RUBELLA (GERMAN MEASLES)

Rubella (German measles)

- **Cause acute febrile illness characterized by:**

rash, posterior & sub-occipital lymphadenopathy

- **Affects children & young adults**

- **Infection during early pregnancy results in serious abnormalities of the fetus**

  - **Congenital malfunctions & mental retardation**

General properties

- **Family: Togaviridae**
- **ssRNA genome**
- **Enveloped**

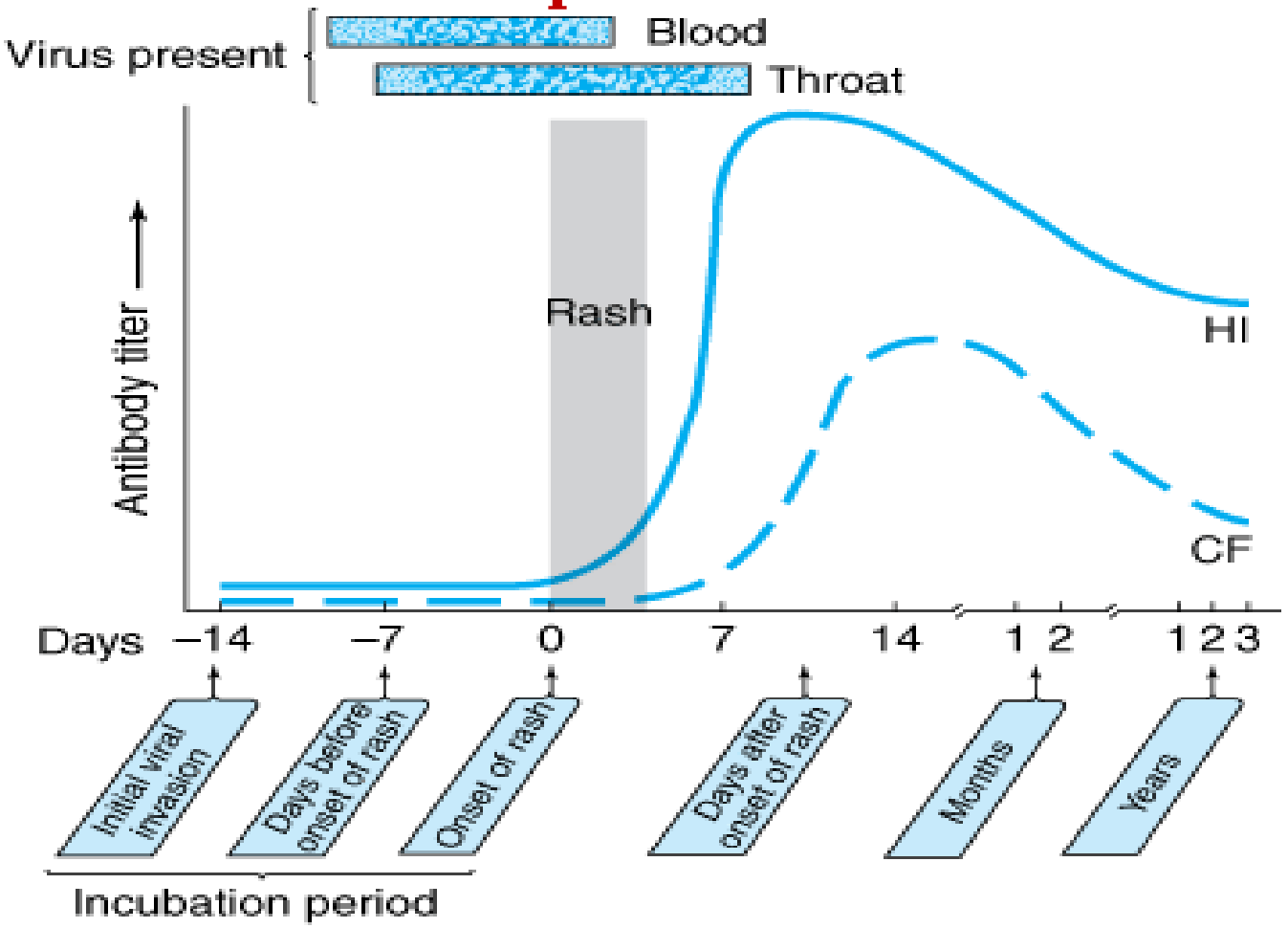
Epidemiology

- **Worldwide**
- **Occurs throughout the year**
- **Epidemics occur every 6-10yrs**
- **Transmission: through mucosa of URT**

Clinical manifestations

- **Malaise , fever, arthralgia, arthritis**
- **Rash (due to development of antibodies)**
- **Lymphadenopathy**
- **Encephalitis**

