

## CONSIDERATIONS OF PRACTICE

***In Michigan, the Public Health Code is the primary statute that defines regulations for nurses and other health care professionals. School nursing practice is also influenced by federal, state, local law and in some instances the Michigan School Code. School Nursing: Scope and Standards of Practice are “expectations that guide the practice of school nursing” (2017, preface, ix). This document contains important information that is not all inclusive or a substitute for a nurse’s decision making or judgement. It is intended as a broad direction for school nurse practice.***

## OVERVIEW

Allergies are one of the most chronic conditions in the world (John Hopkins Medicine, 2021). In the pediatric population, foods, especially peanut, tree nuts, milk, eggs, crustacean shellfish, and finned fish are the most common cause of anaphylaxis, followed by medications, but any food can elicit an anaphylactic response. Other triggers, including insect stings, latex and exercise may result in anaphylaxis and in some cases the causal agent is never determined (idiopathic). However, vaccinations to prevent infectious diseases seldom trigger a reaction (Sicherer & Simons, 2017).

Anaphylaxis is defined as a serious allergic reaction that may cause death (Anagnostou K., 2018). A major difference between anaphylaxis and other allergic reactions is that anaphylaxis typically involves more than one system of the body. Symptoms usually start within 5 to 30 minutes of coming into contact with an allergen to which an individual is allergic. In some cases, however, it may take more than an hour to notice anaphylactic symptoms. A second anaphylactic reaction can occur within one hour or up to several days after the initial episode of anaphylaxis and is known as a bi-phasic reaction (Shaker et al., 2020).

The prevalence of anaphylaxis has been estimated at 1.6% to 5.1% (AAN, 2020; Shaker et al., 2020). Food allergy, a leading risk factor for anaphylaxis, has increased in prevalence over time and affects up to 10% of the population (Sicherer & Sampson, 2018; Lopes & Sicherer, 2020). It is estimated that 2% to 3% of adults and up to 1% of children have had a systemic anaphylactic reaction to an insect sting (Shaker et al., 2020). Twenty four percent of cases of anaphylaxis occur in children whose allergy was not previously diagnosed (McIntyre, Sheetz, Carroll & Young, 2005).

Symptoms of anaphylaxis may include:

- Breathing: wheezing, shortness of breath, throat tightness, cough, hoarse voice, chest pain/tightness, trouble swallowing, itchy mouth/throat, nasal stuffiness/congestion;
- Circulation: pale/blue color, low pulse, dizziness, lightheadedness/passing out, low blood pressure, shock, loss of consciousness;
- Skin: hives, swelling, itch, warmth, redness, rash;

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- Stomach: nausea, pain/cramps, vomiting, diarrhea;
- Other: anxiety, feeling of impending doom, itchy/red/watery eyes, headache, cramping of the uterus;
- **The most dangerous symptoms are low blood pressure, breathing difficulty and loss of consciousness, all of which can be fatal** (Lieberman et al., 2015).
- Anaphylaxis can occur without skin symptoms (hives or angioedema) and symptoms can present independently from each other. School staff need to intervene before the child has “respiratory symptoms” (Lieberman et al., 2015).

## National Information

National Association of School Nurse Resources: [ALLERGIES & ANAPHYLAXIS](#)

- Sample Planning Checklists
- Sample Practice Forms
- School Personnel Training Resources
- Education Resources
- National Guidelines
- National Partner Resources
- NASN Report of Epinephrine Administration

**Federal Laws** – protect students with allergies attending school.

Law	Brief Description
<a href="#">Americans with Disabilities Act of 1990 (ADA)</a>	Disability discrimination prohibited.
<a href="#">Section 504, Rehabilitation Act of 1973</a>	Protects the rights of children with special health-care needs (CSHCN) by providing related services, including health services, to those not eligible for special education.
<a href="#">Americans with Disabilities Act of 1990 (ADA)</a>	Prohibits discrimination on basis of disability.
<a href="#">34 CFR Part 300 Individuals with Disabilities Act of 1997 (IDEA)</a>	Guarantees access to education and related services to assist children with disabilities benefit from special education. <a href="#">Reauthorization of 2004, Sec. 602 (26)</a> list school nurse services as a related service.
<a href="http://www.cdc.gov/healthyyouth/foodallergies/pdf/13_243135_A_Food_Allergy_Web_508.pdf">http://www.cdc.gov/healthyyouth/foodallergies/pdf/13_243135_A_Food_Allergy_Web_508.pdf</a>	Voluntary guidelines to manage the risk of food allergy and anaphylaxis in schools and early childhood education programs.

