MMR

Measles, Mumps &Rubella

Measles
(English Measles)

Agent

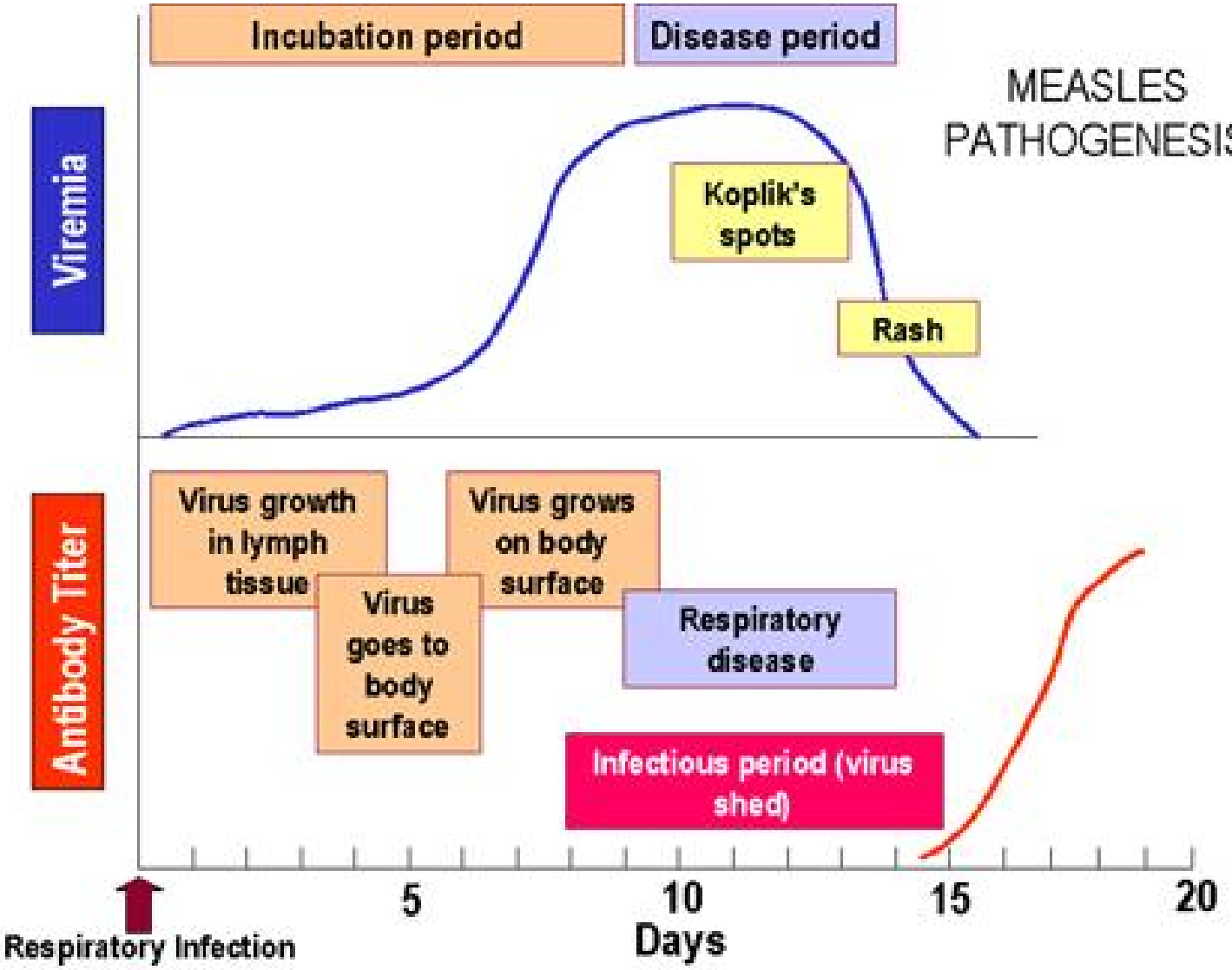
- Agent- RNA virus (Paramyxo virus family, genus Morbillivirus)
- Source of infection-cases of measles,
  but not carriers.
- No animal reservoir
- Infective material- Nasal secretion ,Respiratory tract &Throat
- Communicability- Highly infectious during prodromal period and at the time of eruption.
- Secondary attack rate- > 80%

Host factors

- Age- 6 months to 3 years even up to 10 years
- Incidence equal in both sexes
- Immunity – life long immunity
- Malnourished children are susceptible