Primary rubella infection: virus production& antibody responses



Clin Microbiol Rev 2006;19:546

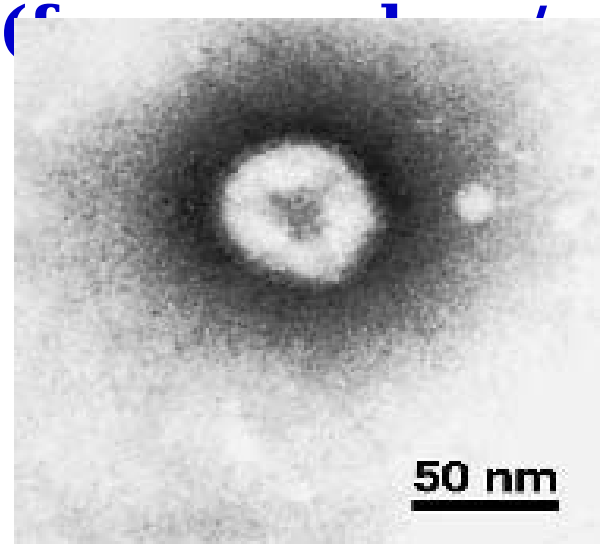
Best samples: Naso - pharyngeal / throat swabs

A. Virus isolation

Tissue culture cell lines (f… / rabbit)

B. Serology

- **HI test (standard test)**
- **ELISA, CFT**



Electron micrograph of Rubella virus

Prevention & control

Attenuated live Rubella vaccines (since 1969)

which:

- **Produce much higher antibody titer**
- **Boosts both arms of the immune system**
- **Induces immunity in 95% of recipients (lasts for 10yrs)**

Pathogenesis

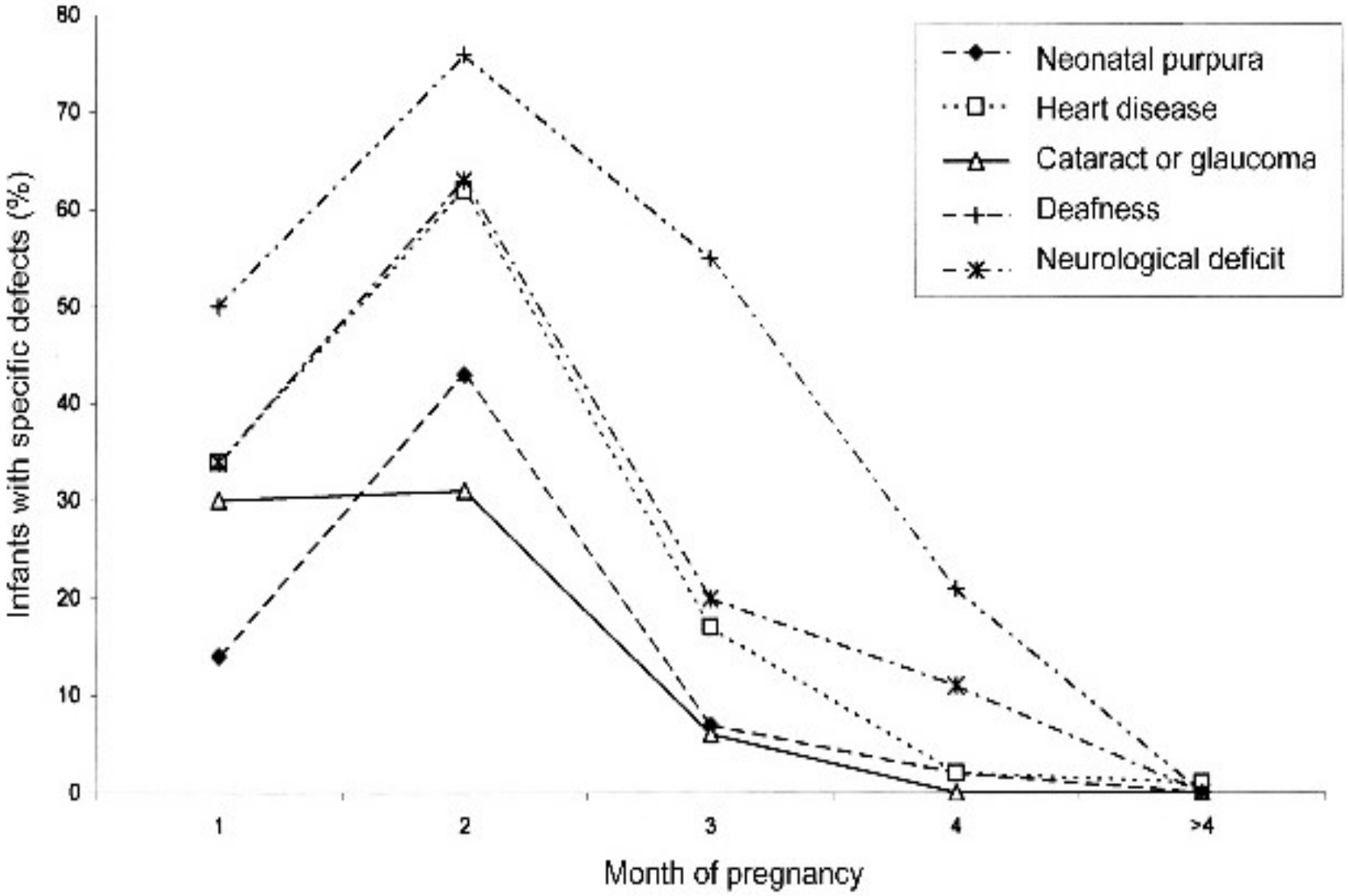
- **Material viremia during pregnancy result in infection of the Placenta & fetus**

