

**Anno Accademico 2007-2008**

**Lezioni di Pediatria Generale e Specialistica**

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**Asma Bronchiale**

**Polmoniti**

**Fibrosi Cistica**

**Bronchiolite**

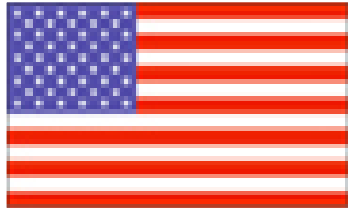
# **BRONCHIOLITE**

- **Common cause of illness in young children**
- **Common cause of hospitalization in young children**
- **Associated with chronic respiratory symptoms in adulthood**
- **May be associated with significant morbidity or mortality**

# EPIDEMIOLOGY

- Typically less than 2 years with peak incidence 2 to 6 months
- May still cause disease up to 5 years
- Leading cause of hospitalizations in infants and young children
- Accounts for 60% of all lower respiratory tract illness in the first year of life

# BRONCHIOLITE : Definizione



*" ogni primo episodio di wheezing associato ad un'infezione virale delle vie respiratorie "*



*" un'infezione virale acuta delle vie respiratorie che presenti tachipnea, dispnea e rantoli crepitanti diffusi in presenza o meno di wheezing "*

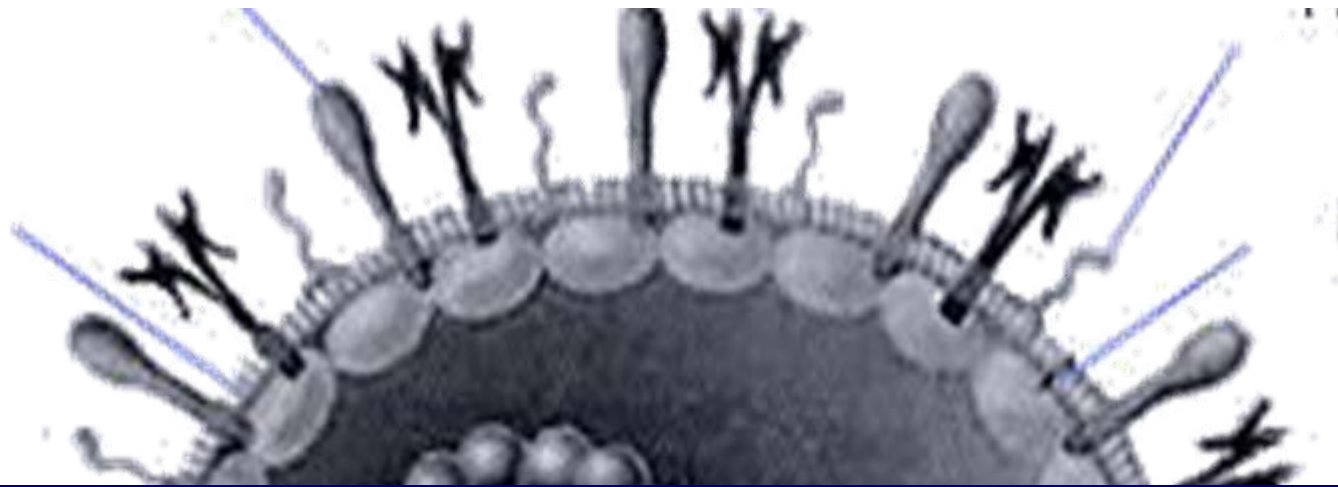
# BRONCHIOLITIS

## RISK FACTORS:

- ✓ Male gender
- ✓ Low-income
- ✓ Cystic fibrosis
- ✓ Bronchopulmonary dysplasia
- ✓ Chronic lung disease
- ✓ Congenital heart disease
- ✓ Immunodeficiencies

