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Time to Target Rubella Elimination

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Rubella, a viral infection caused by a RNA virus of family Togaviridae is a transient self-limiting exanthematous febrile illness of childhood and adolescence. Transplacental infection of fetus during the first trimester of pregnancy results in a constellation of congenital anomalies called as Congenital Rubella Syndrome (CRS). The affected fetus may be born with mental, visual, auditory, and systemic handicap with resultant lifelong morbidity and loss of function [1]. Though the exact burden of CRS in India is not known, it is one of the most important causes of preventable blindness and deafness in the country [2]. CRS is entirely preventable by ensuring vaccination of pre-pubertal girls with rubella containing vaccine (RCV). Unfortunately, till date India did not have a national policy on rubella vaccination, and rubella virus continued to circulate unabated in the country.

In this issue of *Indian Pediatrics*, Madhanraj, *et al.* [3] report an outbreak of rubella in the Union Territory of Chandigarh. This study is important in face of a virtually non-existent surveillance system for rubella in the country. According to WHO, till 2012 Africa and South East Asian Regions had yet to establish rubella control, prevention or elimination goals [4]. India has a significant pool of susceptible adolescents, pregnant and non-pregnant females [2,5-7]; this single outbreak portrays just the tip of the iceberg as majority of cases go unreported owing to absence of a surveillance system. Another reported outbreak is from Himachal Pradesh in 2006-07, in which 11-20 yr age group had the highest attack rate [8]. Outbreak of rubella is defined as two or more confirmed cases which are temporally related (with onset of rash in cases occurring between 12 and 46 hours after exposure), and epidemiologically or virologically linked or both [9]. A total of 3219 laboratory confirmed and epidemiologically-linked rubella cases were reported from the countries of SEA Region in 2013. There were a total of 189 outbreaks of exanthematous illness and a total of 2717 laboratory and epidemiology linked confirmed cases of rubella were reported from these outbreaks [10].

Rubella virus has a single genotype with no extra-human host/carrier; a safe and highly effective, live attenuated RA 27/3 strain vaccine is available which induces seroconversion rates of 95% or higher after administration of a single dose. So, rubella is an excellent candidate for elimination. Countries where routine universal immunization for rubella is in place, the burden of CRS has strikingly reduced to near zero from the high numbers in pre-vaccination era [11].

To reduce the burden of CRS, two strategies can be used: (*a*) vaccinating only adolescent girls and women of child bearing age would result in the reduction of CRS that is proportional to the level of coverage; (*b*) Introducing RCV into routine childhood immunization schedule combined with the vaccination of older susceptible age groups. More extensive the implementation of vaccination strategies, the shorter will be the time frame for eliminating rubella and CRS. Thus, when vaccination coverage in children is high (>85%), rubella and CRS elimination would occur in 20-30 years. Elimination would occur in 10-20 years when catch-up immunization is provided to adolescents along with routine immunization of children, and within 10 years if vaccination is provided to young children, adolescents and adults [12].

Outbreaks occur when the population immunity is low and a large proportion is susceptible. Outbreaks should be investigated so that their extent and origin can be determined. This information will lead to a better understanding of their epidemiology and help in defining and tailoring interventions in order to decrease the size of susceptible populations and control the outbreaks. Building and maintaining an effective surveillance system is vital to provide essential information to set priorities, plan activities, allocate resources, implement prevention programs, respond to outbreaks and evaluate control measures and trace importations. Laboratory confirmation represents an increasingly critical component of effective surveillance, because it helps to exclude other diseases with fever and rash. For this, the laboratory networks set-up by WHO should be effectively used. Any country introducing rubella vaccine in national immunization schedule should have a surveillance system for CRS and rubella as per the standards set by WHO [13]. At the 66th SEARC (South East Asian Regional Committee) meeting, the Member States unanimously adopted the proposed resolution to eliminate measles and control rubella/CRS by 2020 in this Region [10].

In India, rubella containing vaccine (RCV) is recommended by IAP as MMR vaccine, to be administered in two doses at the age of 9 month and 15 month; and as catch up vaccine till 18 years of age [14]. Taking cue from this move of IAP, the Govt. of India is planning to incorporate RCV in the National Immunization Schedule and has recently announced this [15]. But the strategic plans for the introduction of vaccine into the immunization schedule are yet to be revealed. The government is now positive on introduction of new antigens in the National Immunization schedule. But still, the time to rejoice is far unless the potential workforce of the country stands fully protected from the menace and crippling consequences of congenital rubella syndrome. Reporting of these small outbreaks [3] serves as a wake-up call to keep the agenda alive.

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