



# Changes in Prevalence with Different Definitions of a “Positive” Skin Test

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## Abstract

**Rationale:** Although the American Academy of Allergy, Asthma and Immunology (AAAAI) and the American College of Allergy, Asthma and Immunology (ACAAI) suggest that a prick/puncture test with a response of at least 3 mm diameter more than diluent control indicates the presence of cutaneous allergen specific IgE, different definitions of a “positive” skin test are common.

**Methods:** Trained, certified coordinators collected skin test data from 1,889 participants (age 6 to 20 years) across 3 Inner-City Asthma Consortium (ICAC) studies, including 10 inner-city U.S. sites. We evaluated the prevalence of a positive skin test for 16 aeroallergens across a range of wheal size cut points (1mm – 10 mm), with and without subtracting the negative control wheal size.

**Results:** Across 16 allergens examined, 39.6% of the wheals were ≥ 3 mm before subtracting negative control and 34.4% were ≥ 3 mm after adjustment for negative control, a drop of 5.2%. Cladosporium showed the largest decrease after adjustment for negative control, dropping from 28% to 21% and Juniper showed the smallest decrease (< 1% difference). Without adjustment for negative control, 46.1% of the wheals were ≥ 1mm and 23.1% were ≥ 5 mm.

**Conclusions:** The various definitions that exist for a positive skin test significantly influence observed prevalence. Consistent adjustment for negative control is of particular importance. Greater adherence to the AAAAI and ACAAI guidelines will allow for easier comparison among studies.

**Study Population**  
2266 inner-city children and adolescents from 3 ICAC studies who completed skin prick testing for a panel of 12 aeroallergens during their baseline visit.

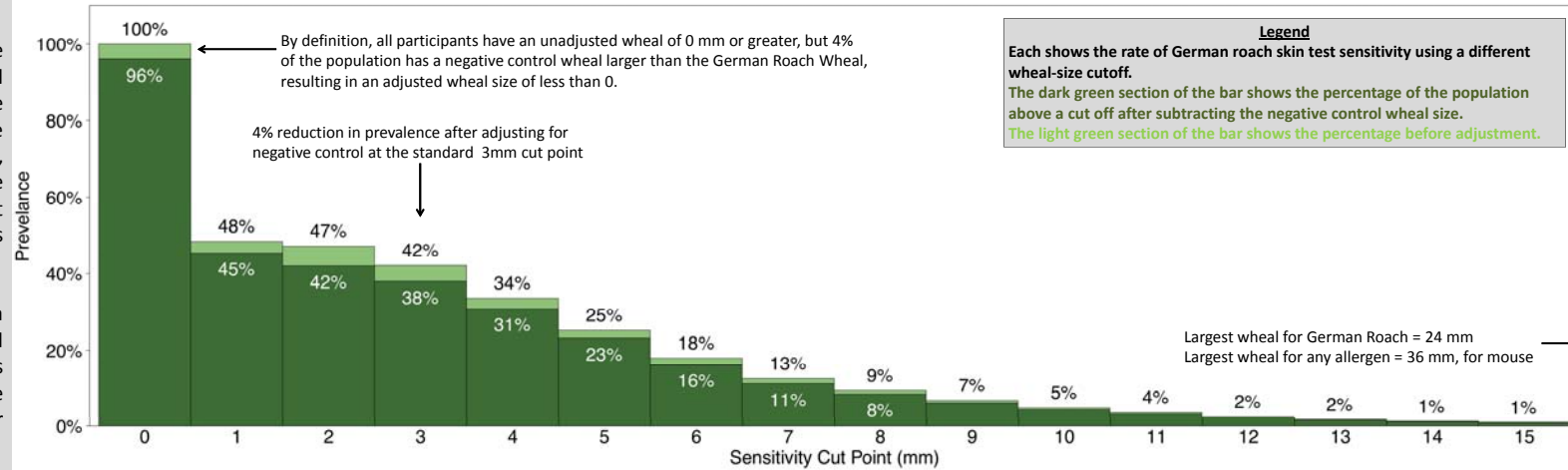
## Population Summary

	N (%)
Study	
ACE	419 (18%)
ICATA	531 (23%)
RACR	1316 (58%)
Gender	
Male	1271 (56%)
Female	995 (44%)
Race	
Black	1383 (61%)
Hispanic	723 (32%)
Other	160 (7%)

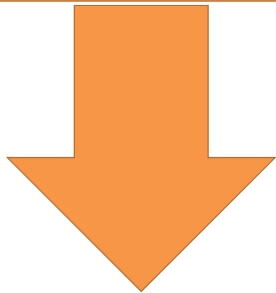
	N (%)
Age	
5-12	1317 (58%)
13-18	949 (42%)
BMI	
0 – 25	1565 (69%)
25 – 30	371 (16%)
30 +	330 (15%)
Atopy (of 12 Tests)	
0-2	506 (26%)
3-5	790 (41%)
6+	620 (32%)

Site	N (%)
Baltimore	109 (5%)
Boston	190 (8%)
Chicago	338 (15%)
Cleveland	113 (5%)
Dallas	309 (14%)
Denver	272 (12%)
Detroit	219 (10%)
New York	341 (15%)
St. Louis	53 (2%)
Tucson	79 (3%)
Washington D.C.	244 (11%)

## German Roach Skin Test Results Using Different Definitions of a Positive Test



See Interactive Display For More Allergens



## German Roach Skin Test Results by Participant Characteristics Using a 3 mm Cut-off

