Use and Administration of Epinephrine Auto-Injectors
Purpose of this Guide
This ASHI Use and Administration of Epinephrine Auto-Injectors Instructor Guide is solely intended to give information on the presentation and administration of ASHI Use and Administration of Epinephrine Auto-Injectors certified training classes. The information in this book is furnished for that purpose and is subject to change without notice.

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Part 1:
Program Design and Instructional Tools
Program Design

Program Overview
The ASHI Use and Administration of Epinephrine Auto-Injectors training program has been specifically designed to meet national and state guidelines and regulations for administering epinephrine using an auto-injector device for a life-threatening allergic reaction. It is intended for individuals who are not healthcare providers or professional rescuers but desire or are required to be certified. There are no class prerequisites.

The goal of this training program is to help students develop the knowledge, skills, and confidence to respond in a life-threatening, allergy-related emergency. Founded in basic principles of instructional design and learning theory, ASHI promotes a toolbox approach to learning. This approach gives instructors flexibility in both presentation strategies and materials in order to reach students with widely varying abilities in the countless instructional settings that exist in the real world.

Third-Party Training Content
Additional training materials that are not produced by HSI may also be used to enhance ASHI Use and Administration of Epinephrine Auto-Injectors at the discretion of the training center director. These additional materials may not be used in lieu of ASHI Use and Administration of Epinephrine Auto-Injectors materials and may not be used to shorten or otherwise alter the core training content required for certification.

Important:
REGULATORY AGENCIES AND OTHER APPROVERS MAY REQUIRE SPECIFIC HOURS OF INSTRUCTION OR OTHER PRACTICES. INSTRUCTORS MUST BE FAMILIAR WITH AND COMPLY WITH ALL APPLICABLE LOCAL, STATE, PROVINCIAL, FEDERAL LAWS AND ADMINISTRATIVE RULES AS THEY PERTAIN TO THE APPROVAL, DELIVERY, AND ADMINISTRATION OF THIS TRAINING. HSI MAINTAINS A DATABASE OF ALL REGULATORY APPROVALS IN OTIS.

Class Types
There is only one class type for ASHI Use and Administration of Epinephrine Auto-Injectors. Regardless if the student is new, or has taken Administration and Use of Epinephrine Auto-Injectors in the past, each class is taught as if it is initial training.

Class Methods
There are 2 main methods to teaching students in ASHI Use and Administration of Epinephrine Auto-Injectors: instructor-led classroom training and blended learning.

Classroom Training
This is an instructor-led, in-person, classroom-based approach where the core knowledge content is provided using scenario-based video segments or a slide presentation, followed by demonstration of skills and the opportunity for instructor-facilitated student practice. There is a maximum student to instructor ratio of 10:1. The recommended ratio is 6:1.

Blended Learning
This is a mixed-mode approach using both online and in-person learning; core knowledge content is provided in video segments and interactive student exercises online, followed by in-person skills practice.

Training Content

Initial Class
The content of the Initial Class is divided into lessons. Each lesson provides an approximate length, skill and/or knowledge objectives (What Students Should Learn), provides an encouraging reason for learning (Why This Topic Matters), lists required equipment, and describes the necessary instructor activities. The outline and time frame for the Initial Instructor-Led Class are provided in Part 3.

ASHI promotes a toolbox approach to learning. This means that various presentation methods and tools may be used by the instructor to meet the knowledge and skill objectives of the course, including skill guides, video, and slides.

Four-Step Instructional Approach
In general, ASHI follows a basic four-step instructional approach (some lessons may include fewer or additional steps).

Step 1: Present the Knowledge Content
The program video and the program slide presentation are the primary tools provided to deliver knowledge content for the class.

Featuring scenario-based video segments, the program video provides you with a simple, engaging, and consistent approach to deliver content.
The program slide presentation allows more experienced instructors to take an active role in presenting content. Slides focus on the key points of information and allow instructors to highlight content using other delivery methods. Slide notes provide more detail on content. Instructors can use stated video-times as a guide for pacing lesson times when using the presentation.

Key points are also included for each lesson in this Instructor Guide and can be used to emphasize key content throughout the class.

**Step 2: Demonstrate Skills**

When demonstrating skills, a high-quality performance is essential because students will tend to copy it.

