



UNIVERSITÀ  
DEGLI STUDI DI BARI  
ALDO MORO

## CORSO DI IGIENE

Scuola  
di  
Medicina

# Mumps



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# Mumps





# Mumps

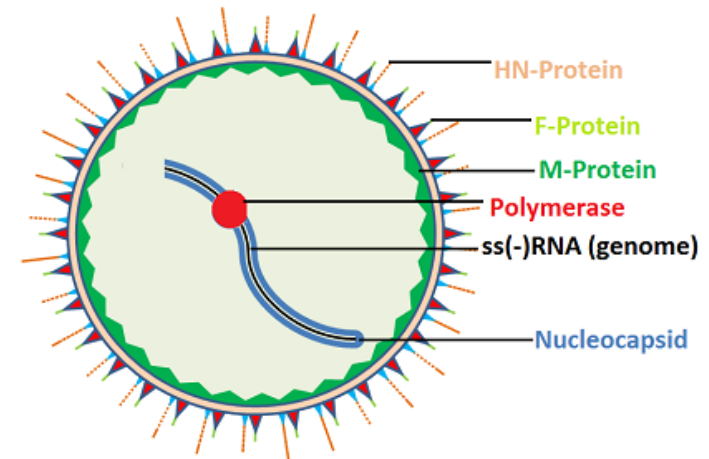
- Acute viral illness
- Parotitis and orchitis described by Hippocrates in 5th century BCE
- Viral etiology described by Johnson and Goodpasture in 1934
- Frequent cause of outbreaks among military personnel in prevaccine era



# Mumps Virus

- Paramyxovirus
- RNA virus
- Rapidly inactivated by chemical agents, heat, and ultraviolet light

Paramyxoviridae: Mumps Virus





# Mumps Pathogenesis

- Respiratory transmission of virus
- Replication in nasopharynx and regional lymph nodes
- Viremia 12 to 25 days after exposure with spread to tissues
- Multiple tissues infected during viremia



# Mumps Clinical Features

- Incubation period 12 to 25 days
- Nonspecific prodrome of myalgia, malaise, headache, low-grade fever
- Parotitis in 9%-94%
- 15%-27% of infections asymptomatic in prevaccine era



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# Mumps parotitis





# Mumps Complications

- **Orchitis**
  - 12%-66% in postpubertal males (prevaccine)
  - 3%-10% (postvaccine)
- **Pancreatitis**
  - 3.5% (prevaccine)
- **Unilateral Deafness**
  - 1/20,000 (prevaccine)
- **Death**
  - 2/10,000 from 1966-1971
- No deaths in recent U.S. outbreaks





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# Orchitis





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# Mumps Laboratory Diagnosis

