



Bee Stings in Arizona

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Disclosures

- Nothing to disclose

Who is the AZPDIC?

- Physicians / Pharmacist / Nurse: 24/7/365
- 1- **Clinical Care**: 14 counties 72 hospitals
 - Medications / chemicals / radiation
 - Drugs of abuse
 - Environmental / occupational
 - Bites & Stings / plant / mushrooms
 - Exposure during pregnancy / lactation
- 2- **Public Health**: surveillance / education
- 3- **Clinical Education**: students / residents
- 4- **Research**:

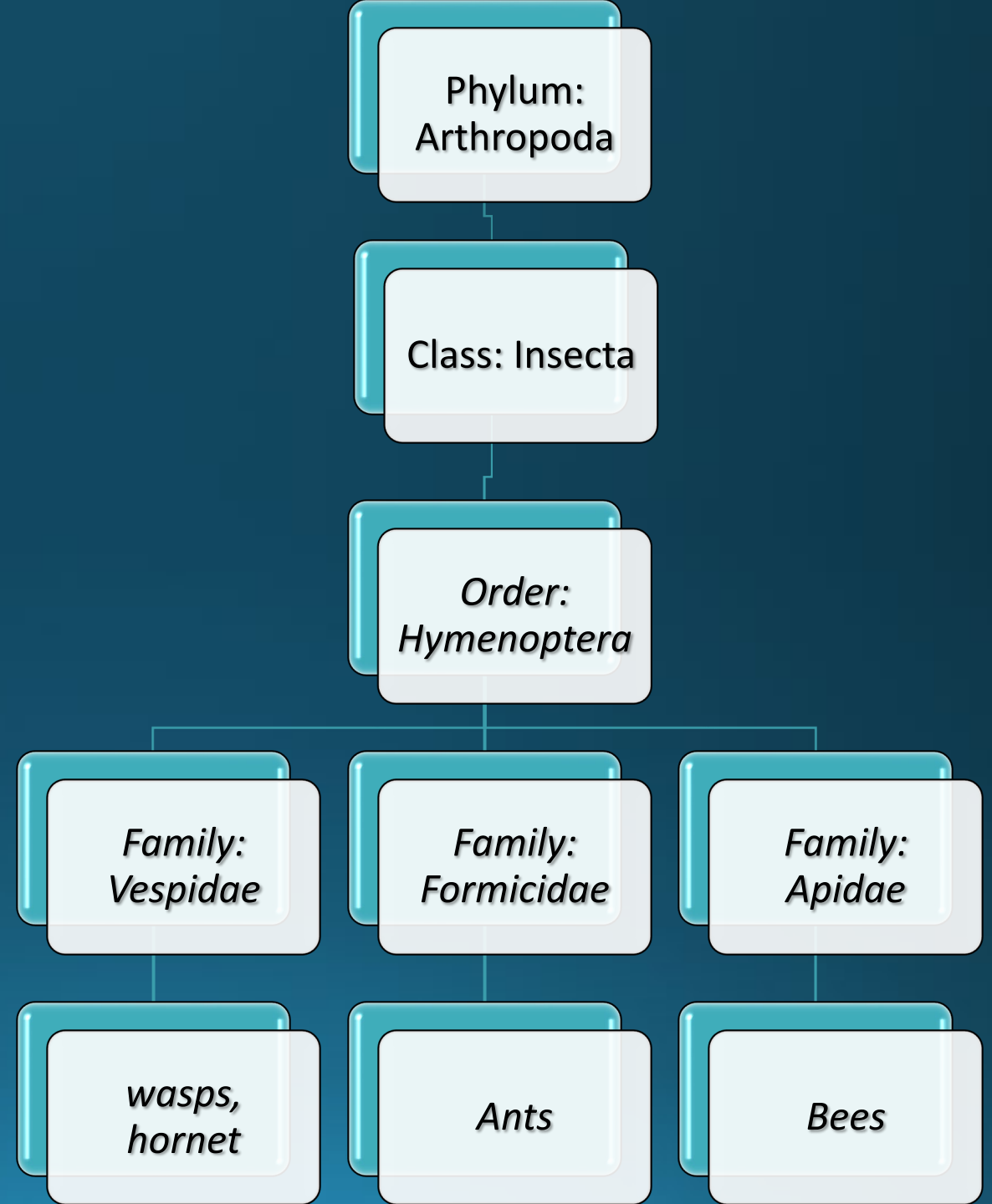


A large swarm of bees is shown flying against a bright blue sky filled with soft, white clouds. The bees are in various stages of flight, with some appearing closer and more detailed, while others are smaller specks in the distance. The overall scene is dynamic and captures the essence of a busy bee colony in action.

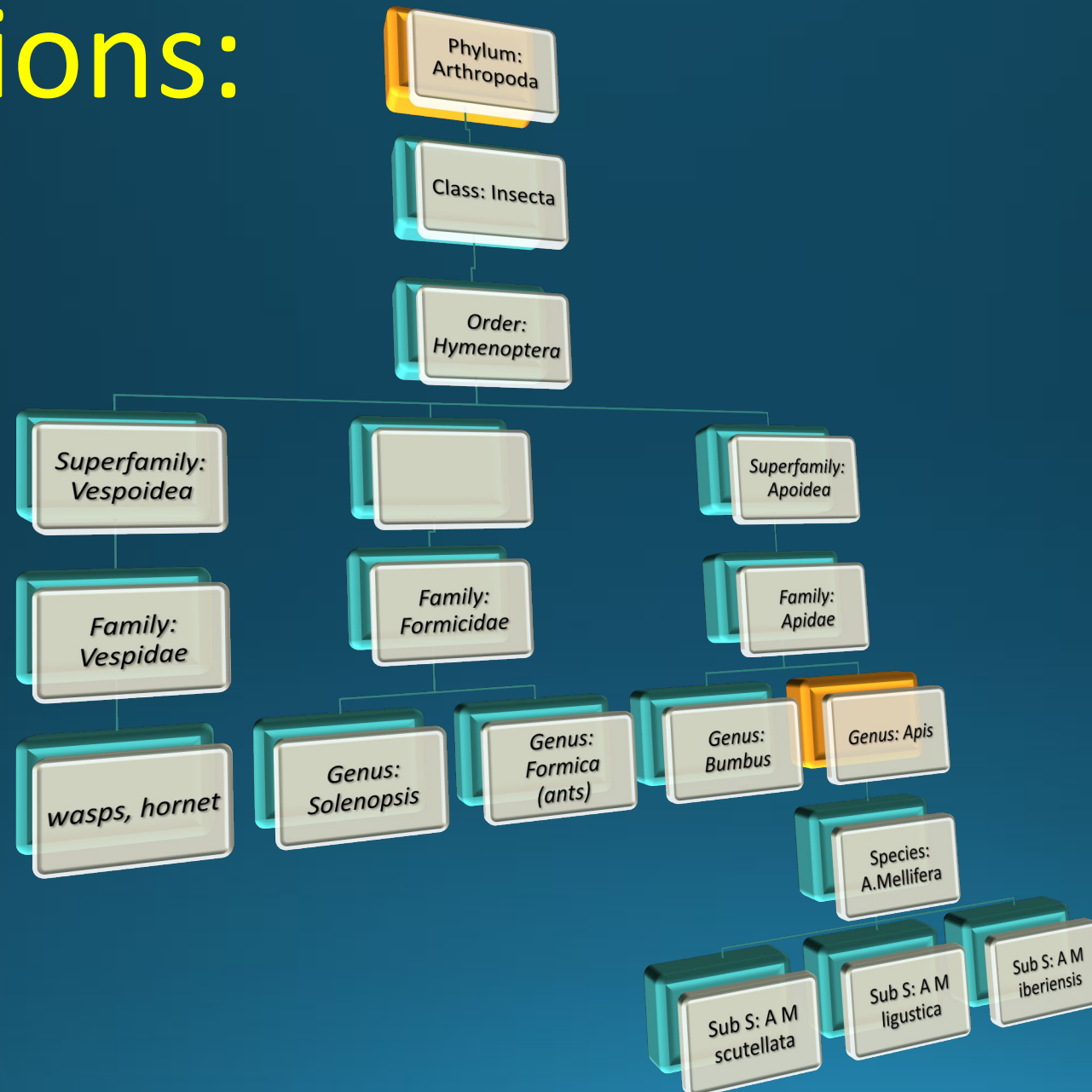
The Honey Bunch Bees!

