

**REPORT DOCUMENTATION PAGE**

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# Characteristics of Venom Allergy at Initial Evaluation: Is fire ant hypersensitivity similar to flying hymenoptera?



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\*The opinions or assertions herein are the private views of the authors and are not to be construed as reflecting the views of the Department of the Air Force or the Department of Defense

## Introduction

This study sought to characterize the initial presentation of hymenoptera venom allergic (HVA) patients and examine differences between patients with imported fire ant (IFA) and flying hymenoptera (FH) reactions.




## Methods

A multi-year, observational, single-institution analysis of patients referred for evaluation of HVA was performed. Data was obtained via physician interview and chart review including baseline characteristics, comorbid conditions, medications, culprit stinging insect, reaction severity, treatments, emergency department (ED) interventions and specific IgE results.

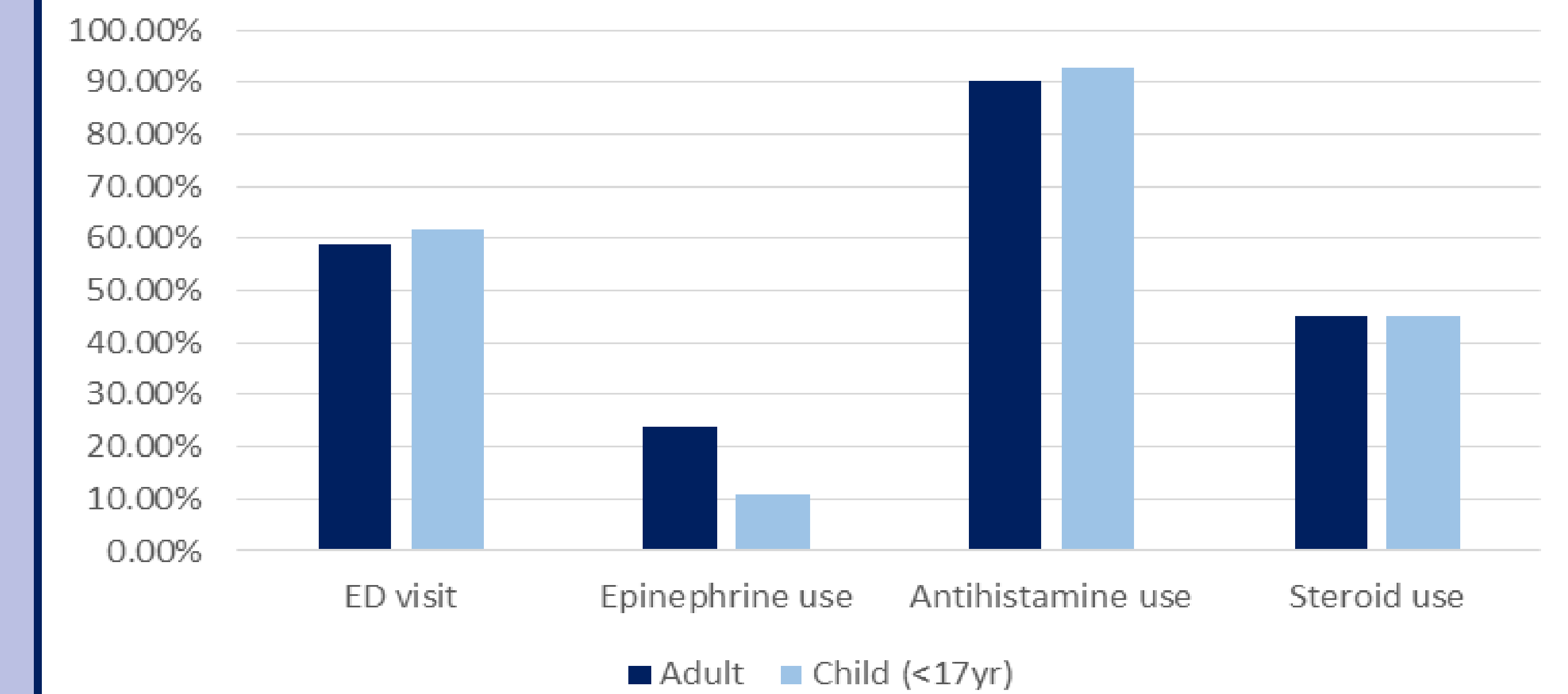
## Results

175 patients were enrolled (mean age 28yrs  $\pm$  14yrs; 44% males, 77/175). Of these, 21.7% (38/175) reacted to FH, 70.9% (124/175) to IFA and 7.4% (13/175) to both. There was no difference between FH and IFA patients when analyzing mean age, sex or likelihood to seek ED care. Asthma was similar in all groups and noted in 20.6% (36/175). The most common presentation was cutaneous plus another system and was similar in all groups; 114/175 (65%). ED treatments were similar in all groups and included epinephrine (32/150, 21%), antihistamines (141/155, 91%) and corticosteroids (67/148, 45.3%). Reaction severity correlated with likelihood of ED visit ( $p=0.0005$ ), use of epinephrine ( $p=0.0002$ ) and corticosteroid use ( $p=0.03$ ). Patients presenting to the ED with anaphylaxis received epinephrine in 37% (27/73) of cases. Patients seen in ED whose venom allergy was confirmed was 68.3% (71/104), 91.5% of whom went on to initiate life-saving immunotherapy.

