

Psychological & Physical Stressors and Children's Respiratory Health

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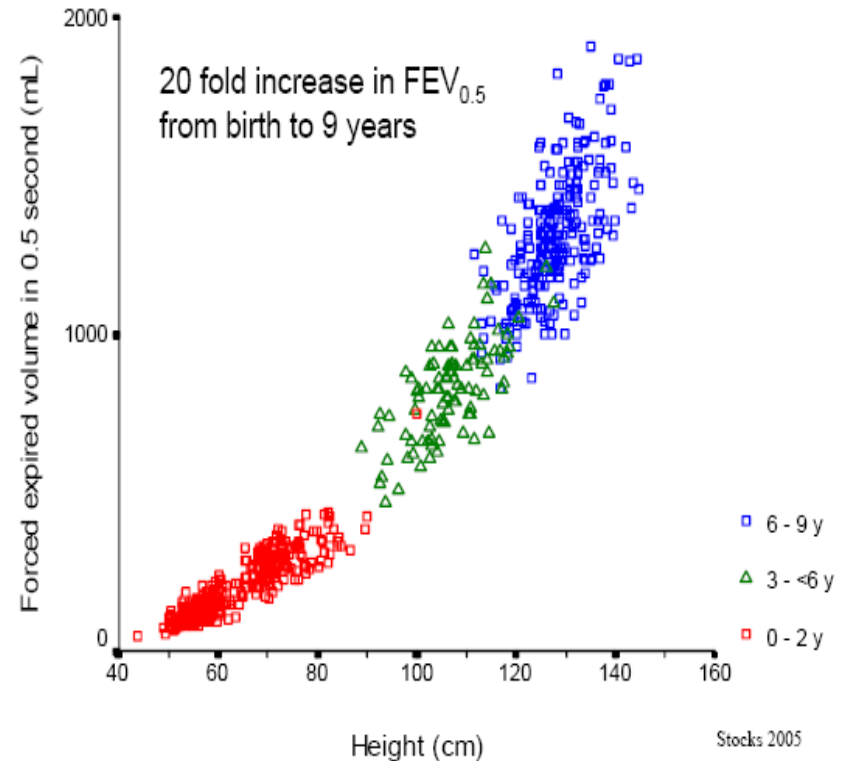
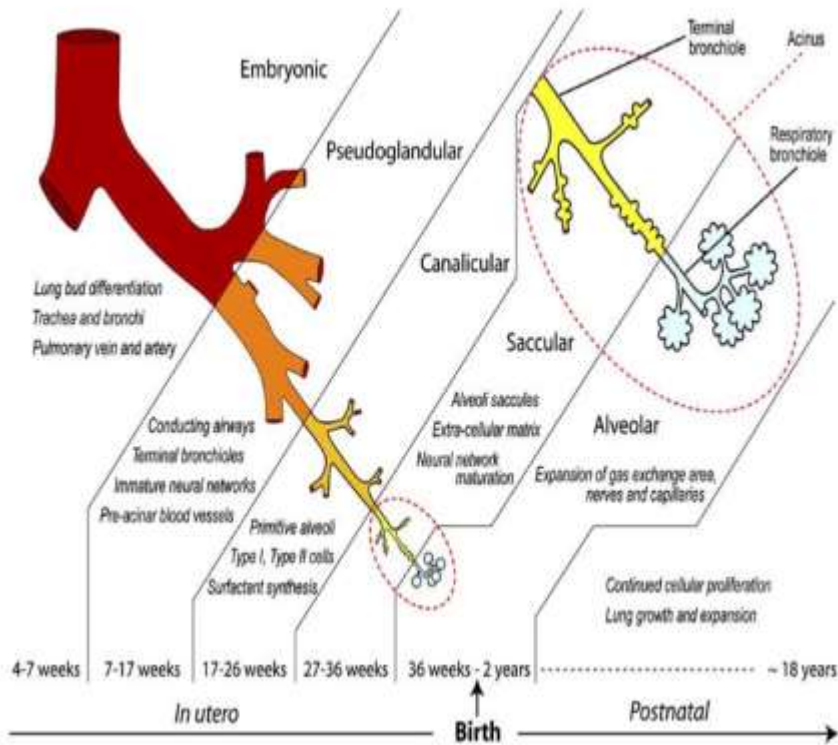
Icahn School of Medicine at Mount Sinai

