

Children and Respiratory Tract Pathology in South Africa



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Bronchiolitis in Pretoria

	HIV-infected	HIV-uninfected
Number	14	102
Mean age (months)	8	5.6
RSV +	33%	53.9% (p=0.330)
+ Blood culture	2	2

Acute viral bronchiolitis: aetiology and treatment implications in a population that may be HIV co-infected

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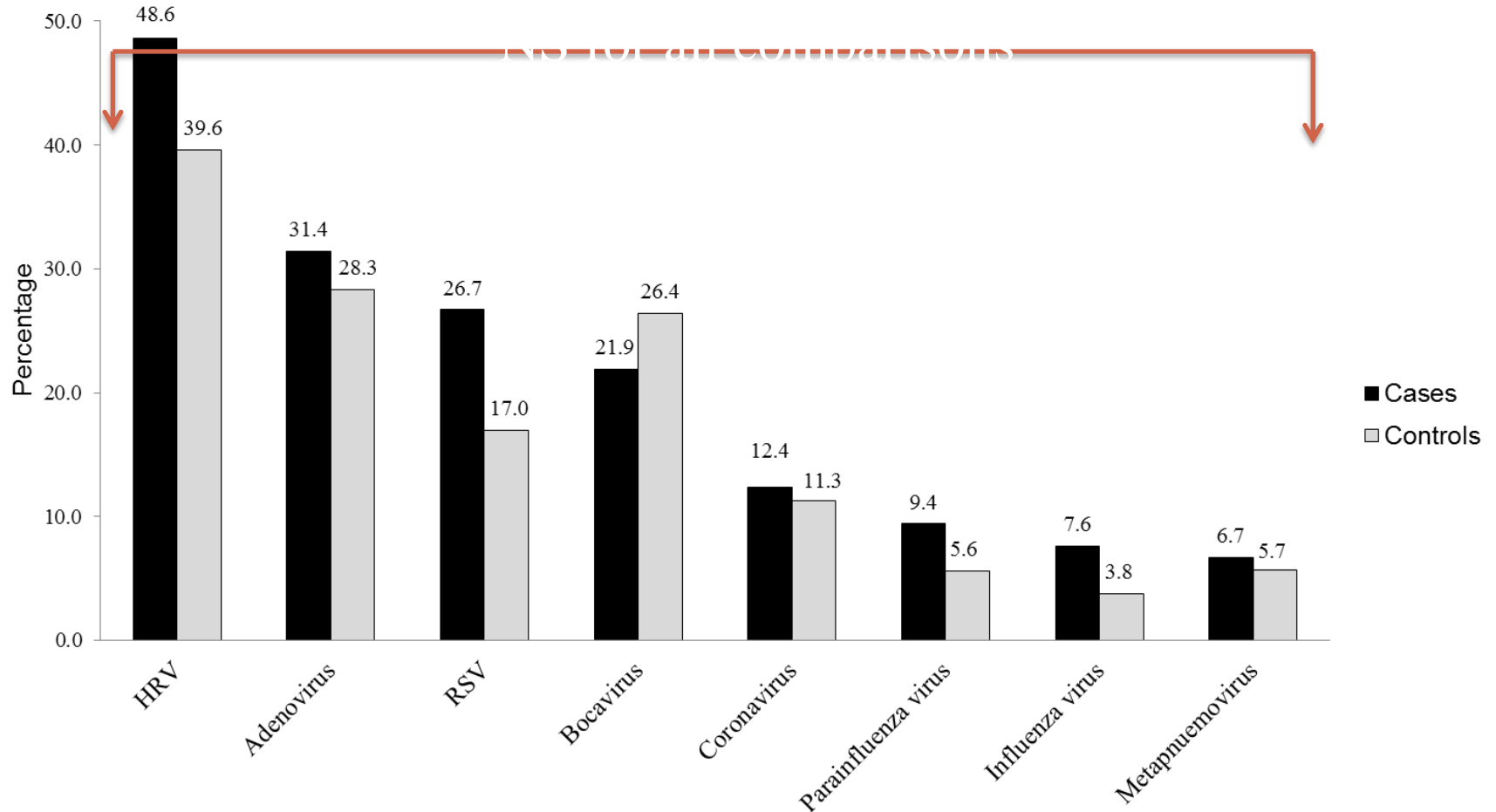
Peer reviewed. (Submitted: 2009-11-04, Accepted: 2010-02-03). © SAJEI

