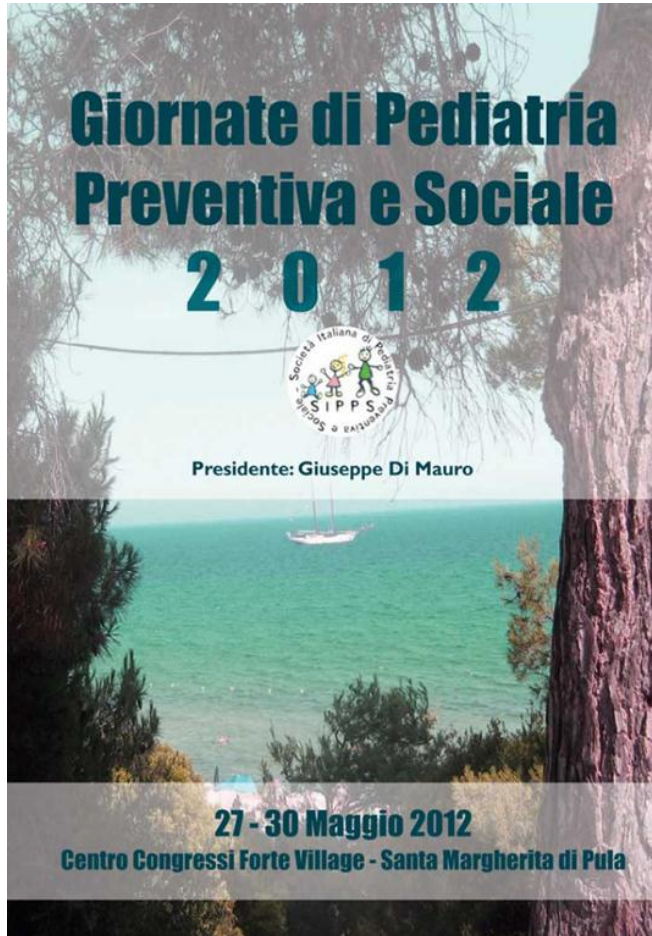


Le infezioni respiratorie ricorrenti

Epidemiologia e diagnosi



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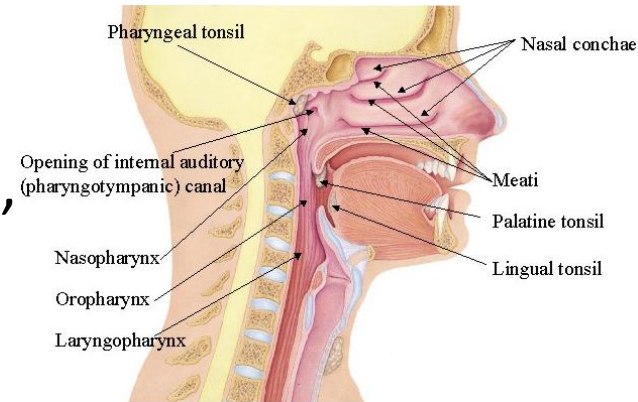
Outline

- ➡ Cosa intendiamo per Infezioni Respiratorie Ricorrenti?
 - Perché i bambini in età prescolare sono più esposti alle Infezioni Respiratorie Ricorrenti ?
 - Cosa dobbiamo fare di fronte ad un bambino con Infezioni Respiratorie Ricorrenti ?
 - ❖ La Diagnosi
 - ❖ La Profilassi



Le Infezioni Respiratorie Ricorrenti?

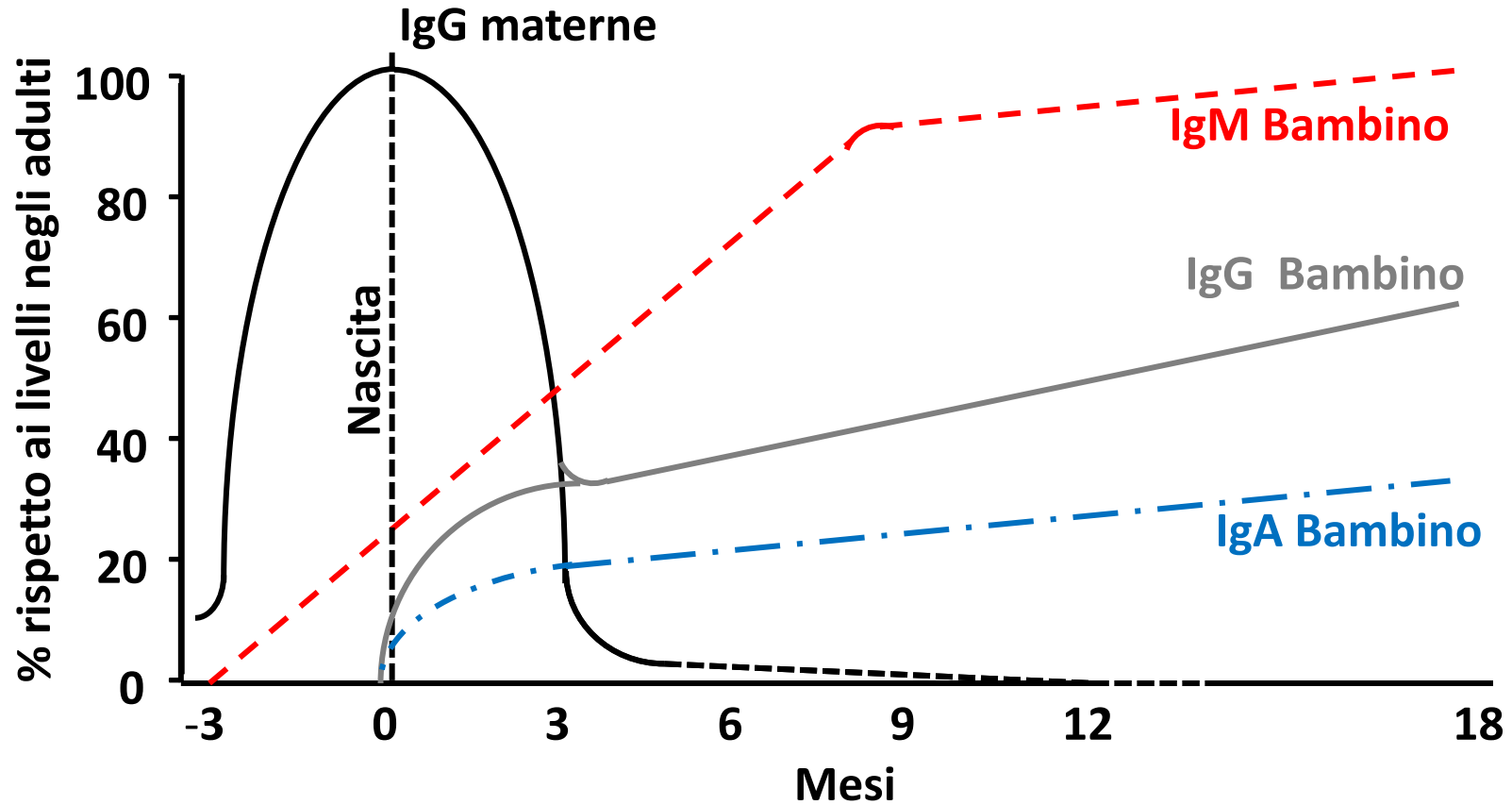
- Con “infezioni respiratorie ricorrenti (IRR)” ci si riferisce a **una serie di episodi acuti** a carico di uno o più settori definiti: il **naso**, l'**orecchio**, il **faringe**, le **tonsille**, il **laringe**, la **trachea** e i **bronchi**



- Questa situazione **si manifesta**, solitamente, **in età prescolare**, in coincidenza della prima socializzazione del bambino **con l'ingresso alla scuola materna**

- Benché si tratti di una **patologia benigna destinata ad evolvere favorevolmente verso i 5-9 anni**, essa interferisce notevolmente sul **benessere del bambino e della famiglia** e determina importanti **costi medico sociali**

Livelli di Ig seriche nel lattante

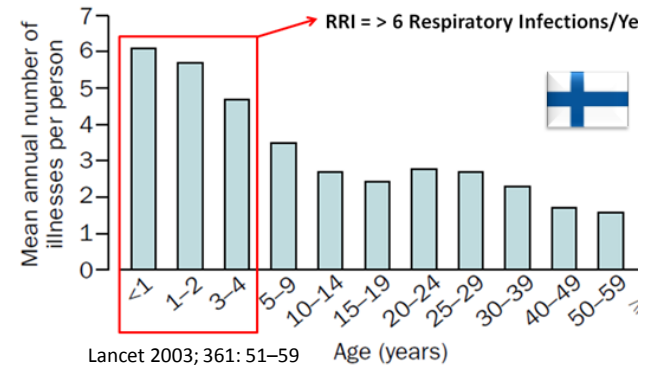


La dimensione del problema

- In Italia il 6% dei bambini in età prescolare, presenta IRR nei primi 2-3 anni di vita

Definizione di IRR

- Più di 6 infezioni respiratorie per anno
- Più di 1 infezione respiratoria al mese (da Ottobre a Febbraio)
- Più di 1 episodio di infezione/anno se questa è localizzata alle basse vie (broncopolmonite e polmonite)
- Bambino che apparentemente non presenta condizioni di base tali da giustificare il ricorrere delle infezioni (?)