- **Time of fetal infection determines extent of teratogenic effect**

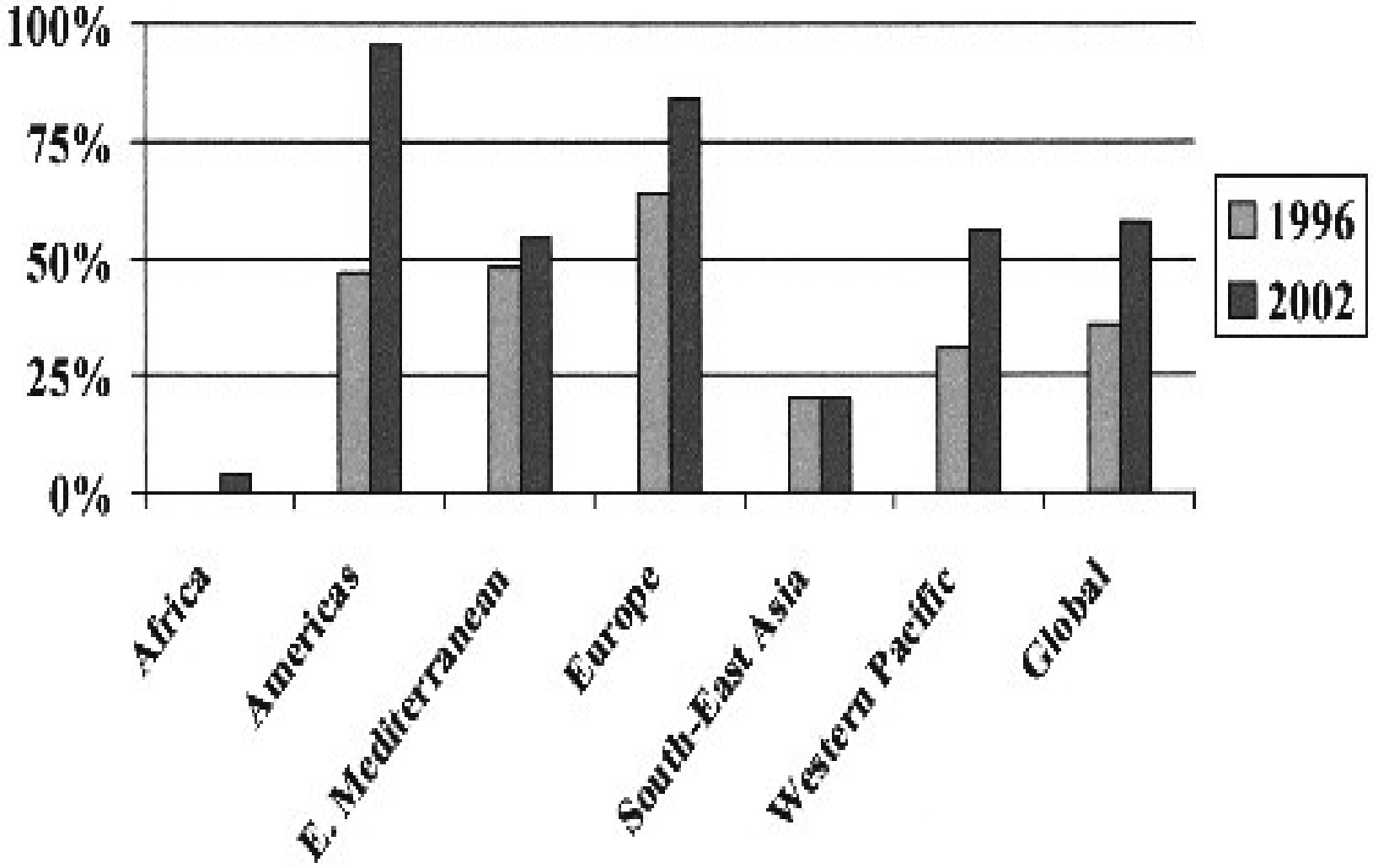
  ►Increase during first trimester of pregnancy