South Afr J Epidemiol Infect 2010;25(2):06-08

Table 2: Proportion of positive viral isolates by HIV status

Isolate	HIV		Fisher's exact test
	Positive	Negative	p value
RSV	33% (5/15)	53.9% (14/26)	0.330
Influenza virus	6.67% (1/15)	11.54% (3/26)	1.000
Parainfluenza virus	40% (6/15)	26.9% (7/26)	0.492
Adenovirus	20% (3/15)	11.54% (3/26)	0.651

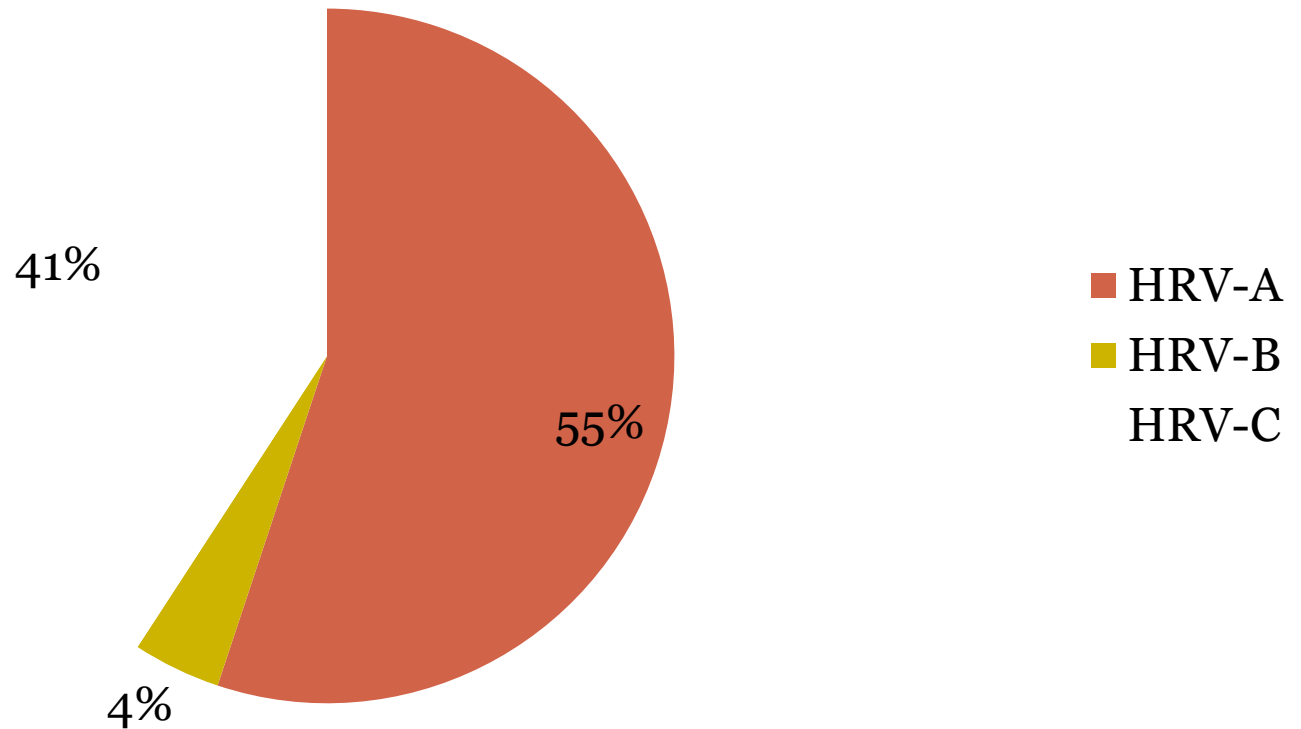
Viral Results



Respiratory viruses identified in nasopharyngeal aspirates of cases and controls (n=158)

