

**Elimination Phase of Measles: an
Epidemiological Survey in Gonabad (Iran)
during 2006-2010**

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Mortality rate of measles disease has dramatically decreased because of vaccination programs, since the mortality rate of measles has decreased from 104000 in 1999 to 10000 in 2007 in the Eastern Mediterranean Region (EMR) and has decreased to 15869 cases based on reports in 2009^[1,2].

In October 1997, the EMR member countries adopted a resolution for elimination of measles from the region by the year 2010. This resolution endorsed the following four strategies to reach the goal: To achieve and maintain routine measles vaccine coverage more than 95% among children under 1 year of age; conducting a onetime, nationwide, mass immunization campaign or catch-up campaign targeting all children (usually those aged from 9 months – 15 years) regardless of the history of measles disease or vaccination; follow-up campaigns every 3-5 years, targeting all children born since the last campaign (usually those aged from 9 months to 4 years), or achieving 95% routine coverage with a second routine dose of measles vaccine; and to strengthen detection of suspected cases through measles surveillance and laboratory confirmation systems^[3].

Today the reports from measles surveillance system information show a dramatic decrease of disease incidence in Iran, so that the incidence of

the disease has decreased from 12 in 100000 to 1.6% cases per 100000 population in 2009^[4].

During the elimination of measles program in Gonabad city in 5 years (from April 2006 to December 2010) 23 cases of suspected measles based on WHO definition such as having fever and rash plus one of the following 3 symptoms: cough, runny nose, and/or conjunctivitis, were detected. The elimination of measles disease is based on quality assessment indices of surveillance system such as: detection of 2 cases in a population of more than 100000 members; reporting of suspected cases detected within 24 hours after the appearance of cutaneous rashes; history of vaccination for suspected cases, reporting rate of public and private health care centers and sending laboratory samples within 7 days to laboratory. From 23 suspected cases of measles in Gonabad city 56.2% were females and 43.2% males. 2 to 3 cases have been detected each year from 2006, but 13 cases were detected in the first 9 months of the year 2010 by more expert activity of surveillance system measures. Reporting index of suspected cases from Gonabad health centers from appearing of rashes within 48 hours was 82.1% or higher than the national index of the country (80%). However, more effort is needed to train all the parents to refer willingly to physicians of local health and treatment centers within 48 hours after the incidence of cutaneous rashes. The third index is complete sampling percentage (urine, throat swab, blood samples). Twenty-three cases in general were detected. From 78.2% of suspected cases 3 samples and from 13% only 1 sample of blood serum had been collected and the rest of cases were not sampled because their parents refused the sampling. The national defined index of blood serum for sampling must be obtained from at least 80% of the detected cases, in this research it was over the national index. All the samples sent to laboratory were received by the laboratory and diagnostic tests were negative in terms of

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measles virus. The fourth index is sending the samples to the laboratory within 7 days. In this study 100% of the samples were sent to the laboratory on time. This is in accordance with Bahrain, Maraca and Somalia' indices [5].

Another index is two doses of MMR vaccine for children of 12 months to 6 years. 26% from detected cases in Gonabad city had received one dose of MMR vaccination, but had not reached the time of the 2nd dose of vaccination yet. 47.8% had two doses of MMR vaccination and the other cases had not reached the age of immunization. Most of the cases were reported in summer.

One of the most important factors in achieving measles elimination phase in Iran seems to be the participation of private sector in reporting the disease cases. Most of reported cases were sent from governmental health and treatment centers (14 cases), while the lowest number of cases were reported from physicians' clinics, although most patients refer to private clinics and their participation is more needed. According to the study results, immunization status of the target groups (12 months to 18 months of ages) showed a direct relationship with measles infection rate in these groups and then urging and strengthening of measles surveillance system can be effective in detection and reporting of suspected cases of measles and also in prevention of endemic measles transmission. The risk centers in the region should be identified for suspected and non-immunized population and complimentary vaccination should be given each 3-4 years for

children 6-month to 6 years of age. A health staff should be determined to be in close contact with private physicians to visit them and those who are active in reporting suspected cases regularly to remind them of the importance of timely reporting of suspected cases of measles. Fortunately, since effective and functional efforts have been undertaken by Gonabad University of Medical Sciences in this field, surveillance system status is improving and we are approaching elimination phase of measles in the region.

Key words: Epidemiology; Immunization; Measles; Disease eradication

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