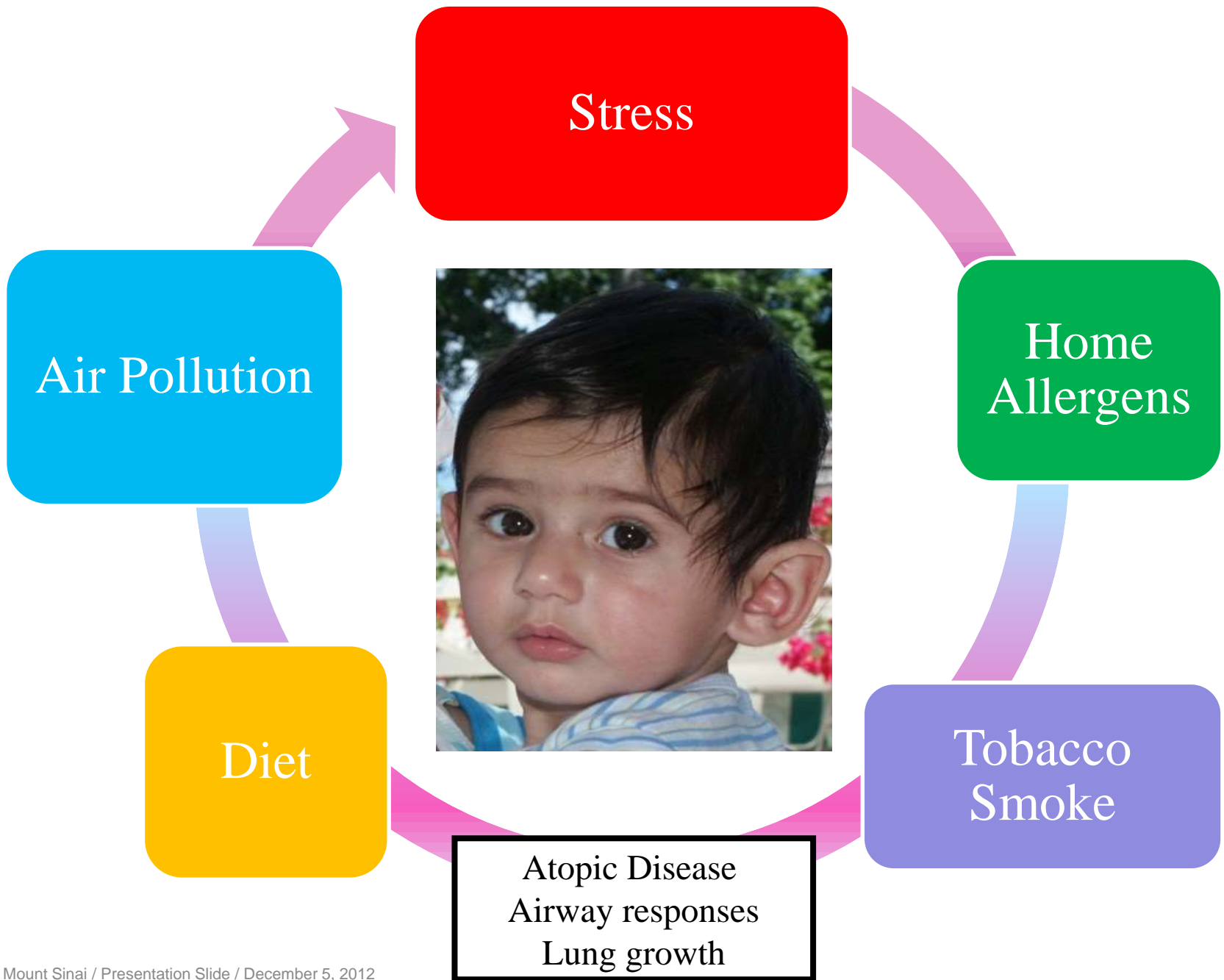


**Mount
Sinai**

*The Mindich Child Health
and Development Institute*

Rapid Growth and Development During Pregnancy & Early Childhood



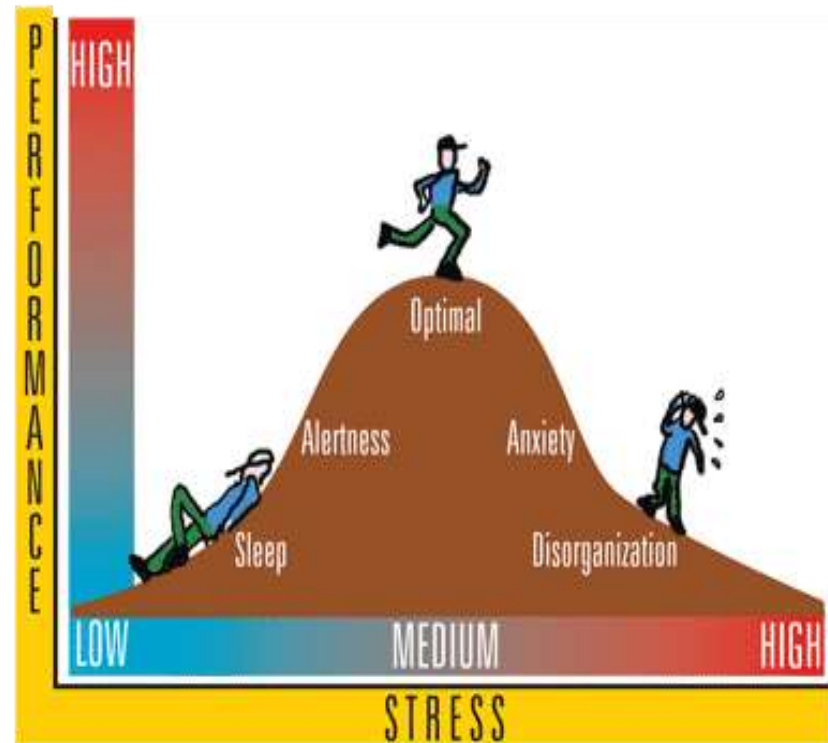


How does toxic stress get ‘into the body’ to impact respiratory health?

BIOLOGY OF STRESS

- ▶ The stress reaction is neither good nor bad in itself
- ▶ Stress is useful when it protects us in times of danger or helps us to adapt in times of change.
- ▶ Can be harmful when it overwhelms our ability to cope