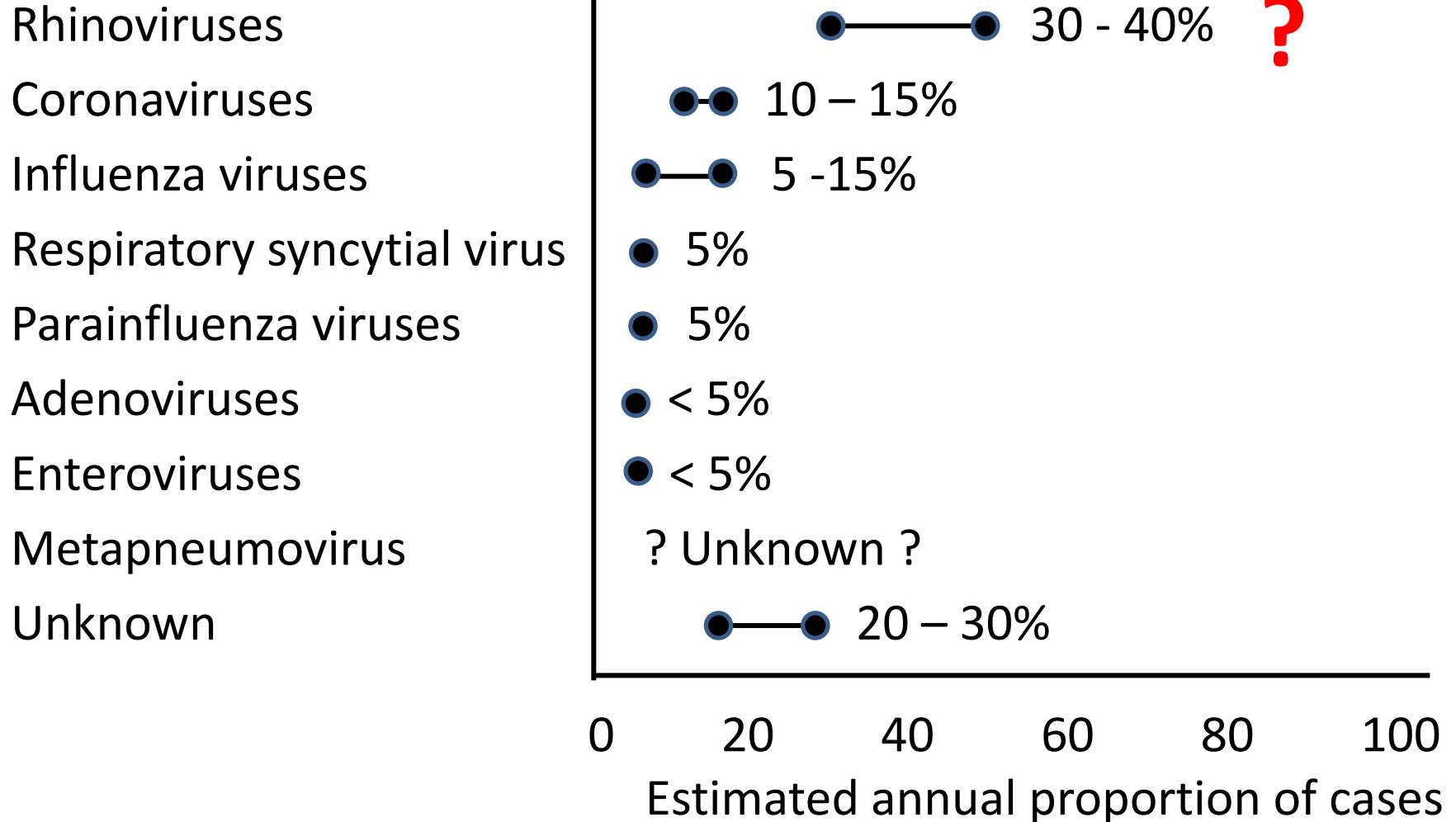


Gli agenti eziologici

- Gli agenti eziologici responsabili delle IRR siano identificabili solo occasionalmente, tuttavia quelli più frequentemente implicati sono i virus respiratori
- La primitiva infezione virale può essere complicata da infezioni secondarie, causate sia da batteri che da virus con la comparsa di otiti medie, sinusiti ed infezioni broncopolmonari

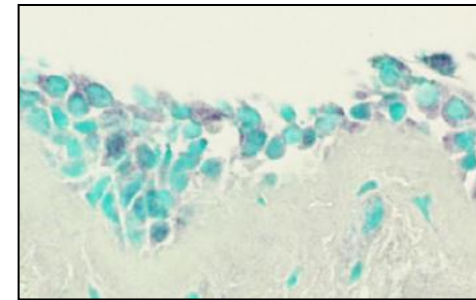
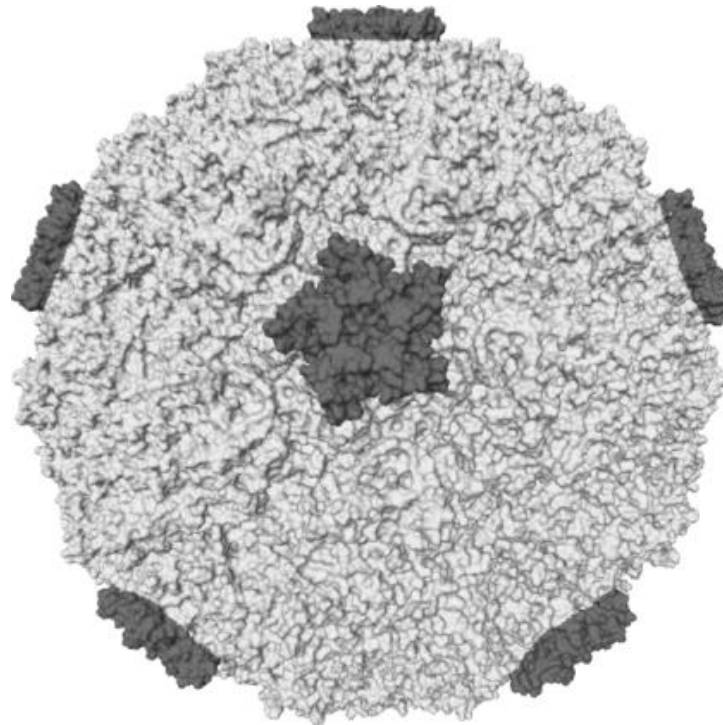


Viral involved in the pathogenesis of upper respiratory tract infections



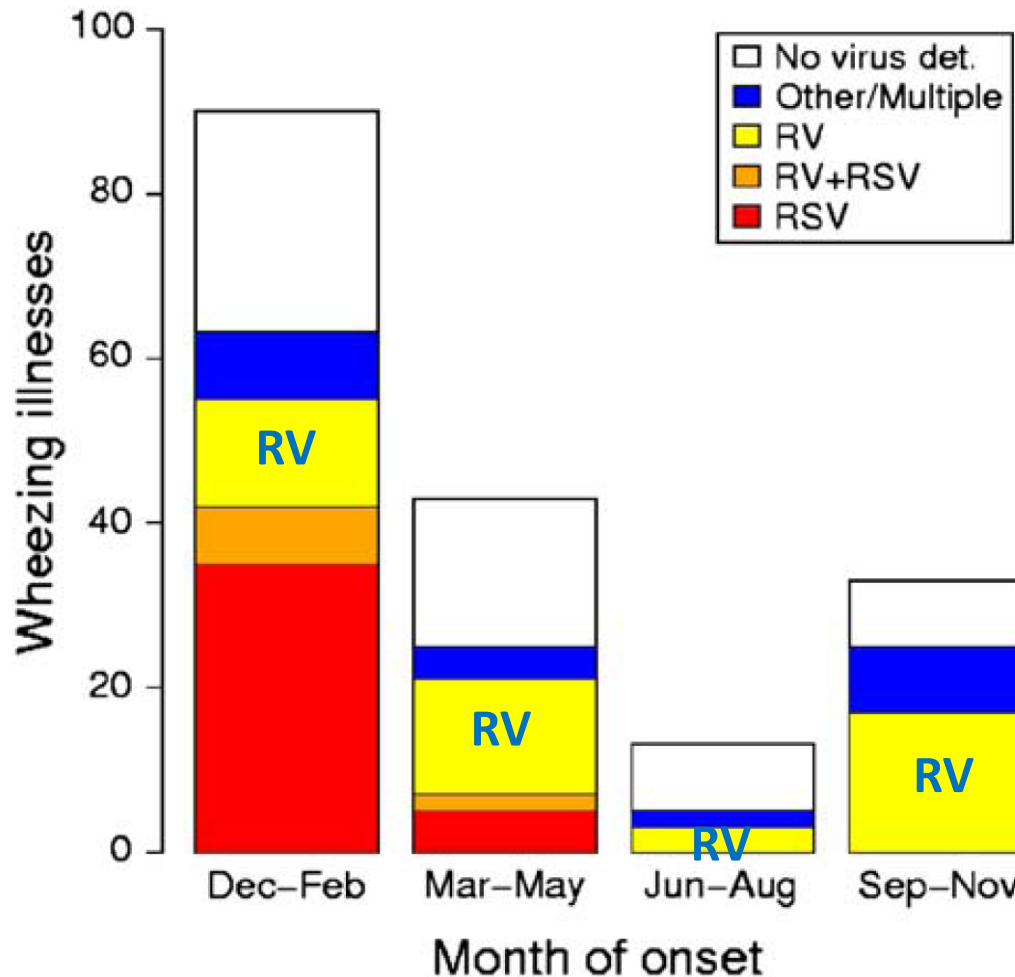
Rhinovirus

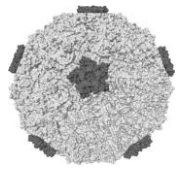
a ... “soft” virus”