When giving a demonstration, consider using the WHOLE-PART-WHOLE method:

WHOLE: Demonstrate the entire skill, beginning to end, briefly naming each action or step.

PART: Demonstrate the skill again, step-by-step, integrating information and facts while pointing out common errors in technique. Present only the knowledge necessary to for the student to adequately perform the skill. To help, have students look at the appropriate Skill Guide as you demonstrate.

WHOLE: Demonstrate the entire skill again — in real-time — without comment. Perform it without remarks, interruption, or explanation. This helps students get a feel for the tempo of the skill and the opportunity to observe the sequence of actions before they practice.

**Step 3: Allow Adequate Time for Students to Practice the Skills**

Break students into small groups of 2 or 3 with the required equipment for the practice. Have one student act as a coach by reading the skill steps from the Skill Guide while another student performs the skill on a manikin or on another student who is playing the role of the ill or injured person. Have students rotate through the roles until all have played each role.

An instructor should circulate through the classroom, answering questions, correcting errors in technique, and providing constructive feedback and positive reinforcement. Avoid anxiety-producing, perfection-oriented skill checks. A stimulating, but non-threatening, environment is best for learning.

**Step 4: Wrap It Up**

Ask for and answer questions as briefly and concisely as you can. If available, finish with a short problem-solving scenario to help students recall key information.

The initial class proceeds lesson by lesson until its conclusion. ASHI Use and Administration of Epinephrine Auto-Injectors certification cards are issued to those students who have earned them.

**Certification Requirements**

Instructors must be current and properly authorized as an ASHI CPR, AED, and first aid instructor to issue Use and Administration of Epinephrine Auto-Injectors certification cards.

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**Important:**

WHEN NOT REQUIRED, THE WRITTEN EXAM MAY BE USED AS A PRE-, POST-, OR IN-CLASS ACTIVE LEARNING TOOL. THE INDIVIDUAL’S SCORE ON AN OPTIONAL EXAM MAY NOT BE USED TO WITHHOLD A PROPERLY EARNED CERTIFICATION CARD. WHEN A WRITTEN EXAM IS NOT USED OR REQUIRED, INSTRUCTORS CAN MEASURE COGNITIVE UNDERSTANDING BY INFORMAL OBSERVATION AND QUESTIONING USING THE KNOWLEDGE CHECK FEATURE.

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**Initial Blended Class**

**About Blended Learning**

Blended learning combines the convenience of online learning with face-to-face, in-class skill practice and evaluation by an authorized instructor. The platform used for the online portion of the Initial Blended Class is Otis. This web-based learning system allows for a variety of sensory interactions to provide users with a low-stress, easy-to-use, and convenient way to learn the required information. The management of blended training, including scheduling online and face-to-face sessions, is also done through Otis. Students are notified by email of enrollment in the online class. Student progress can be monitored online. For information on system requirements and how to register students for the online portion of the class contact your training center director or email customerservice@hsi.com.

**Online Portion**

The online portion of a blended training class covers the essential cognitive content for the class using program video segments and interactive exercises. When a student successfully completes the online portion of the class, a Recognition of Completion certificate will be made available to the student for printing and the completion will be recorded within Otis. Successful completion of the online portion is required to attend the face-to-face portion of the class for skills practice and evaluation with an instructor.
Face-to-Face Portion

The face-to-face portion of a blended class focuses on the development of competent skills through hands-on practice. Required activities of the face-to-face portion of the Initial Blended Class include performing instructor demonstrations and student practices, completed just as in an Initial Instructor-Led Classroom Class.

Instructor Demonstration
The instructor performs a demonstration of the skill, using the Whole-Part-Whole method.

Student Practice
Following the instructor demonstration, allow adequate time for students to practice the skill.

Instructional Tools

This ASHI Use and Administration of Epinephrine Auto-Injectors Instructor Guide, (integrated with pages from the Use and Administration of Epinephrine Auto-Injectors Student Book), video segments, slides, and online training provides the materials necessary for a properly qualified and authorized instructor to conduct the Initial and Blended classes. Lesson plans are located in Part 3.

Instructor/Training Center Portal in Otis
The instructor/training center portal in Otis provides access to the most current support documents. Please see Otis for the most up-to-date information. Login to Otis at otis.hsi.com/login. If you need assistance logging into Otis, call 877-440-6049 to speak with technical support.

