# Management of wheeze in pre-school children

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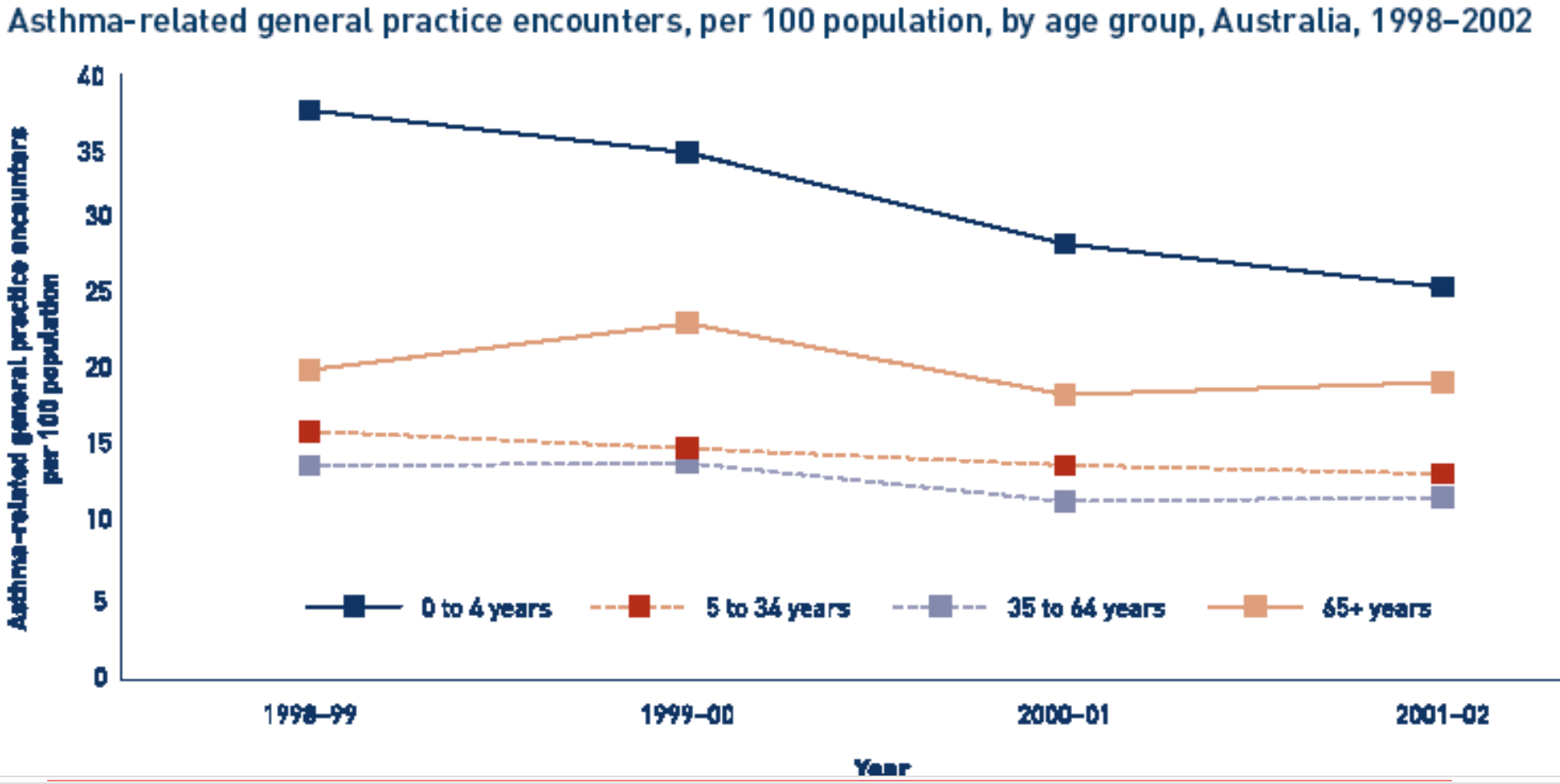
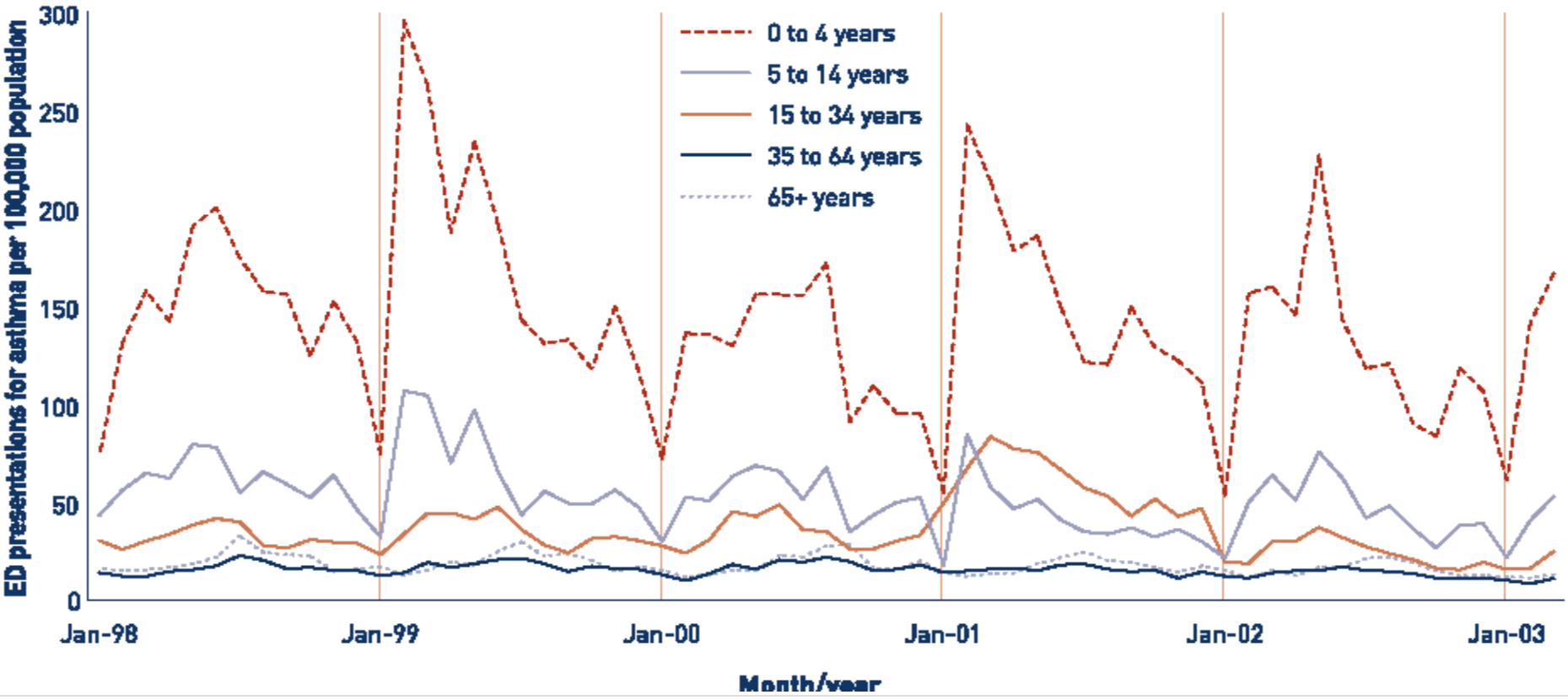
# General Practitioner encounters for asthma



