

## Measles - A Global Problem

Emran Roshan

**M**easles, a vaccine-preventable disease, is extremely contagious and it spreads via airborne transmission. A susceptible person who has face-to-face contact with an infected person has a 90% likelihood of developing the disease.<sup>1,2</sup> Measles is still common in many parts of the world, particularly in countries with developing economies. Approximately 20 million cases are estimated to occur globally each year, with 164,000 deaths; most fatalities occur in children under 5 years of age.<sup>3</sup>

Measles virus is single stranded RNA virus. Humans are the only host. Portal of entry is conjunctivae and upper respiratory tract. Patients are infectious from three days before to up to six days after onset of rash. Mostly diagnosis is clinical but in absence of outbreak serologic confirmation is recommended by identification of IgM in serum 1-2 days after onset of rash and a fourfold rise in the level of serum IgG.<sup>4</sup>

**Measles can lead to life-threatening complications.** Measles virus causes immunosuppression leading to severe bacterial and viral infections along with activation of latent tuberculosis.<sup>6</sup> Post measles pneumonia is most the common cause of death while acute otitis media is the most common complication. Subacute sclerosing panencephalitis «(SSPE) is a chronic complication with fatal outcome. The slow virus infection results in inflammation and death of brain cells leading to irreversible neurodegenerative process. Clinical manifestation of SSPE begins 7-13 years after primary measles infection. Progressive loss of brain matter ultimately leads to death. Vomiting, diarrhea, croup, tracheitis, bronchiolitis, febrile seizures are other complications which can occur. Complications of measles are common in patients younger than 5 years of age and more than 20 years of age and in those who are malnourished.<sup>5,6</sup>

Measles vaccine has changed epidemiology of the disease. After introduction of two dose vaccine policy and more intensive immunization strategies, the attack

rate of measles fell from 313 cases per 100,000 population in 1956-1960 to 1.3 cases per 100,000 in 1982-1988 in the United States. In spite of the vaccination, measles outbreaks continue to occur which may be due to vaccine failure in school going children, low coverage of preschool age children and rapid waning of maternal antibodies in infants born to mothers who had never experienced wild type measles. In Europe, there were 21315 cases of measles and 35 deaths in 2017, a 400% increase as compared to previous year when there was a record low cases (5273) according to WHO. Large outbreaks of measles have affected 15 of the 53 countries in the WHO European region, with the highest numbers seen in Romania (5562) and Italy (5006) and Ukraine (4767).<sup>7</sup>

**On the verge of a measles catastrophe, the country is facing an increasing number of reported cases compared to 2016.** The numbers reveal that Pakistan not only experienced a significantly higher number of cases than the entire region but that cases rose by more than 100 percent in 2017, compared to previous year. According to the Measles-Rubella Bulletin, the data analysis on the region reports 6,494 cases in 2017, while in 2016 the reported cases were 2,845.<sup>9</sup>

According to WHO standards, 95% vaccine coverage is necessary to avert an outbreak as the disease is highly infectious. Even reaching 80% coverage will avert large scale outbreaks. Except for Punjab and Azad Kashmir all other provinces report 56% or less coverage.<sup>10</sup> There are multiple causes of vaccine failure in Pakistan like paucity of vaccination centers, improper vaccination storage facilities, inadequate staff, corruption and least interest of parents in getting their child vaccinated.<sup>11</sup>

Only through vaccination measles can be prevented. It is recommended that all children should receive 2 doses of vaccine, one at age of 9 months and the other at age of 15 months.<sup>12</sup>

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*Sharif Medical & Dental College, Sharif Medical City.  
Sharif Medical City Road, Off Raiwind Road, Jati Umra,  
Lahore 54000, Pakistan.*

*Correspondence: Prof. Emran Roshan  
Professor Department of Pediatrics  
Sharif Medical & Dental College  
E-mail: dremranroshan58@gmail.com*

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