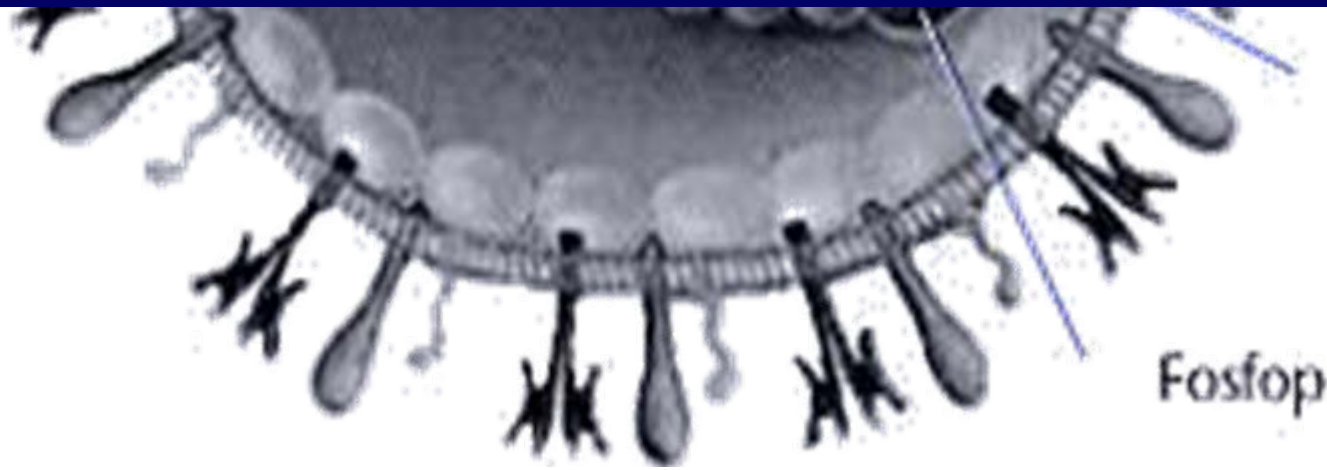
# MICROBIOLOGY

- **Typically caused by viruses**
  - RSV-most common
  - Parainfluenza
  - Human Metapneumovirus
  - Influenza
  - Rhinovirus
  - Coronavirus
  - Human bocavirus
- **Occasionally associated with Mycoplasma pneumonia infection**



**Respiratory syncytial virus is the most important agent causing acute respiratory infections in children aged under two years.**

*Hall CB J Infect Dis 1990*



## ***Panel: Features of RSV infection***

- Worldwide distribution, annual epidemics
- Infects almost all children by 2 years of age
- Responsible for about 70% of cases of bronchiolitis
- Causes coughs and colds in older children and adults
- Causes reinfection despite the presence of serum antibody
- The same serotype reinfects children and adults
- Associated with recurrent wheeze for many years after bronchiolitis

# **PATHOGENESIS**

- **Viruses penetrate terminal bronchiolar cells--directly damaging and inflaming**
- **Pathologic changes begin 18-24 hours after infection**
- **Bronchiolar cell necrosis, ciliary disruption, peribronchial lymphocytic infiltration**
- **Edema, excessive mucus, sloughed epithelium lead to airway obstruction and atelectasis**

# SINTOMI RESPIRATORI

Febbre, Rinite → Tosse

dopo 1-3 giorni

Difficoltà ad alimentarsi  
Irrequietezza  
Tachipnea  
Rientramenti respiratori  
Distensione toracica

proporzionali al  
grado di  
ostruzione

se l'infezione procede

Peggioramento delle condizioni generali

Dispnea

> Tachipnea ( > 70 atti/m' )

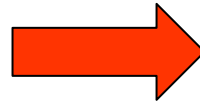
Comparsa di cianosi, crisi di apnea

# Diagnosi – Ricerca del VRS

## Metodo

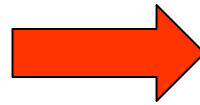
## Commenti

**Test di immuno-  
fluorescenza indiretta**



**Sensibilità: 85%  
Specificità: 97%  
Risultati: dopo 20 m'**

**Test immunoenzimatici  
(ELISA)**



**Sensibilità: 70-80%  
Specificità: 80-96%**

**Ricerca RNA virale  
(PCR)**



**Pochi laboratori  
Sensibilità: 94%  
Specificità: 97%  
Risultati: in poche ore**

# **DIFFERENTIAL DIAGNOSIS**

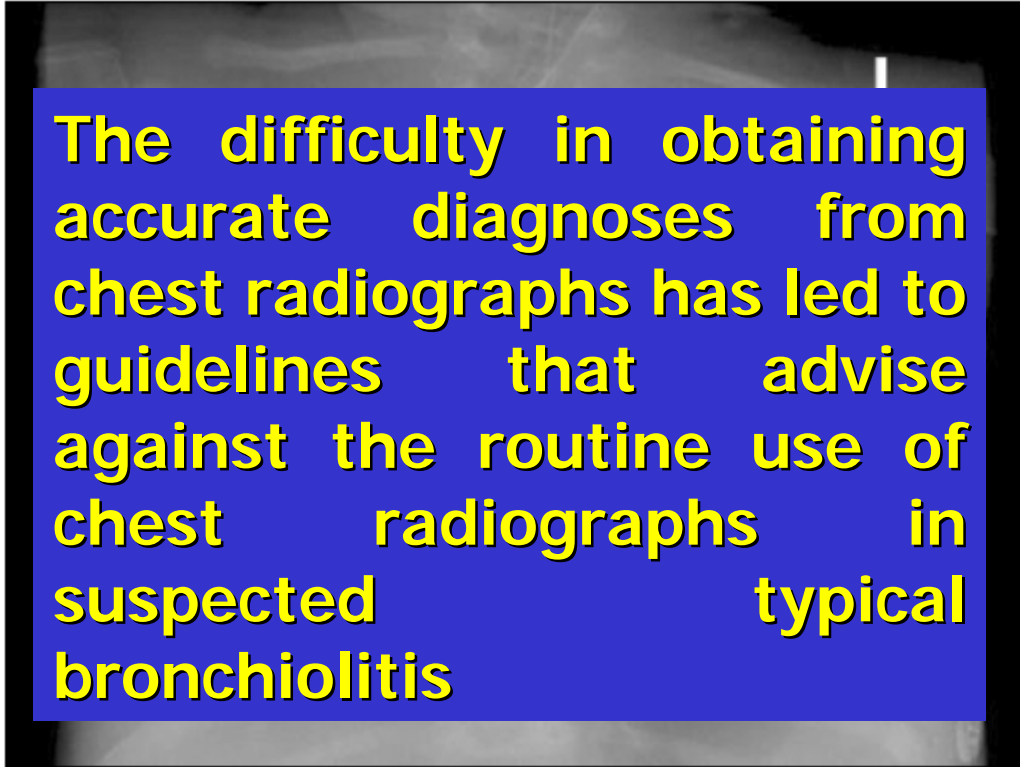
- **Viral-triggered asthma**
- **Bronchitis or pneumonia**
- **Chronic lung disease**
- **Foreign body aspiration**
- **Gastroesophageal reflux or dysphagia leading to aspiration**
- **Congenital heart disease or heart failure**
- **Vascular rings, bronchomalacia, complete tracheal rings or other anatomical abnormalities**