- **Rubella infections can cause:**

  - **Structural anomalies in the newborn**
  - **Fetal death**
  - **Spontaneous abortion**



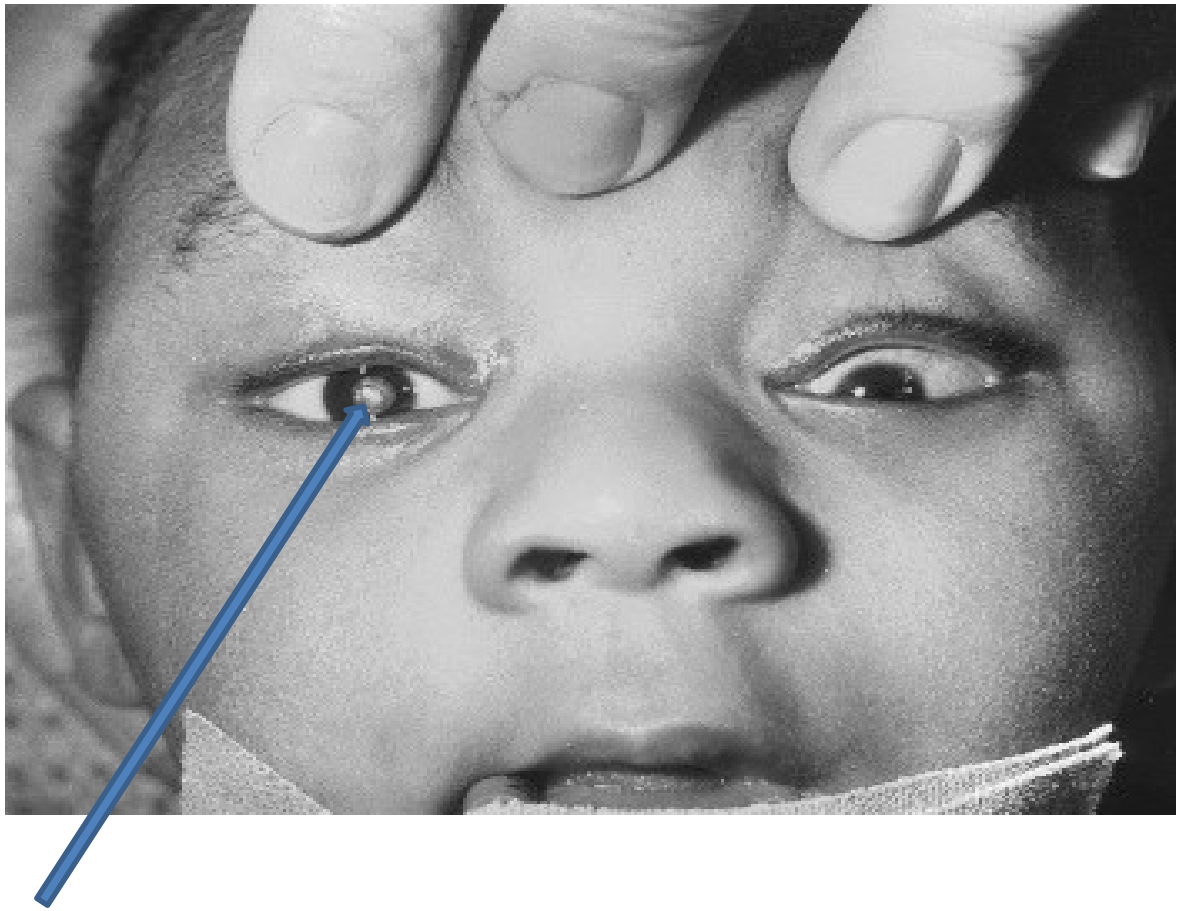
Relationship b/n gestational age at time of maternal infection & clinical manifestations of congenital rubella



Percentage of countries, by WHO region and globally, with rubella vaccine in the national immunisation system, 1996 and 2002

Clinical findings

- **Permanent defects E.g. congenital heart diseases**
- **Mental retardation**
- **Problems with balance & motor skills**
- **Psychiatric disorders & behavioral problems**
- **Leaning deficits E.g. School children**
- **Congenital cataract**



Congenital rubella cataract in a 9 month-old infant

Prevention & control

- **Attenuated live rubella vaccine**
- **Immunization of :**
  - **Women of childbearing age &**
  - **All school age children**