Student Book
The ASHI Use and Administration of Epinephrine Auto-Injectors Student Book is an up-to-date resource that covers the core knowledge and skill content required for certification. Each participant should have a current print or digital Student Book readily available during and after the class.

Program Video
The ASHI Use and Administration of Epinephrine Auto-Injectors program video is a scenario-based visual learning tool. Video segments cover all training content. The video is available on digital video disc (DVD), online as a component of the blended class, and as an Otis-powered desktop or mobile application.

Program Slide Presentation
A PowerPoint® slide presentation is provided as an alternative visual tool to the program video. Designed for more experienced instructors, the presentation highlights the key points of the program content to help guide instructors in class. The program slide presentation file is available in Otis.

Skill Guides
Skill guides combine words and photographs of the correct steps of a skill in the proper sequence. They are visual, easy-to-use, instructional tools to be used by the instructor as a teaching aid and by students during skill practice. Skill guides are included in the Student Book and integrated into this Instructor Guide.

Written Exam
Unless required by a regulatory agency, it is not required for students to take and pass the Written Exam. However, the Written Exam documents are provided as an instructional tool and can be used to check student learning and effective retention of knowledge objectives.

Two Written Exam versions, an answer sheet, and answer keys are included in the program documents in Otis.

The ASHI Use and Administration of Epinephrine Auto-Injectors slide presentation was created using PowerPoint® presentation graphics program. PowerPoint® is a registered trademark of Microsoft Corporation in the United States and/or other countries.
PART 2:
CLASS REQUIREMENTS AND ADMINISTRATION
Class Requirements

Important:

ALL INSTRUCTORS HAVE AGREED TO COMPLY WITH THESE STANDARDS BY SUBMITTING A SIGNED APPLICATION FOR INSTRUCTOR AUTHORIZATION.

Classroom Space
Use and Administration of Epinephrine Auto-Injectors has been developed for a maximum class size of 10 students to 1 instructor; the recommended class size is 6 students to 1 instructor. Personal supervision is necessary to ensure effective facilitation, assistance, guidance, and supervision. Additional equipment and the assistance of other authorized instructors are recommended for all skill sessions where possible.

The room should be large enough to accommodate chairs, tables, and skill practice space for up to 10 students. Use and Administration of Epinephrine Auto-Injectors requires hands-on practice and evaluation of skills. Ensure that adequate and appropriate space for these activities is provided.

Classroom Safety
Make sure there are no obvious hazards in the classroom, such as extension cords that can be tripped over. Discourage students from smoking, eating, or engaging in disruptive or inappropriate behavior. Have an emergency response plan in case of serious injury or illness, including evacuation routes from the classroom. Be aware of and share with students the location of the nearest bathrooms, exit, phone, first aid kit, AED, fire alarm pull station, and fire extinguisher.

Student Illness and Other Emergencies
Advise students to not attend class if they have an illness such as influenza or a fever. Training centers should provide reasonable accommodation to students to make up class time or skill sessions. If a student has a medical emergency, instructors should provide the appropriate first aid care and activation of EMS.

Equipment and Materials List
Some equipment and materials are required for teaching, while other materials are optional (like the Written Exam). Some materials and equipment are recommended but not required. Use the lists below to prepare the right materials and equipment for the training you are delivering.

Required
- Television with DVD player, or computer with speakers, large monitor, or projection screen
- Auto-injector training devices, 1 for each group of 2 to 3 students. Training devices should be related in function to the auto-injectors most likely to be used by the students.
- Nonlatex disposable gloves, 1 pair for each student
- Use and Administration of Epinephrine Auto-Injectors Instructor Guide (print or digital), 1 for each instructor

Before Class
A few days before the class, confirm the date, location, and number of students. Ensure you have the following materials (see Equipment List for detailed information):

- Use and Administration of Epinephrine Auto-Injectors Instructor Guide
- Use and Administration of Epinephrine Auto-Injectors Student Books
- Auto-Injector trainers
- Disposable gloves
- Audio visual equipment and cables
- Class paperwork

Review this Instructor Guide, paying particular attention to the outline and time frame for the class you are teaching. Review the video or slides, and key points for each lesson, including any supplemental content to be added. Review all of the included Instructor Notes to see if you need to adjust your approach to training. Familiarize yourself with the student book.

