Rubella Position Paper
Update and Proposed Policy Changes

World Health Organization

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Meeting of the Strategic Advisory Group of Experts on Immunization

8 October 2019, Geneva

In Memoriam: Louis Cooper (1931-2019)

"It seems on the surface very simple to vaccinate a child, but the truth is ……this is exceedingly complex."

Dr. L. Cooper, 2014

Overview for Rubella Position Paper Update:

- Systematic Review
  - Effectiveness/Immunogenicity, Safety, Duration of Protection
- Policy Changes:
  - Health Worker Vaccination (SAGE - Nov 2013)
  - Co administration of Yellow Fever vaccine and Rubella containing vaccine (SAGE - Oct 2018)
  - Rubella Vaccination Strategy

Systematic Review

National Institute for Public Health and the Environment
Ministry of Health, Welfare and Sport

World Health Organization

Conducted by RIVM (January 2010 to April 2019)

Immunogenicity:

- One dose of rubella containing vaccine (RCV) - 99% seroconversion (GRADE evidence rating high)

Safety:

- Rubella component of RCV is safe (GRADE evidence rating moderate)
- When given inadvertently in pregnancy no cases of CRS reported (GRADE evidence rating low)

Duration of Protection:

- Data up to 20 years of protection for one dose of vaccine (GRADE evidence rating moderate)

Rubella Vaccination Strategies

- Two vaccination strategies recommended in Rubella Vaccines: WHO Position Paper 2011

    1. **Eliminate** Rubella and CRS
    2. **Reduce** CRS
        - RI or SIAs in only women of reproductive age

WER 29 (2011) 86, 301-316

Rubella Vaccination Strategies: SAGE Meeting Nov 2013

- Countries introducing RCV for the first time to provide RCV along with the first dose of MCV1
- Carry out a catch-up campaign using MR or MMR targeting children 9 months to <15 years
- For countries aiming to accelerate progress toward a rubella elimination goal by addressing immunity gaps in adults, SAGE recommended that any SIAs targeting immunity gaps in adults should include both males and females

WER 1 (2014) 89, 1-20

Rubella Vaccination Strategies: Eliminate Rubella and CRS

World Health Organization

Cohorts to be vaccinated	Goals	
	CRS Reduction	Rubella/CRS Elimination
		Strategies to achieve goal
Women of childbearing age	Routine immunization (RI) SIAs	RI or SIAs for females not targeted by previous campaigns or Speed-up campaign+
Children 9 months - 4 years		1 dose RI and regular follow-up campaigns* or 2 doses RI **OR** 1 dose RI and regular follow-up campaigns or 2 doses RI after catch-up campaign¶ **OR** 1 dose RI and follow-up campaigns or 2 doses RI after speed-up campaign
Children 5-14 years		Catch-up campaign **OR** Speed-up campaign
Adolescents/Adults 15-39 years		Speed-up campaign

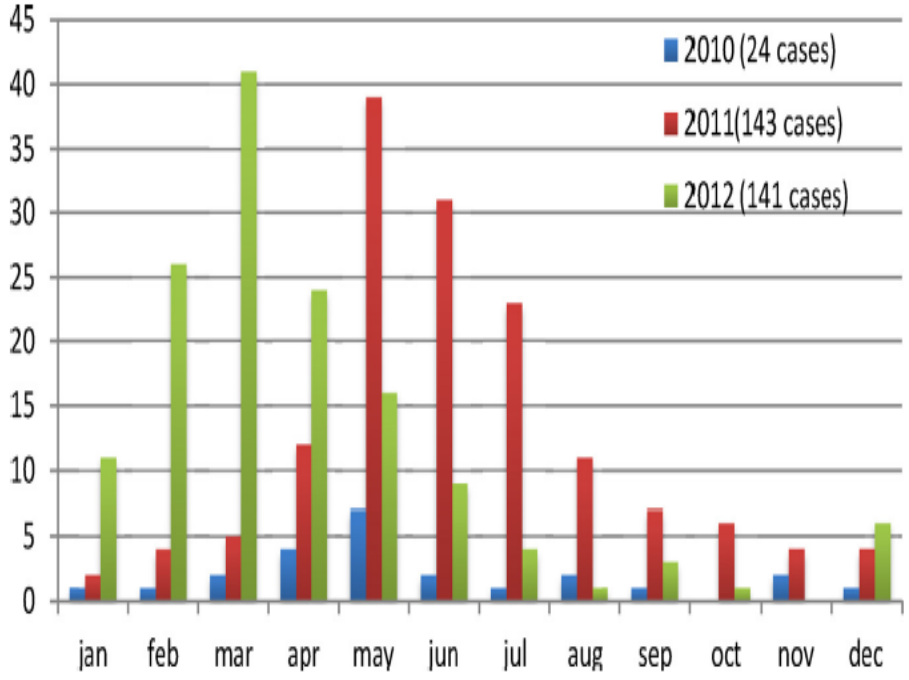
*Follow-up campaigns – are periodic campaigns usually targeting all children born since the last SIA. These campaigns are usually conducted nationwide every 2–4 years and target children aged 9–59 months.
¶Catch-up campaign – is a one-time campaign that targets all children aged 9 months to 14 years
+Speed-up campaign – is a one-time campaign that targets adolescents and adults (the age group of men and women to be vaccinated depends on the year of vaccine introduction, follow-up campaign coverage, epidemiology, and fertility rates in the country).

