Rubella Mass Campaigns

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Abstract  The availability of vaccines that contain both measles and rubella components allows for the elimination of both diseases. Although routine infant vaccination with rubella vaccine has had profound effects on the incidence of both acquired and congenital rubella, mass vaccination rapidly stops circulation of the virus and prevents paradoxical increases in susceptibility of women that might result from decreased exposure in childhood. Whereas routine rubella vaccination has eliminated the infection from many developed countries, mass vaccination has rapidly accomplished the same goal in Latin America and the Caribbean, and is being applied in other developing country areas.

1 Introduction

Rubella, once thought to be a benign illness, gained public health importance when Dr. Norman Gregg associated the risk of rubella in pregnant women and congenital birth defects [1]. In the early 1960s, the ability to isolate the virus was achieved by two separate groups [2, 3]. A worldwide rubella
epidemic that began in 1962 in Europe led to the 1964–1965 rubella epidemics in the US. The US epidemic alone involved an estimated 12.5 million cases of rubella including 2,000 cases of encephalitis, 11,250 abortions, 2,100 neonatal deaths, and 20,000 infants born with congenital rubella syndrome (CRS). The financial cost of the epidemic was estimated at $1.5 billion. The morbidity and mortality of the epidemic spurred development of rubella vaccines, and emphasized the need for control strategies for rubella to prevent a recurrence of this devastating epidemic [4]. In 1969, three rubella vaccines were licensed in the US, ultimately reduced to one (RA 27/3).

In light of the pending licensure of the rubella vaccines, there was considerable debate on the best approach for implementing the vaccination program. The goal of a rubella vaccination program is the prevention of congenital rubella infections. Because the rubella vaccine is a live-attenuated vaccine, there were initial concern of vaccination of women who were later found to be pregnant might result in fetal infection and deformities. This concern resulted in two different strategies that were used by various industrialized countries [5, 6]. These strategies included vaccination of children—resulting in herd immunity and known as the indirect approach—and vaccination of women of childbearing age—providing individual protection and known as the direct approach. The rational for the direct approach was that as rubella incidence was greatest in preschool and elementary school children, it was reasoned that vaccination of this age group would decrease or interrupt the circulation of the virus; susceptible pregnant women would be protected indirectly by virtually eliminating the risk of exposure. The risk of giving a potentially teratogenic live virus vaccine to young women of childbearing age was undefined. The direct approach would provide individual immunity and decrease the risk of CRS; however, would not interrupt rubella virus circulation.

In the US, to increase the immunity among children aged 1 year to puberty several mass campaigns were undertaken. These campaigns ranged from local to statewide [7].

With over two decades of experience with the initial vaccination programs, the best options were to target both children and women of child-bearing age. The US and UK started with two different approaches but now vaccinate both children and women of childbearing age [8].

Another vaccination strategy that is now being used widely for rubella is the Mass Immunization Campaign (MIC). MICs have played a significant role in the eradication of polio and control/elimination of measles [9].

In the 1990s, MICs were part of the strategy used for measles elimination by PAHO that was subsequently adapted in other parts of the World Health Organization (WHO) regions. The strategy used for measles control included: