

Respiratory Syncytial Virus in Paediatric Wards



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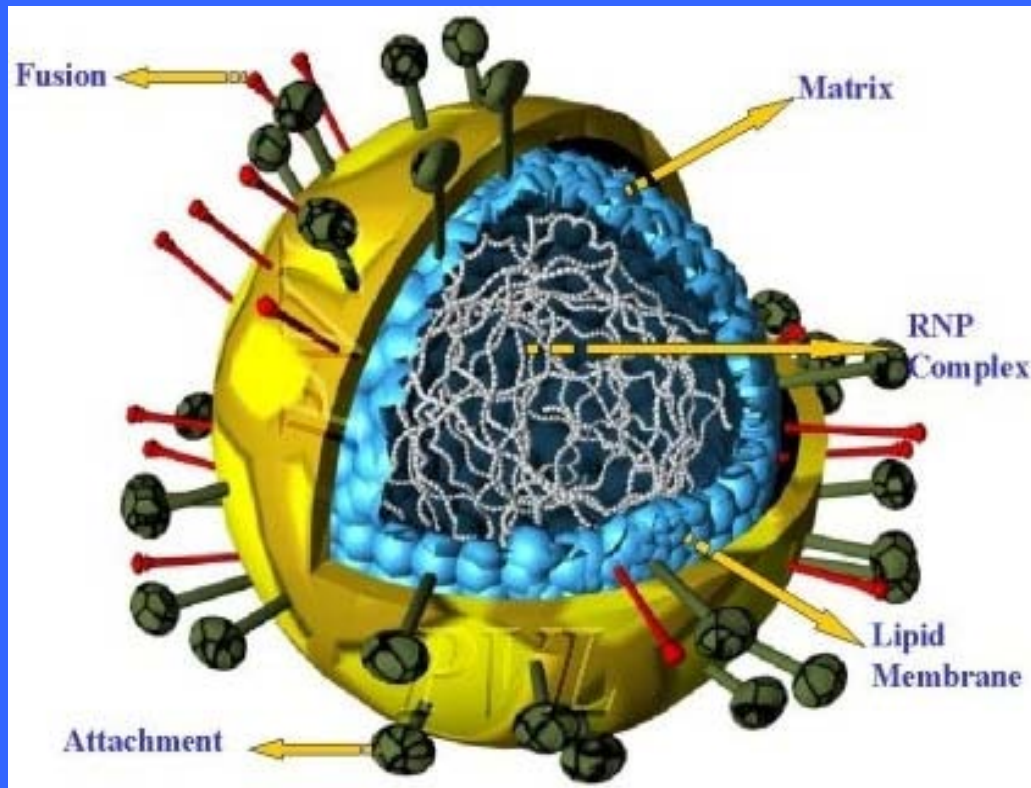
CHICA-Canada

Respiratory Syncytial Virus in Paediatric Wards



- **At the conclusion of the session the delegate will:**
- **Discuss the epidemiological and clinical characteristics of RSV**
- **Describe the impact of HA RSV infections**
- **Describe prevention and control strategies of RSV**

What is RSV



Who is at Risk?



- **RSV causes acute respiratory tract infections in all age groups**
- **Infants and children under one year old are most at risk because in them RSV causes bronchiolitis and pneumonia**

Who is at Risk?



- **50- 70% of infants are infected in the first yr of life**
- **Most have been infected by age 2**
- **Re-infection is common with attack rate of 40%**

HA RSV



- **RSV is a major nosocomial hazard on paediatric wards during annual outbreaks**
- **RSV is the most common cause of HAI on the paediatric unit**

HA RSV



- **30% and 70% in neonatal units, and between 20% and 40% at paediatric**
- **RSV also takes a heavy toll on members of the nursing and medical staff, with attack rates in some studies approaching 50%**

Who is at Risk?



- **In the USA 100,000 infants are hospitalised yearly for RSV**
- **In rural Kenya RSV was found to be a significant cause of severe LRTI**
- **There is a substantial burden of disease attributable to RSV infection in rural African settings, with the highest incidence and severity occurring in young infants.**

Who is at Risk?



Low income, poor nutrition, and low birth weight are additional risk factors that are particularly important in developing countries, where it has been estimated that approximately four million children die each year from acute respiratory tract infections

Who is at Risk?



