Results. Total of 676 stool samples (89 samples collected from the 9 RV5 vaccinated infants, 110 samples collected from the 10 RV1 vaccinated infants, and 477 samples collected from the 49 UVIs) were analyzed in this study. Nineteen VIs received with first dose of vaccine demonstrated persistent shedding of rotavirus vaccine genome during 1–8 days after the first dose of the vaccine. Meanwhile, in comparison to VIs received with first dose of vaccine, the detection of viral genome in stool samples decreased gradually in there VIs after second dose of vaccine. In contrast to the VI, no vaccine genome was detected in any of the stool samples collected from the UVIs.

Conclusion. This study suggests that RV vaccine may be safe for administration of preterm and low birth weight infants in NICU. Accordingly, the contact precaution measures may play an important role in prevention of vaccine virus transmission between VIs and UVIs.

Disclosures. **All authors:** No reported disclosures.

1058. M Protein-Deficient Respiratory Syncytial Virus (RSV) Vaccine Protects Infant Baboons Against RSV Challenge

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Background. RSV bronchiolitis is the most common cause of hospitalization of infants in the US, and may lead to the development of long-term airway disease. Inactivated vaccines may lead to enhanced disease, while replicating vaccines have caused unacceptable degrees of illness, and may revert back to wild type. We developed an RSV vaccine lacking the gene for the M protein (Mnull RSV). The M protein is responsible for reassembly of the virus after it infects cells and expresses its proteins. Infant baboons vaccinated intranasally (IN) with Mnull RSV develop serum neutralizing antibody (NA) responses, but the virus does not replicate.

Methods. 2-week-old baboons (n = 12) were primed IN with 10^7 vaccine units of Mnull RSV or a control preparation, and a similar booster dose was given 4 weeks later. Mnull RSV vaccination did not cause tachypnea, airway inflammation or other signs of illness when compared with sham-vaccinated controls. Two weeks after boosting, all infants were challenged intratracheally with human RSV A2. We continuously monitored respiratory rates and levels of overall activity. On various days following challenge, we obtained BAL fluids for leukocyte counts and degree of virus replication, and evaluated alveolar-arterial oxygen gradients (A-a O2).

Results. Vaccinated animals (vs. unvaccinated controls) had lower respiratory rates (P = 0.0014), improved A-a O2 (P = 0.0063) and reduced viral replication (P = 0.0014). Activity scores were higher in vaccine recipients than in unvaccinated animals. Vaccine recipients also were primed for earlier serum and secretory neutralizing antibody responses, and greater airway lymphocyte responses. Airway lymphocyte numbers (but not antibody responses) were associated with lower respiratory rates and reduced viral replication (P < 0.01).

Conclusion. Vaccination intranasally with Mnull RSV protected infant baboons against an RSV challenge without causing respiratory disease or enhanced illness, and is a promising candidate for use in human infants. Lymphocyte responses to vaccination may play an equal or greater role in protection against RSV infection than antibody responses.

Disclosures. **All authors:** No reported disclosures.

1059. Measles, Mumps, and Rubella Antibody: Patterns of Persistence and Rate of Decline Following the Second Dose of the MMR Vaccine

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Background. Antibodies to measles, mumps, and rubella decline an estimated average of 3% per year, and have a high degree of variation among individuals. Yet, this variation and differences in individual-level response to the 3 antigens are not well understood. To better understand potential implications on individual and population-level susceptibility, we reanalyzed existing longitudinal data to identify patterns of seropositivity and antibody persistence.

Methods. Wisconsin children given the second dose of measles, mumps, and rubella vaccine (MMR2) at age 4–6 years were followed up to 12 years postvaccination. The rate of antibody decline and factors associated with the rate of decline were assessed using regression models that accounted for differences between and among subjects.