Environmental factor

- Winter season, over crowding
- Transmission – Droplet infection
- 4 days before and 4 days after rash
- Incubation period- 7 days



Courtesy : Adapted from Mims et al. Medical Microbiology, 1993, Mosby

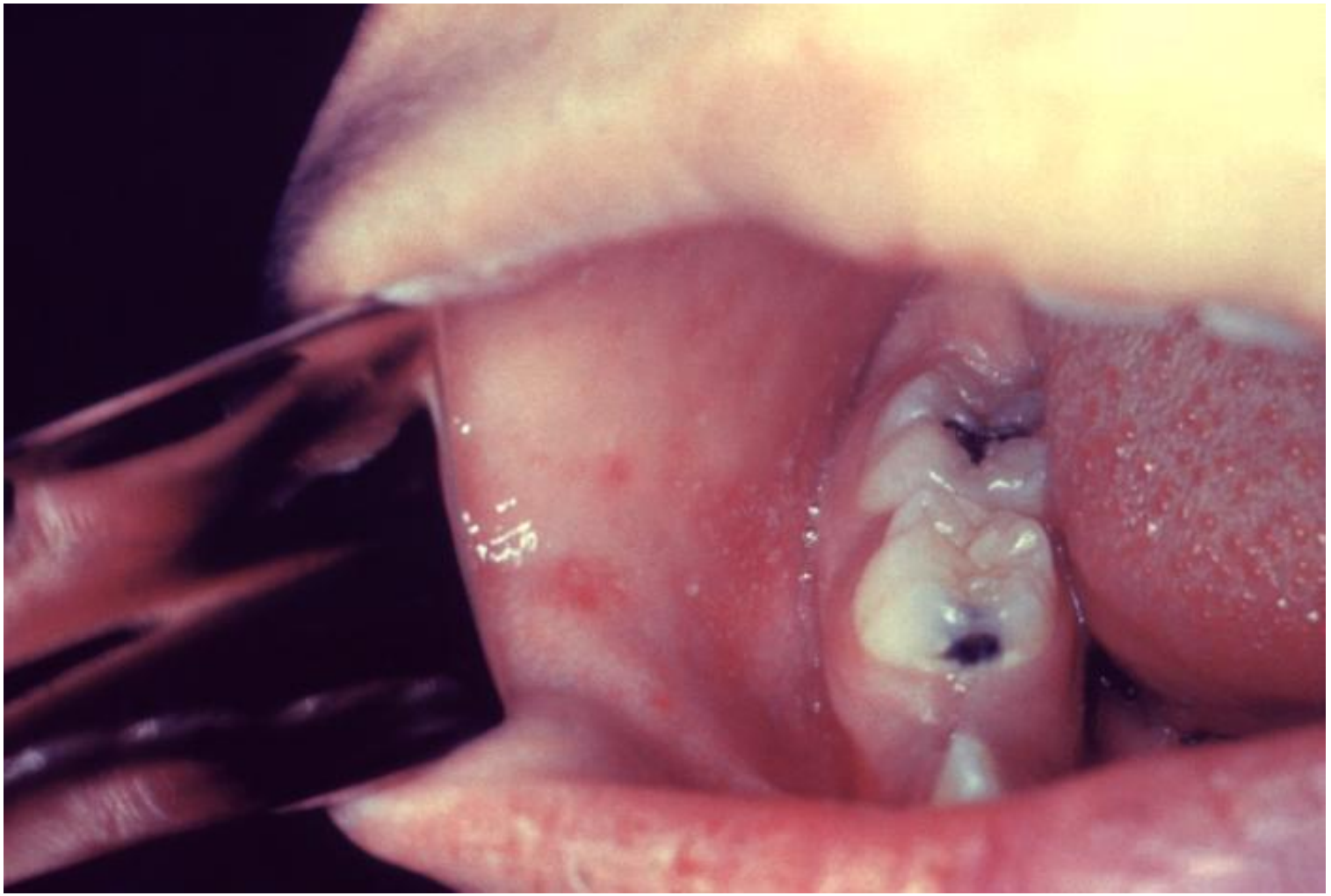
Clinical features

- Prodromal stage
- Eruptive stage
- Post-measles stage

Clinical features

- 3 Cs (Cough, Coryza & Conjunctivitis)
- Koplik spots
- Four days fever (40^0c)
- Generalized, maculopapular,erythematous rash.