WER 29 (2011) 86, 301-316

Issues with Strategy to Reduce CRS – Tunisia

World Health Organization

- RCV introduced in 2005 in 12 year old girls and seronegative post-partum women
- One-time catch-up campaign for girls ages 13-18 held in 2005
- Large, prolonged rubella outbreak from April 2011 – July 2012
- 265 laboratory confirmed acquired rubella cases
- 15 laboratory confirmed CRS cases



Monthly distribution of number of rubella cases diagnosed in the microbiology laboratory during 2011 and 2012 compared to 2010.

Messedi et al. J Clin Virol 61 (2014) 248-254

Issues with Strategy to Reduce CRS – Tunisia

- 265 acquired cases of rubella
- 48 severe cases (18% of acquired cases) with **2 deaths**
  - Encephalitis (n=39)
  - Meningitis (n=5)
  - Cerebellitis (n=1)
  - Thrombocytopenic Purpura (n=3)
- 82.6% of acquired cases among females were <12 or >25 years (not targeted for vaccination)
- 72.6% of cases in 12-25 year age group were among males (with females in this age category targeted for vaccination)

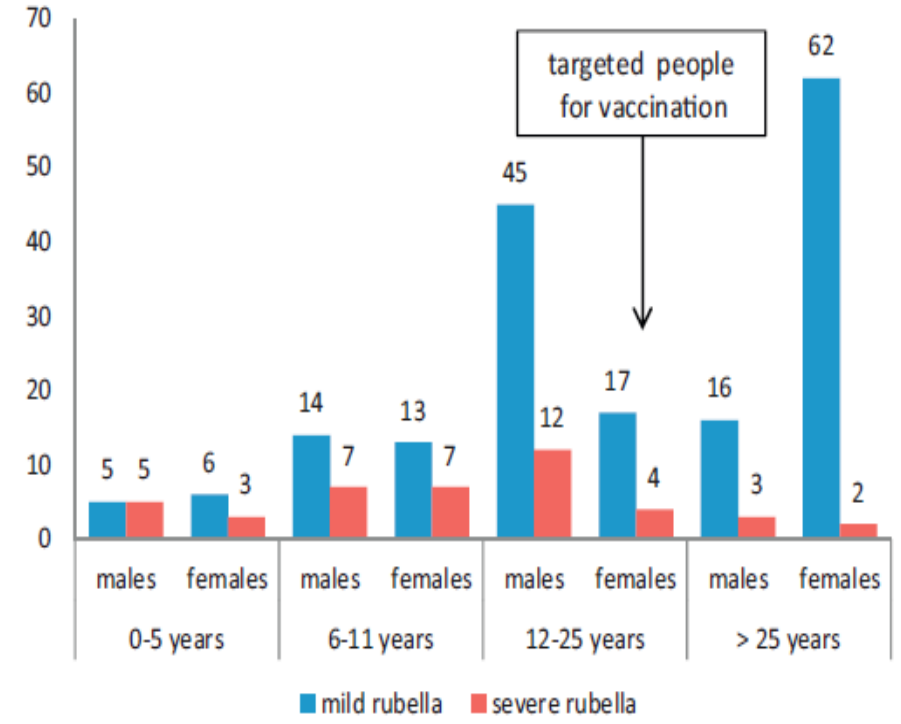


Fig. 2. Distribution of mild and severe rubella cases by sex and age group. Age is known for 221/265 patients.

