

# A resurgence of congenital rubella in Australia?

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## Abstract

Two infants with congenital rubella defects (congenital rubella syndrome) have been reported from Queensland in 2003, after an increase in rubella in that State in 2001–2002. The national Measles Control Campaign in 1998 aimed to give measles-mumps-rubella (MMR) vaccine to all unvaccinated preschoolers and a second dose to primary schoolchildren. Following the Campaign no children with congenital rubella defects were born to Australian-born mothers during the five years 1998 to 2002, according to reports to the Australian Paediatric Surveillance Unit. However, three imported cases occurred. Broad immunisation coverage and detection and vaccination of susceptible women of child-bearing age before they become pregnant are necessary to prevent further cases. *Commun Dis Intell* 2003;27:533–535.

Keywords: congenital rubella, Australia, rubella vaccination

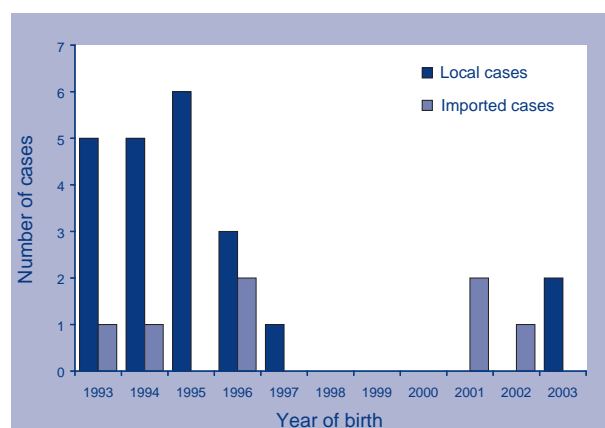
## Introduction

The 1998 Measles Control Campaign (MCC) raised the level of immunity to rubella as well as to measles, because measles-mumps-rubella (MMR) vaccine was used. Since the vaccine was given to both boys and girls, the large pool of rubella-susceptible male adolescents, a feature of the previous strategy of vaccinating teenage schoolgirls but not their male counterparts, is now reduced.<sup>1</sup>

The number of cases of congenital rubella infection in Australia, ascertained through the Australian Paediatric Surveillance Unit (APSU), a national network of over 1,000 paediatricians,<sup>2</sup> had been falling since 1995 (Table). After the MCC there was only one case in 1999 (mother infected late in pregnancy, no rubella defects in infant). For the next three years there were no local cases (infants whose mothers were infected in Australia) reported. There were two imported cases in 2001 and another in 2002, when mothers born overseas and infected there gave birth to affected children in Australia. It seemed that locally acquired infection

causing congenital rubella syndrome was a thing of the past in Australia<sup>3</sup> until two infants were born with congenital rubella defects in Brisbane in 2003 (Figure), following an upsurge in rubella infection in Queensland in 2001–2002 (see accompanying report).

**Figure.** Congenital rubella syndrome in Australia, 1993 to 2003



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**Table.** Cases of congenital rubella infection born between 1993 and 2003 and notified to the Australian Paediatric Surveillance Unit

Year of birth	Total	Local cases (mother infected in Australia)			Mother		Imported cases <sup>§</sup> (place child born)
		With rubella defects	No rubella defects (week infected)	Vaccinated	Known to be born overseas*		
1993	6	5	1 (34)	3	1	1 (Kenya)	
1994	7	5	2 (19, 27)	1	1	1 (Nauru)	
1995	7	6	1 (10)	1	4	0	
1996	4	3	1 (6 <sup>†</sup> )	2	0	2 (NSW, Fiji)	
1997	1	1		0	0		
1998	–	–		–	–		
1999	1	0	1 (35)	0	0		
2000	–	–		–	–		
2001	–	–		–	–	2 (Indonesia, Vic)	
2002	–	–		–	–	1 (WA)	
2003	2	2		0	0		
Total	28	22 (4 deaths) <sup>‡</sup>	6	7	6	7 (1 death)	

\* Not always known whether mother born overseas, if her nationality not Australian.

† Contact only, no clinical rubella in mother.

‡ 1 additional infant born in 1994 died from sudden infant death syndrome.

§ Infected outside Australia and mother born outside Australia.