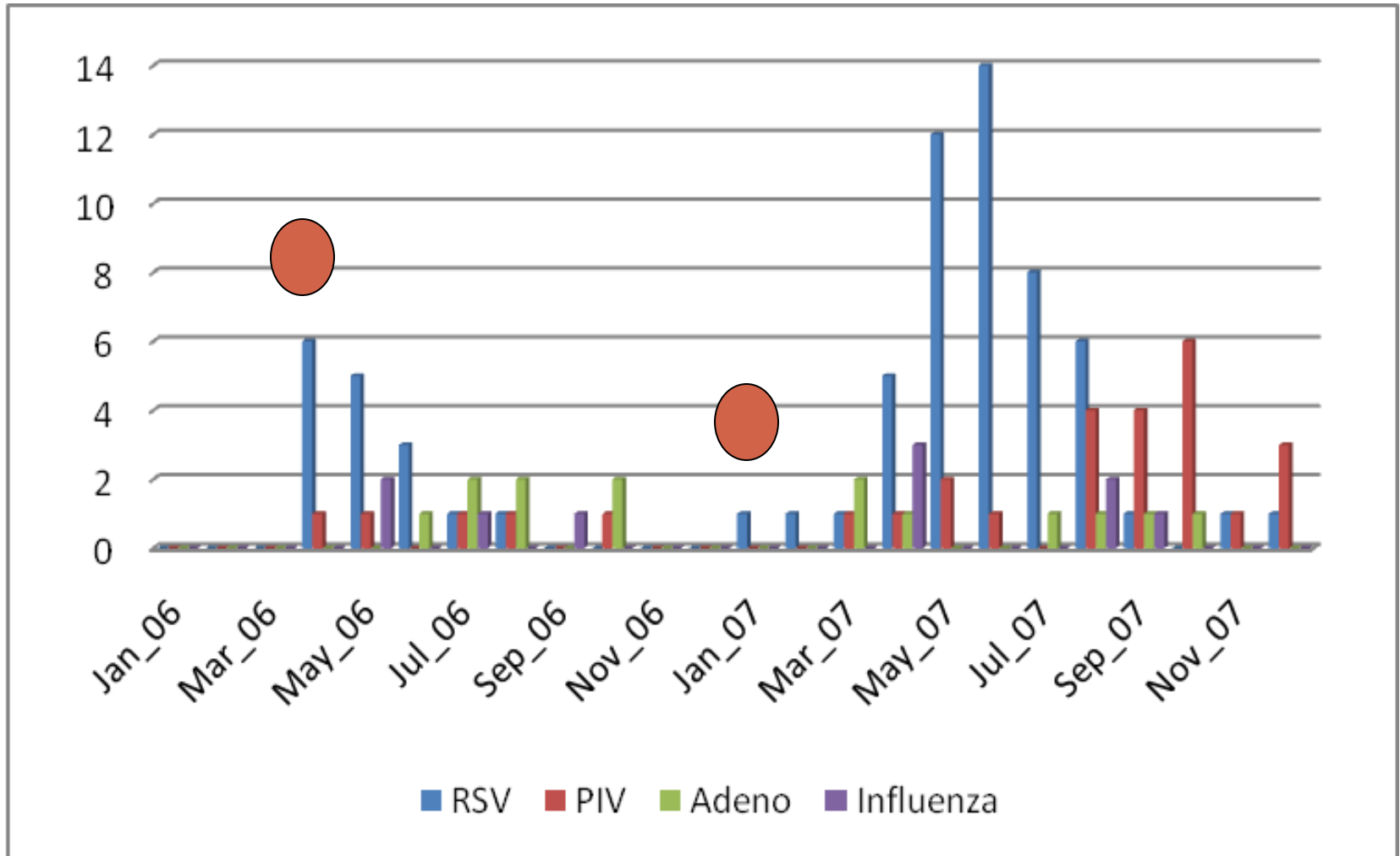
Abbott S, et al. SATS 2014.

HRV species identification (49 HRV positive NPAs)



Abbott S, et al. SATS 2014.

Viral Isolates Bronchiolitis - SBAH



Severe/Very Severe Pneumonia in Pretoria (67% HIV-infected)

	Ward	PICU
Age – Under 1 Year	79%	83%
Length of stay (days)	8.7	9.4
Cost – Our Hospital	R2 798.98 / R2 035.44	R4 939.40 / R2 364.10
Cost - Private	R13 830.20 / R10 530.00	R41 091.90 / R14 500.50

Demographics

	Cases n = 106 (66%)	Controls n = 54 (34%)	X² p value
Gender	71 (67%) male 35 (33%) female	31 (57%) male 23 (43%) female	0.234
Median age (months)	5.6	8	0.385
HIV positive	15 (14.9%)	2 (4%)	0.047

Abbott S, et al. SATS 2014.

The Bugs Causing Bacterial Pneumonia

- ***Streptococcus pneumoniae***
- *Haemophilus influenzae*
- *Staphylococcus aureus*



Cost of Preventing Pneumonia

Cost	HIV-infected (Worst case scenario)	HIV-infected (Best case scenario)	HIV- uninfected
All Preventative Strategies	R9 725.94	R2 389.31	R1 609.37

Preventative Strategies:

- HIV testing
- HAART/PMTC
- **Vaccines**

Is Prevention Better than Cure?