Stress Performance Connection

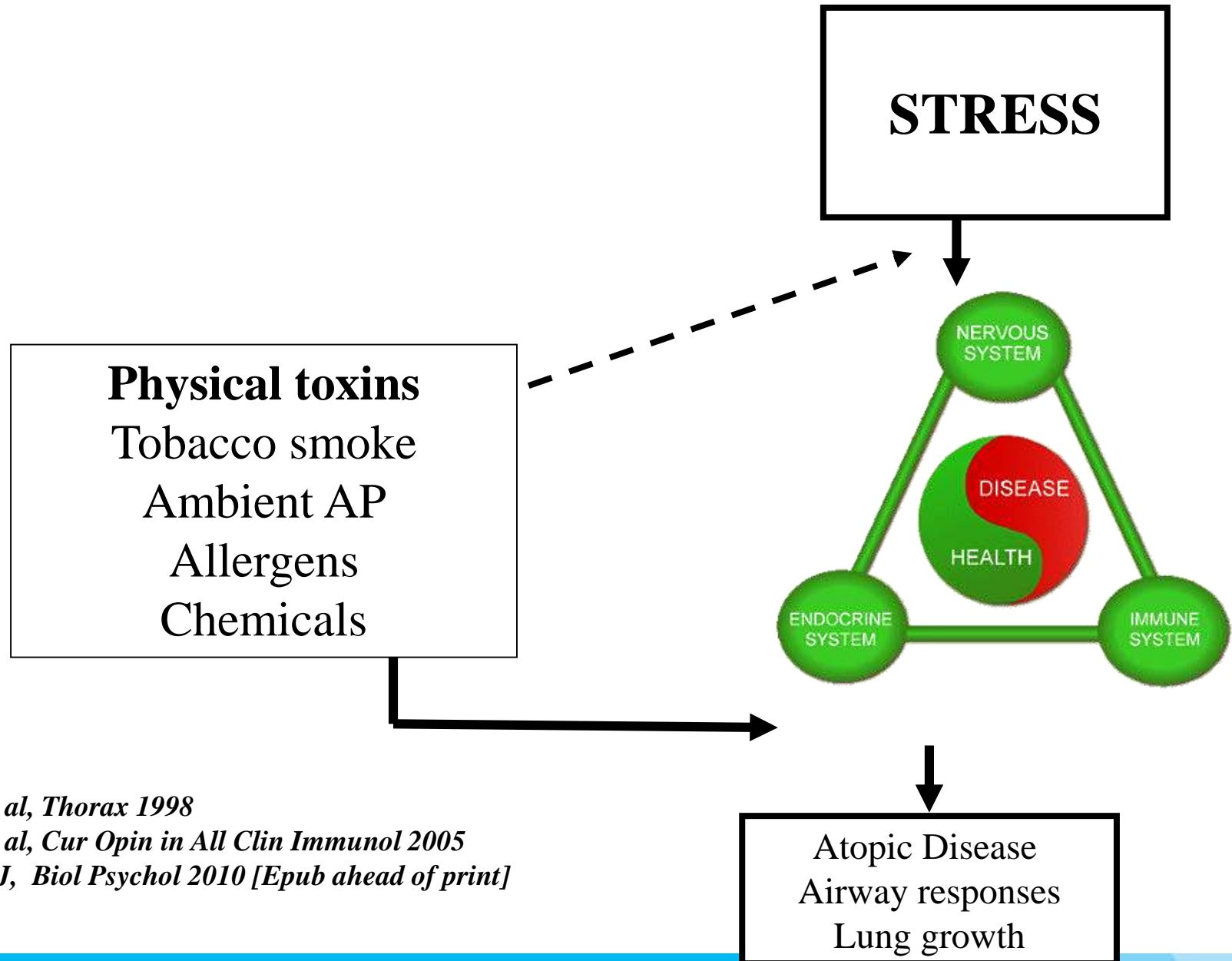


Wright et al, Thorax 1998

Wright et al, Cur Opin in All Clin Immunol 2005

Wright RJ, Biol Psychol 2010