Hymenoptera:

Bumblebee



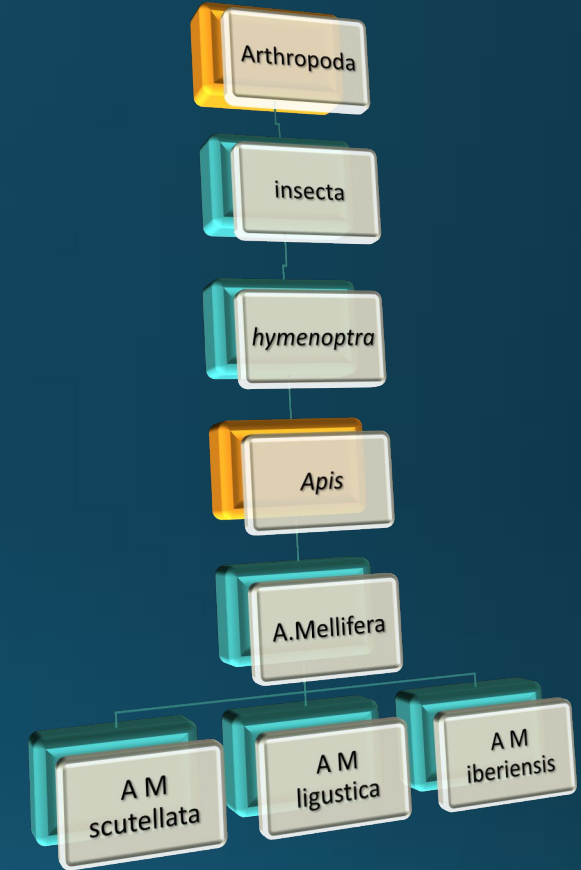
Relations:





Terms: European –African honey bee hybrid

- Phylum: arthropoda
- Class: insecta
- Order: Hymenoptera
- Genus: Apis
 - Species: *A. mellifera*
 - Subspecies: A M Hybrid



Bees!

- Order Hymenoptera
- Family Apidae
- Bumble bee (*Bombus*)
- Honey bee (*apis mellifera*)
- Africanized or “swarming” (*a. m. scutuletta*)



Killer Bees!

- Brought to Brazil
- Escaped in 1957, headed north
- Texas October 1990
- Phoenix October 1993
- Aggressive, defensive



Massive bee Envenoming:



The American Journal of Medicine

Volume 133, Issue 5, May 2020, Pages 621-626

Clinical Research Study

Honeybee Stings in the Era of Killer Bees: Anaphylaxis and Toxic Envenomation

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Injury from massive bee envenomings:

- **Related to the behavior of the bees:**

- Closer to the hive the more stings (100 feet distance → 1/10 stings)
- Bees will go into any cavity
- Corneal abrasions