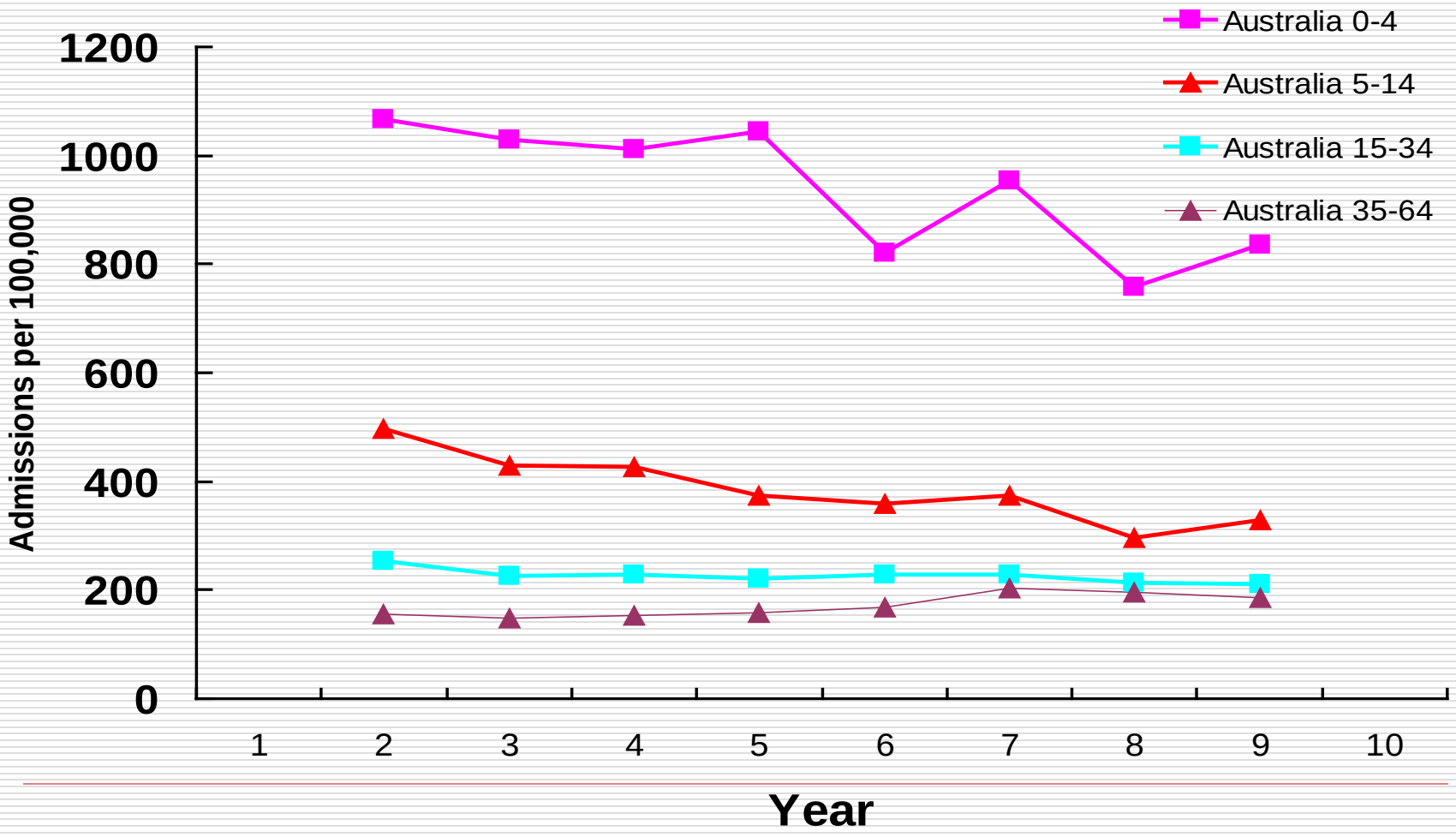

Asthma in Australia, 2003

# Emergency Dept attendances for asthma

Emergency Department presentations for asthma, per 100,000 population, by month and age group, New South Wales, January 1998 to March 2003



# Asthma admissions, Australia 1992-2002



- Is it asthma
- Approach to treatment
  - Acute episode
  - Regular treatment
- Outcome

# Differential diagnosis – pre-school years

- **bronchiolitis**
- **transient infant wheeze**
- **recurrent post infective cough**
- cystic fibrosis
- aspiration - $1^0$ or $2^0$
- cardiac failure
- structural abnormalities
- foreign body