Results. Most of the 302 participants were seropositive throughout follow-up (96% measles, 88% mumps, 79% rubella). The rate of antibody decline was associated with MMR2 response and baseline titer for measles and age at first dose of MMR (MMR1) for rubella. None of the demographic or clinical factors examined were associated with rate of decline for mumps. One month after MMR2, geometric mean titer (GMT) to measles was high (3892 mIU/mL), but declined on average 9.7% per year among subjects with the same baseline titer and <2-fold increase in antibody titer after MMR2. Subjects with ≥2-fold increase experienced a slower decline (≤7.4%). GMT to rubella was 149 IU/mL one month after MMR2 and declined 2.6% and 5.9% per year among those who received MMR1 at 12–15 months and >15 months, respectively. GMT to mumps one month after MMR2 was 151 and declined 9.2% per year. Only 14% of participants had the same trends in antibody persistence for all 3 antigens.

Conclusion. The rate of antibody decay varied substantially among individuals and among the 3 antigens. Despite waning titers, measles and rubella antibody levels remained high 12 years post MMR2. However, a fast rate of decline and high degree of variation was observed for mumps, yet no predictors of the decline were identified. Future research should focus on better understanding waning antibody titers to mumps and its impact on community protection and individual susceptibility, in light of recent mumps outbreaks in vaccinated populations.

Figure 1. Measles

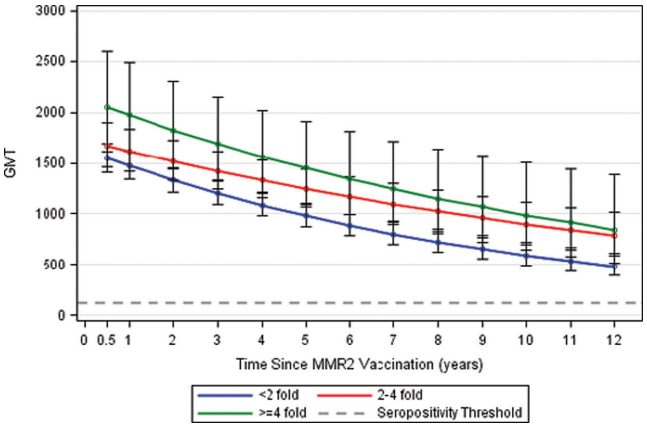


Figure 2. Mumps

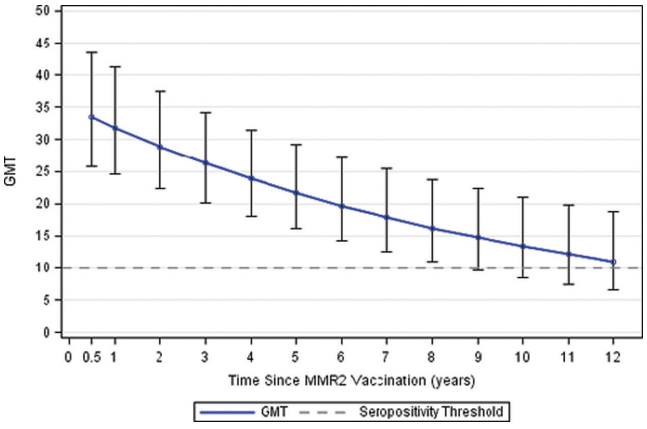
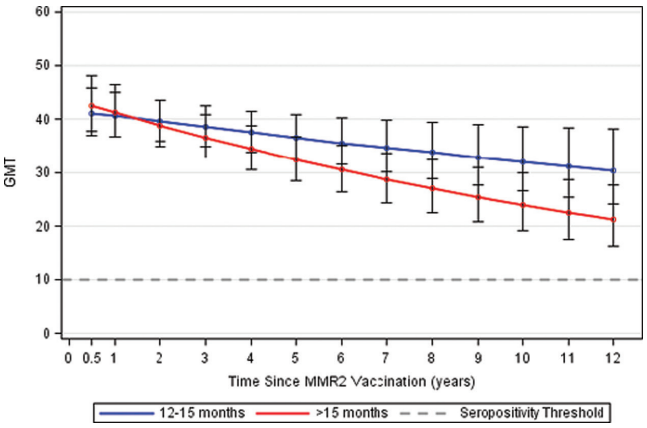


Figure 3. Rubella



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