BACKGROUND
- Anaphylaxis is an acute, serious, life-threatening allergic reaction usually affecting multiple body systems.[1]
- Incidence of anaphylaxis is increasing; one study showed diagnosis doubling from 5.7 to 11.7 patients per 10,000 pediatric ED visits from 2009 to 2013.[2, 3]
- Given the need for rapid intervention, accurate diagnosis of anaphylaxis in children who present to the emergency department with allergic symptoms is imperative.
- We aim to identify clinical characteristics of children with allergic reactions that can predict which patients are more likely to develop anaphylaxis.

STUDY DESIGN and METHODS
- Charts of 325 pediatric patients who presented to a pediatric ED from 2013-2015 with allergic reactions were reviewed.
- The NIAID/FAAN diagnostic criteria (Fig. 1.) were used to classify patients with and without anaphylaxis.[4]
- Univariate analysis was conducted to compare patient characteristics of those with and without anaphylaxis.
- Variables that showed bivariate association with the dependent variable at a level of p < 0.05 were included in a stepwise logistic regression model to identify independent association of patients' characteristics with the development of anaphylaxis.

RESULTS
- 18.2% of patients met criteria for anaphylaxis, with inclusion of at least two of the following symptoms: skin/mucosal (98.3%), respiratory (78.0%), and/or gastrointestinal (11.9%).
- Patients with anaphylaxis were more likely to be older than those without (13.8 +/- 6.2 vs. 10.1 +/- 7 years, p<0.01).
- Asthma, food allergy, drug allergy and history of prior anaphylaxis were more likely in patients with anaphylaxis compared to those without anaphylaxis. (Fig.2.)
- Swelling, paresthesia, dyspnea, and wheezing were found significantly more frequently in patients with anaphylaxis compared to those without anaphylaxis. (Fig.3.)
- Involvement of the lips, tongue, and/or throat were more likely recorded in patients with anaphylaxis. However, torso and arms/hand involvement were seen more in patients without anaphylaxis. (Fig.4.)
- The most common allergen associated with anaphylactic reactions was food (71.2% vs. 33%, p<0.001). (Fig.5.)
- Patients with a nonanaphylactic reaction were twice more likely (36.0% vs. 15%) to not have a known trigger. (Fig.5.)
- Regression analysis confirmed independent role of these factors in prediction of anaphylaxis.

CONCLUSION
- In pediatric patients presenting with an allergic reaction, older age, history of allergic-related morbidities, including asthma, food, and/or drug allergy are factors that predict the likelihood of anaphylaxis.
- Swelling, paresthesia, dyspnea, wheezing, and involvement of lips, tongue, and throat are symptoms significantly more likely to be found in anaphylactic cases.
- Allergic reactions without anaphylaxis are more likely to: have an unknown cause for their reaction, and have symptoms affecting their torso, arms, and/or hands.

REFERENCES