# Transient infant wheeze

- approx 2/3 of recurrent infant wheezing
- reduced lung function in infancy
- no associated atopy
- no family history of atopic disease
- maternal smoking major risk factor
- unlikely to respond to asthma therapy
- resolves spontaneously by 2-3 years

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# Recurrent non-specific (post viral) cough

- common in pre-school children
- paroxysmal cough - asymptomatic between paroxysms
- night > day
- ↑ with exercise
- triggered by urti
- duration 2-4 weeks
- not associated with wheeze
- not responsive to asthma therapy

# Differential diagnosis – pre-school years

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# Temporal pattern of wheeze

Episodic (viral) wheeze

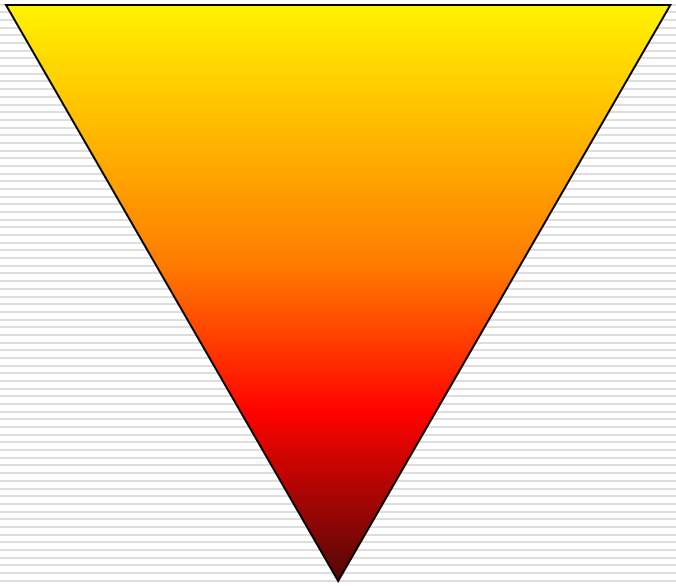
- Wheezing during discrete time periods, often in association with clinical evidence of a viral cold, with absence of wheeze between episodes

Multiple-trigger wheeze

- Wheezing that shows discrete exacerbations, but also symptoms between episodes

# Patterns of wheeze in children

- **intermittent ~ 75-85%**
  **(Episodic viral wheeze)**
- **persistent ~ 10-15%**



# Acute episodes of wheeze in the pre-school child

- Viral associated wheeze
  - independent of asthma
  - exacerbation of asthma

# Viral infection in wheezing exacerbations in children

- viruses identified in up to 85% of wheezing exacerbations, in children:
  - Rhinovirus, Coronavirus, Influenza virus, Parainfluenza virus, Respiratory syncytial virus (RSV)
- seasonal correlations between rates of upper respiratory tract infections (URTIs) and hospital admissions for asthma

**Johnston SL *BMJ* 1995**

**Pattemore PK et al. *Clin Exp Allergy* 1992**

# Viral associated wheeze - therapeutic options

- inhaled β – agonists
- inhaled corticosteroids
- oral corticosteroids
- oral montelukast

# Inhaled β – agonists

- pMDI and spacer
- children under 6 years 2-6 puffs
- frequency – up to 2 hourly as needed

# Inhaled corticosteroids

- doubling dose of regular ICS
  - not effective
- intermittent ICS at standard dose
  - not effective
- intermittent high dose
  - less effective than OCS, associated with side effects
- Not recommended

# Oral corticosteroids

- Parent initiated OCS (~1mg/kg)
  - ineffective in pre-school children
- Emergency dept OCS (~1mg/kg)
  - ineffective in pre-school children
- Cochrane review in older children
  - effective in dose of 2mg/kg prednisolone
- Recommended for episode severe enough to require admission to hospital
  - 2mg/kg initial dose, 1mg/kgtherafter

