Joseph L. Mathew et al., Pediat Therapeut 2017, 7:1 (Suppl)
http://dx.doi.org/10.4172/2161-0665.C1.036



## Comparison of susceptibility to measles in preterm infants versus term infants

**Joseph L. Mathew, S N Banerjee, R K Ratho, S Dutta1** and **V Suri**
Postgraduate Institute of Medical Education and Research, India

**Background**: In India and many other developing countries, a single dose of measles vaccine is administered to infants at 9 months of age. This is based on the assumption that maternal transplacentally transferred antibodies will protect infants until that age. However, our previous data showed that most infants lose maternal anti-measles antibodies before 6 months of age, making them susceptible to measles before vaccination at 9 months.

**Objective**: This prospective study was designed to compare susceptibility in pre-term vs. term infants, at different time points.

**Material & Methods**: Following Institutional Ethics Committee approval and a formal informed consent process, venous blood was drawn from a cohort of 45 consecutive term infants and 45 consecutive pre-term infants (both groups delivered by the vaginal route); at birth, 3 months, 6 months and 9 months (prior to measles vaccination). Serum was separated and anti-measles IgG antibody levels were measured by quantitative ELISA kits (with sensitivity and specificity >95%). Susceptibility to measles was defined as antibody titre <200 mIU/ml. The mean antibody levels were compared between the two groups at the four time points.

**Results**: The mean gestation of term babies was 38.5±1.2 weeks; and pre-term babies 34.7±2.8 weeks. The respective mean birth weights were 2655±215 g and 1985±175 g. Reliable maternal vaccination record was available in only 7 of the 90 mothers. Mean anti-measles IgG antibody (±SD) in terms babies was 3165±533 IU/ml at birth, 1074±272 IU/ml at 3 months, 314±153 IU/ml at 6 months, and 68±21 IU/ml at 9 months. The corresponding levels in pre-term babies were 2875±612 IU/ml, 948±377 IU/ml, 265±98 IU/ml, and 72±33 IU/ml at 9 months ($p>0.05$ for all inter-group comparisons). The proportion of susceptible term infants at birth, 3 months, 6 months and 9 months was 0%, 16%, 67% and 96%. The corresponding proportions in the pre-term infants were 0%, 29%, 82%, and 100% ($p>0.05$ for all inter-group comparisons).

**Conclusion**: Majority of infants are susceptible to measles before 9 months of age suggesting need to anticipate measles vaccination, but there was no statistically significant difference between the proportion of susceptible term and pre-term infants, at any of the four time points. A larger study is required to confirm these findings and compare sero-protection, if vaccination is anticipated to be administered between 6 and 9 months.

### Biography

Joseph L. Mathew works at the Advanced Pediatrics Centre, Postgraduate Institute of Medical Education and Research, Chandigarh, India. He has contributed extensively to evidence-based policy-making for several vaccines in the Indian context, especially Hepatitis B, Hib, IPV, MMR, PCV, Influenza, Varicella, acellular pertussis, HPV, Rotavirus, and typhoid conjugate vaccines. He is one of the first to identify the rapid waning of maternal measles antibodies in infancy, creating a pool of susceptible infants/children. He has nearly 200 peer-reviewed publications to his credit and delivered numerous presentations related to Vaccinology in national and international meetings.

dr.joseph.l.mathew@gmail.com

**Notes:**