 000 population per year at national level

Laboratory Confirmation: adequate specimen to be collected at least 80% of suspected measles cases and tested in a proficient laboratory

Viral Detection. Adequate for virus detection to be collected from at least 80% of laboratory-confirmed outbreaks and tested in an accredited laboratory.

Adequacy of Investigation. At a minimum 80% of all reported suspected measles cases should

have had an adequate investigation initiated within 48 hours of notification.

Measles and Rubella Laboratory Network

The diagnosis of clinically suspected measles is confirmed by detection of anti measles IgM antibody in the patient's blood using IgM ELISA assays. The roles of the laboratory in the elimination phase are to confirm the clinical diagnosis of all suspected cases, to isolate and analyses wild virus strains and monitors their circulation. National laboratories participating in the WHO Global Measles Laboratory Network are evaluated on their performance in two ways: Annual Proficiency Test (PT) and site visit for accreditation

All countries in the Region have established a measles national laboratory and have full serology capacity. Beside serological diagnostic capacity 19 of the 23 countries have well established virus detection by RT-PCR or virus isolation in cell culture which was build on existing Polio LabNet. Two Regional Reference Laboratories (RRLs) in Oman and Tunisia have access measles and rubella virus isolation and PCR technology. Rubella laboratory diagnosis is integrated with measles laboratory diagnosis.

In 2011, 11 of the 19 countries reporting measles cases had measles virus genotype identified: B3, D4, D8, and H1. Rubella genotype information is available from some countries in the region, genotypes 1E, 1G and 2B

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