Courtesy : This media comes from the Centers for Disease Control and Prevention's Public Health Image Library (PHIL), with identification number **#3168**



KOPLIK SPOT

Source:
http://phil.cdc.gov/PHIL_Images/20040908/4f54ee8f0e5f49f58aaa30c1bc6413ba/6111_lores.jpg


A.D.A.M.

Complication

- Diarrhea,
- Pneumonia
- Otitis media
- Convulsions,
- SSPE (sub acute sclerosing panencephalitis)

WHO strategy for control and prevention of Measles

1) Catch up
2) Keep up
3) Follow up

Mumps

The name comes from the British word "to mump", that is grimace or grin.
The appearance of the patient as a result of parotid gland swelling seems to be in grin

Courtesy: This media comes from the Centers for Disease Control and Prevention's Public Health Image Library (PHIL), with identification number **#130** Content Providers: CDC/NIP/Barbara Rice

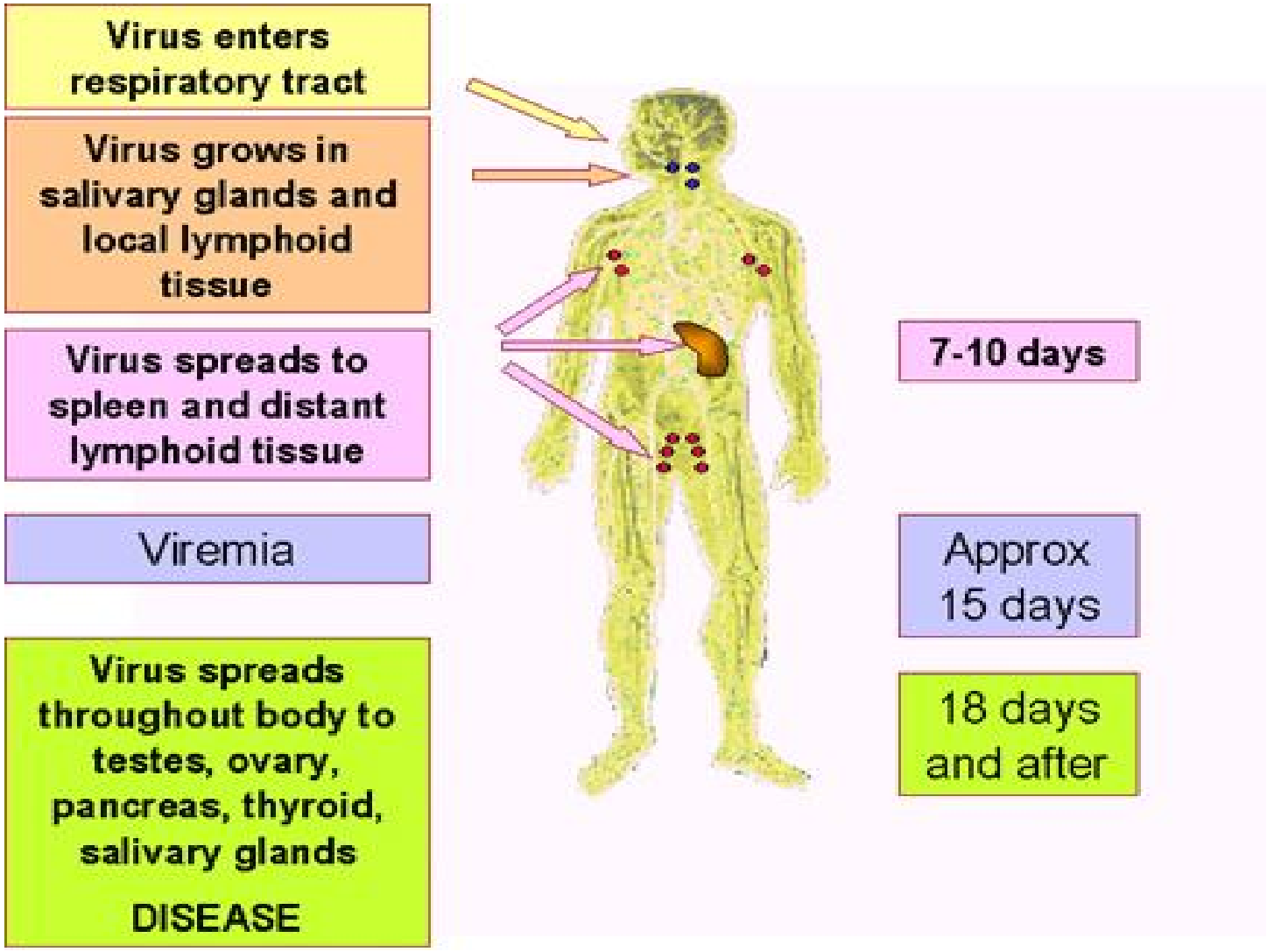
Agent

- Myxovirus parotidis –RNA virus
- Source of infection – Respiratory, milk
- Period of communicability – 4-6 days of onset of symptoms
- Secondary attack rate – 86%