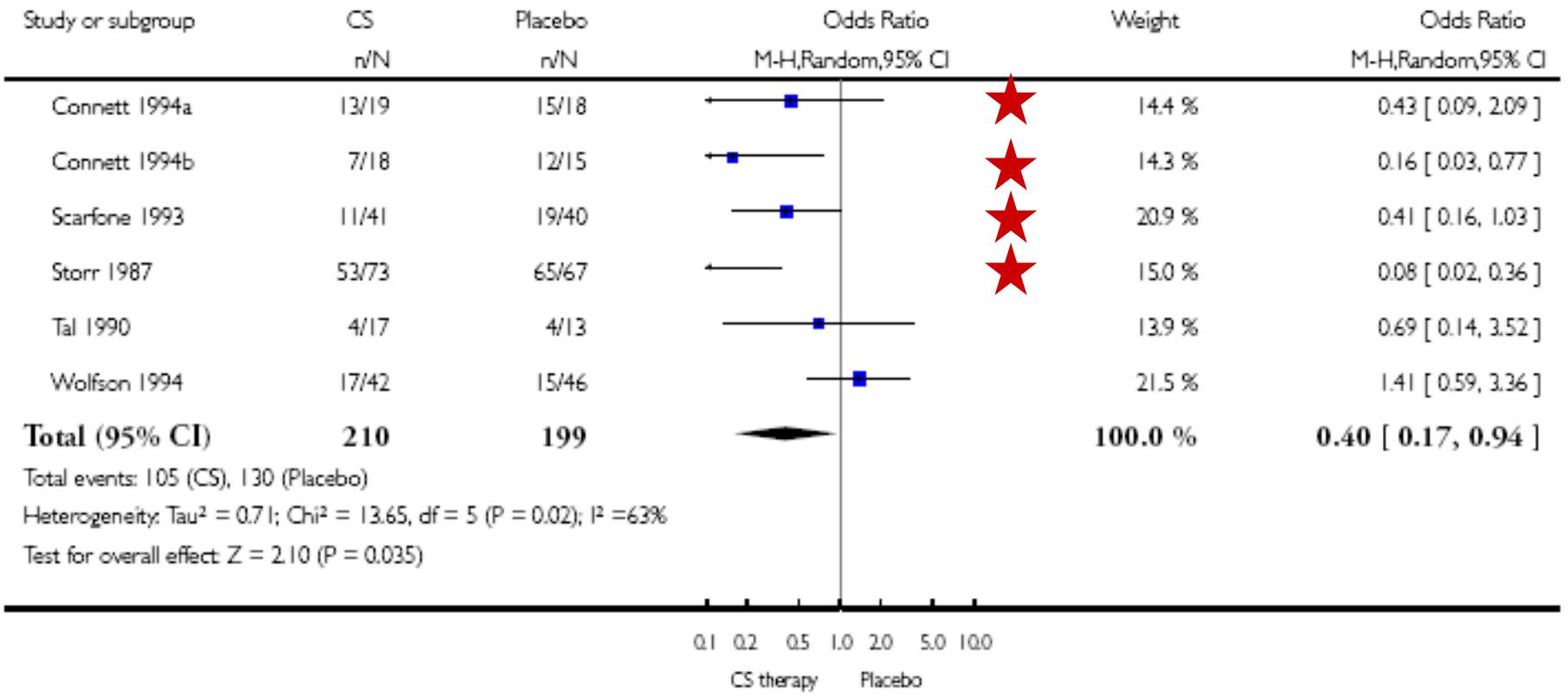
## Analysis 6.2. Comparison 6 Population, Outcome 2 Asthmatic Children Only.