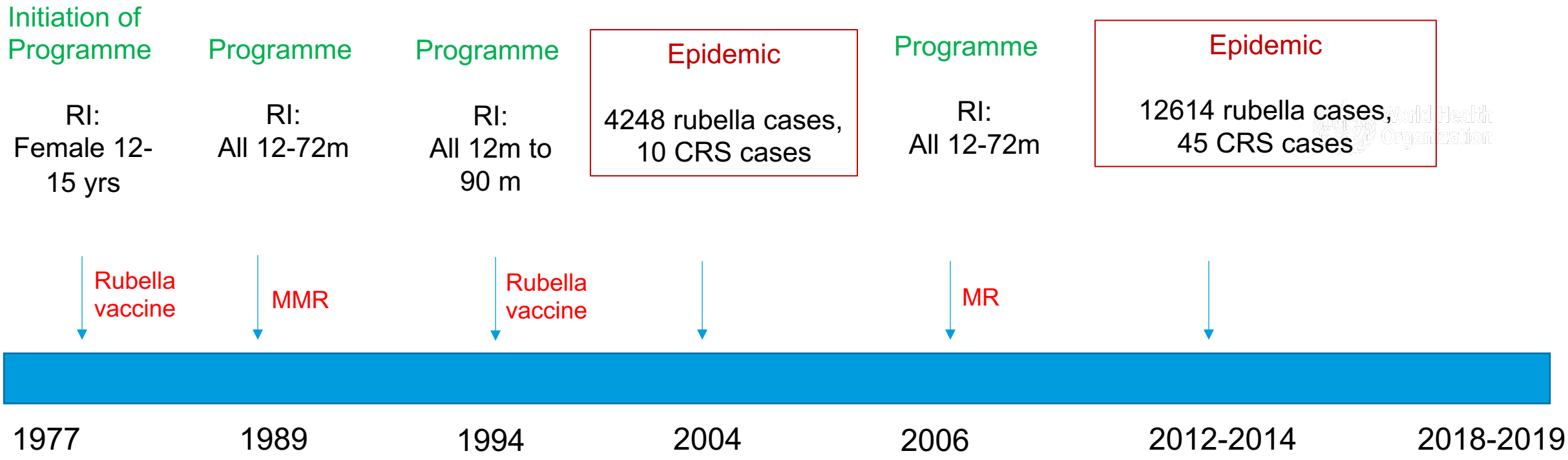
Messedi et al. J Clin Virol 61 (2014) 248-254

Issues with Strategy to Reduce CRS – Tunisia

- The predominance of cases in individuals not targeted for vaccination, including a high number of severe cases, prompted a change in vaccination policy

- In 2012 MR vaccine given to children according to the national immunization schedule (currently at 12 months and 18 months) replaced rubella vaccination of 12 year old girls

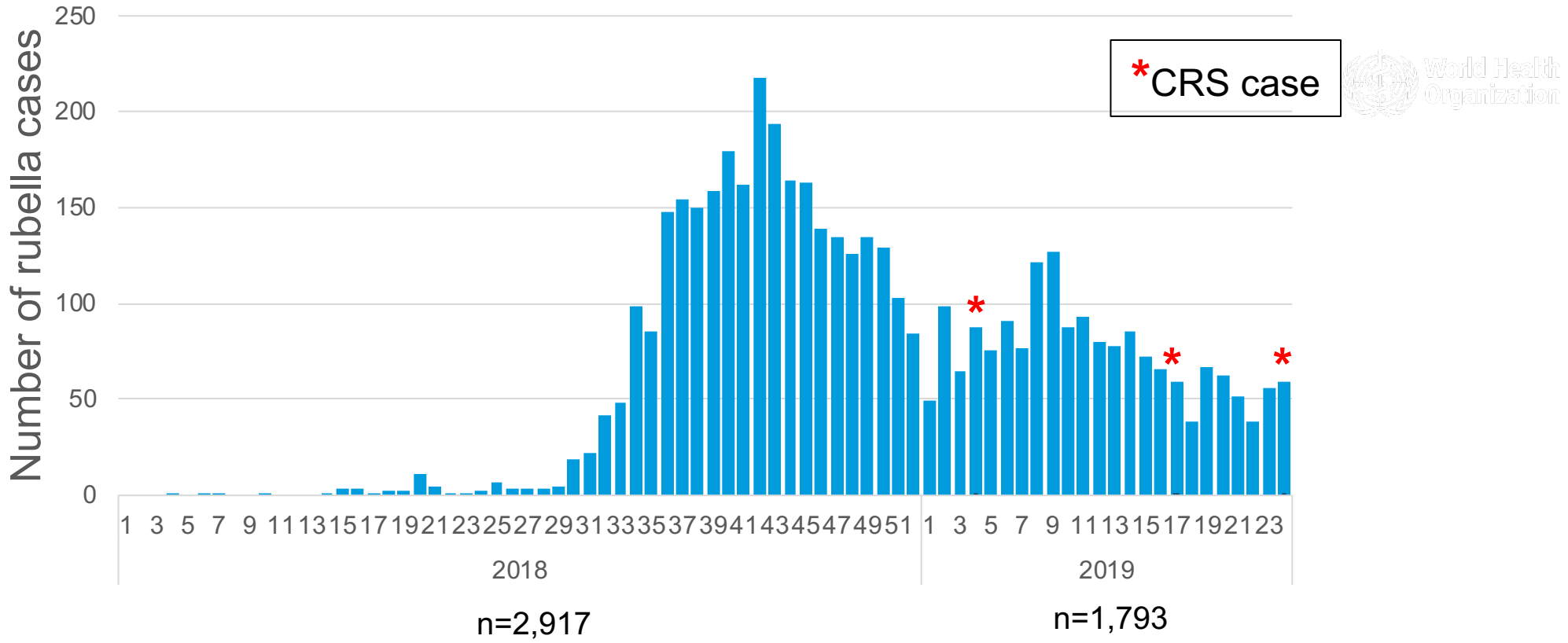
Issues with Strategy to Reduce CRS – Japan