- **For every 1 dollar spent on prevention a cost saving:**
- **Non-HIV-infected:**
 - 1.7 dollars for children in the public sector
 - 17.1 dollars for children in the fee-for-service sector
- **HIV-infected children best case scenario (maternal HIV but with high CD4 count):**
 - 1.9 dollars for children in the public sector
 - 30.9 dollars for children in the fee-for-service sector
- **HIV-infected children whose mothers also require HAART during pregnancy (worst case scenario):**
 - 7.6 dollars for children in the fee-for-service sector
 - In the public sector this balance would translate into a 50 cent loss for every rand spent on prevention



PCP is a Disease of Co-morbidities

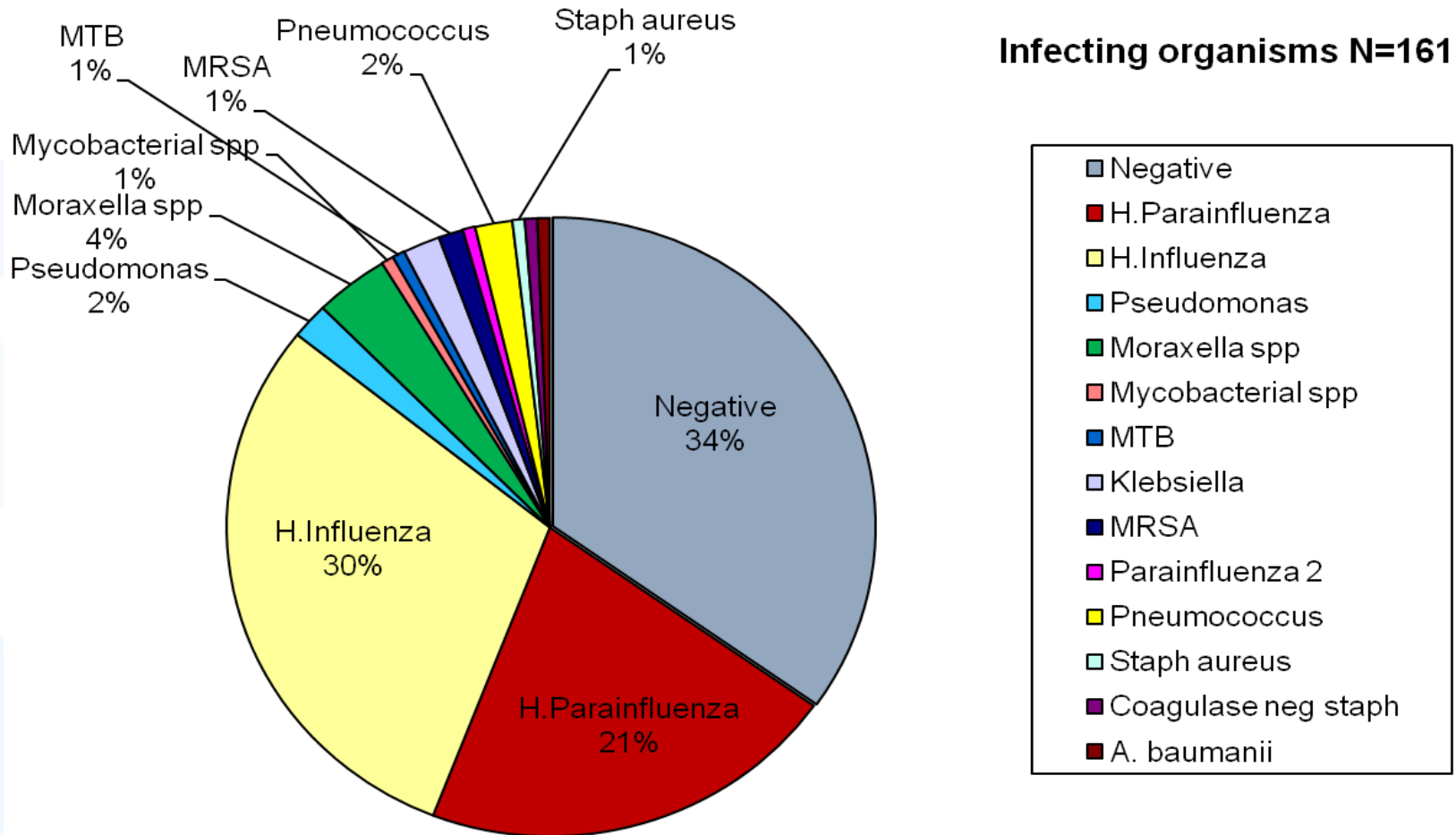
- CMV
- Other respiratory viruses
- Bacteria
- ? Other – TB, Fungi, Thrombo-embolic Disease