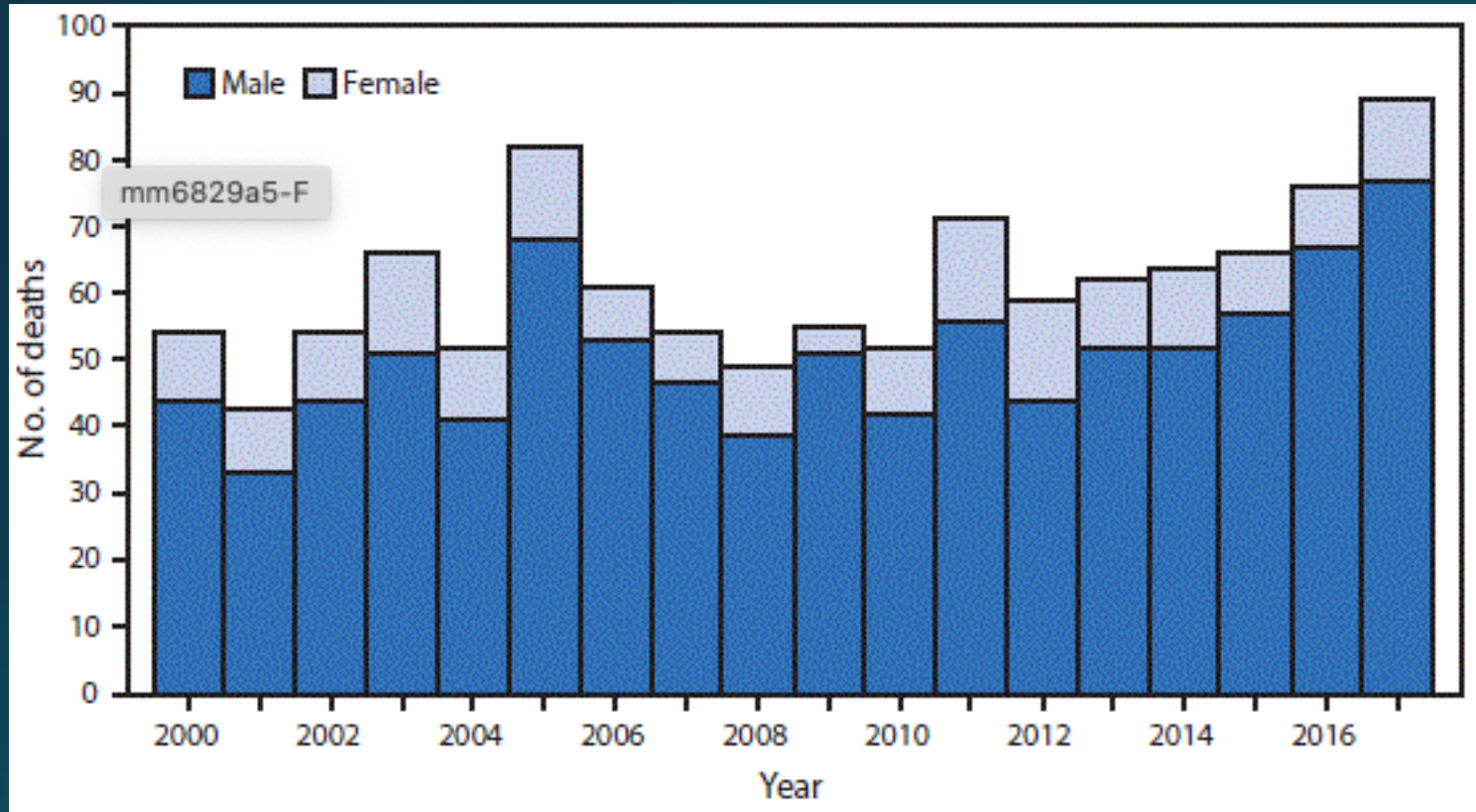
- **Related to human behavior:**

- long pants and long sleeve shirt
- Hat with bee net
- Light-colored clothing
- Avoid floral scents