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## Michigan Specific Information

### Michigan Association of School Nurses

- [Safe and Legal Support of Students' Health and Medication Needs](#)

### Michigan Department of Health and Human Services

- [Addendum to the 2002 Model Policy and Guidelines for Administering Medication to Pupils at School – Guidelines for Responding to an Anaphylaxis Reaction in School](#)
- [Epinephrine Auto-Injector Disposal Guide](#)

### Michigan Department of Education

- [Allergy Guidelines for Michigan Schools](#)

## Michigan Laws

Law	Brief Description
<a href="#">PA 186 of 2014</a>	Addresses stock epinephrine in schools. A prescriber may issue a prescription for and a dispensing prescriber or pharmacist may dispense an auto-injector epinephrine to a school board for meeting the requirements of section 1179a of revised school code, 1976, PA 451, MCL 380.1179a.
<a href="#">PA 187 of 2014</a>	Requires each Michigan public school have at least two Epinephrine auto-injectors in addition to policies based on updated medication guidelines, training requirements and reporting requirements.
<a href="#">PA 221 of 2015</a>	Requires each Michigan public school have at least two Epinephrine auto-injectors in addition to policies based on updated medication guidelines, training requirements and reporting requirements.
<a href="#">PA 12 of 2014</a>	The governing body of a school that operates K-12 shall adopt and implement a cardiac emergency response plan for the school. The plan must include at least: 1) Use and regular maintenance of the auto external defibrillator, 2) Activation of a cardiac emergency response team during an identified cardiac emergency, 3) A plan for effective communication, and 4) If a school is grades 9-12 a training plan for use of an auto external defibrillator in CPR rescue techniques.

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Law	Brief Description
<a href="#">PA 320 of 2020</a>	<p>Allows school employees in good faith to administer in the presence of another adult an auto-injectable epinephrine without being civilly or criminally liable unless the conduct was willful or wanton misconduct.</p> <p>Section 1 applies to the school nurse RN, except does not have to administer in the presence of another adult.</p>

## Considerations for School Nurse Practice

**In Michigan, best practice is influenced by the extent of school nurse coverage which varies across the state from having no nurses to having at least one nurse in a school building.**

The school nurse coordinates care for students with known allergies and unknown allergies to provide a safe school environment. This includes supporting partnerships between school staff, parents and providers. It involves communicating with school boards and school administrators to ensure that policies and a comprehensive plan are in place to address the management of allergic reactions consistent with federal law, state law, and nurse practice standards of care.

- Develop a system for accessing, stocking, storing, determining appropriate dosage and monitoring expiration dates for the epinephrine auto-injectors as well as documenting usage and reporting usage to parent/guardian (as soon as possible) and MDE (annually).
- The system should also include plans for bus transportation, athletics, before and/or after school programs, school lock downs and field trips. All school staff members have a role in anaphylaxis management.
- Identify all students in the school with allergies. Share information with staff as needed, following FERPA guidelines.
- Provide information, resources and support to students and caregivers, referring patients who do not have access to a provider to health care services in the community.
- Develop Individualized Health Care Plans (IHCP) and Emergency Care Plans (ECP) for students as needed. Individualized plans are critical because allergic reactions vary in severity, symptoms and cause. Once an emergency plan is developed for a specific student, ensure that these are easily accessible to delegated staff in case of an emergency. The school nurse should monitor the ECP on a regular basis and update/modify the plan as needed. Some students may also have an Individualized Education Plan (IEP) or 504 plan.
- Do not underestimate the necessity for accommodations, staff education and increased awareness. (Mustafa et al., 2018; Bingemann, et al., 2021).

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- Consider anaphylaxis risk reduction strategies for areas inside and outside the school building (Bingemann, et al., 2021).
- Discuss necessary student accommodations with parents/guardians prior to field trips (CDC, 2013; Bingemann, et al., 2021).
- Response times for EMS vary in different locations. Two doses of prescribed epinephrine should be available for students at risk of anaphylaxis, (Bingemann, et al., 2021).
- IHP or 504 Plans may include meal accommodation planning for students at risk of food-induced anaphylaxis (Kao et al., 2018; Wang et al., 2018). Such decisions are often made working together with parents/guardians, school staff, and students' healthcare providers (Bingemann, et al., 2021).
- Be alert to bullying (e.g., teasing, shaming, forced contact with known allergen) from classmates or staff and strictly enforce school bullying policy (Dupuis et al., 2020; Rocheleau & Rocheleau, 2020; Wang et al., 2018; Bingemann, et al., 2021).