- **RSV in adults and elderly is now appreciated as a concern**
- **In institutionalised elderly RSV is most common respiratory pathogen = 27% of RTI**
- **Results in increased morbidity**

Factors Associated with Increased Risk of RSV Infection



- Exposure to cigarette smoke
- Birth within 6 months of onset of RSV season
- Day care attendance
- Two or more individuals sharing a bedroom
- Day care or school age sibs
- Multiple births
- Prematurity
- Lower socioeconomic status

**Brenda O'Doherty RN RSV Prophylaxis Nurse Coordinator
Sick Kids, Toronto**

Etiology



- **Seasonal virus**
- **Temperate climates = annual community outbreaks occur late fall/all winter/spring**
- **Rainfall has an association N of the equator but opposite in S is true**

Etiology



- **Tropical climates**
 - = **timing and severity vary from yr to yr**
 - = **equator- all yr round**
 - = **farther away – seasonal association with decrease in temperature**
- **Epidemics start in costal regions and move inward**

Clinical Features



Upper Respiratory Tract Infection (URTI)

- Sneezing
- Rhinorrhea
- Nasal Congestion
- Cough
- Fever

Epidemiology



- **The virus is shed in respiratory secretions**
 - **In children for a long time and in high titres**
 - **In adults the virus is shed from 3 - \geq 7 days**

Epidemiology



- **Infectious dose >100-640 virions**
- **Spreads quickly**
- **Incubation period 2 – 8 days**

Mode of Transmission



Direct



Indirect



< 1 metre
Droplet

CONTACT

Mode of Transmission



- **Direct and Indirect Contact**
- **Droplet Contact**

- **Inoculation occurs through best via the eyes, nose**

Droplet Contact Spread



Indirect Contact



Indirect contact



Environmental Viability



- Countertops – >6.0 hrs (12hrs)
- Disposable gloves – 1.5 hrs
- Gowns – 30 to 45 min
- Tissue – 30 to 45 min
- Skin – 20 – 25 min

Hall CB, et al.

Journal of Infectious Disease, 1980 Jan:141(1):98-102



Managing RSV on Paediatric Units – IP&C Principles

Staff education

- Sessions should be scheduled just before RSV season
- If possible do another during the season

Surveillance

- **Who does routine surveillance on their paediatric unit?**
- **Surveillance during peak seasons should be performed because of the significant morbidity and mortality**

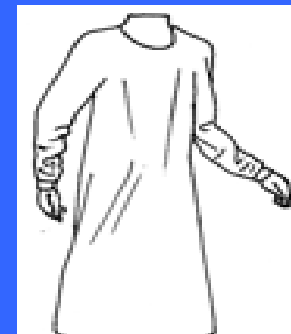
Isolation Precautions



- **Droplet Contact Precautions:**

**Face Protection,
Gowns,
Gloves**

within 1metre of patient



Isolation Precautions



- **Droplet Contact Precautions:**
 - **Isolate patients with symptoms**

Isolate with symptoms:



Upper Respiratory Tract Infection (URTI)

- Sneezing
- Rhinorrhea
- Nasal Congestion
- Cough
- Fever

Isolation Precautions



- **Droplet Contact Precautions:**
 - Ideally assign to a single room
 - Cohort if necessary





Isolation Precautions



Environmental Cleaning

- **Daily cleaning**
- **Frequently touched surfaces**
- **Assign toys to individual patients for duration of hospitalisation- special attention to cleaning**

Staff



- ?work restrictions when ill
- Is this a reasonable practice?

Staff

Encourage and promote

Hand hygiene



Staff



- Cohort staff during an outbreak

Visitors and Family



- **Restrict children during season?**
- **Health assessment before visiting**
- **Education of all**
- **Restrict families from using all facilities on the unit**

Visitors and Family

Encourage and promote

Hand hygiene



RSV Prophylaxis



- **There is no vaccine**
- **Human monoclonal antibody available**
- **Palivizumab – Synagis**
- **It was approved for use in high-risk children in the USA in 1998 and in Europe in 1999; it is now approved for use in more than 45 countries**

RSV Prophylaxis



- **Palivizumab is given by injection at monthly intervals starting in October or November, and continuing until March or April**

Canadian Pediatric Society Guidelines



- **Prems born during RSV season less than 33 weeks gestation**
- **Prems less than 33 weeks gestation born prior to RSV season who are 6 months or less at start of RSV season (look back)**
- **BPD infants less than 2 years old who have required Oxygen or medical treatment in the preceding six months prior to the season**
- **Infants with Congenital Cardiac disease**
- **Others: Neuromuscular, immunocompromised**

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Palivizumab



Multiple studies and post marketing experience involving thousands of preterm and high-risk infants in various demographic groups have demonstrated that treatment with Palivizumab decreases overall rates of hospitalization due to RSV

Palivizumab



- The cost of the injection is approximately *\$1500.00* per injection.

We can only do our best!







Gracias--Adios