- Epithelial cell cytotoxicity *does not appear to play a major role* in the pathogenesis of *Rhinovirus* (RV) infection that is characterized by *RV-induced* secretion of mediators of inflammation by airway structural/inflammatory cells

Seasonality and etiology of wheezing episodes in 285 children in the 1st year of life



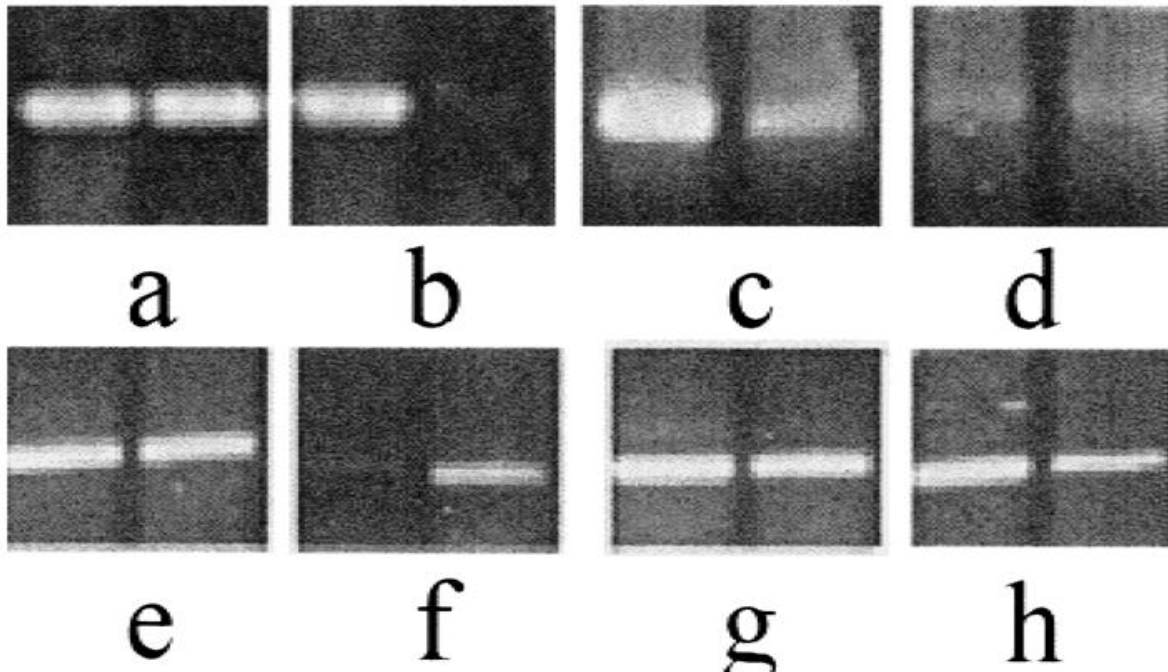


Rhinoviruses replicate effectively at lower airway temperatures

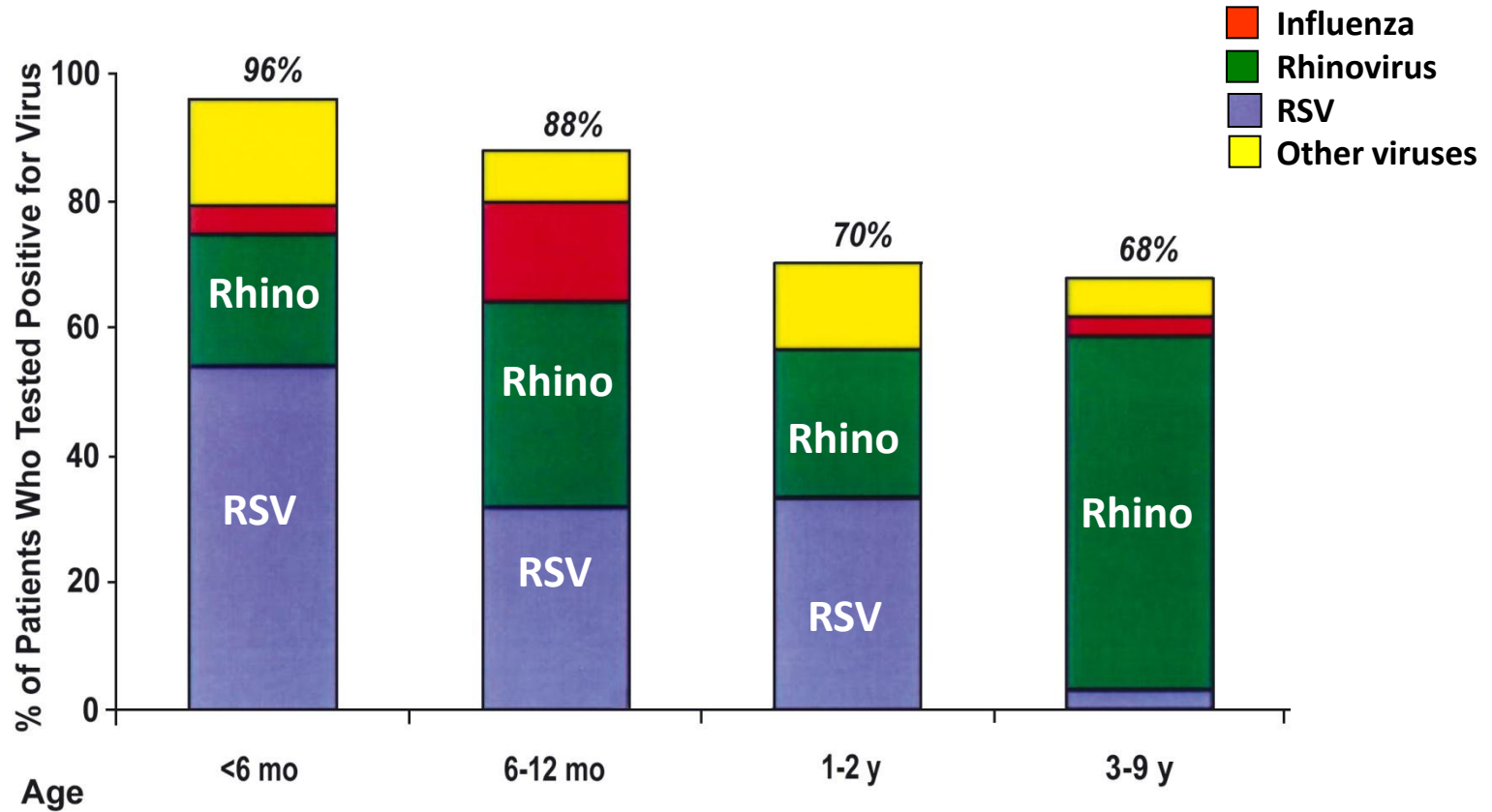


RTPCR to assess rhinovirus replication on nasal aspirate samples derived from patients with wild-type rhinoviral common colds cultured at 33°C and 37°C

