

Anaphy-track-xis

Creating a System to Track Allergic Reactions in Schools

MARJORIE YARBROUGH, MPH

CENTER FOR COMMUNITY HEALTH, NORTHWESTERN UNIVERSITY

AUGUST 12, 2016

Agenda

Background

Methods

Results

Challenges/Lessons Learned

Conclusions

Questions

Background

Impact of Food Allergy

Food allergy affects an estimated 8% of children in the United States¹

- ~ 1 in 13 children; 2 per classroom

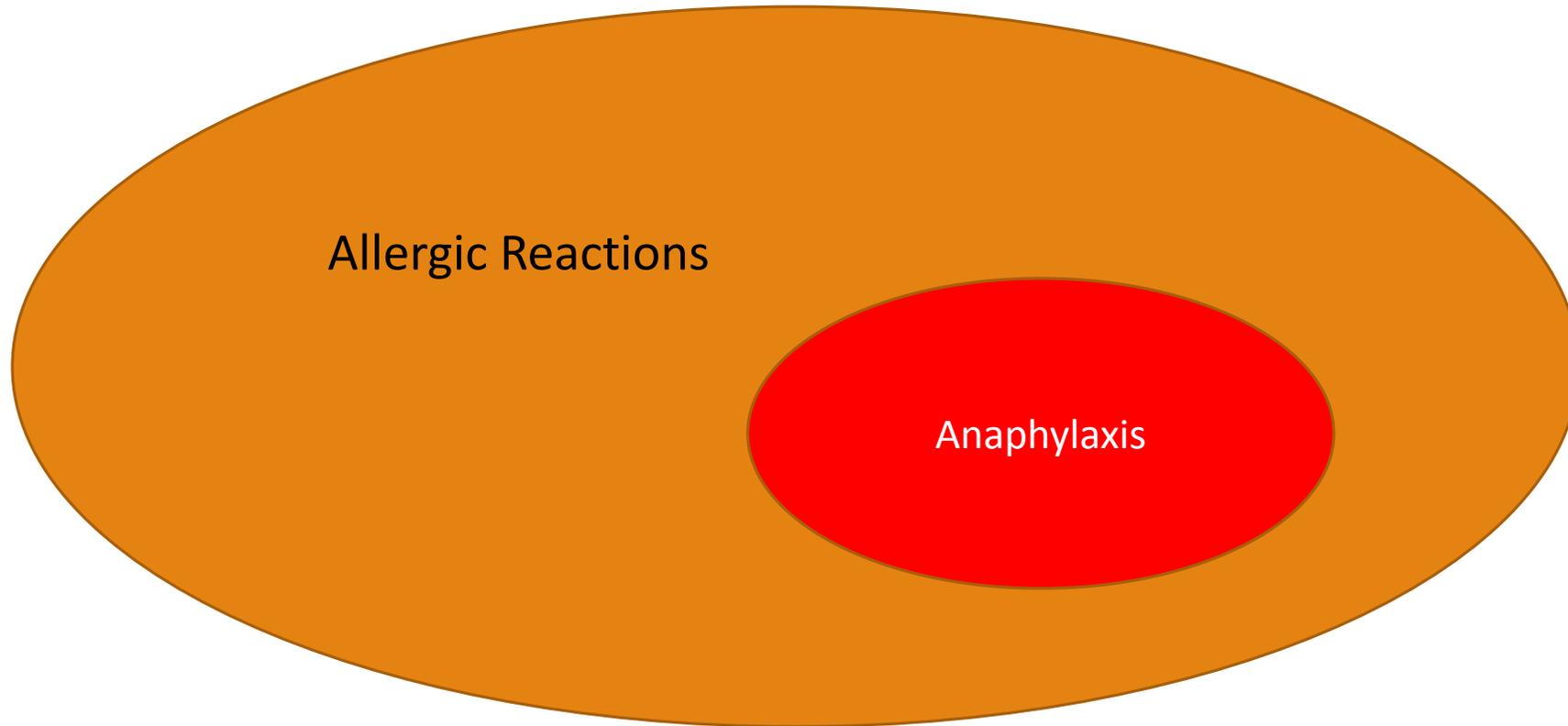
Nearly 40% of affected children have had one or more severe reactions¹

- Including anaphylaxis

25% of first time anaphylactic reactions among children occur at school¹

In a recent study involving food-allergic adolescents, 38% reported wanting better support from their schools²

