Editorial

The importance of implementing, monitoring and evaluating congenital rubella syndrome surveillance

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Rubella, once considered being a mild, benign rash illness, gained public health significance in 1941 when Gregg [1] associated the significance of congenital cataracts with rubella during pregnancy. In 1962–1965, a rubella pandemic resulted in approximately 12.5 million rubella cases, 20,000 infants born with congenital rubella syndrome (CRS), 11,250 fetal deaths (fetal wastage and abortions), and 2,100 neonatal deaths in the US alone [2]. This devastating epidemic and the ability to isolate and attenuate the virus expedited the development of a vaccine against rubella [3].

With the licensure of rubella vaccines in 1969, the goal of the rubella vaccination program was the prevention of congenital rubella infection (CRI) in the US [4]. CRI encompasses all outcomes associated with intrauterine rubella infection, including miscarriage, stillbirth, abortion, combinations of birth defects known as CRS, or asymptomatic infection (also known as infection only). To monitor the impact of the vaccination program, the US implemented CRS surveillance in addition to previously established rubella surveillance. The rationale for focusing on CRS surveillance instead of CRI is that CRS is easier to quantities; confirm diagnosis and monitor compared with CRI.

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The CRS surveillance system, like other public health surveillance systems, consists of ongoing, systematic collection, analysis, interpretation, and dissemination of data for use in public health action to reduce morbidity and mortality. The data collected can be used for immediate public health action as well as program planning and evaluation. As with any public health surveillance system, this system should be evaluated periodically, and the evaluation should include recommendations for improving its quality, efficiency, and usefulness [5].

In this issue of JPID, Lanzieri et al. [6] noted that introduction of rubella vaccine began in 1992. To assess the impact of the rubella vaccination program, mandatory reporting of rubella and CRS began in 1996. However, CRS surveillance was not implemented until 2000 [6].

The data collected in the CRS surveillance system in Brazil reinforce the findings from the rubella surveillance system documenting a shift in the incidence of rubella toward the older age groups, potentially increasing the risk of CRS due to increased exposure among women of childbearing age. In 1997–1998, the incidence of rubella was 20/100,000 population and the prevalence of CRS was 0.5/100,000 children. In 1999–2000, the incidence of rubella was lower than during 1997–1998; but the prevalence of CRS had increased to 2.0–2.3/100,000 children during 2000–2001. When

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assessing the age-specific incidence of rubella in 1997–1998, the highest incidence occurred in the 1–9 year old age group (15.0/100,000) followed by 10–14 year olds , whereas in 1999–2000, the incidence rate in persons 15–29 years of age rose from 7.0 per 100,000 to 13.0 per 100,000. Based on the epidemiological data, a vaccination campaign for women of childbearing age (WCBA) was conducted to accelerate the control of CRS [7]. In 2003, a goal for the elimination of rubella and CRS was established.

Lanzieri et al. [6] highlights the different entry points into the CRS surveillance system. The first is identification and follow-up of pregnant women who are suspected or diagnosed with rubella. In evaluating the CRS surveillance system, Lanzieri et al. [6] noted that most of the suspected cases of CRS were identified through the CRS surveillance system and not by follow-up of identified pregnant women. A potential strategy used in Romania was to establish a pregnancy registry to monitor the follow-up of pregnant women [8]. However, as noted in article by Lanzieri et al. [6], long-term follow-up can be challenging.

The second point of entry into the CRS surveillance system is identification of an infant born with congenital defects consistent with CRS. To document the completeness of reporting, a retrospective study was performed. It was estimated that only 7% of the compatible and confirmed CRS cases were identified through the passive system. Retrospective studies in Costa Rica [9], US [10] and Quebec, Canada [11] documented incomplete reporting of CRS cases. In Costa Rica, even though there were outbreaks in the young adults, population, no CRS cases had been reported since 1992; however, in a retrospective search, 45 CRS cases were born between 1996 and 2000. In the article by Lanzieri et al. [6], one strategy was to conduct active surveillance at maternity hospitals and tertiary referral centers.

The article by Lanzieri et al. [6] highlights two very important points: implementation and monitoring of CRS surveillance and evaluation of a surveillance system. The data from the CRS surveillance system were used to change vaccination policy. The decision to accelerate CRS control was based on epidemiological data. As Brazil continues to move forward toward elimination, monitoring the impact of the program will be more challenging. As CRS gets rarer, the positive predictive value decreases; therefore, identifying cases of CRS will be more challenging. As highlighted in the article by Lanzieri et al. [6], identifying, implementing and evaluating strategies to improve the quality and effectiveness of the CRS surveillance system is critical.

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