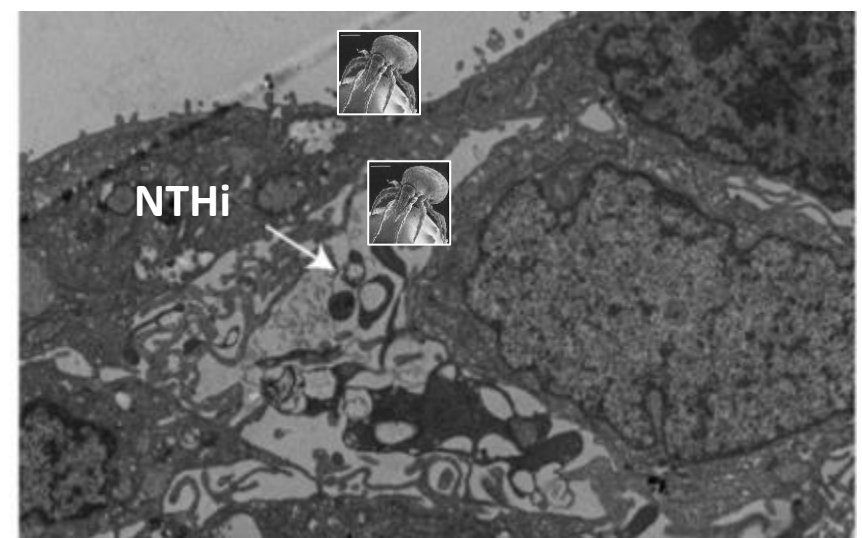
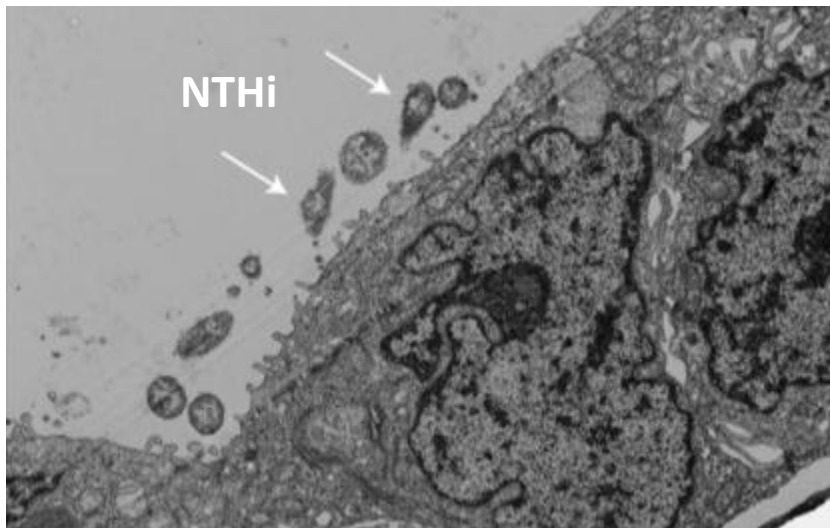
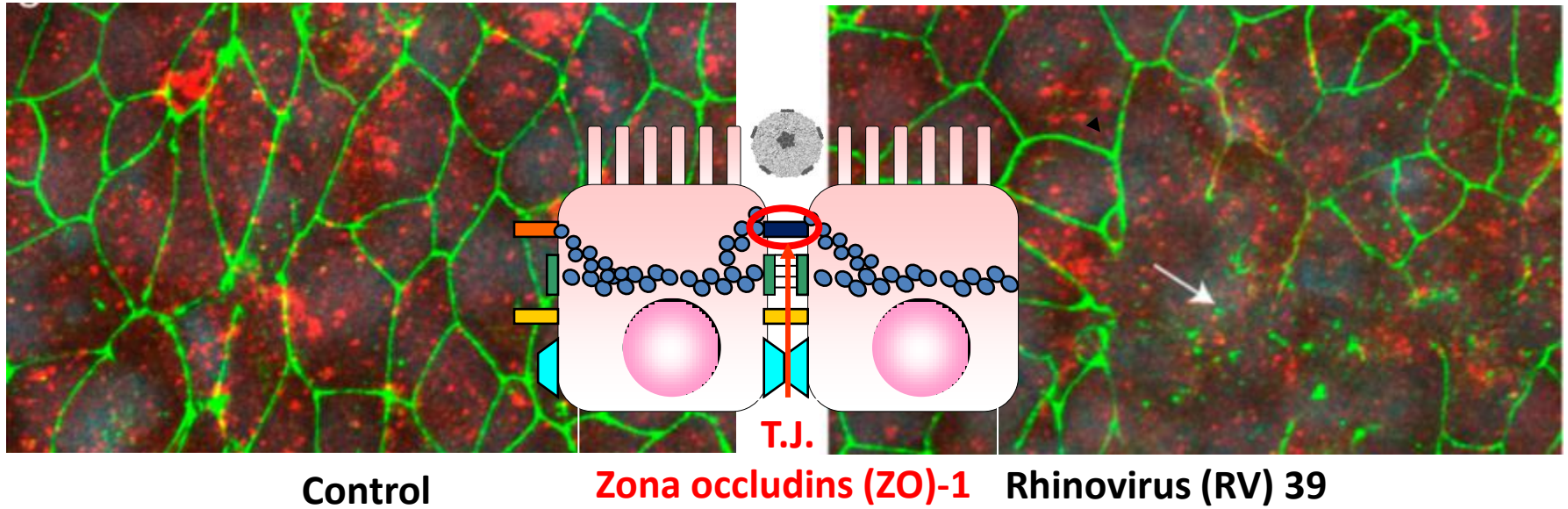
33° 37° 33° 37° 33° 37° 33° 37°



Viral infections in relation to age among children hospitalized for wheezing



RV disrupts epithelial tight junctions and promotes transmigration of NTHi by paracellular route



Outline

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Major risk factors for RRI in childhood



Host-related

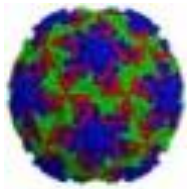
- Low birth weight
- Chronological age
- Genetic factors
- **Atopy**
- **Immunodeficiencies**

Immunity

Environment-related

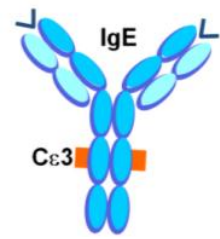
- Day-care attendance
- Having a siblings <5 years of age at home
- Household crowding
- 2 or more smokers in the home



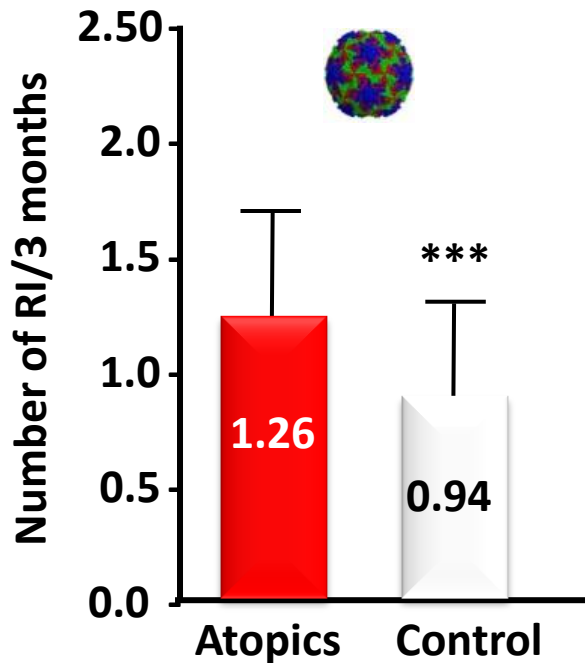


Rhinovirus

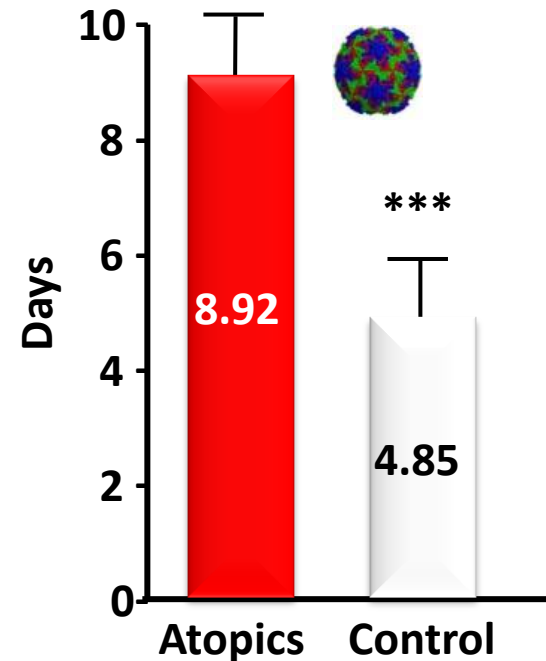
Allergic children have more numerous and severe respiratory infections than non-allergic children