- Age & sex 5-15 yrs and girls common
- Immunity - life long
- Environmental factor – winter and spring season favors
- Mode of transmission – droplet
- I.P - 2 to 3 weeks

Clinical features

- Parotid swelling
- Ovaritis
- Pancreatitis
- Ear ache
- Orchitis



Courtesy : Adapted from Mims et al. Medical Microbiology, 1993, Mosby

Complications

- Orchitis
- Epididymitis
- Oophoiritis
- Spontaneous abortion
- Sensori neural hearing loss, (uni- or bilateral).
- Mild form of meningitis
- Encephalitis

Rubella (German measles)

- The name rubella is derived from a Latin term meaning "little red."
- Rubella is sometime called German Measles or 3-day Measles.
- The synonym "3-day measles" derives from the typical course of rubella exanthema that starts initially on the face and neck and spreads centrifugally to the trunk and extremities within 24 hours.
- It then begins to fade on the face on the second day and disappears throughout the body by the end of the third day.
- It is a generally mild disease caused by the rubella virus.

- Agent – RNA virus (Togo virus family), Genus Rubivirus.
- Source of infection – Respiratory secretion
- Host -3-10 yrs
- Immunity –life long
- Environmental factors –winter and spring season
- Transmission – droplet, vertical transmission
- I.P – 2-3 weeks average 18 days

- Eye pain on lateral and upward eye movement (a particularly troublesome complaint)
- Conjunctivitis
- Sore throat
- Headache
- General body aches
- Low-grade fever
- Chills
- Anorexia
- Nausea
- Tender lymphadenopathy (particularly posterior auricular and suboccipital lymph nodes)
- **Forchheimer sign** (an enanthem observed in 20% of patients with rubella during the prodromal period; can be present in some patients during the initial phase of the exanthem; consists of pinpoint or larger petechiae that usually occur on the soft palate)

Temperature

- Fever is usually not higher than 38.5°C (101.5°F).

Lymph nodes

- Enlarged posterior auricular and suboccipital lymph nodes are usually found on physical examination.

Mouth

- The Forchheimer sign may still be present on the soft palate.

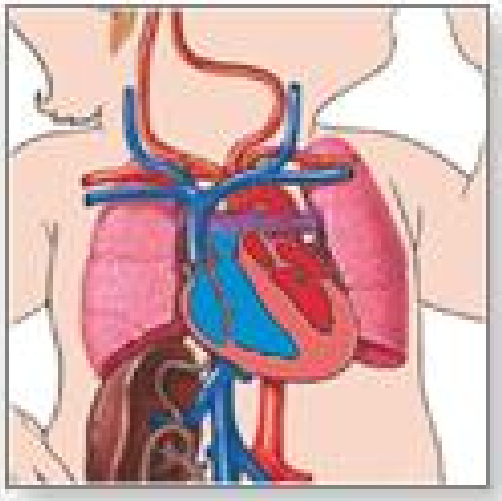
Image in a 4-year-old girl with a 4-day history of low-grade fever, symptoms of an upper respiratory tract infection, and rash. Courtesy of Pamela L. Dyne, MD.

- 0–28 days before conception - 43% chance
- 0–12 weeks after conception - 51% chance
- 13–26 weeks after conception - 23% chance
- Infants are not generally affected if rubella is contracted during the third trimester