Pneumocystis Pneumonia - Data from SBAH

- Survival 70% in 2009
- Survival 82% in 2012

- Reasons for improved survival:
 - Lung protective ventilation
 - Oral steroids
 - Ganciclovir
 - Early ARV introduction

HIV-related Bronchiectasis



Only one viral identification of *Parainfluenza* type 2

Asthma Diagnosis

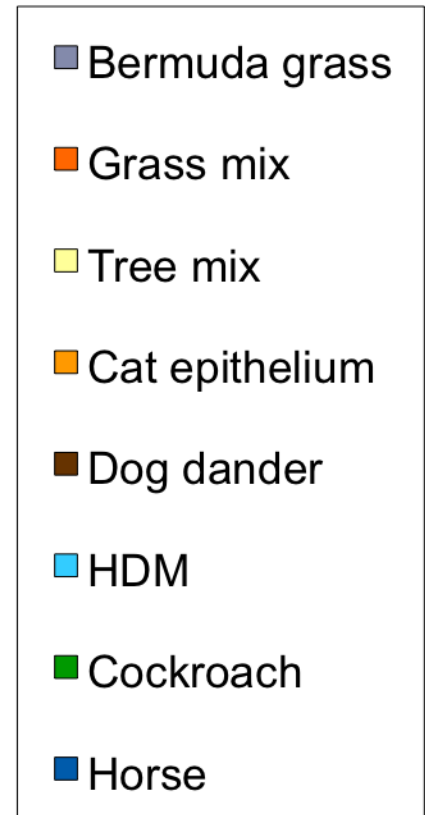
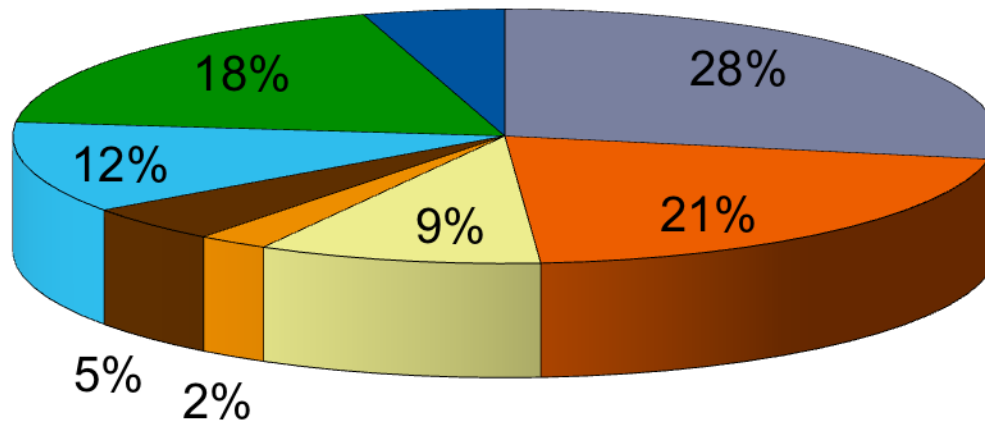
Features Suggestive of Asthma

- Wheezing more than 1x/ month (Evidence C)
- **Activity-induced cough or wheeze (Evidence A)**
- **Cough at night (Evidence A)**
- Absence of seasonal variation (Evidence B)
- **Symptoms persisting after the age of 3 years (Evidence A)**
- Symptoms worsening with certain exposures (Evidence B)
- Colds repeatedly going to the chest (Evidence B)
- Response to a bronchodilator (Evidence B)
- Response to a 10-day oral steroid course (Evidence B)
- Concomitant rhinitis, eczema or food allergies (Evidence B)
- Family history of allergy (Evidence B)
- **Response to a bronchodilators in children under 5 (FEV₁>12%, PEFR> (FEV₁>12%, PEF>20% of pre-bronchodilators PEF) (Evidence A)**
- **Diurnal variation of PEF >20% with twice daily readings (Evidence A)**

45% Asthmatic Children in Pretoria Atopic

Inhalant Allergens. % of positive tests

(Only 45 of 100 patients positive)