- rRT-PCR
- Culture
- Serology



# Mumps Epidemiology

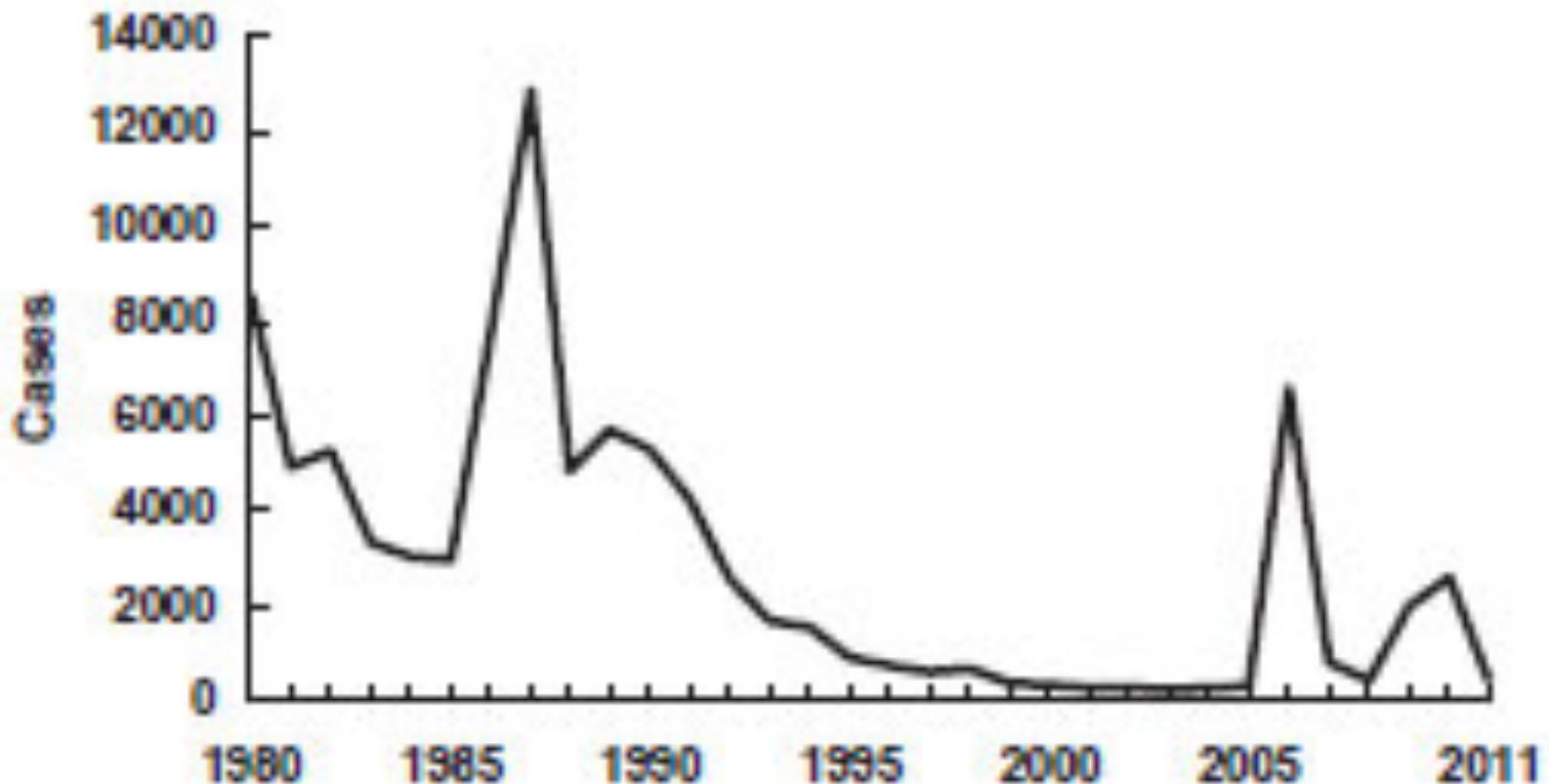
- **Reservoir**
  - human
  - asymptomatic infections may transmit
- **Transmission**
  - airborne
  - direct contact with droplet nuclei or saliva
- **Temporal pattern**
  - peak in late winter and spring
- **Communicability**
  - several days before and after onset of parotitis



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# Mumps - United States, 1968-2011



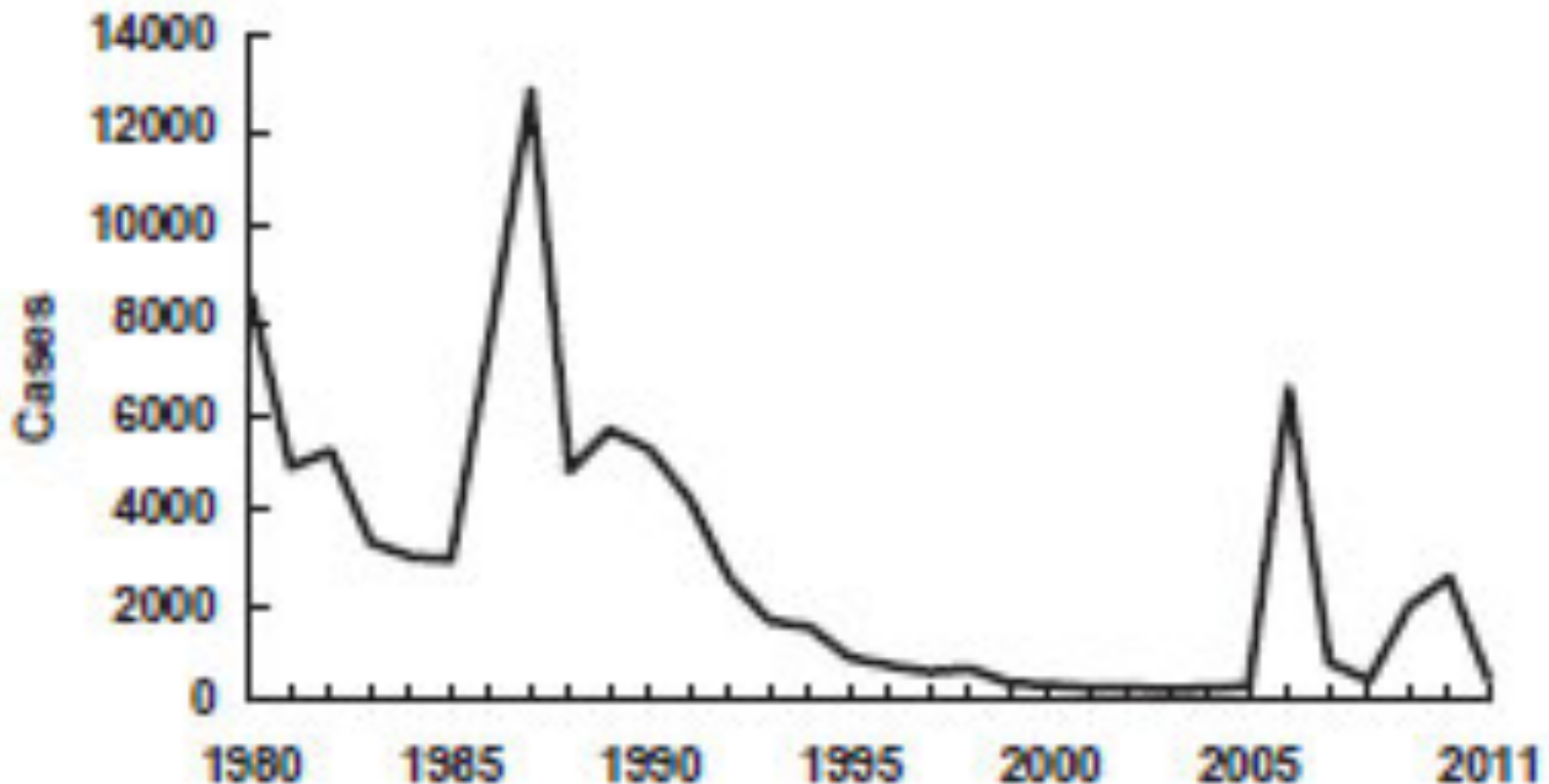
*Source: National Notifiable Disease  
Surveillance System, CDC*