Review: Early emergency department treatment of acute asthma with systemic corticosteroids

Comparison: 6 Population

Outcome: 2 Asthmatic Children Only

★ Placebo admission rate > 40%




Pred 2mg/kg or 30mg<5, 60mg >5, Methylpred 2or4mg/kg

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# Oral montelukast

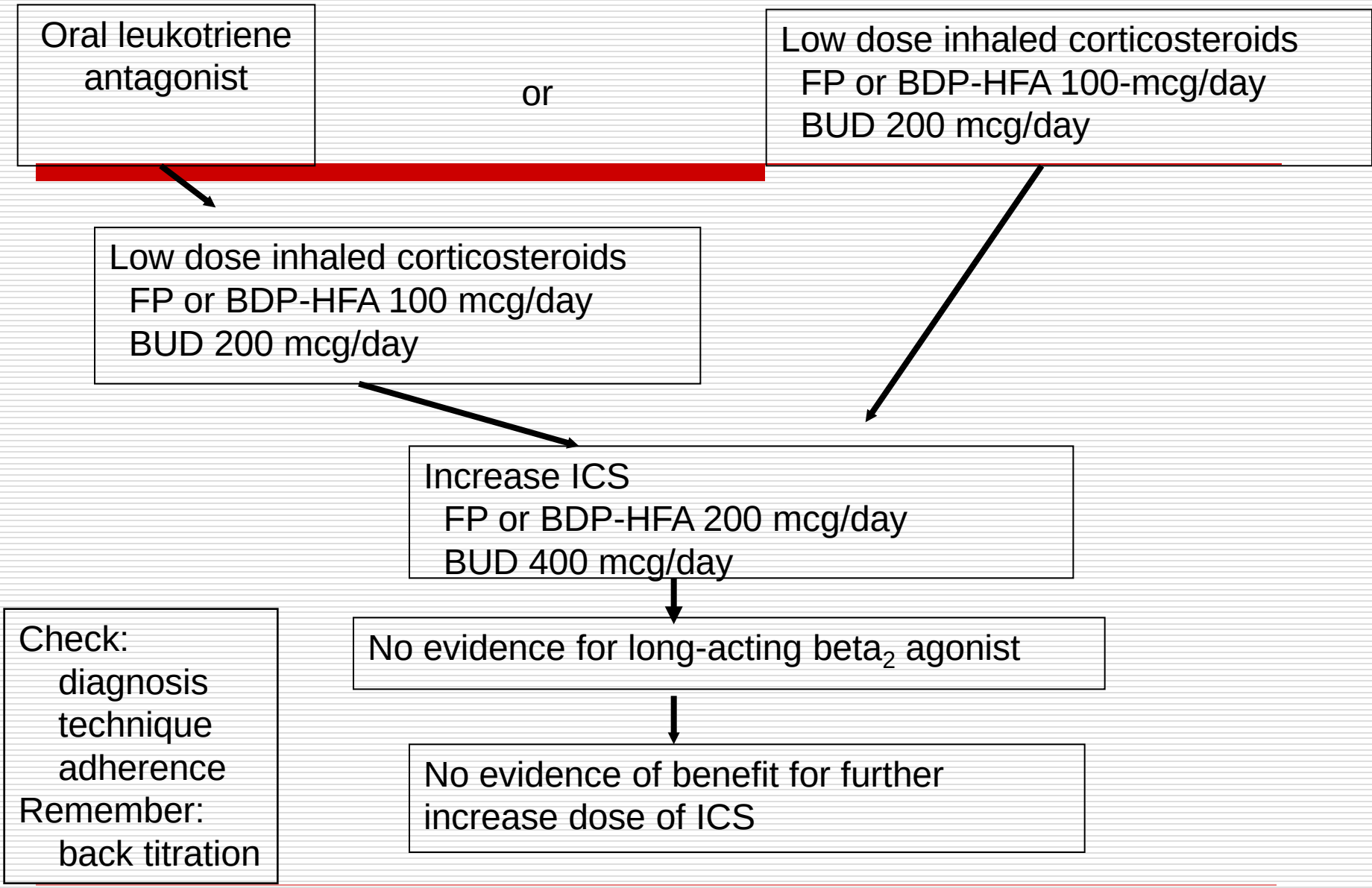
Intermittent use, commenced at the beginning of an episode