# BRONCHIOLITIS

## DIAGNOSIS AND SEVERITY ASSESMENT

- ✓ A routine nasopharyngeal washing to determine the presence of RSV is not recommended. *(evidence grade I)*
- ✓ Chest X-rays are not routinely recommended and may be obtained only if the diagnosis of bronchiolitis is not clear. *(evidence grade I)*

Chest radiographs in babies with bronchiolitis often show non-specific findings of hyperinflation and patchy atelectasis



The difficulty in obtaining accurate diagnoses from chest radiographs has led to guidelines that advise against the routine use of chest radiographs in suspected typical bronchiolitis

# COMPLICANZE

- **Otite media**
- **Sepsi (età < 1 mese)**
- **Apnea**
- **Encefalopatia**
- **Disturbi elettrolitici (iponatremia)**

# Il ruolo del pediatra di famiglia

## *Quando ricoverare:*

- Età < 6 mesi
- Non è possibile una idratazione per via orale
- > Frequenza respiratoria ( > 60-70 atti/m' )
- Condizioni generali compromesse
- Rifiuto dell'alimentazione
- Comparsa di cianosi
- Comparsa di crisi di apnea → unità intensiva
- $SaO_2 < 92\%$

# MANAGEMENT

The clinical treatment of these very sick small babies is limited to supportive care:

- Appropriate fluid replacement
- Oxygen

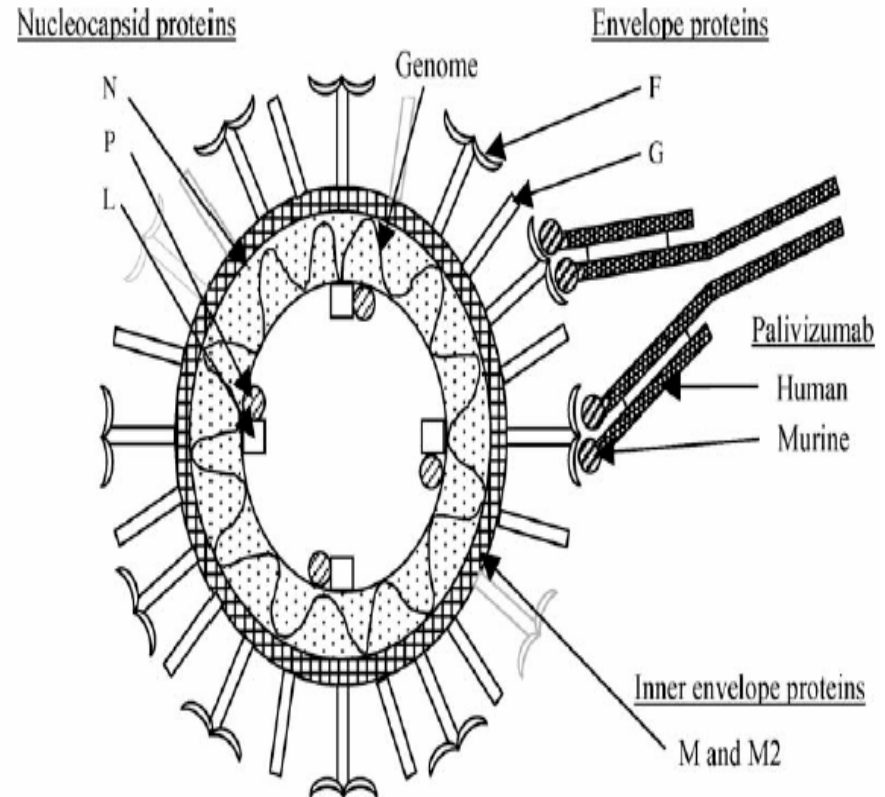
Others:

- Bronchodilators (?)
- Nebulised epinephrine (?)
- Systemic corticosteroids (?)
- Ribavirin (?)

# PREVENZIONE

## Palivizumab

- **Monoclonal antibody directed against the surface RSV fusion protein (F-protein)**
- **The F-protein is essential for RSV to enter the host target cell**
- **Palivizumab blocks an epitope in the binding region of the F-protein thereby disabling fusion of RSV**



**RSV structure and neutralisation by humanised monoclonal antibody**