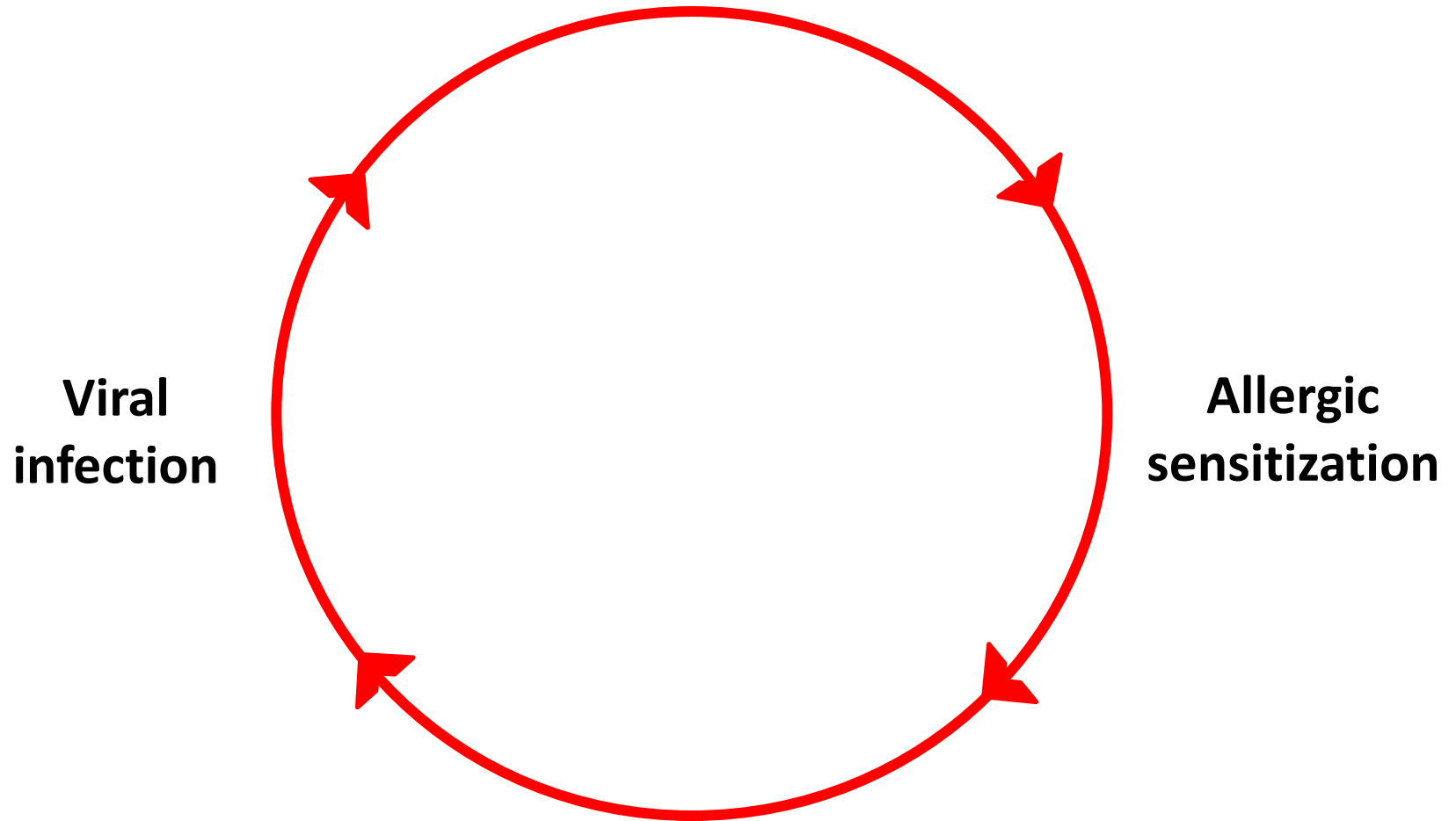
A. Total RI Number



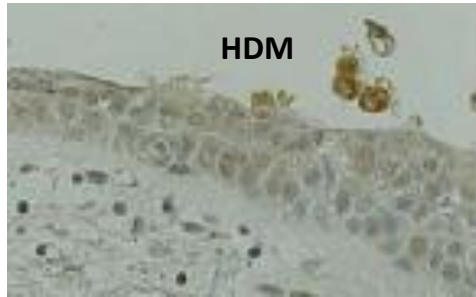
B. Total RI Duration



Vicious circle involving viral infection and allergic sensitization



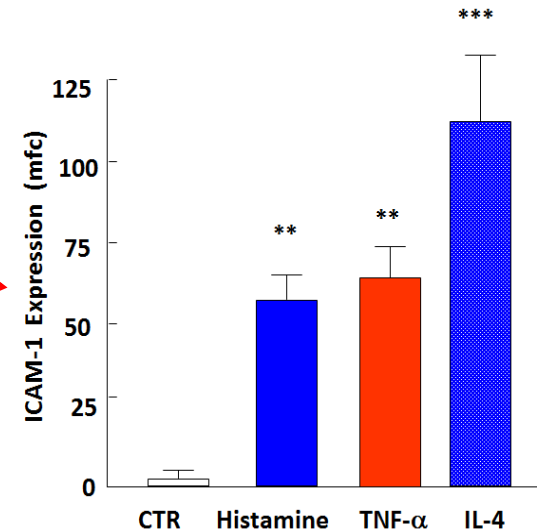
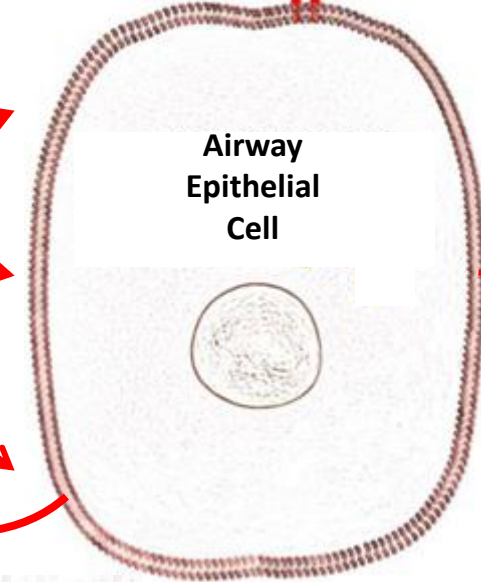
Interaction between atopy and viral infection at respiratory level



Increased epithelial permeability

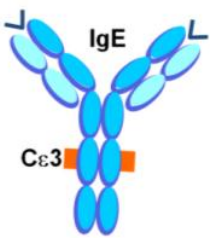
Upregulation of ICAM-1

Rhinovirus

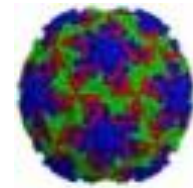


Oddera S. J of Asthma 1998; 35: 401-408.

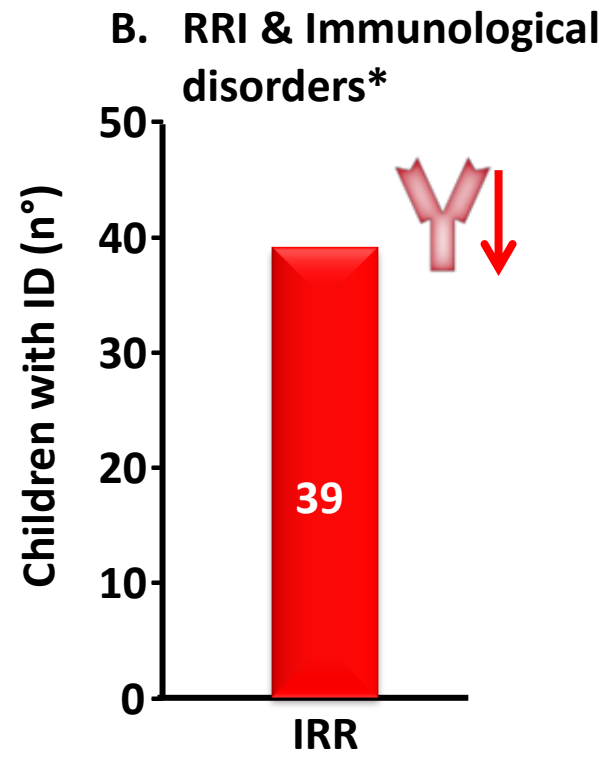
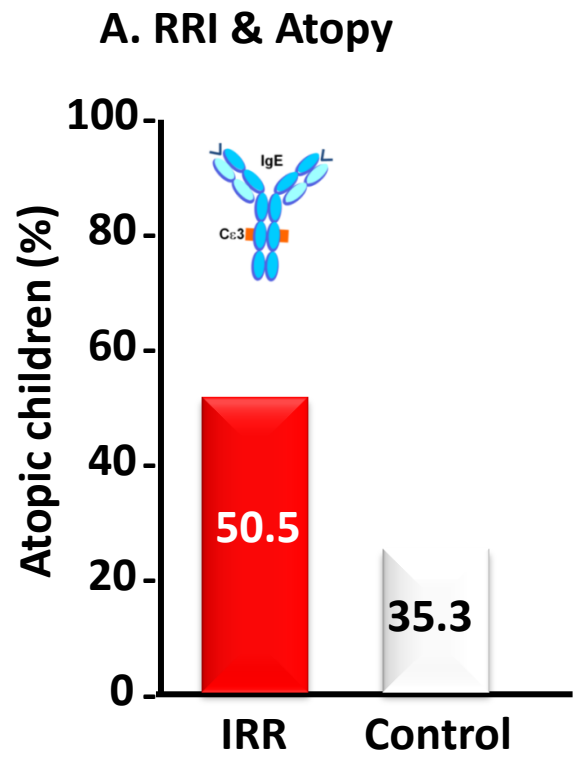