Interactions



Wright et al, Thorax 1998

Wright et al, Cur Opin in All Clin Immunol 2005

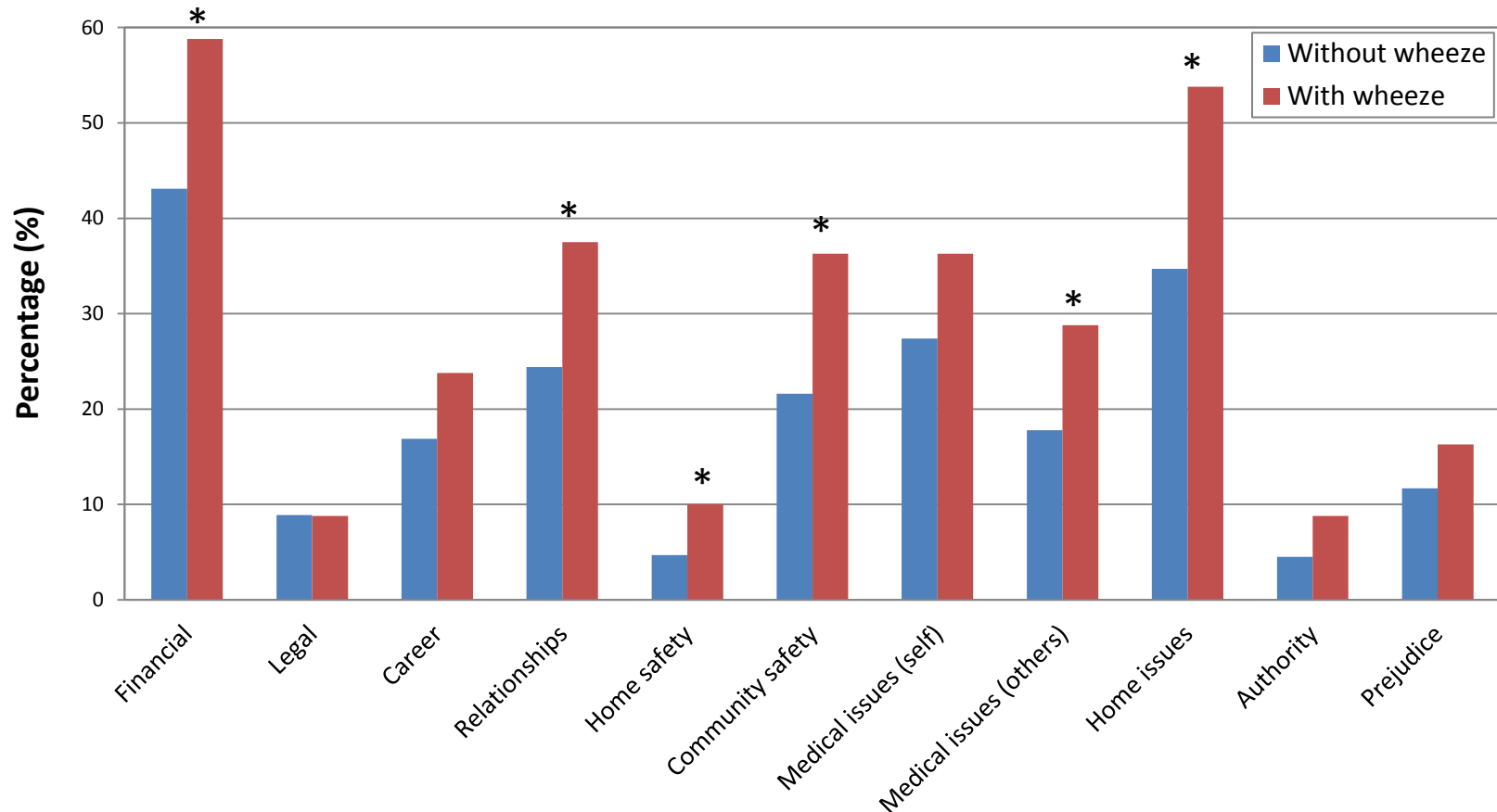
Wright RJ, Biol Psychol 2010 [Epub ahead of print]