Reaction Severity



Allergens that can set off anaphylaxis

FOOD



- Peanuts
- Tree nuts: almonds, pecans, cashews, walnuts
- Shellfish
- Cow's milk products
- Hen's eggs
- Fish
- Soy
- Wheat

VENOM



- Yellow jackets
- Wasps and hornets
- Honeybees
- Fire ants

LATEX



- Balloons
- Rubber gloves
- Condoms
- Elastic bands (i.e., physical therapy bands/rubber bands)
- Dental dams

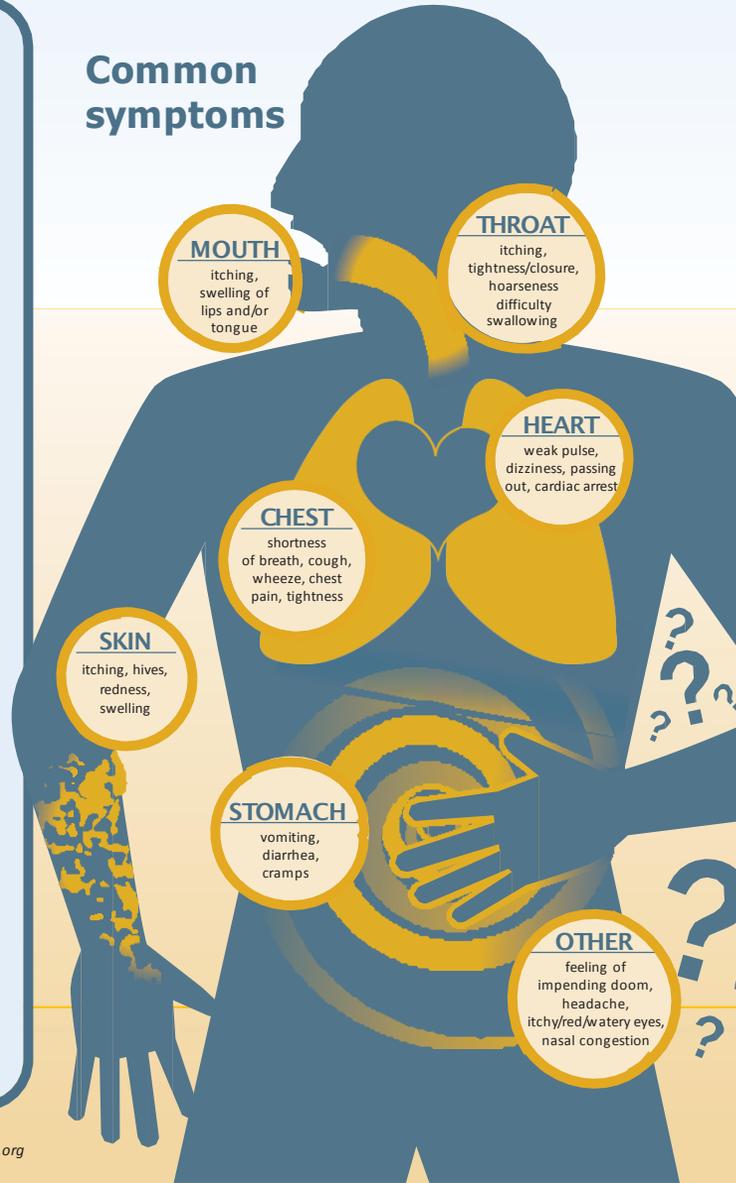
Foods with cross-reactive proteins to natural rubber: banana, avocado, chestnut and kiwi

MEDICATION



- Penicillin
- Aspirin, ibuprofen and other NSAID pain relievers

Common symptoms



MOUTH

itching, swelling of lips and/or tongue

THROAT

itching, tightness/closure, hoarseness, difficulty swallowing

HEART

weak pulse, dizziness, passing out, cardiac arrest

CHEST

shortness of breath, cough, wheeze, chest pain, tightness

SKIN

itching, hives, redness, swelling

STOMACH

vomiting, diarrhea, cramps

OTHER

feeling of impending doom, headache, itchy/red/watery eyes, nasal congestion

Epi Everywhere! Every Day! Right Away!

RECOGNIZE THE SEVERITY



Anaphylaxis is life-threatening, unpredictable, presents in multiple ways and can progress quickly

USE EPINEPHRINE IMMEDIATELY



Epinephrine is the **first line** of treatment to stop the progression of anaphylaxis. Use your epinephrine auto-injector at the **first sign of symptoms** – don't wait to see what happens!

CALL 911



Always call for emergency medical assistance and go to the emergency room for follow-up observation and treatment.