Atopy and immunological disorders in 218 preschool Italian children with RRI



Rhinovirus



*IgA and IgG2 deficiency and transient hypogammaglobulinemia

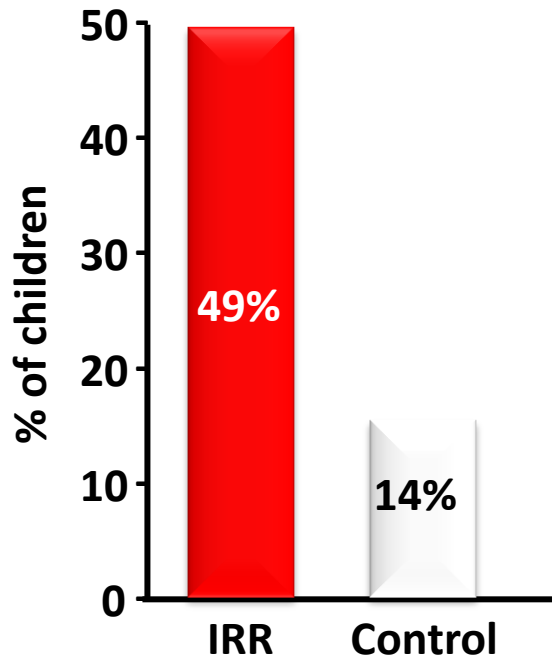


Coexistence of (partial) immune defects in children (4-14 yrs old) with recurrent respiratory infections

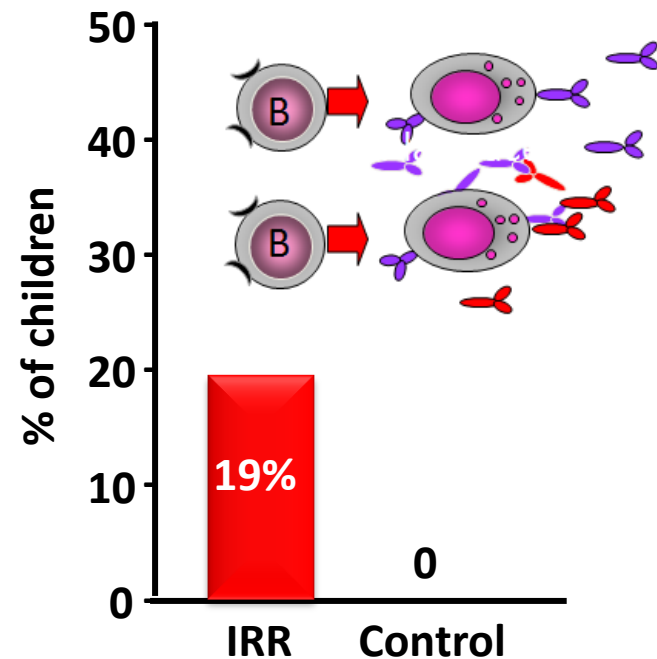


Belgium

A. IgA and/or IgG subclass deficiency



B. Deficient Ab response to Pneumococcal Polysaccharides



There was no increase in the prevalence of partial **C4** or **C2** deficiency, **lymphocyte subset** deficiency, or **FcRII** polymorphism in the IRR patients compared to controls

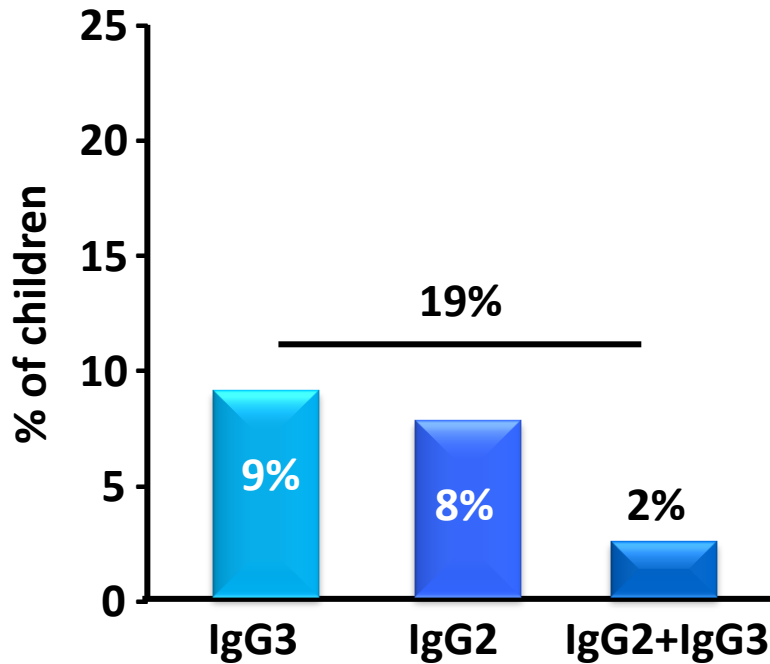


IgA and/or IgG subclass deficiency in 225 children aged 6 months to 6 years with RRI

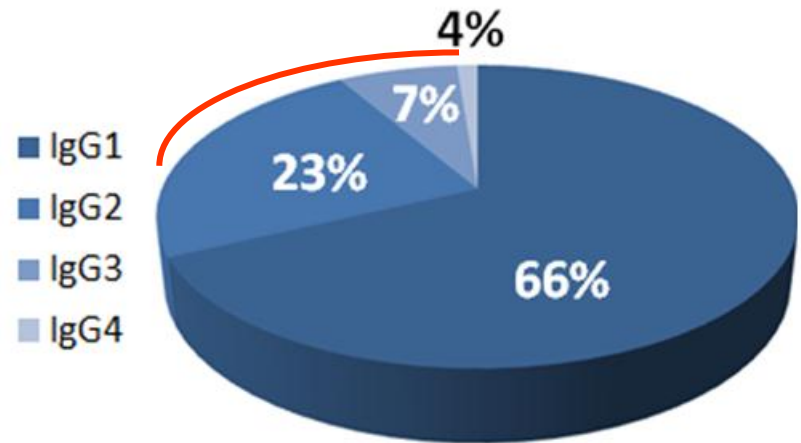


Turkey

IgG subclasses deficiency



Serum IgG subclasses (%)



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Diagnosis

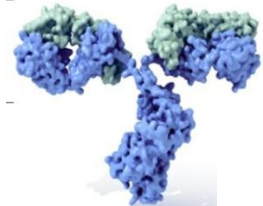
- Careful **Medical History** and **Clinical Examination** are usually sufficient to make a **diagnosis of RRI** and **no further examinations are generally needed in the majority of the cases**



- A complete **Blood Count with differential** is sufficient to exclude neutropenia, while the evaluation of **Antibodies against Recall Antigens** rules out T-lymphocyte defects