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# Mumps - United States, 1980-2011



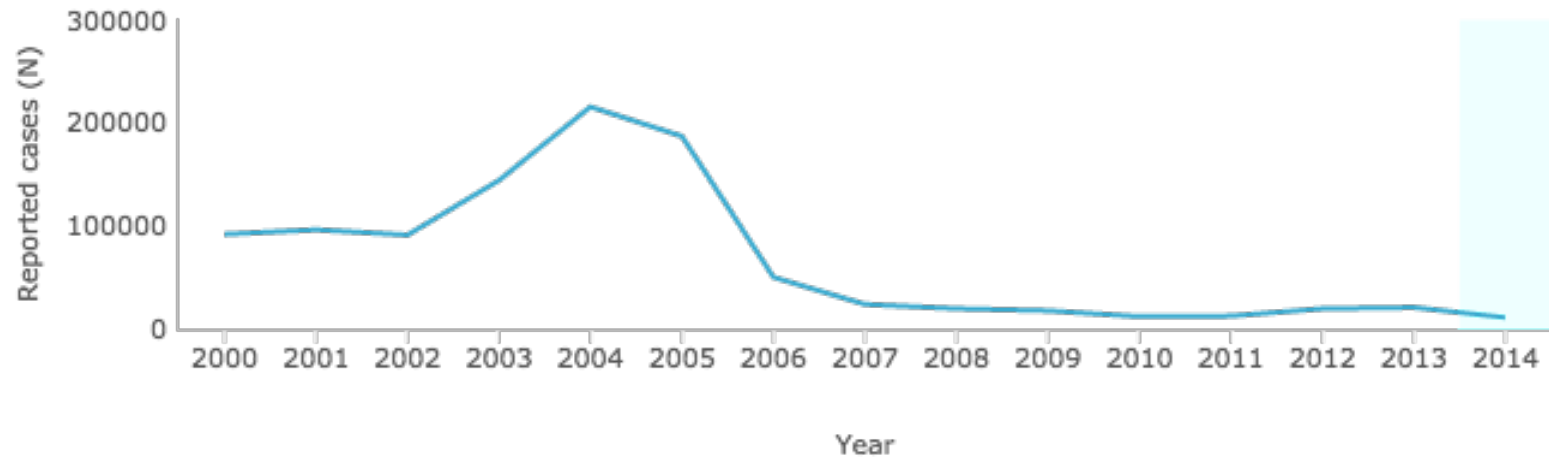
*Source: National Notifiable Disease  
Surveillance System, CDC*