CARRY TWO AUTO-INJECTORS



Keep two epinephrine auto-injectors on hand, in case symptoms recur before emergency medical assistance is available. Up to 30% of people will require more than one dose.

FOLLOW UP



Consult a board-certified allergist for accurate diagnosis and prevention/treatment plan.

Methods

Site Selection

Original goal was to go into CPS, however we learned that they were coming up with new surveillance and reporting software as well.

Ended up working with 3 private schools in Chicago

Focus Groups

Based on the structure of the school

- Some had a team of nurses, one worked as a solo nurse

Total of 6 nurses participated

- 2 focus groups (3 nurses in one, 2 in the other)
- 1 Key informant interview

The input gathered during these conversations was used to develop an online registry tool

Registry Tool

Initially, the tool was going to only capture anaphylactic or emergency allergic reactions (requiring epinephrine or a trip to the Emergency Room [ER])

However, after talking with all the nurses, it was ultimately decided to expand the reporting tool for *any* type of allergic reaction in which a student would seek medical attention

Registry Data Captured

Student demographics

Type of allergen

Physical location of when the symptoms occurred

Symptoms of the allergic reaction

Medication(s) given and in what order

Whether the student went to the ED after the exposure

Registry Logistics

We are utilizing REDCap to house the registry.

Each school was sent the same link to use, but they are able to put which school they are reporting from.

Added a section for nurses to explain more about the reaction

Piloting the registry from September 1, 2015-August 31, 2016

Website

<https://redcap.healthInk.org/surveys/?s=EspurZEcMU>

Results

Event	Age (years)	Allergen	Setting	Symptoms	Meds	Outcome
1	5	Fin fish	Cafeteria	Facial hives	Antihistamine	Went back to class
2	15	Peanut	Classroom	Diffuse hives and itching; panic	Antihistamine, then epinephrine	Went to ER via ambulance
3	16	Peanut	Classroom	Hives on face, neck, chest, and stomach; nasal congestion; tingling mouth	Antihistamine, then epinephrine	Went to ER via ambulance
4	14	Kiwi	Unknown	Abdominal pain; nausea	Antihistamine	Went back to class
5	16	Tree nut	Unknown	Abdominal pain; nausea	Antihistamine	Parent picked up student and observed them at home
6	8	Tree nut	Classroom	Itchy tongue	Antihistamine	Went back to class
7	15	Chicken Sandwich	Classroom	Tingling throat	Antihistamine	Parent picked up student and observed them at home
8	9	Wheat	Classroom	Lips and throat felt "weird"	Antihistamine	Went back to class

Results

Event	Age (years)	Allergen	Setting	Symptoms	Meds	Outcome
9	5	Unknown	Classroom	Swollen upper lip	Antihistamine	Went to ER via parents
10	8	Peanut	Classroom	Itchy face/head and throat; Tingling mouth; Nausea	Antihistamine	Went back to class
11	16	Green apple	Classroom	Itchy face/head, neck, arms, legs; Rash face/head, legs	Antihistamine	Went back to class
12	7	Unknown	Off Campus	Rash on face/head	Antihistamine	Went back to class
13	16	Shellfish	Classroom	Itchy neck and ears	Antihistamine	Went back to class
14	15	Peanut	Meeting Room	Itchy Tongue	Antihistamine	Went back to class
15	8	Unknown	Classroom	Itchy lips; Rash around lips; 1 Hive on upper lip	Antihistamine	Went back to class
16	16	Fresh raw snap peas	Classroom	Swollen lips; Itchy throat	Antihistamine	Went back to class

Results

Allergen that caused the most reactions: Peanut

- Tree Nut was second

Most of the children went back to their classrooms

In the data, you can read and see when “incidents” occurred

- Clustered reporting of reactions

Challenges & Lessons Learned

Challenges

Schools are different

- One school is very “Food Allergy Aware”
 - No outside food is allowed

Nurses are different

- Majority of the nurses love the website
- One sends me PDFs to input the data

Lessons Learned

The schools in general are very integrated into their schools

Different strokes, different folks

Liability/fear is a big factor

Conclusions

Peanut is still the main cause of allergy reactions

The successful development of a form that can be used in different school systems is critical

Next steps:

- Disseminating this form can be across the country

Goal:

- To improve our understanding of the context and frequency of allergic reactions in schools

Questions?

“No one cares how much
you know, until they know
how much you care”

-Theodore Roosevelt

THANK YOU!

Contact information:

marjorie.yarbrough@northwestern.edu