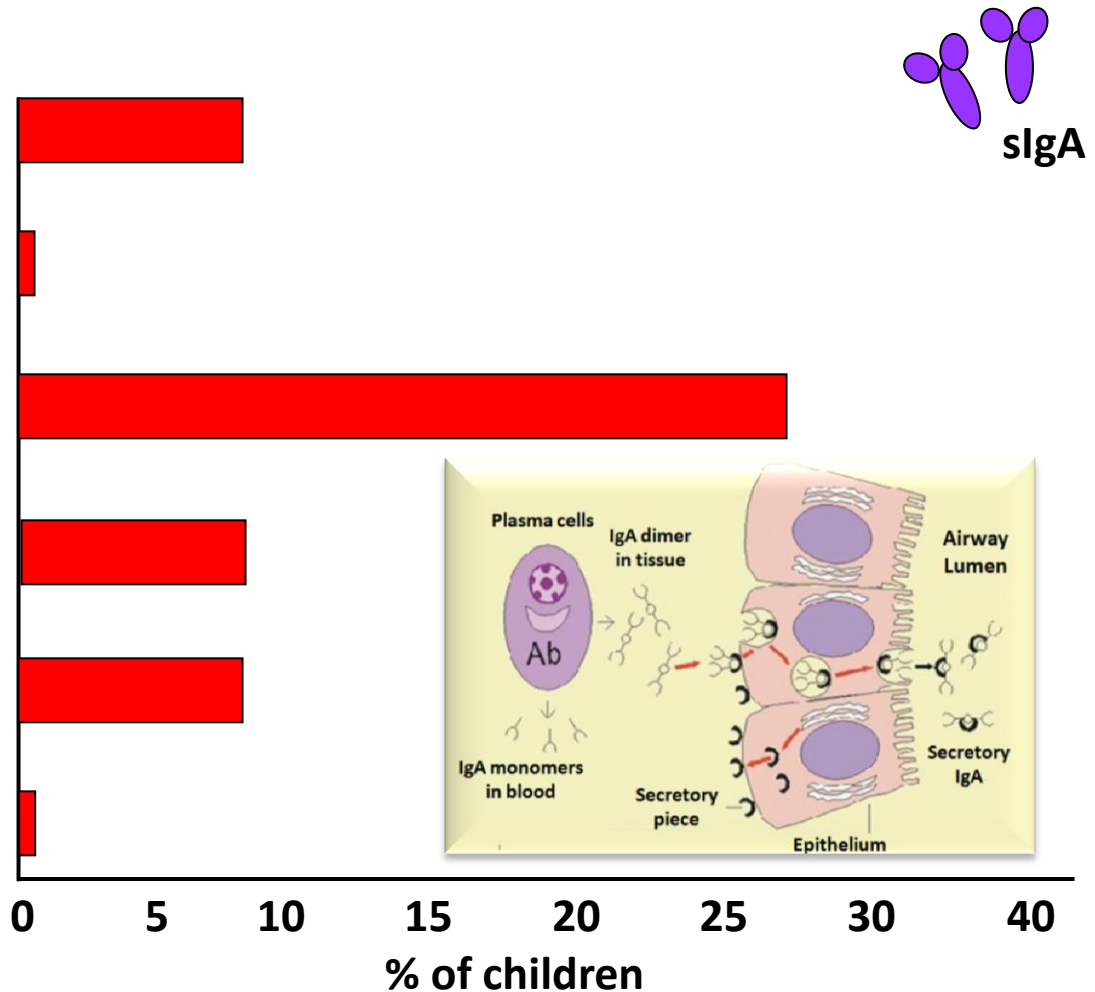


- **Total Immunoglobulin Levels** are also important to evaluate the presence of a selective **IgG** or **IgA** deficiency but more severe cases may need further evaluation

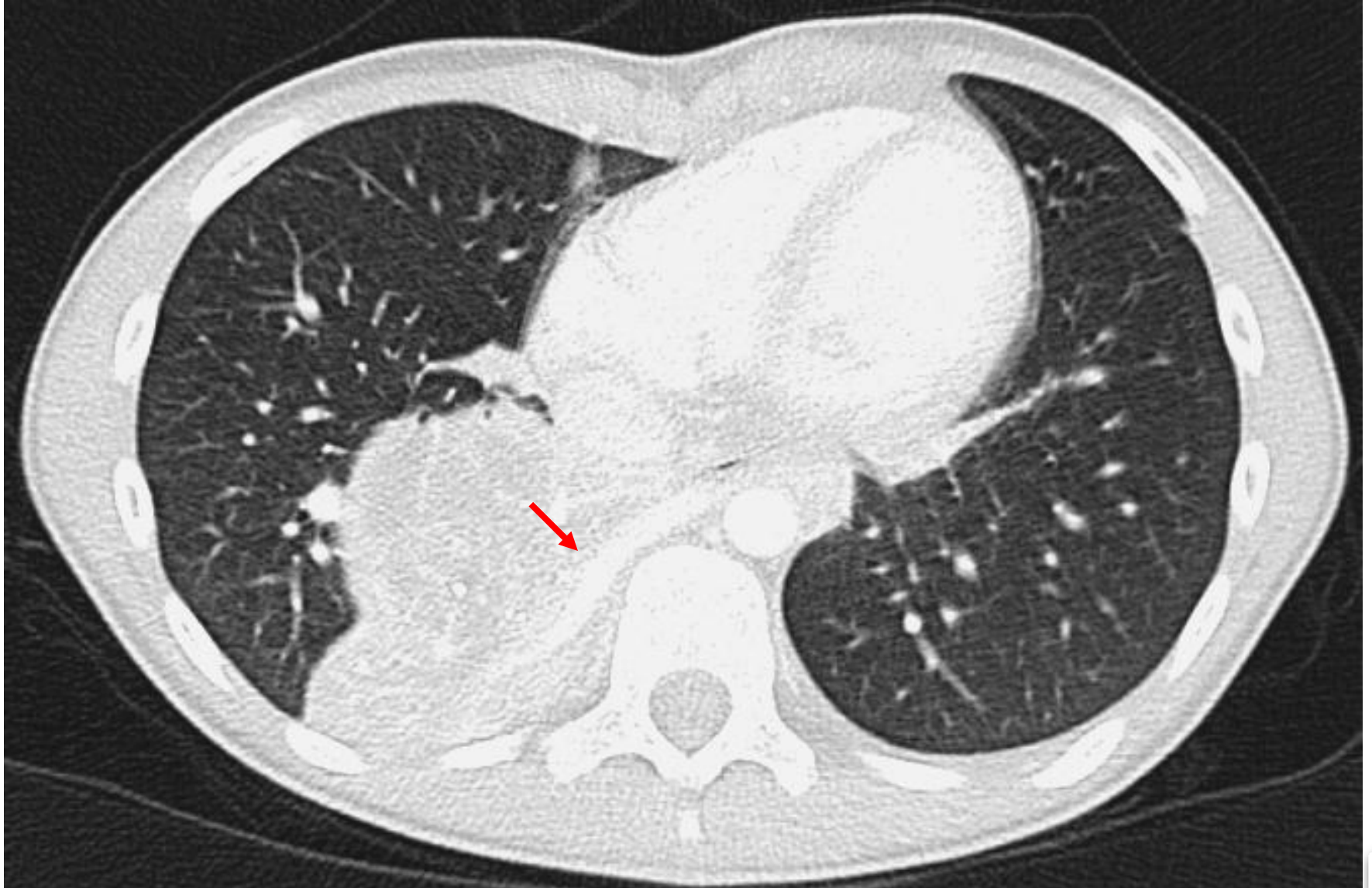


Low proportion of children with recurrent RRI have detectable amounts of *antigen-specific salivary sIgA*

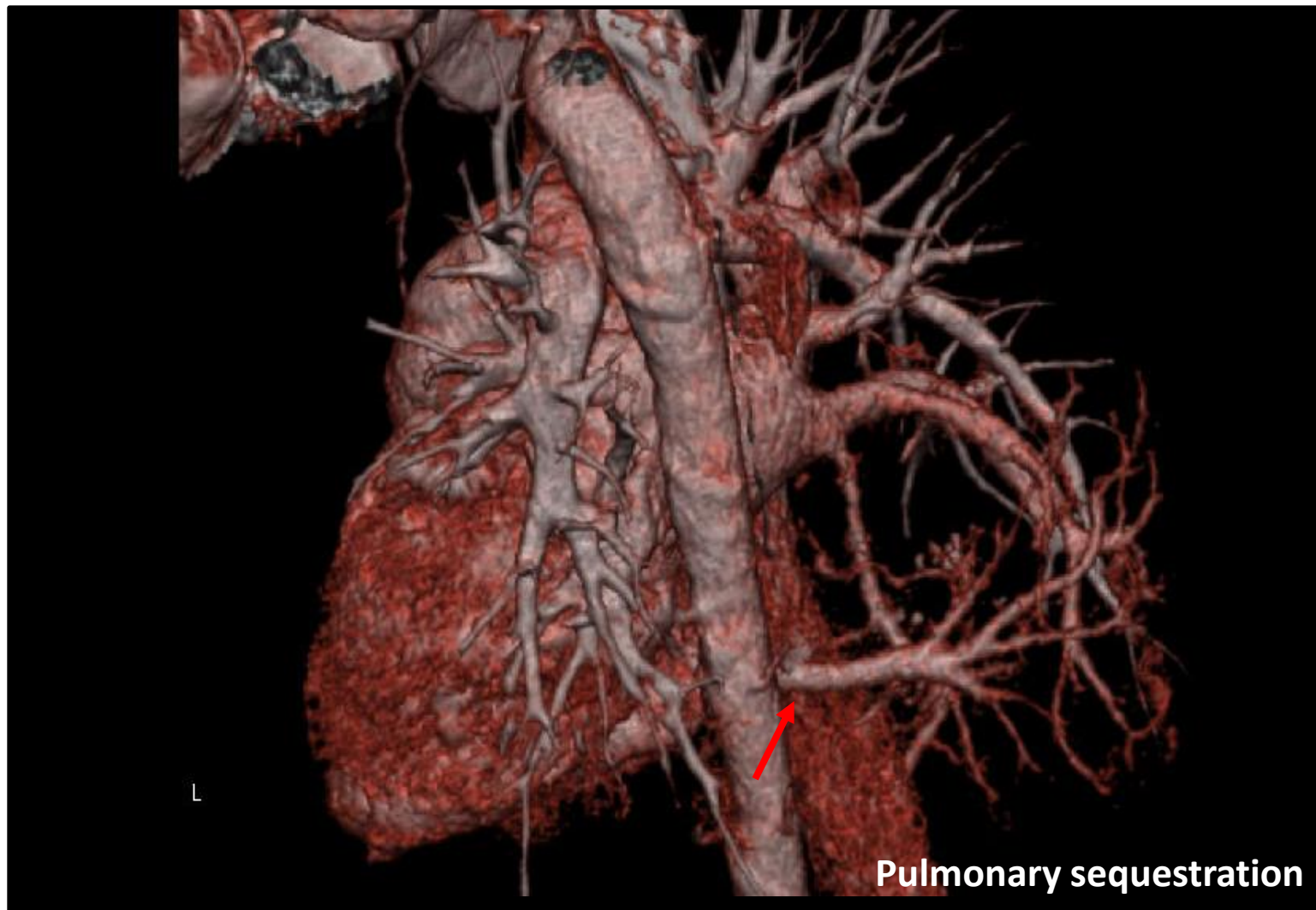
- *Staphylococcus aureus*
- *Streptococcus pyogenes*
- *Klebsiella pneumoniae*
- *Haemophilus influenzae*
- *Moraxella catarrhalis*
- *Streptococcus pneumoniae*