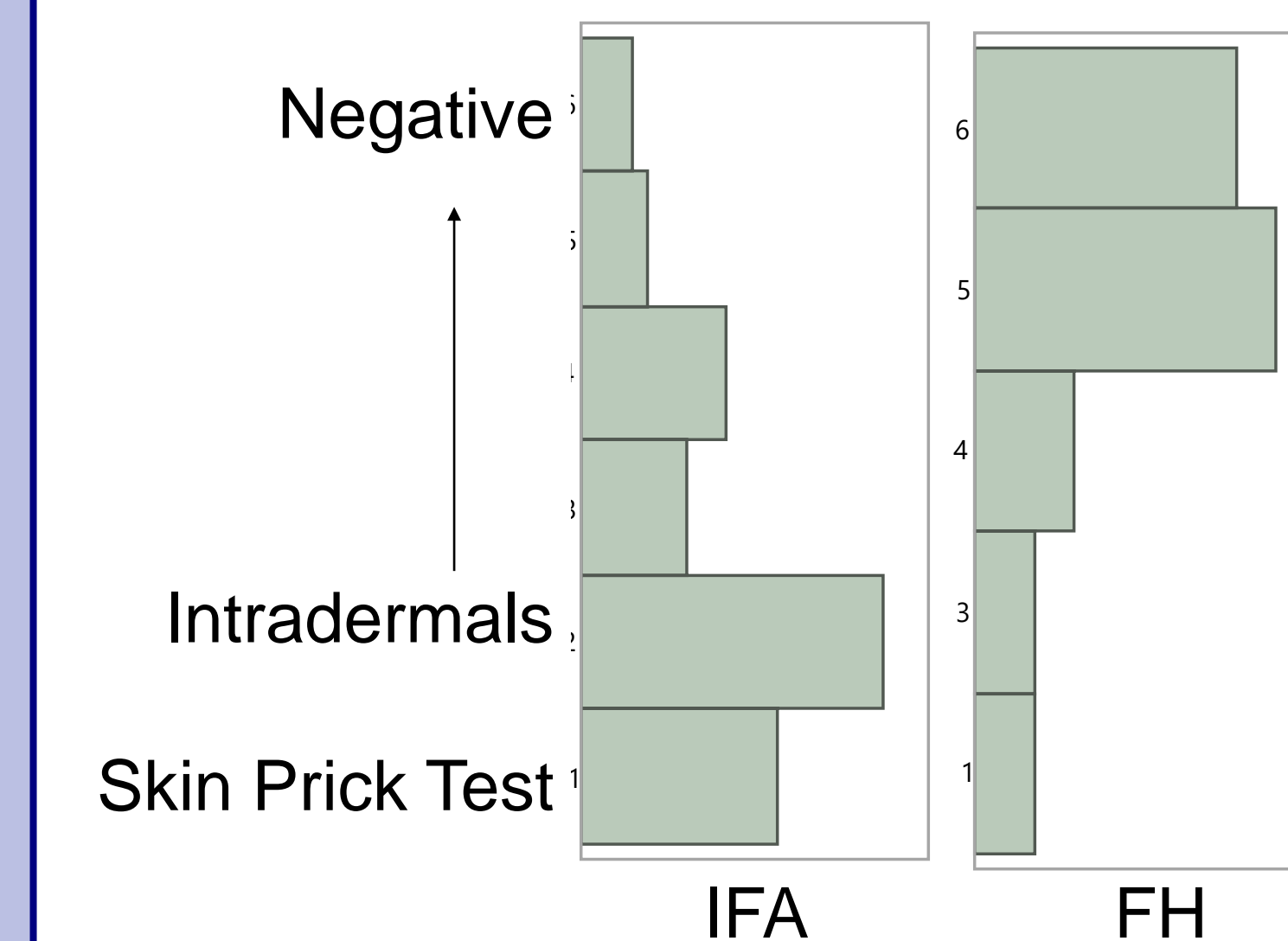
### Characteristics based on culprit insect

FH	IFA	Both	Total
			
<b>Culprit insect</b>			
21.7% (38/175)	70.9% (124/175)	7.4% (13/175)	NA
<b>Mean age</b> (80.6% adults, 19.4% children<17yrs)			
31yrs	26yrs	39yrs	28yrs
<b>Sex</b> (% male)			
42% (16/38)	44% (55/124)	46% (6/13)	44% (77/175)
<b>Asthma</b>			
18% (7/38)	21% (26/124)	23% (3/13)	20.60%
<b>Who sought emergency care?</b>			
55% (21/38)	61% (76/124)	54% ( 7/13)	59% (104/175)
<b>Epinephrine use</b>			
27% (7/26)	20% (23/113)	18% (2/11)	21% (32/150)
<b>Antihistamine use</b>			
92% (24/26)	91% (109/120)	89% (8/9)	91% (141/155)
<b>Steroid use</b>			
46% (11/24)	46% (53/115)	33% (3/9)	45% (67/148)

### Age Analysis



### FH vs IFA Skin Testing



## Conclusions

IFA and FH patients have many, now confirmed, similarities. Severity of reactions correlated with ED visits, use of epinephrine and corticosteroids independent of age. Notably only 37% of patients who met diagnostic criteria for anaphylaxis received appropriate treatment with epinephrine, a finding that has been noted in previous studies now confirmed for patients with HVA. Children were almost 50% less likely to receive epinephrine in the ED when compared to adults.