Photo source: U.S. Centers for Disease Control and Prevention

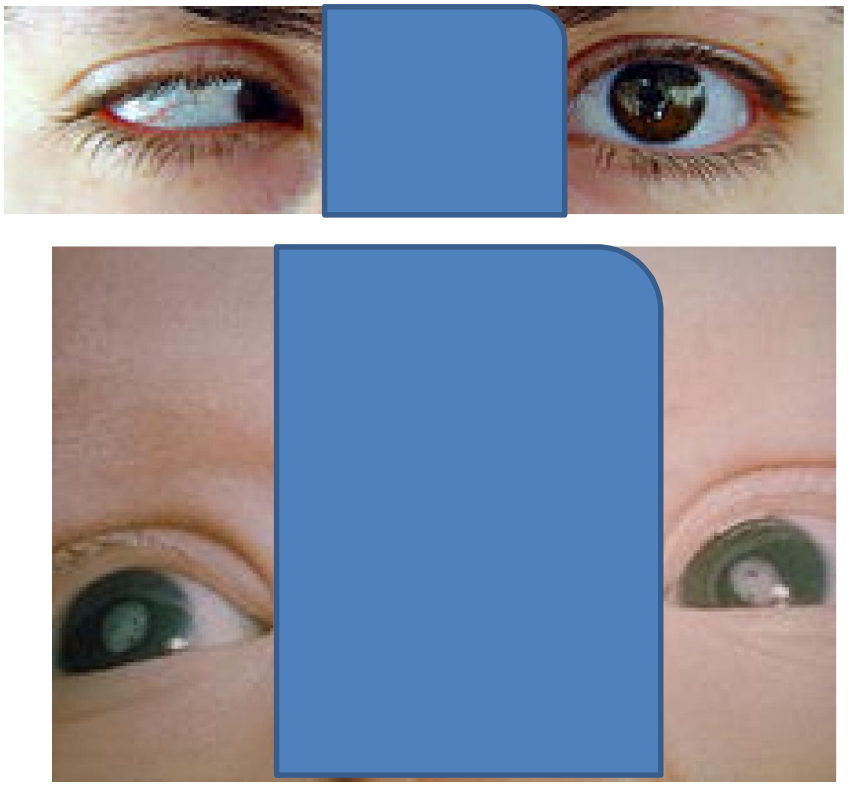
Rubella syndrome

Microcephaly



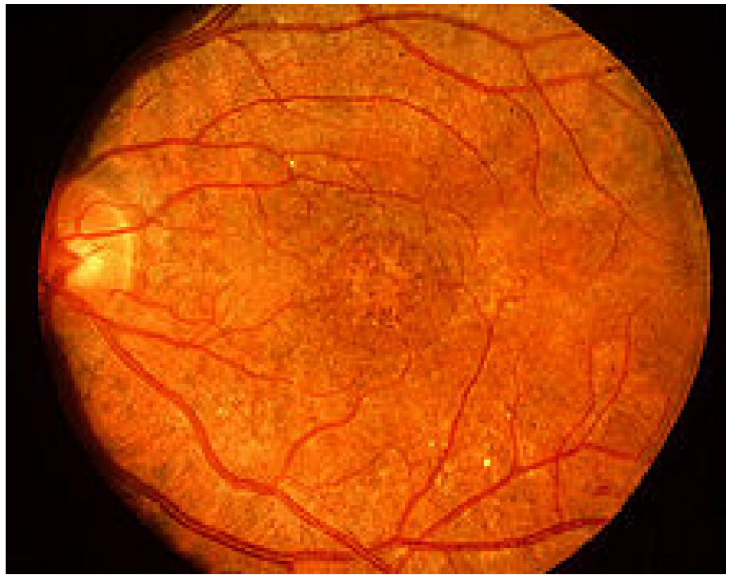
PDA

Cataracts



Courtesy
http://phil.cdc.gov/phil_images/20030724/28/PHIL_4284_lores.jpg

Content Providers(s): CDC Creation
Date: 1976



Salt and pepper retinopathy

http://www.kellogg.umich.edu/theeyeshaveit/congenital/retinopathy.html

Courtesy: Jonathan Trobe, M.D. - University of Michigan Kellogg Eye Center

- Sensorineural hearing loss – 58%
- Ocular abnormalities including cataract, infantile glaucoma, Micro ophthalmia and pigmentary retinopathy occur in approximately 43%
- Congenital heart disease including patent ductus arteriosus (PDA) and pulmonary artery stenosis - 50%

Measles vaccine

- Live attenuated measles virus (Edmonston-zagreb strain) Propagated on human diploid cell (MRC-5)
- 0.5 ml of vaccine
- Not less than 1000 $CCID_{50}$ of measles virus
- 2.5% of gelatin
- 5% of sorbitol as stabilizers
- 0.5 ml of sterile water
- Dose – 0.5 ml
- Route of administration: Sub-cutaneously
- 3 to 5 weeks antibody level – 200mLU/ml

Age	Vaccines	Note
9 months	Measles	Deep subcutaneous injection into the upper arm.
12-15 months	MMR -1	Deep subcutaneous injection into the upper arm.
5 years	MMR -2	Deep subcutaneous injection into the upper arm.