

Children's Mercy Kansas City

## SHARE @ Children's Mercy

---

Research Days

GME Research Days 2020

---

May 14th, 11:30 AM - 1:30 PM

### Maternal Education and Cockroach Sensitization in Asthmatic Children

Jessica S. Van Mason  
jvanmason@cmh.edu

Ryan Allenbrand  
rnallenbrand@cmh.edu

David Williams  
ddwilliams@cmh.edu

Kevin Kennedy  
kkennedy@cmh.edu

Salman Aljubran  
saaljubran@cmh.edu

Follow this and additional works at: <https://scholarlyexchange.childrensmercy.org/researchdays>



Part of the [Environmental Public Health Commons](#), [Pediatrics Commons](#), and the [Respiratory Tract Diseases Commons](#)

---

Van Mason, Jessica S.; Allenbrand, Ryan; Williams, David; Kennedy, Kevin; and Aljubran, Salman, "Maternal Education and Cockroach Sensitization in Asthmatic Children" (2020). *Research Days*. 16.  
[https://scholarlyexchange.childrensmercy.org/researchdays/GME\\_Research\\_Days\\_2020/researchday4/16](https://scholarlyexchange.childrensmercy.org/researchdays/GME_Research_Days_2020/researchday4/16)

This Poster Presentation is brought to you for free and open access by the CONFERENCES, EVENTS, GRAND ROUNDS at SHARE @ Children's Mercy. It has been accepted for inclusion in Research Days by an authorized administrator of SHARE @ Children's Mercy. For more information, please contact [library@cmh.edu](mailto:library@cmh.edu).

# Maternal Education and Cockroach Sensitization in Asthmatic Children

Jessica Van Mason, MD; Ryan Allenbrand, MS; David D. Williams, MPH; Kevin Kennedy, MPH; Salman Aljubran, MD

Children's Mercy Kansas City; University of Missouri- Kansas City

## RATIONALE

- Environmental allergies are a trigger for allergic asthma.
- Sensitization to pests, such as cockroaches, is associated with more acute asthma visits.
- Our goal: To evaluate how various social determinants of health, particularly maternal education, were associated with sensitization to pests in asthmatic children.

## METHODS

- Children's Mercy Kansas City's environmental health department collected data during home assessments for families with asthmatic children.
- Demographics collected included household income, maternal education, and type of insurance.
- Maternal education level was categorized as less than high school, high school, college, and graduate.
- 167 participating families had maternal education level and German cockroach IgE values.

## METHODS

- A Tobit regression model was developed that left-censored patients with IgE values <0.35 ku/L, which was the lowest limit of detection.
- For this model, the dependent variable, German cockroach IgE, was used to measure sensitization to pests.
- Independent variables included income, mother's education, insurance, and home allergen levels for Alternaria (mold), cockroach, and mouse.

Variable	Coef.	Std. Err.	(95% Conf. Interval)	
Income	3.84	2.86	-1.88	9.56
Mother's education	<b>-3.38</b>	1.45	-6.29	-.47
Insurance	.05	1.88	-3.71	3.81
Alternaria mold allergen level	.14	.10	-.06	.34
Cockroach allergen level	-1.34	3.33	-8.00	5.33
Mouse allergen level	-.16	.95	-2.07	1.74

## RESULTS

- Detectable cockroach and mouse allergen levels were in 69 homes.
- German cockroach IgE values ranged from 0.42 to 26.4 ku/L.
- For each increase in maternal education level, the expected German cockroach IgE was 3.38 ku/L lower than values from homes with less maternal education, holding all other variables constant (p=0.024).
- Cockroach sensitization was seen to a greater degree for homes with lower reported maternal education level.

## CONCLUSIONS

- Data suggests association between home environment and maternal education level, which may impact health of asthmatic children.
- Larger prospective studies minimizing study dropouts are warranted.