A 13 years old girl with 2nd episode of pneumonia of the right lower lobe

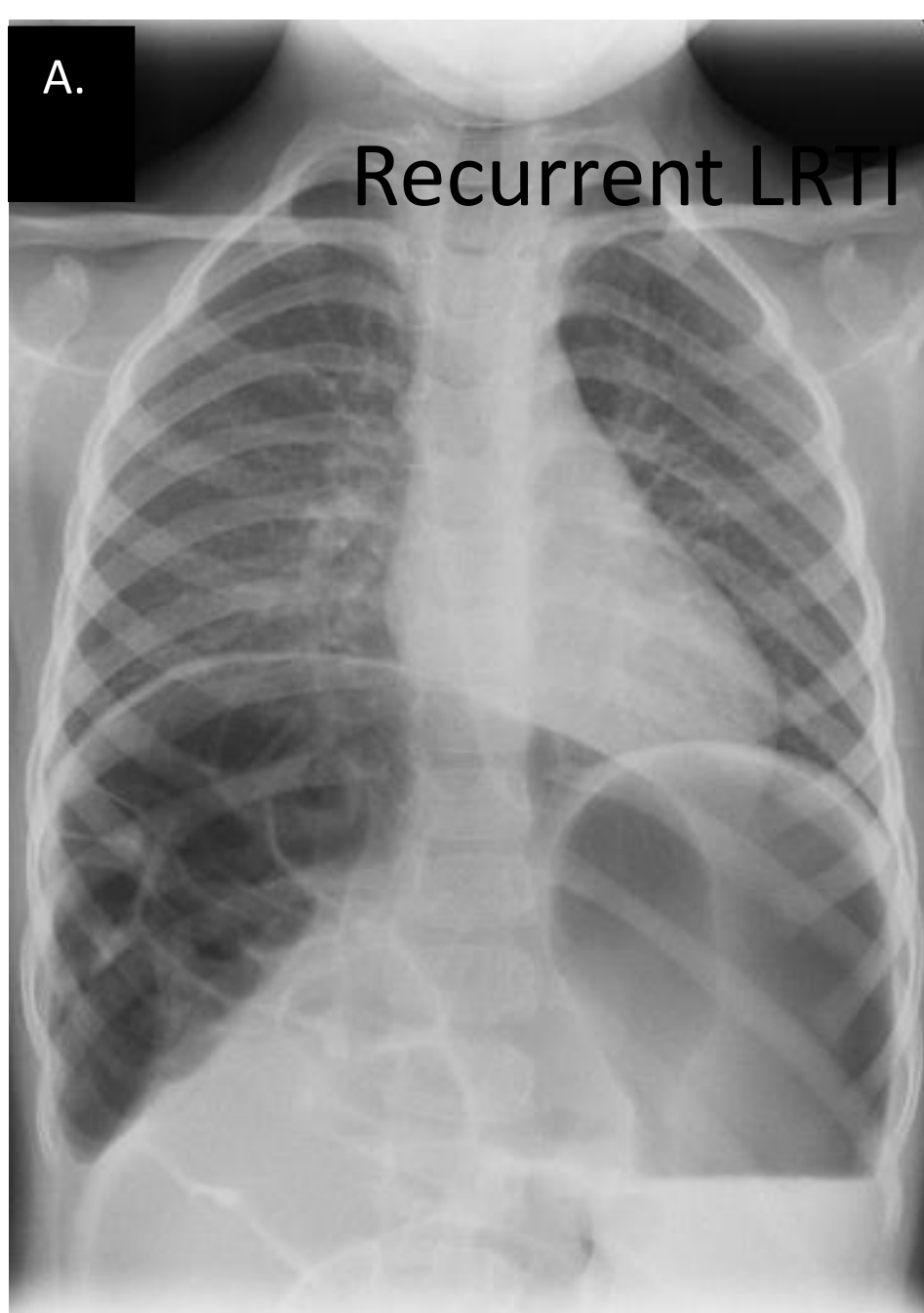


Angio-TAC con ricostruzione 3D

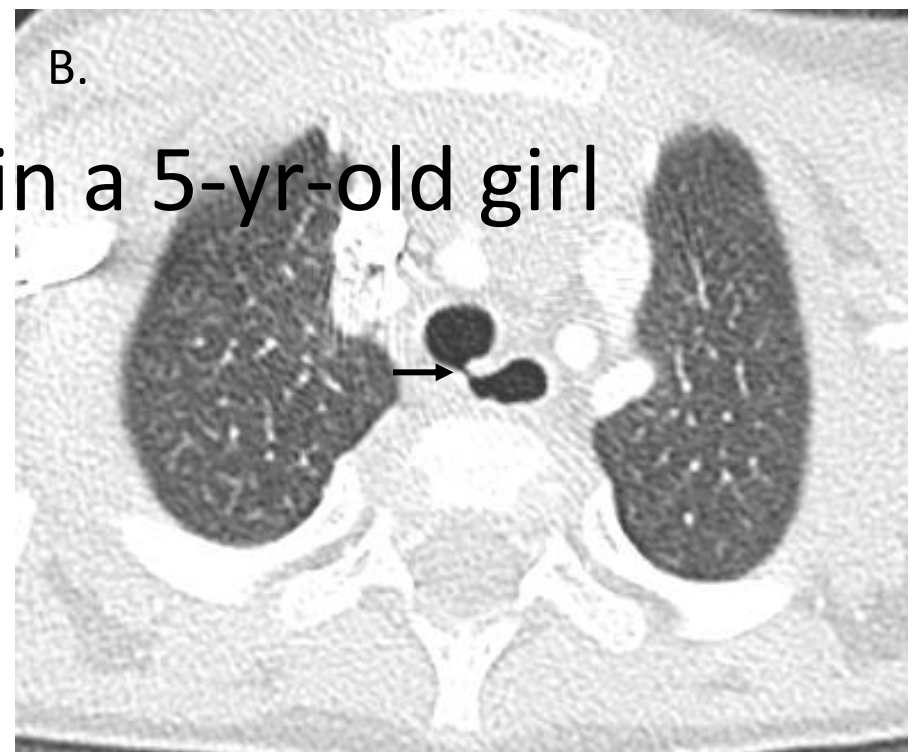


A.

Recurrent LRTI in a 5-yr-old girl



B.



C.



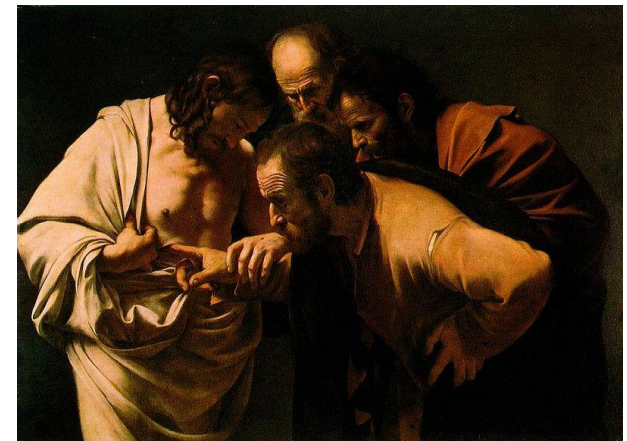
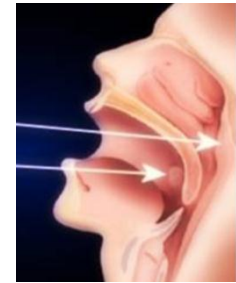
Reassure parents and give simple advises

- An accurate **environmental prophylaxis**
- Reducing environmental **tobacco smoke** at home
- The postponed enrolment of children at **day-care** centers reduces the risk of RI
- Optimal day-care center selection, when possible:



Prophylaxis-treatment

- Prophylactic treatment with **antibiotics** is neither indicated nor useful
- **Adenoidectomy** and **tonsillectomy** should be planned only in conditions included in validated guidelines
- The role of **biological response modifiers** (BRM) claimed to improve immunity in RRI children is still uncertain As we will discuss later.....



Adenoidectomia o vigile attesa?

Adenoidi



Adenoidectomia