- reduces symptoms
- reduces health resource utilisation

# Approach to preventive therapy

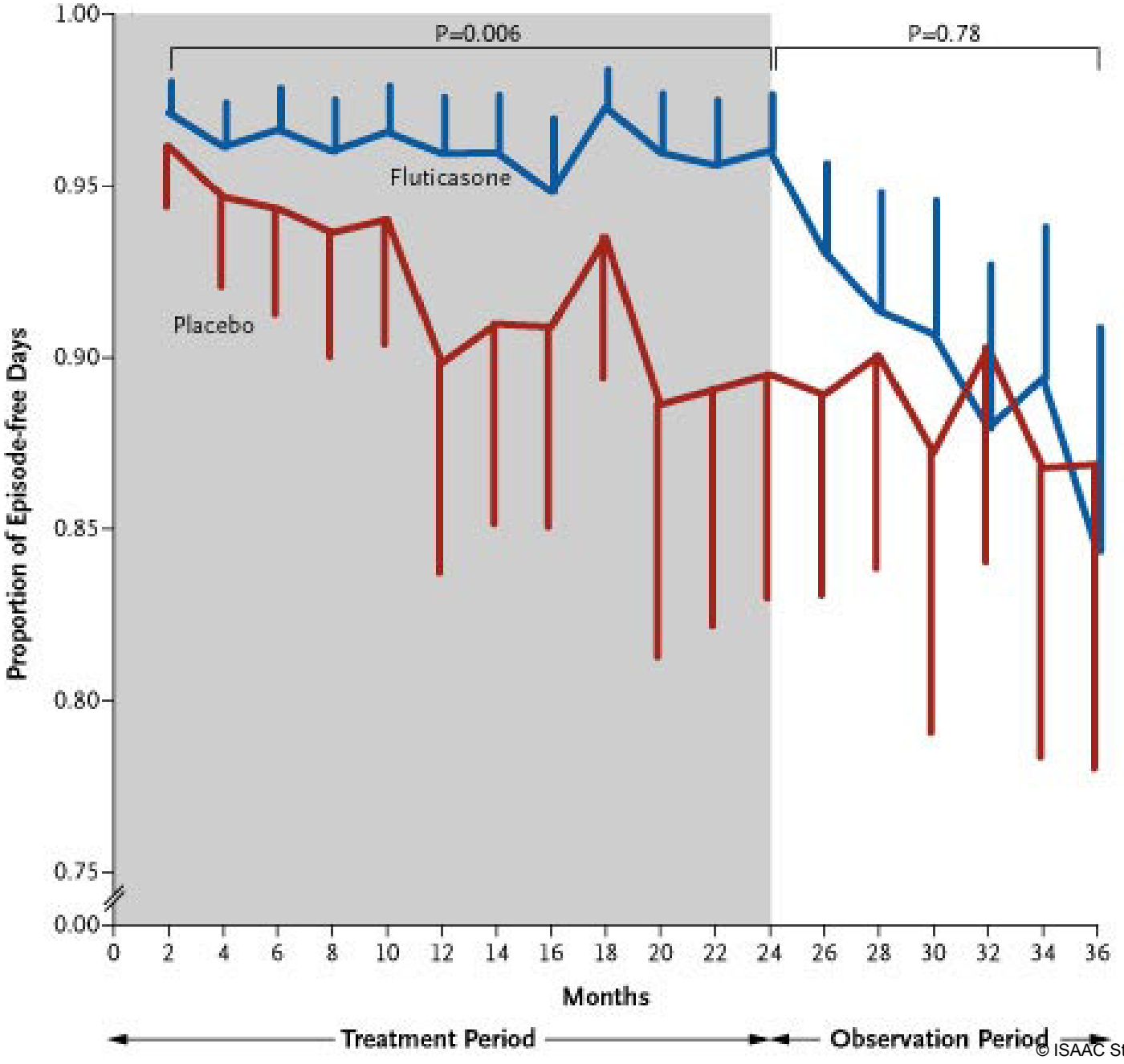
- indicated for children with persistent asthma or multi-triggered wheeze

