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## Susceptibility of Infants to Measles

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### Why in News

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According to recent studies, infants become susceptible to **measles infection at the end of three months after birth** and not six months as earlier thought.

- A study observed that **maternal antibodies disappear by the end of three months, contrary to the common notion that maternal antibodies** against measles **protect** infants for the **first six months of age**.
- Currently, in countries like **India** with **ongoing transmission of measles the first dose of vaccination is given only at 9-12 months of age**.
  - In countries with **no ongoing transmission**, the **first dose** is administered when the baby is **12-15 months of age**.
- Thus babies remain susceptible to measles infection for a longer period of time before they get vaccinated with the first dose.

### Key Points

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- **Measles Burden:** In 2018, measles caused an estimated 10 million cases and 1,42,000 deaths globally. Nearly **72,000 cases** have been reported in **India during 2018-2019** which is the **third-highest** in the **world**.
  - At **2.3 million**, India has the **second-highest** number of children who are **not vaccinated** against measles after Nigeria.
  - But the number of unvaccinated children in India had **reduced** from 2.9 million (2017) to 2.3 million (2018).
- **Vaccination Coverage:** The World Health Organisation (WHO) recommends the **high coverage [over 95%]** of two doses of measles-containing vaccine to protect infants from measles.
  - But, in 2018, **86%** of children received the **first dose** and only **69%** received the **second dose** globally.

- **Time for Vaccination:** The vaccine-induced protection is **less in infants** if the vaccine is given **earlier than recommended**.
  - Also, **early vaccination may "alter response"** after the second dose of vaccine, leading to "lower levels of the antibody" compared with children who are vaccinated as per schedule.
  - The **pregnant mothers cannot** be administered measles vaccine as the vaccine uses live, weakened virus. The weakened or live virus after the injection may cause an **infection in the vaccinated person's body**.
- **Threshold level of Protection:** In the case of India, many mothers gain immunity through **natural infection** and are also continually exposed to the virus, leading to **"repeated immunologic boosting and more robust antibody levels"**.  
 Infants born to mothers in **countries where measles virus** has been **eliminated** have **lower maternal antibodies** and these antibodies quickly fall below the threshold of protection before they receive the first measles vaccination dose.
- **Maternal Age:** The **probability** of infants getting infected **increases with maternal age**. This is because **pregnant mothers** remain **protected through vaccination** and not through natural infection.  
 A one-month-old infant has a 25% probability of getting infected with measles if the mother is 25 years old but the probability increases to 40% if the mother is 40 years old.

## Indian Government Initiatives

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- **Measles-Rubella (MR) vaccination**
  - The Ministry of Health and Family Welfare launched MR Vaccination program in **2017**.
  - The MR campaign targets around 41 crore children across the country, the largest ever in any campaign.
  - All children aged between 9 months and less than 15 years will be given a single shot of Measles-Rubella (MR) vaccination irrespective of their previous measles/rubella vaccination status or measles/rubella disease status.
  - MR vaccine will be provided free- of- cost across the states.
- Other Initiatives include Universal Immunization Programme (UIP), Mission Indradhanush and Intensified Mission Indradhanush.

## Measles

- Measles **virus** is an enveloped, ribonucleic acid virus of the genus Morbillivirus.
- Measles is highly contagious, and an infected person often transmits the virus to over **90% of unprotected close contacts**.

- The virus infects the **respiratory tract**, then spreads throughout the body. Measles is a **human disease** and is **not known to occur in animals**.
- Measles can be entirely prevented through a **two-dose vaccine** and had been officially eliminated in many countries with advanced healthcare systems.
  - The **first dose of measles vaccine** was introduced in the **1990s** in India.
  - India introduced the **second dose** from **2010 onwards**. India was **one of the last countries** to add a second dose of measles vaccine.
- **Treatment**
  - **No specific antiviral treatment** exists for measles virus.
  - Severe complications from measles can be avoided through medical care that ensures good nutrition, adequate fluid intake, and treatment of dehydration.

**Source: TH**