**Independent impact of
psychological stressors?**

Many sources of stress

- ▶ Acute life events:
 - Recent life experiences (job loss, divorce)
 - Remote life experiences (trauma)
- ▶ Chronic strains:
 - Persistent life difficulties (financial strain)
 - Role strains
 - Racism / Discrimination (societal)
 - Community-wide strain / Ecologic level strain (e.g., community violence)

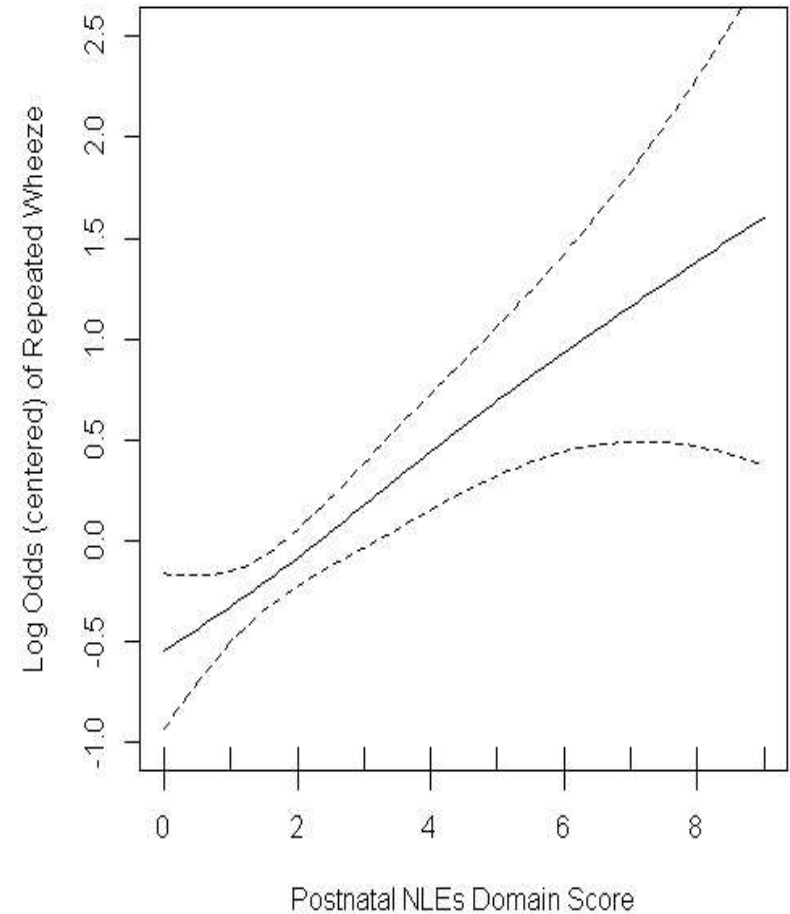
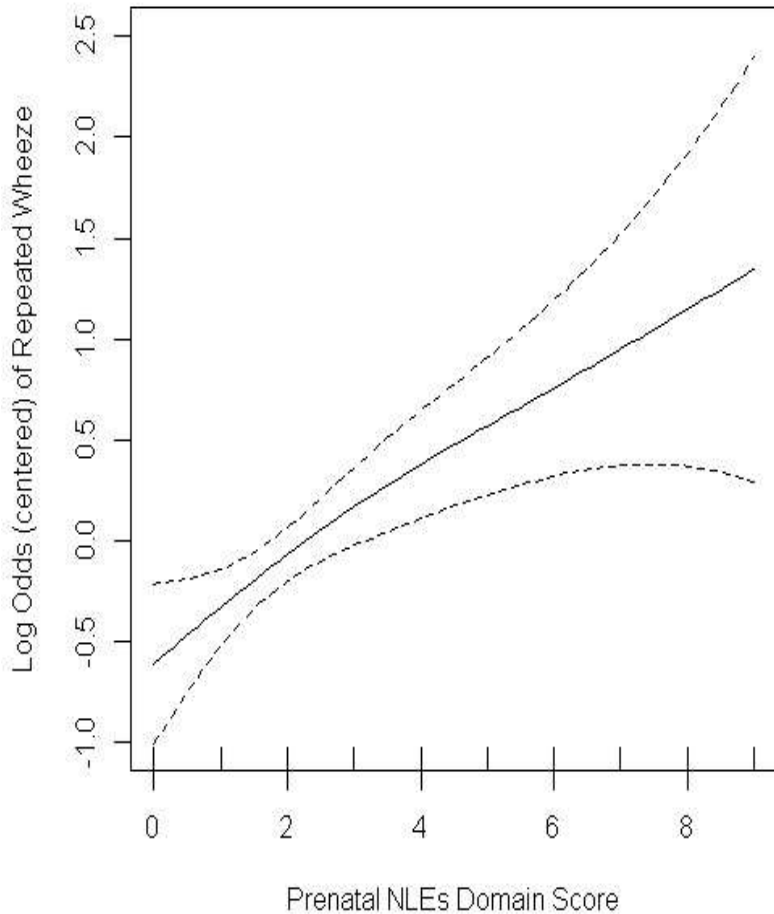
Maternal stress experienced across specific NLEs domains