Ueda. Vaccine 27 (2009) 3232 – 3233
Kinoshita and Nishiura. BMJ Open 6 (2016) e009928

Issues with Strategy to Reduce CRS – Japan

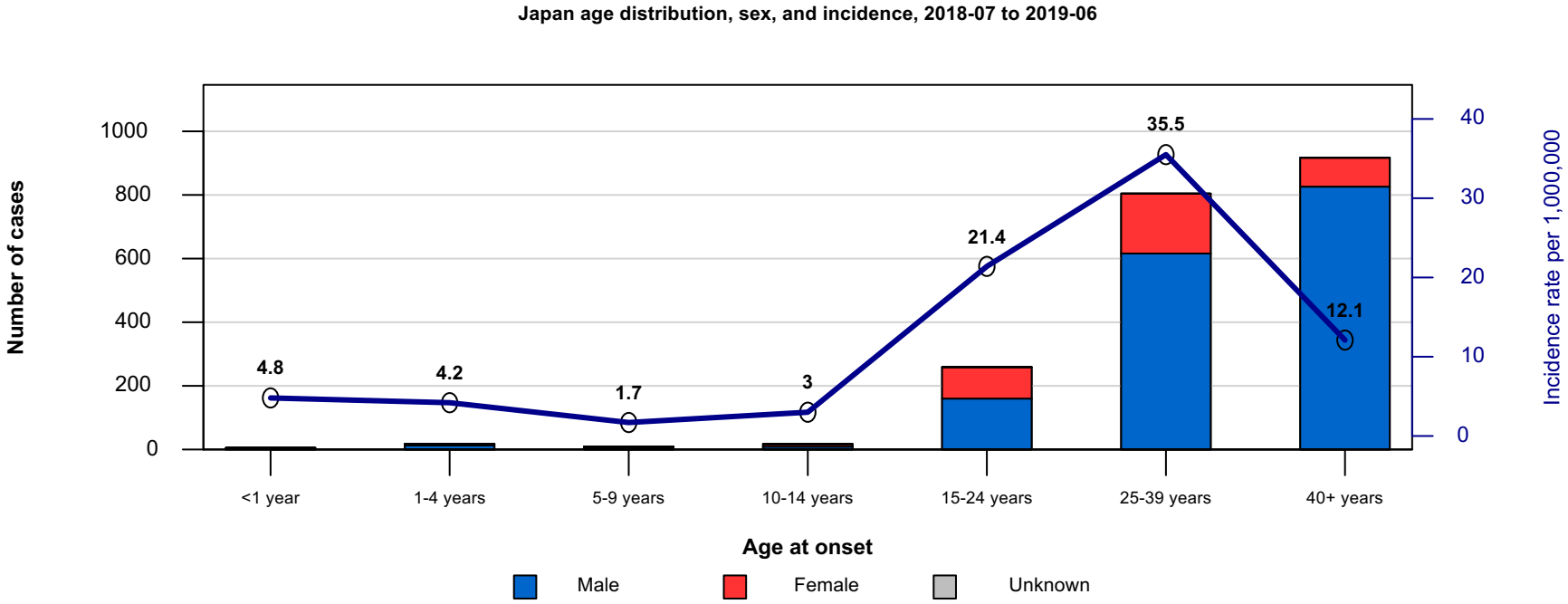
Current ongoing nationwide rubella outbreak 2018-2019 with at least 3 CRS cases



Mori. GMRLN17 Presentation (2019)

Issues with Strategy to Reduce CRS – Japan

Majority of cases in 2018-2019 outbreak are among adults, with striking male predominance



Global Measles and Rubella Update. August 2019.
https://www.who.int/immunization/monitoring_surveillance/burden/vpd/surveillance_type/active/measles_monthlydata/en/

Issues with Strategy to Reduce CRS – Japan

- Immunity gaps exist among Japanese men that continue to contribute to rubella outbreaks
- Initial vaccination of only adolescent females between 1977-1989 created these immunity gaps
- Current free vaccinations for males aged 39-56 yrs is attempting to address this immunity gap

Thank you!

RIVM

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Measles Rubella Working Group

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