- **Related to venom:**

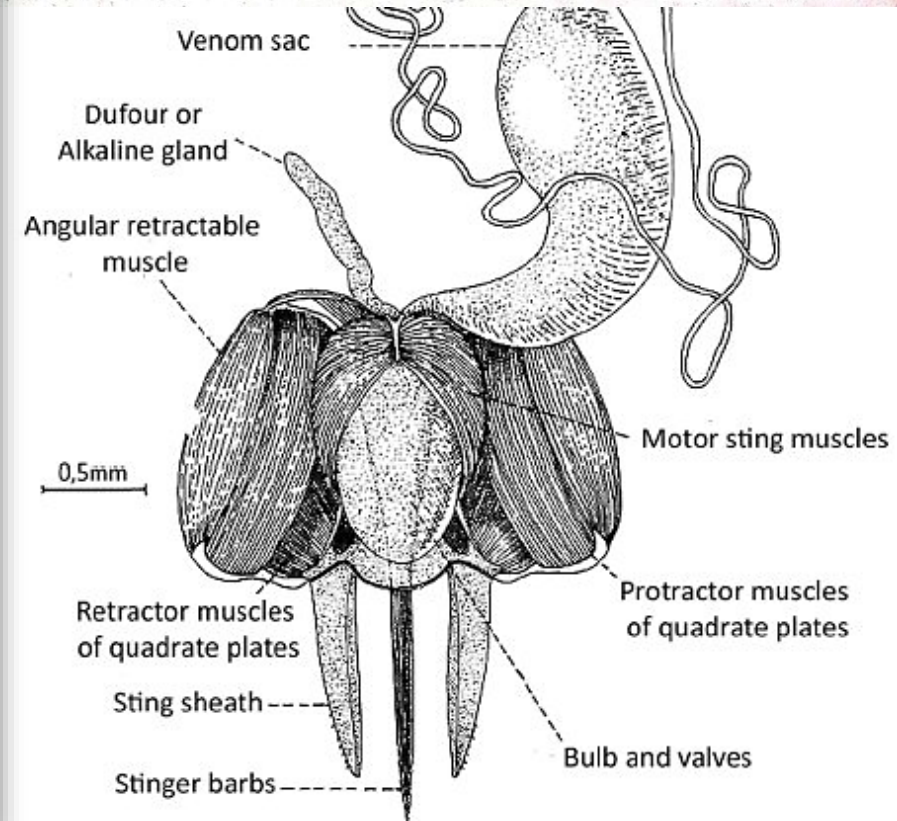
By The Numbers



national Vital Statistics System, United States, 2000–2017. MMWR Morb Mortal Wkly Rep 2019;68:649 During 2000–2017, a total of 1,109 deaths from hornet, wasp, and bee stings occurred, for an annual average of 62 deaths. Deaths ranged from a low of 43 in 2001 to a high of 89 in 2017. Approximately 80% of the deaths were among males.