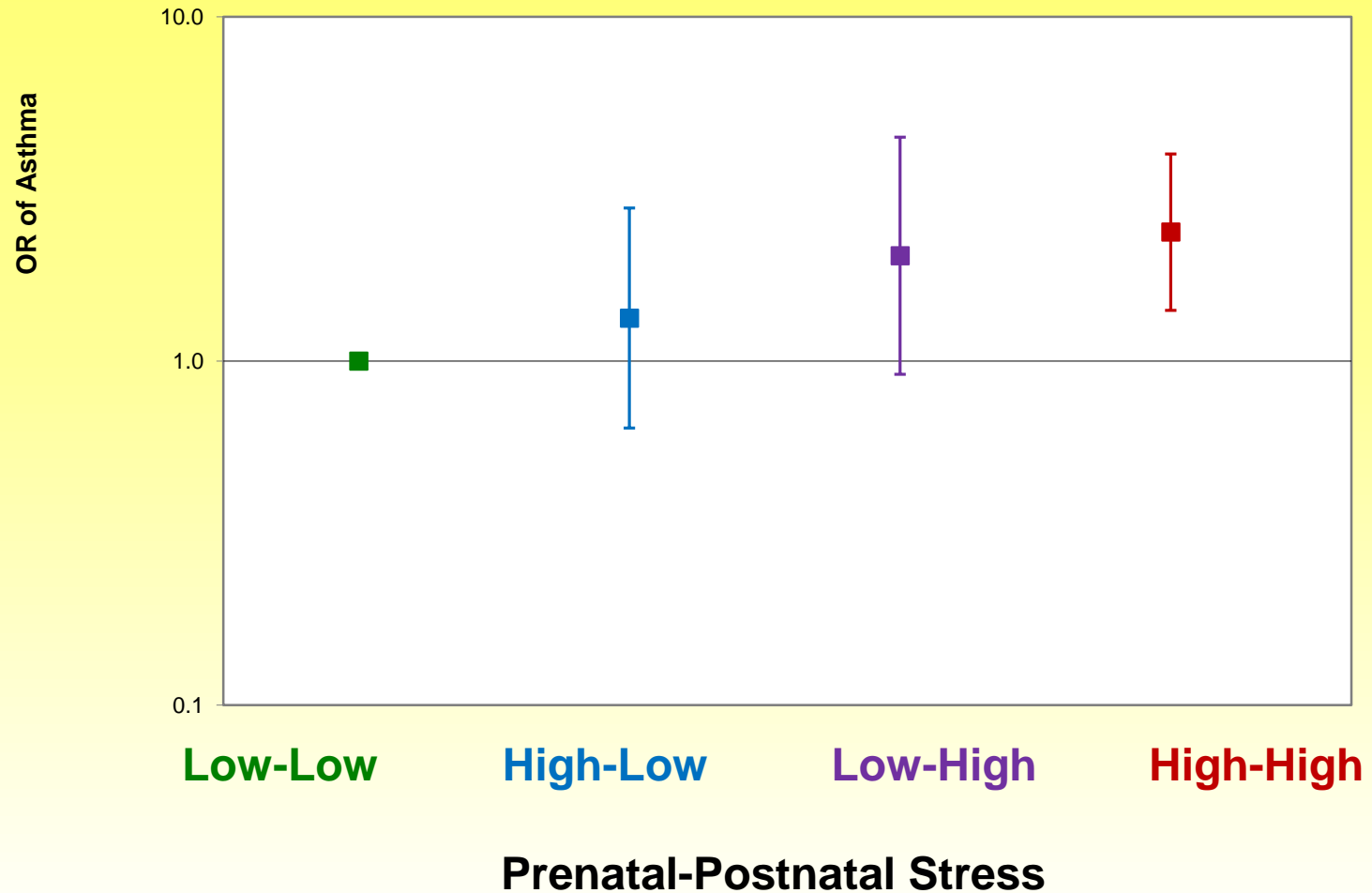
Prenatal Maternal NLEs Domains

* Denotes the p -value of unadjusted χ^2 test is <0.05

Maternal Stress and Child Repeated Wheeze: Dose-Response

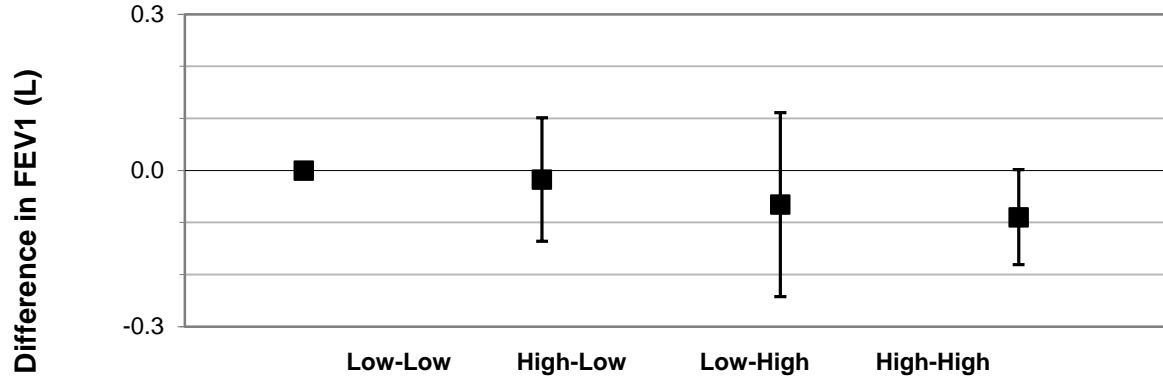


Pre-Postnatal Stress and Asthma by 6 years