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# Epidemiology of mumps, Europe, 2000-2014

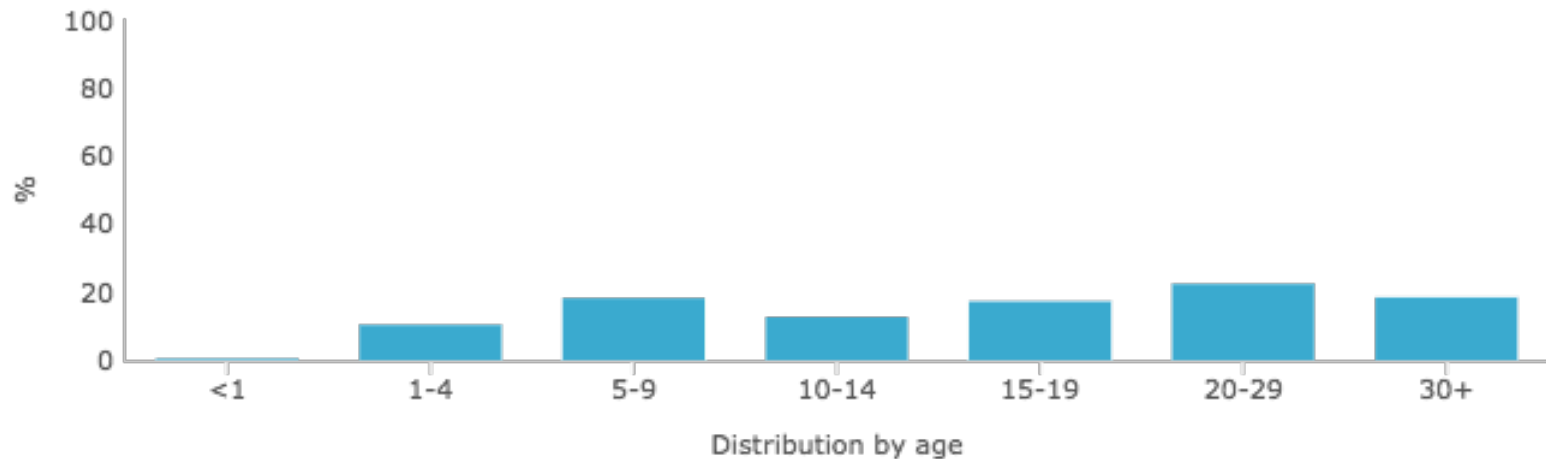




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# Distribution of cases of mumps per age classes, Europe, 2000-2014





# Mumps Vaccine

- **Composition**
  - Live virus (Jeryl Lynn strain)
- **Effectiveness**
  - 88% (Range, 66%-95%) – 2 doses
- **Duration of Immunity**
  - lifelong
- **Schedule**
  - at least 1 dose
  - should be administered with measles and rubella (MMR) or with measles, rubella and varicella (MMRV)
- **Single-antigen vaccine not available in the United States**





## Mumps (MMR) Vaccine Indications

- **One dose** (as MMR) for preschool-age children 12 months of age and older and persons born during or after 1957 not at high risk of mumps exposure
- **Second dose** (as MMR) for school-age children and adults at high risk of mumps exposure (i.e., healthcare personnel, international travelers and students at post-high school educational institutions)



# MMR Vaccine Contraindication and Precautions

- History of anaphylactic reactions to neomycin
- History of severe allergic reaction to any component of the vaccine
- Pregnancy
- Immunosuppression
- Moderate or severe acute illness
- Recent blood product



# Measles and Mumps Vaccines and Egg Allergy

- Measles and mumps viruses grown in chick embryo fibroblast culture
- Studies have demonstrated safety of MMR in egg-allergic children
- **Vaccinate without testing**
- **Precautions must be adopted for patients who reported an history of anaphylaxis after egg eating**



# MMR Adverse Events

- Arthralgias (susceptible women)
  - 25%
- Rash, pruritis, purpura
  - not common



# MMR Adverse Reactions

- Fever
  - 5%-15%
- Rash
  - 5%
- Thrombocytopenia
  - 1/30,000-40,000 doses
- Lymphadenopathy
  - rare
- Allergic reactions
  - rare



# Mumps Immunity

- Born before 1957
- Serologic evidence of mumps immunity
- Laboratory confirmation of disease
- Documentation of adequate vaccination

**the memory of the disease is not  
indicative of immunity**



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- <http://abcnews.go.com/GMA/video/mumps-outbreak-harvard-university-38730136>