Case histories
Rubella

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For more on Case histories see **Comment** *Lancet* 2016; **387:** 211, **Perspectives** *Lancet* 2016; **387:** 217, 737, 1265, 1711, 2082, 2495, *Lancet* 2016; **388:** 228, 649, 1148, e10, 2467, and *Lancet* 2017; **389:** 25, 591, 998

Until the mid-20th century physicians and patients alike might greet a diagnosis of rubella with a sigh of relief. A red rash and a fever could be portents of serious sickness, in the form of measles or scarlet fever, or even disfigurement and death from a bout of smallpox. Rubella, by comparison, was merely a few days of mild sickness—often in childhood—granting a lifetime's immunity. One mid-19th-century American physician noted that "the constitutional symptoms were so mild that it was difficult to keep the children in bed".

Rubella has, in the words of the historian Leslie J Reagan, been "discovered—and named—multiple times" in its history. In the late 18th and early 19th centuries German physicians described a mild fever associated with adenopathy and a transient rash, and called it *Rötheln* (still the German name for rubella). English physicians initially saw *Rötheln* as a form of scarlet fever, but in the 1850s and 1860s William Squire and Henry Veale claimed that it could be distinguished by its course rather than its lesions: a *Rötheln* rash faded faster than that of measles or scarlatina. These distinctions could be deadly serious: if a child suffering from *Rötheln* was mistakenly diagnosed with a more dangerous condition they might be taken to an isolation hospital, and run the risk of contact with genuine cases. Arguing that "*Rötheln* is harsh and foreign to our ears", Veale also proposed a new name, rubella—although this was not taken up in medical literature until the end of the 19th century, and did not enter public discourse until World War 2. Massachusetts physicians coined "German measles" as a demotic substitute for *Rötheln* in an 1871 epidemic.

This tolerant, even flippant attitude to rubella changed radically with the work of the Australian ophthalmologist Norman Gregg. In Sydney in 1941 Gregg treated more than a dozen children who had large and unusual cataracts. Conversations with mothers—Gregg was renowned as a good listener—suggested a connection with rubella, and a survey of his colleagues picked up a total of 78 cases. In a paper to the Ophthalmological Society, Gregg presented his conclusions: a maternal rubella infection early in pregnancy could cause congenital blindness, deafness, and heart problems.

A 1952 editorial in *The New England Journal of Medicine* insisted that "the solution to the problem is simple—for young girls to 'get the disease and get it over with' before they undertake the responsibilities of marriage and motherhood". Conservative groups worried that, at a time when non-therapeutic abortion was illegal in the USA, women would feign rubella to end unwanted pregnancies. Others pointed out that 80–90% of individuals had gained natural immunity before they reached sexual maturity. But at a time of widespread public and political support for major research programmes, such as Jonas Salk's work on polio, several teams of researchers began work on a vaccine.

The 1964–65 US epidemic, in which about 20 000 children suffered birth defects, showed that congenital rubella syndrome (CRS) could cause damage to almost every organ system. Two teams of US researchers had identified the rubella virus in 1962, and at the end of the decade several vaccines were licensed and deployed in a programme of mass vaccination in US schools. As the historian Jacob Heller has pointed out, this programme embodied a new public health strategy: "prevent a nominally harmless, if highly infectious, disease as a way to prevent future birth defects".

Over the past five decades rubella vaccination—now part of the widely used measles, mumps and rubella (MMR) vaccine—has remained, in Heller's word, "unglamorous [and] almost anonymous", but it has proved effective in nations that use it consistently. In 2015 the Pan American Health Organization announced that it had eliminated endemic transmission of rubella and CRS. But the WHO European Region has not yet achieved elimination. It remains to be seen whether difficulty in accessing immunisation services, the MMR and autism controversy, and the persistence of an anti-vaccination movement, particularly strong in the USA, will influence long-term rates of rubella and CRS.

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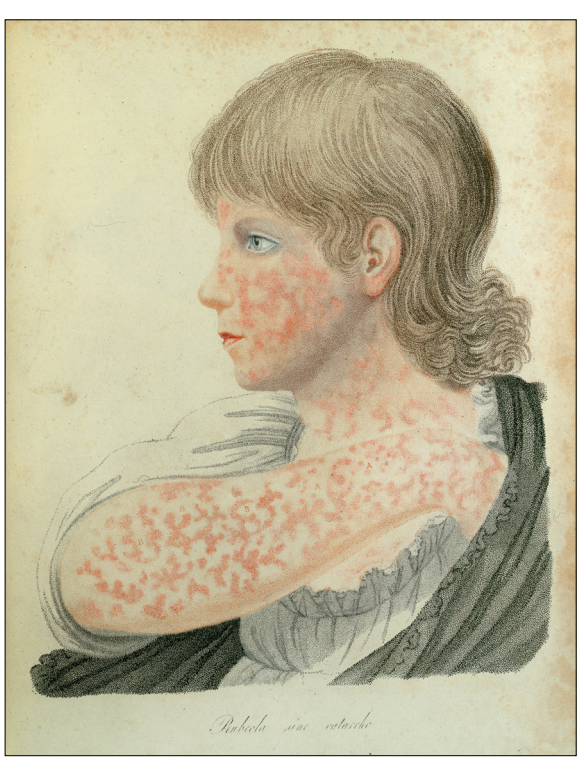

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Further reading

Heller J. The vaccine narrative. Nashville, TN: Vanderbilt University Press, 2008

Reagan LJ. Dangerous pregnancies: mothers, disabilities and abortion in modern America. Berkeley and Los Angeles, CA: University of California Press, 2010

Plotkin SA. The history of rubella and rubella vaccination leading to elimination. *Clin Infect Dis* 2006; **43** (suppl 3): S164–68