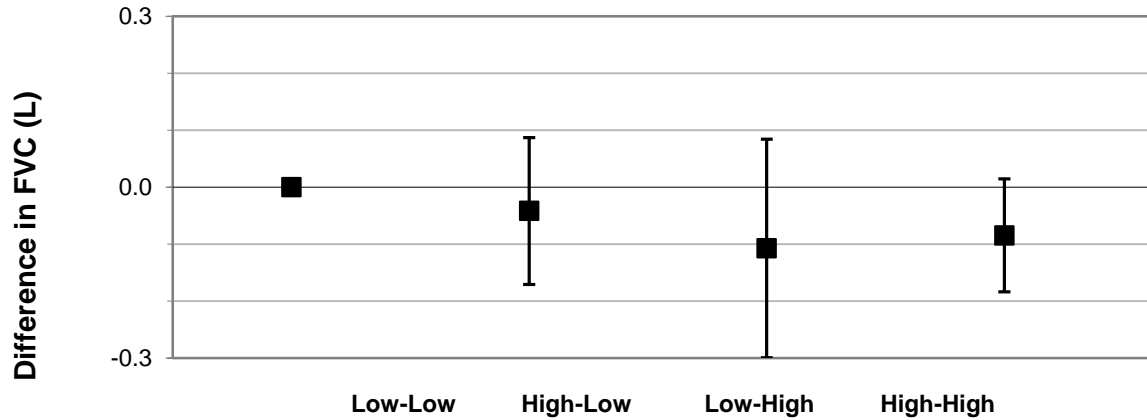


Pre/Postnatal Stress and Lung Function

Prenatal-Postnatal PM2.5 and FEV1



Prenatal-Postnatal PM2.5 and FVC



Prenatal-Postnatal Stress

Early life toxic stress is literally taking our breath away?