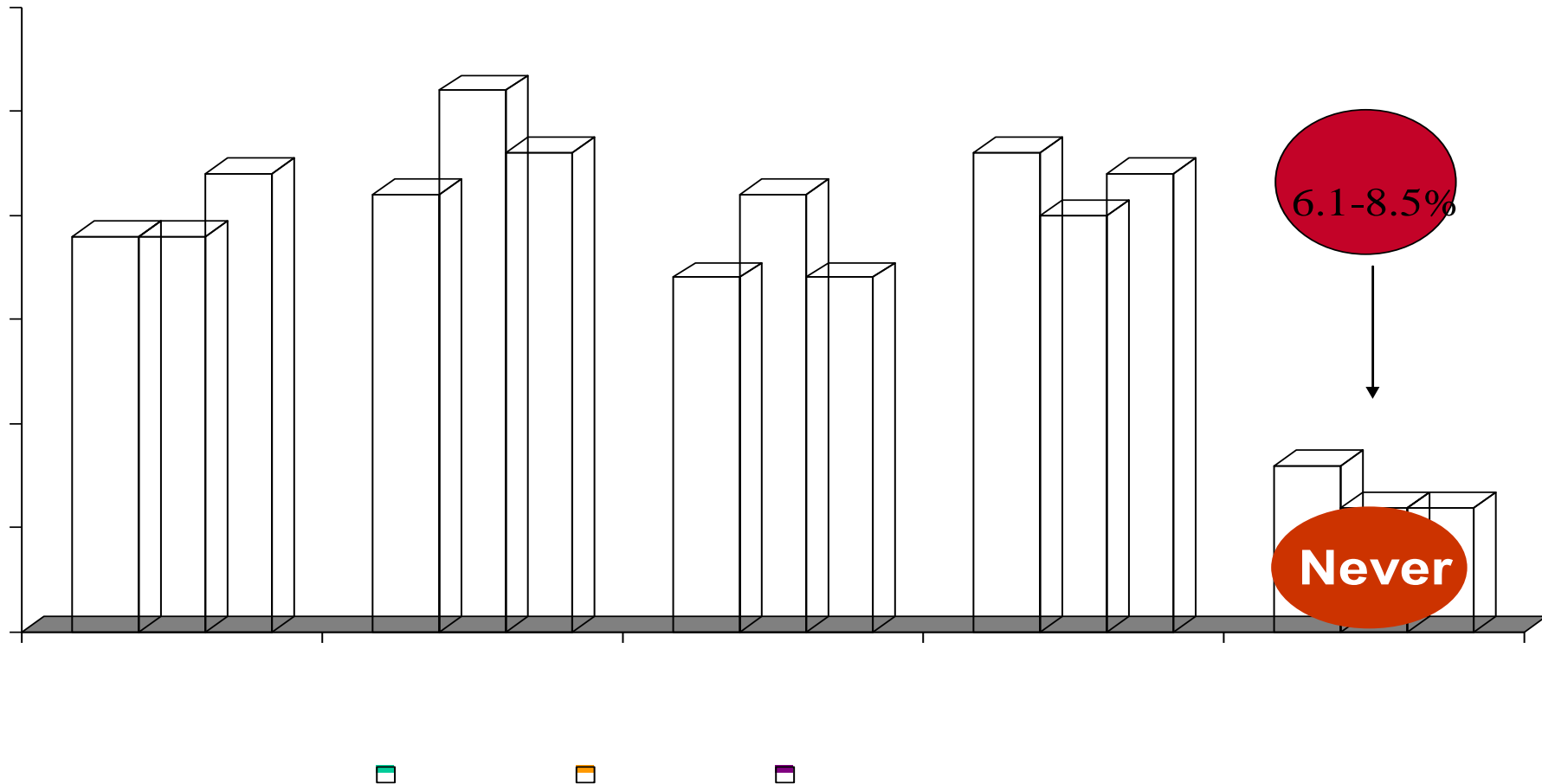
Diagnosing Asthma in Young children

Modified Bronchodilator Response Test :

Administer a bronchodilator to the child (via spacer or nebuliser) and assess the clinical response at 10 – 15 minutes

Bronchodilator and diary card over 2 weeks
Trial of oral corticosteroids for 7 – 14 days

Asthma symptom frequency amongst respondents in SA (n=710)⁶



3380 Individuals thought they had asthma

Conclusion

- Acute viral bronchiolitis IS COMMON
- Severe pneumonia IS COMMON
- Severe pneumonia IS COSTLY
- Severe pneumonia CAN BE PREVENTED
- Preventing severe pneumonia
IS COST EFFECTIVE
- Asthma isnt always allergic
- Asthma is badly managed

Thank You

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