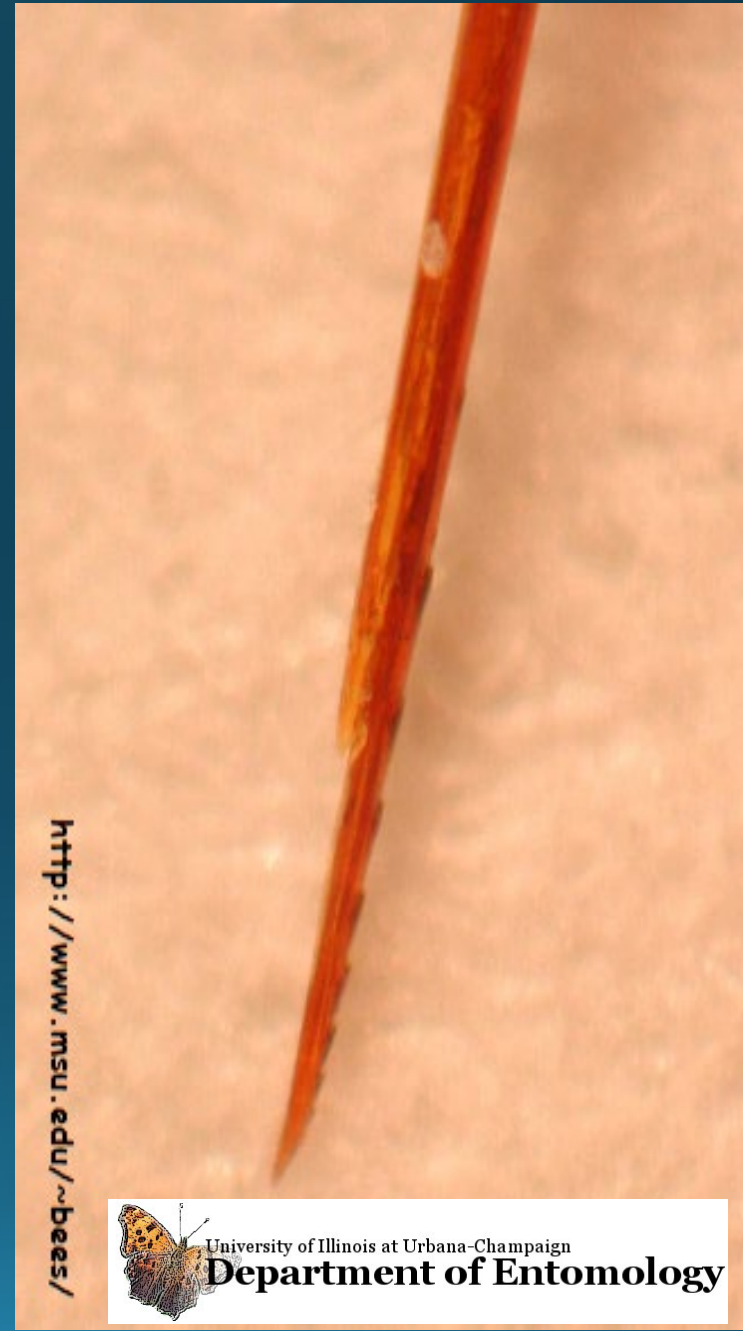
Stinger in the Rear

- Barbed stinger 1.6 mm long x 0.05 mm
- Connected to a venom sac
- One and done
- Causes evisceration





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<http://www.msu.edu/~bees/>



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Venom

- A mixture of multiple compounds
- 85 % water
- Dry weight
 - Melitin 50-60% 10-12 % * Pain
 - Phospholipase A₂ 10-12 % * allergenic
 - Peptide 401 1-3 %
 - Hyaluronidase 1-3%
 - Apamine 1-3%
 - Adolapin 0.1-0.8 %
 - Secapins 1-3 %
 - Histamine
 - Adrenalin
- Relative composition varies by time of year



Ouch!

- Local reaction
 - Pain
 - Erythema
 - Swelling
 - Pruritis
 - 1-5 cm
- Self-limiting



Ouchius Maximus

- Envenomation
 - GI symptoms
 - Rhabdomyolysis
 - Cardiac injury
 - Renal failure
 - Fever
 - Syncope
 - ARDS
 - MSOF
- > 50 stings



Ouchiest!

- Anaphylaxis
 - Urticaria, flushing, angioedema
 - Airway edema, hoarseness, wheeze, respiratory distress
 - Hypotension, shock
 - Rapid onset
- Not related to number of stings



What to do

- ABCs
- Treat anaphylaxis if needed
- Decon
- Pain control
- Remove stingers
- > 50 stings needs eval in the ED



In the ED

- Decon
- Thorough skin survey
- CBC, CMP, PT/INR, CK, Troponins, UA, EKG
- Check for corneal abrasion
- Check the cavities if passed out.
- Pain control
- IVF
- Observation



Avoid and Escape

- Leave them be
- Light-colored clothing
- Avoid floral scents
- RUN!
- Cover face
- They will wait for you to exit water
- Seek shelter