## Staff Training

Schools are recommended to provide food allergy/anaphylaxis staff education annually, at a minimum, prior to the start of the academic year and should be reviewed after a food allergy reaction or anaphylaxis emergency for the purpose of improving prevention and response.

According to the [Michigan Department of Education Food Allergy Guidelines for Michigan Schools](#) training should be provided to all staff members and not just required designated staff per Section 380.1179a of the Revised School Code.

- Training should include:
  - o An overview of food allergies and anaphylaxis
  - o How to reduce the risk of an allergic reaction
  - o How to identify symptoms of anaphylaxis
  - o How to respond to food allergy emergencies
  - o How to properly use an epinephrine auto-injector
  - o The risk of bullying toward students with food allergies
- Provide a standardized training format consisting of 3 tiers of training for Unlicensed Assistive Personnel (refer to [Safe and Legal of Students' Health and Medication Training](#)).
- Determine the appropriate tier(s) of training for school staff subgroups: all employees, substitute teachers, emergency responders, and staff having direct contact with students known allergies and prescribed medications.
- Training plans also need to include bus drivers, substitute teachers, athletic staff, before and/or after school programs and any staff that attend field trips.

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- Student specific training may be necessary based on the individual student needs.
- Stock Epinephrine Required training
  - At least 2 staff members in each building. [PA 187 of 2014](#)
  - Initially and at least every 2 years. [PA 221 of 2015 Sec. 1774d](#)
  - [MDE Administering Medications to Pupils at School: Guidelines for Responding to an Anaphylaxis Emergency At School](#), recommends annual training but does not require annual training.
  - Documentation of initial and ongoing training and any competency assessment should be maintained and made available, on request, to a pupil, parent/guardian, physician, licensed registered professional nurse or a school district official.
  - The Skills Checklist is completed at the end of the initial training and can continue to be used as an assessment tool as needed.
- **[PA320 of 2020](#) Allows school employees in good faith to administer in the presence of another adult an auto-injectable epinephrine without being civilly or criminally liable unless the conduct was willful or wanton misconduct.**

## Treatment:

- Research documents that the successful management of anaphylaxis is early recognition of signs and symptoms and the prompt administration of intramuscular adrenaline (Anagnostou K.,2018).
- The first line of treatment for anaphylaxis is immediate intramuscular injection of epinephrine into the outer mid-thigh muscle (Shaker et al., 2020).
- Epinephrine administration requires immediate activation of Emergency Medical Services due to the possibility of phasic or rebound occur hours after the initial reaction without further exposure.
- Keep the student lying on their back with legs elevated, to avoid the empty ventricle syndrome, which can be fatal. Do not allow a student to suddenly stand or sit with anaphylaxis. If vomiting or has respiratory distress, turn them on their side to avoid the risk of vomiting, keeping the legs elevated if possible (Mali & Jambure, 2015).
- Studies consistently show that delay in administration of epinephrine is associated with increased risk for hypoxia and fatality from anaphylaxis (Brown et al., 2020; Shaker et al.,2020). Secondary medications like antihistamines and corticosteroids take much longer to begin acting in the body and are far less effective than epinephrine to treat

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anaphylaxis and therefore should not be used as initial treatment of anaphylaxis (Bingemann et al., 2021; Shaker et al., 2020).

## Emergency Medications:

- There are multiple epinephrine delivery devices, including generics. Most devices come in two doses (0.15 mg and 0.3 mg). Auvi-q is the only brand that comes in a 0.1 mg dose. Brand doses have consistent coloring, generics do not have consistent coloring of boxes/doses across dose ranges (Bingemann, et al., 2021).
  - [EpiPen](#),
  - [Auvi-Q](#),
  - [Amneal/Impax](#),
  - [TEVA](#),
  - [Symjepi](#)

## Self-Administration

- Assess whether students can reliably carry and use their own epinephrine auto-injector. When appropriate, encourage self-directed care. For students who have permission to carry and use their own epinephrine auto-injector, regularly assess their ability to perform such tasks.
  - Remember that students may not carry their epinephrine auto-injector at all times.
  - A student may not be able to administer their epinephrine auto-injector during an anaphylaxis episode.
- Notify the local Emergency Medical System (EMS) as soon as a severe allergy is recognized along with administering the epinephrine auto-injector.
- Follow Michigan Department of Environmental Quality Epinephrine Auto-Injector Disposal Guide (Michigan Department of Health and Human Services, 2015).

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### **Additional Resources**

School Nurse Resource Manual 9<sup>th</sup> edition. A Guide to Practice: Evidenced based policies for safe student care. Resha & Taliaferro.

School Nursing: A Comprehensive Text 3<sup>rd</sup> . Selekman, Shannon, Yonkaitis.

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