

History repeats itself in Japan: Failure to learn from rubella epidemic leads to failure to provide the HPV vaccine

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ABSTRACT

Eradication of vaccine-preventable diseases is one of the most important goals of public health interventions. Herd immunity can be established by national vaccination programs. However, once the national vaccination program stops for any reason, unprotected group will be generated depending on an unfortunate year of birth. Currently, there are 2 major concerns regarding vaccine cohort gaps in Japan: one is for the rubella vaccine, the other for the human papillomavirus (HPV) vaccine.

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Rubella epidemic in Japan

In 1989, a combination measles, mumps, and rubella (MMR) vaccine, targeting all children aged 1 to 6 years, was introduced into the National Immunization Program (NIP).¹ However, in 1993, due to reports of serious aseptic meningitis following the MMR vaccination, the Japanese government decided to withdraw its recommendation for the MMR vaccine. Ironically, the subsequent incidence of serious aseptic meningitis occurring among unvaccinated patients contracting natural mumps was reported to be as high as 1.24%, whereas the incidence was only 0.05% as a result of the mumps vaccine.² This decision has become a significant social concern in Japan.

In 1995, the NIP revised its vaccination policy, to now strongly recommend, but not make mandatory, the rubella vaccine for both males and females, aged 12–90 months. On 4 subsequent occasions the government made temporary recommendation changes specific to different populations susceptible to rubella: for first- and second-year elementary school students, in 1995; for first-year elementary school students, in 1996–1999; for junior high school students without a history of rubella, in 2001–2003; and for unvaccinated individuals aged 16–24 years, in 2001–2003.¹ From 2006 onward, measles and rubella vaccine (MR) has been given free-of-charge to children aged 1 y and 5–6 y.¹ More than 10 y passed before NIP resumed its recommendation for the MR vaccine. As a result, there are susceptible pockets among female birth cohorts 1989–1993, with seropositive proportions of 78.3%.³

Due directly to these gaps in ‘herd’ immunization resulting from politicized transitions in vaccination policy by the government, there were outbreaks of rubella with 17,050 cases reported between the years of 2012 and 2014,⁴ and 45 cases of congenital rubella syndrome reported to the National Epidemiological Surveillance of Infectious Diseases from week 1, 2012

to week 40, 2014.⁵ Currently, the majority of recent rubella epidemic cases are occurring among adults aged 20–40. There still exist large populations susceptible to rubella in Japan.

Japan’s failure to provide HPV vaccines for young females

In Japan, vaccination with public aid against HPV became available to girls aged 13–16 in 2010. However, early in the spring of 2013, the media began repetitively reporting that adverse patient events might be linked to the vaccine,⁶ even though it was not exactly known whether these effects were actually caused by the vaccine. Finally, in June of 2013, without fully considering all the scientific evidence, Japan’s Ministry of Health, Labour and Welfare (MHLW) decided to suspend its active recommendation for the HPV vaccination. As a result, the vaccination rate among Japanese girls who became 12 y old during 2014 dropped to < 0.1%.^{6,7} This is in stark contrast to the HPV vaccination rate of 70% that was achieved in 2012.

Although approximately 4 y will have passed since the governmental suspension of HPV vaccine, the policy of MHLW remains unchanged. We have previously reported that disparities will occur in the incidence of HPV infections among young women, depending on birth year.⁶ In the future, this cohort gap will result in higher incidences of cervical and other HPV-related diseases. We have also proposed future strategies to fill the cohort gap; (i) catch-up vaccination, (ii) vaccination not only for females but also for males and (iii) use of 9-valent HPV vaccines in Japan.⁸ Previous study has suggested that HPV vaccines might provide protective effects not only in the females who were vaccinated but also in unvaccinated males through herd immunity.⁹ As long as the government refuses to protect our youth by vaccination, herd immunity will be disrupted and diseases can spread.

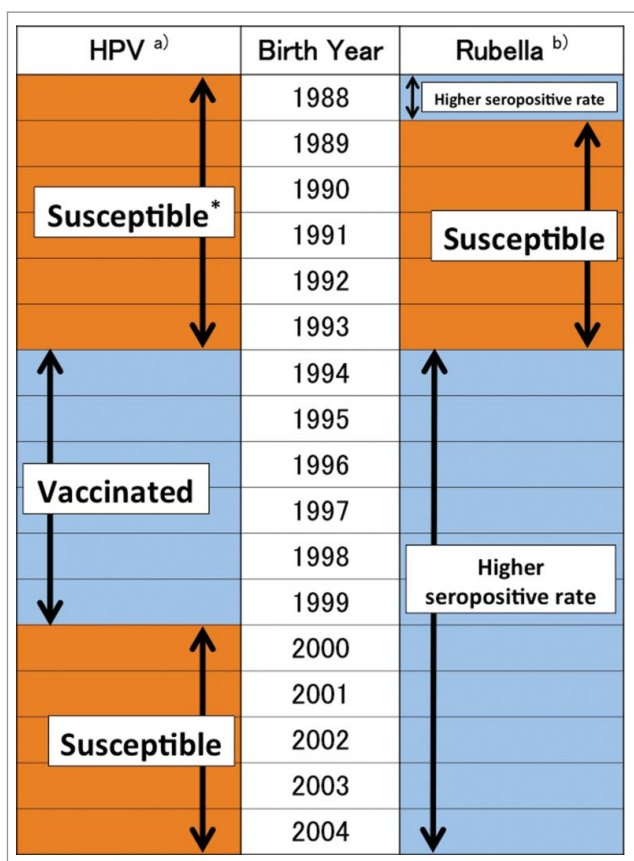


Figure 1. Vaccine-susceptible pocket in Japanese females. a) HPV vaccines became available to girls aged 13–16 in 2010. Approximately 70% of females born between 1994–1999 were vaccinated. (See references no. 6 and no. 7). *Females born between 1988–1993 were not eligible for the national HPV vaccination program. b) Susceptible pocket among female birth cohorts 1989–1993 was identified, with seropositive proportions of 78.3% seropositive. (See reference no. 3).

Sadly, the history of vaccine crisis repeats itself in Japan. According to the previous studies,^{3,6} the presence of disease-susceptible pockets was observed among the Japanese population, as shown in Fig. 1. The MHLW of Japan should not repeat the mistakes of the past, and it must show that it understands the importance of herd immunity. Once the government suspends its recommendation for a vaccine, it is quite difficult to reinstate their previous recommendation.

Disclosure of potential conflicts of interest

Drs. Tanaka and Yoshino declare no conflict of interest.

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