

# Respiratory Syncytial Virus

## Epidemiology & Transmission

### Source

- Human only
- Maintenance of viral reservoir is unknown

### Transmission

- Person-to-person via
  - Droplets (Large droplets)
  - Contact (direct & indirect: fomites on contaminated surfaces)

### Target

- Mucous membranes of eyes and nose
- Mouth mucosa less common portal of entry

**Incubation**  
4-6 days  
Max 2-8 days

### Clinical case definition

- Respiratory illness of variable severity,
- Cold,
  - Bronchiolitis
  - Pneumonia

### Communicability

3-8 days following infection,  
Infants: can last from 1 -3 weeks

### Infectious Dose

160 to 640 viral units through intra-nasal spray

### Risk Factors

- Primary immunodeficiencies
- Immunosuppression
- Chronic lung and heart conditions
- Exposure to air pollution
- Exposure to diesel engine fumes

### Children

- Age >6 months
- Male gender
- Daycare attendance
- Living with young siblings or cigarette smokers

### Adults

- Hospital inpatient or residence in nursing home

### Infective for many hours on environmental surfaces

- Sensitive to high and low temperature and to drying conditions
- At room temperature it loses infectivity after 48 hours on porous material and after 24 hours on a hard surface.
- Heating, freezing, detergents, chlorine inactivate RSV.
- On hands RSV remains infectious for about one hour.

### Epi profile:

- Most common infection of childhood.
- High prevalence and burden in community
- Important cause of lower respiratory tract infections in infants and children
- No long-lasting immunity
- Large community **epidemics** in winter and early spring

## Diagnosis

### Lab Diagnosis

- Enzyme immunoassays
- Direct ImmunoFluorescence Assay (DFA)
- Molecular diagnostics testing (RT-PCR)  
*Less commonly used due to variable sensitivity*
- Culture
- Serotyping

### Paramyxoviridae

Enveloped, negative-strand RNA virus

Collect specimens from nasopharyngeal aspirates, swabs or washes

## Treatment & Prophylaxis

### Treatment

- Largely consists of supportive care
  - Hydration
  - Use of supplemental oxygen
  - Mucous suction of upper airway
  - Intubation
  - Mechanical ventilation
  - Antiviral therapy (ribavarin) rarely recommended
- No vaccine exists

### Immuno-prophylaxis with palivizumab

- Decreases RSV hospitalization
- IM injection starting before RSV season and monthly for a total of 5 doses.
- No significant decrease in mortality
- Not cost-effective for use in all at-risk children.
- *Must be administered prior to RSV season*

**Areas of outbreak potential**

- Households
- Daycare centers and schools
- Hospitals
- Transplant centers

**Community recommendations**

- Strict hand hygiene in the infected
- Education of parents and caregivers of high-risk infants
- Social isolation from daycare centers, schools and hospitals

**Hospital recommendations**

1-CASE FINDING:

- LAB POSITIVE RESULT: RSV is included in the Respiratory Virus Panel (RVP). Make sure that positive results are reported to Infection Control.
- BRONCHIOLITIS: RSV is often diagnosed clinically as "bronchiolitis", lab testing is not always requested. Make sure all cases diagnosed as "bronchiolitis" are reported to Infection Control.
- Case finding limited at symptomatic staff and patients at first
  - Separate symptomatic until proven RSV or not.

2-DROPLET and CONTACT precautions. Contact is particularly important for RSV.

- Glove, gown, mask and handwashing

3-PLACEMENT /COHORTING

- Move RSV cases in separate room of if not possible, further away from others
- Cohort any new confirmed cases with old cases
- If there are enough cases, cohort the staff to take only of RSV if you feel there is an outbreak. If not make sure the nurses understand the need to avoid going from healthy to healthy without complete removal of gown, gloves, mask and strict hand washing
- Exclusion of visitors and staff with respiratory tract infections

4-VISITORS:

- Mask or exclude symptomatic visitors to the unit
- Mask for visitors to RSV case (avoid them getting infected and returning with RSV)

5-CLEANING & DISINFECTION:

RSV is quickly inactivated by ether, chloroform, detergents, freezing at -30°C, heating at 55°C and low pH conditions.