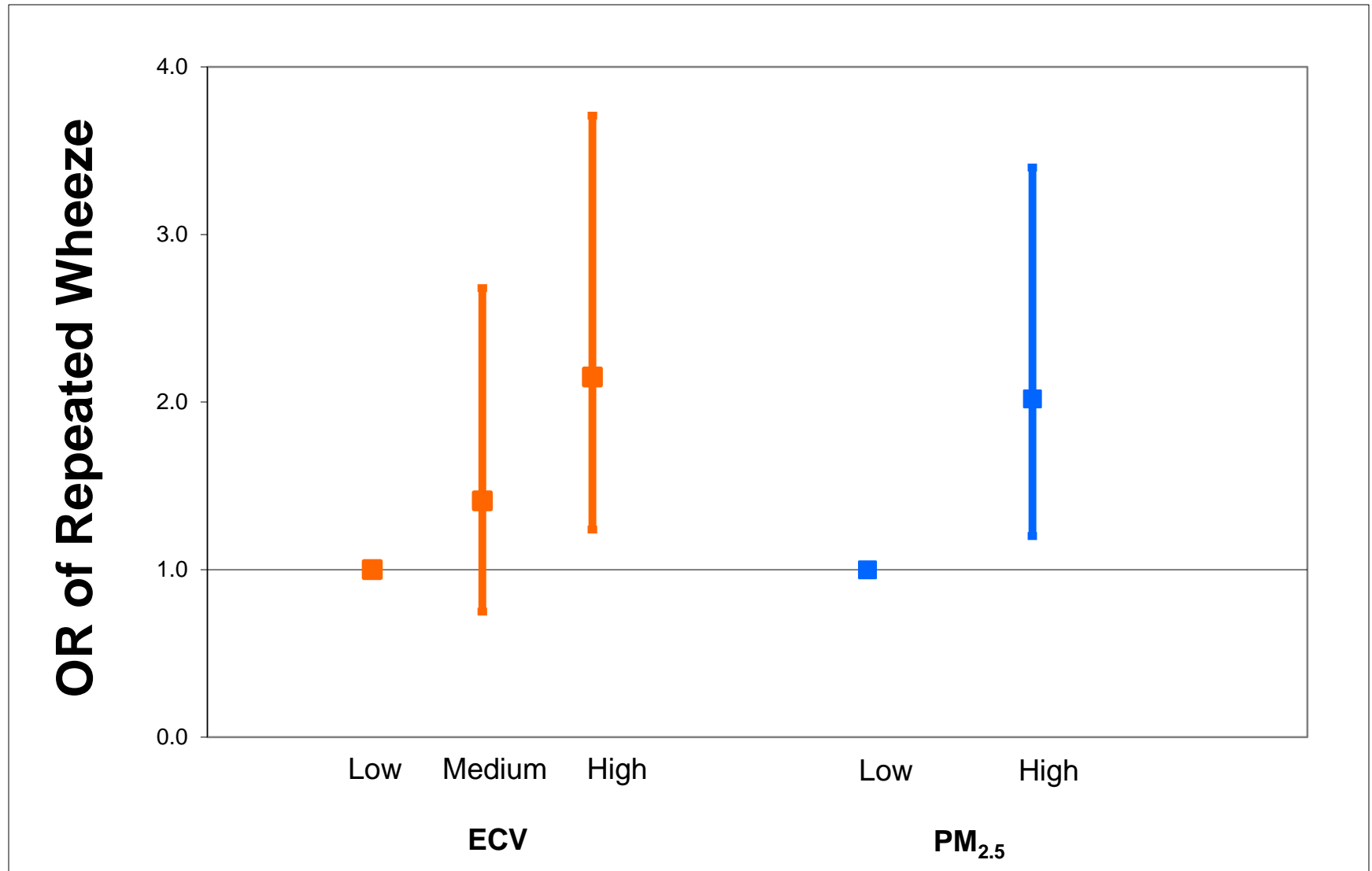


Family/Community Violence



**Children Reflect What They See –
Emotionally and Physiologically**

Prenatal Community Violence, TRAP (BC) and Repeated Wheeze



* Adjusted for gender, season of birth, maternal race, education level, atopy, and home cockroach allergen.

Interactions?

Psychological stressors enhance effects of chemical/physical toxins

Allergens and Prenatal NLEs

Peters J, et al., Allergy 2012; 67:545-51.

Air Pollution and Community Violence

Chiu Y-HM, et al., JACI 2014, 133:713-22.



Sensitive, responsive, supportive care “buffers” or protects young children from experiencing elevated stress hormone levels

As quality of care decreases, young children become highly stress vulnerable



Buffering effect of nurturing parenting/caregiving environment

Maternal Intimate Partner Violence and Increased Asthma Incidence in Children
Buffering Effects of Supportive Caregiving

Shakira Franco Suglia, MS, ScD; Michelle Bosquet Enlow, PhD; Antje Kullowatz, PhD; Rosalind J. Wright, MD, MPH

Arch Pediatr Adolesc Med 2009; 163:244-50.