## Case reports

### Case 1

In April 2003 an 18-year-old Caucasian Australian-born mother delivered her second child at 38 weeks' gestation. This male infant was small for gestational age (birth weight 2,220 grams) and had a head circumference on the 10th percentile (32.2 cm). Postnatally, his rubella IgM was positive and he had neonatal thrombocytopenia requiring platelet transfusion. Later, brainstem evoked responses indicated severe bilateral sensorineural deafness. This mother had a rubella contact (an adolescent female) at 9 weeks' gestation, and serologically confirmed rubella with rash at 10 weeks. She had missed the rubella schoolgirl vaccination program because of illness.

### Case 2

In May 2003 a 21-year-old Caucasian Australian-born mother delivered her first child, a son, whose birth weight was 3,570 grams at 39 weeks' gestation. He had thrombocytopenia, cerebral calcification and ventriculomegaly, and severe bilateral sensorineural deafness. The mother had a rubella contact at her workplace at 9 weeks' gestation, followed one week later by a serologically confirmed rubella-like illness without rash. It is not known whether she was vaccinated against rubella at school.

## Notifications of congenital rubella to the Australian Paediatric Surveillance Unit

Since January 1993, 35 infants born with definite congenital rubella infection have been notified to the APSU (Table). Of these, 29 infants had rubella defects and six were infected but without defects at the time of notification. Twenty-eight of the 35 mothers were infected in Australia. Of these 28, 15 infants were born in New South Wales, eight in Queensland, three in Victoria and two in the Australian Capital Territory. The other seven cases were imported. Although the mothers came from and were infected in Kenya, Nauru, Mauritius, Fiji (2) and Indonesia (2), three of the seven infants were born in Australia (New South Wales, Victoria and Western Australia).

Of the 28 local cases, nine mothers had nationalities other than Australian, and six were known to have been born overseas. When the seven imported cases are included, a total of 16 of the 35 mothers (46%) had a nationality other than Australian, and 11 of the 16 came from countries without rubella vaccination programs.

One-quarter (7 of 28) of the local cases gave a history of rubella vaccination in the past.

## Discussion

How did these two young mothers fail to receive full and effective rubella vaccination? One mother had missed the schoolgirl rubella vaccination because she was sick. Perhaps there is a need to follow-up girls who miss their adolescent rubella vaccination. There was no documentation of rubella vaccination for the second mother. Both mothers appear to have been exposed to rubella through infected adults. Rubella in Australia is predominantly a disease occurring in young adults, particularly men, who were not eligible for an adolescent dose of rubella vaccine. This cohort of predominantly non-immune males will continue to provide an exposure risk to pregnant women who have missed vaccination for rubella. Immigrants also contribute to this risk as in 2002 only 124 (58%) of the 214 countries reporting to the World Health Organization had introduced rubella vaccination into their national immunisation programs.<sup>4</sup> Therefore helping Australia's neighbouring countries establish rubella vaccination programs could reduce congenital rubella and also the number of our imported cases.

A recent report from the Mercy Hospital for Women, Melbourne, has shown that since rubella immunisation commenced in Australia in 1971, there has been a significant reduction in rubella seronegativity in women of child-bearing age in Melbourne from around nine per cent in 1976 to three per cent in 1995. However, susceptibility has remained at this level since, due to high rates of seronegativity in women born in developing countries.<sup>5</sup> This finding further emphasises the need for vaccination programs targeting immigrants to Australia.<sup>6</sup>

There is no room for complacency in Australia. The MCC was a great success; however, the subsequent offer of MMR vaccination to young adults awaits evaluation, but is thought not to have reached many of the targeted under 30-year-olds. Cuba was able to eliminate rubella and congenital rubella syndrome using two mass vaccination campaigns targeting women aged 18–30 years in 1985 and children aged 1–14 years in 1986. The last case of congenital rubella syndrome was reported in 1989, and the last rubella case in 1995.<sup>7</sup> Finland reported elimination of indigenous measles and rubella in 2000.<sup>8</sup> In 1999 the United States of America reported that congenital rubella syndrome was near elimination with an average of six cases annually of whom 42 per cent were imported and a high proportion of the locally acquired infections were in foreign-born mothers.<sup>9</sup> In the United Kingdom, where there is an active surveillance system comparable to our own, using the British Paediatric Surveillance Unit, a small number of locally acquired cases continue to occur with a similar proportion of imported cases and foreign-born mothers, to Australia and the United States of America.<sup>10,11</sup>

The birth of a baby with congenital rubella is both a personal and a community tragedy. We must continue to immunise children, to identify and immunise vaccine failures and other susceptible women before they become pregnant, and to screen pregnant women so they can be vaccinated after delivery. Effective surveillance of rubella and congenital rubella syndrome is also needed. Continued vigilance will be the price of freedom from congenital rubella.

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## Short report

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