# Approach to preventative therapy in pre-schoolchildren

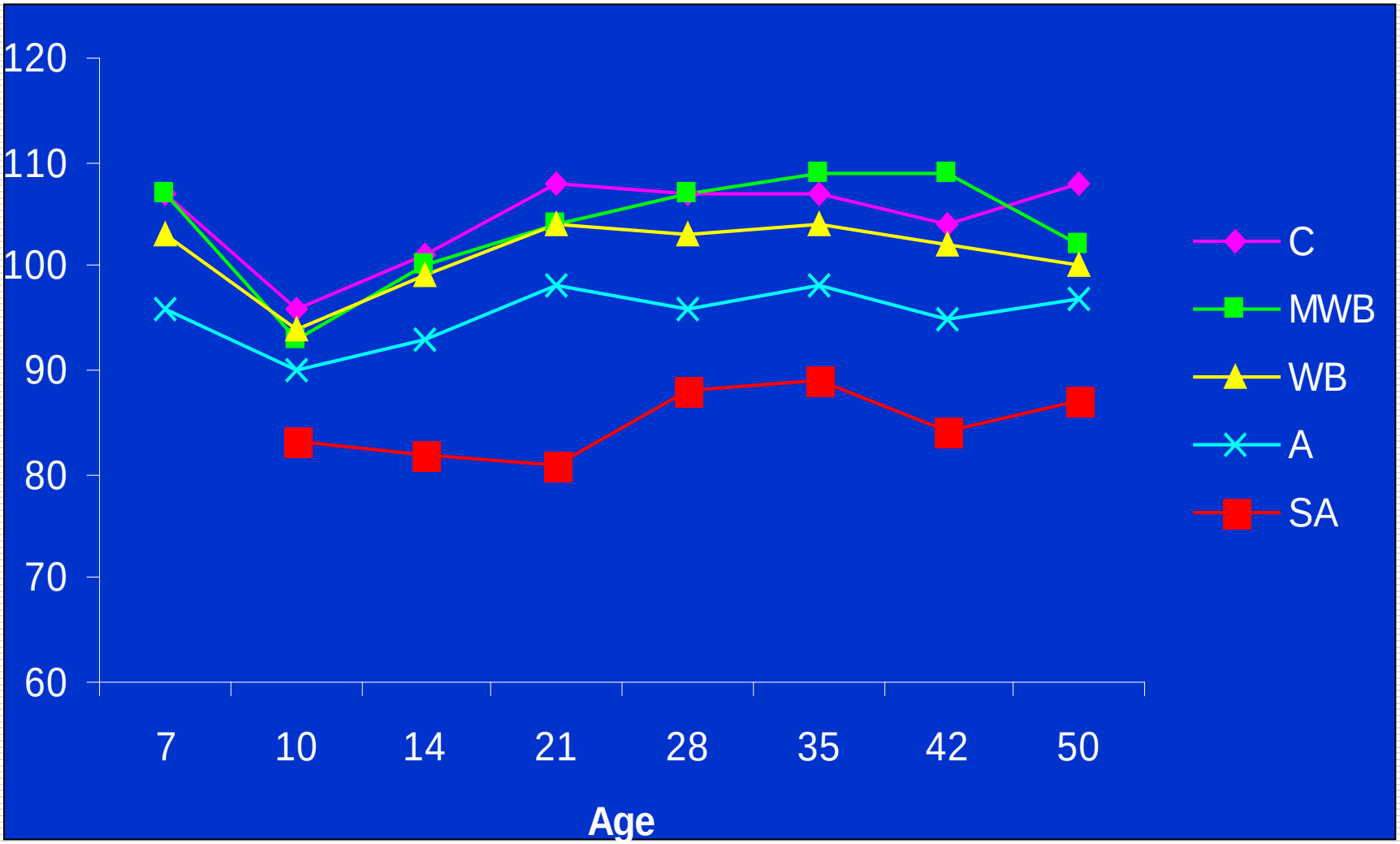


# PEAK study

- recruited at 2-3 years
- at high risk of developing asthma continuing through childhood
- randomised to FP 100ug bd or placebo for 2 years
- drug then stopped and child followed for a further year



# $FEV_1$ outcome over time to age 50



Thank you