Learning Environment
The ideal learning environment is comfortable, efficient, and distraction-free with sufficient space, seating, resources, and equipment. Instructors should take reasonable efforts to ensure a physically safe, comfortable and appropriate learning environment. The room should be well lit, well ventilated, and comfortable in temperature. Avoid cramped classroom setups where possible. Instructors must often create a makeshift classroom out of a noisy shop floor, poorly lit cafeteria, or cramped conference room. Such challenges should be anticipated and the learning environment be made as favorable as possible.
• Use and Administration of Epinephrine Auto-Injectors Student Books, 1 for each student (print or digital)
• Use and Administration of Epinephrine Auto-Injectors program video, DVD or Otis-powered desktop, mobile application or CPR and AED slide presentation, 1 for each class
• Use and Administration of Epinephrine Auto-Injectors certification cards, 1 for each student who fulfills the requirements (print or digital)
• Class roster, 1 for each class (print or digital)

May Be Required (Regulatory Agency/Challenge)
• Written exams A and B, 1 version for each student (print)
• Written exams answer sheets, 1 for each student (print)
• Written exams answer keys, A and B, 1 for each instructor/assistant (print)

Recommended
• Pens and pencils, 1 for each student when Written Exam is administered
• Name tags or tent cards, 1 for each student
• Spare projector bulb (as needed)
• Extension cord (as needed)
• Whiteboard with dry erase pens and eraser, if available
• Large black markers for student name tags or tent cards
• Large envelope for class paperwork, including Written Exam answer sheets when required

Conducting a Class
1. Arrive early. Give yourself plenty of time to get organized.
2. Circulate a sign-in sheet or the Class Roster. Be sure all students sign-in.

During Class
1. Start on time. Briefly cover class expectations: class goal, certification requirements, classroom safety, facilities, mobile phone use, and breaks.
2. Stay on track. Keep lessons within their time limits. End discussions when they are not productive or lead off class.
3. At the beginning of each lesson, briefly communicate the knowledge and skill objectives, and explain why this topic matters.
4. Show the video or slide presentation (where required) and emphasize the key points as needed. Ask for and briefly answer any questions.
5. Facilitate student practices. Answer questions and offer constructive guidance and positive feedback as appropriate.
6. Upon class completion, issue certification cards to those individuals who earned them.
7. Offer and collect students’ Rate Your Program evaluations.

After Class
Complete and sign the Class Roster.

Administration

Skill Evaluation
The instructor must evaluate each student for skill competency — the ability of the individual to do the skill adequately. Each student must be able to demonstrate the skills in the proper sequence according to the skill criteria as it appears in a skill guide or program standard.

Skill Remediation
As time permits, the remediation, or the correction of inadequate skill performance, should be offered to students who are experiencing skill difficulties.

Generally, address student skill problems using the gentle correction of skills and positive coaching. If possible, assist students privately at the end of the class.

Be polite, considerate, encouraging and professional when remediating skills.

If the student is unable or unwilling to perform skills, you can issue the student a Recognition of Participation document, especially in cases where knowledge or experience is a greater goal than certification for the student.

If a student needs certification and requires more remediation than can be provided during a class, recommend the student attend another training class.
Written Exam

A Written Exam is not required for certification unless required by a regulatory agency.

Evaluation of the knowledge objectives is normally accomplished by informal observation and questioning throughout a training class.

When a Written Exam is required, adequate time must be added to the class to complete the exam. Two versions of the Written Exam, along with instructions for their use are included online in Otis. An exam answer sheet is also available to help minimize the amount of paper used. Exam answer keys are provided for both exam versions to aid in exam correction.

Each student must obtain a passing score of 70% or better. If a student does not pass the first Written Exam, he or she must take the alternative version. If a student does not pass the alternative version, he or she must retake the class.

ASHI is implementing open-book exams with the G2015 training programs. Open-book exams emphasize critical thinking and problem solving over recall of memorized facts and decrease test anxiety. Open-book exams mean that students may use reference materials to take exams when they are required. Reference materials include any notes taken during the class as well as the print or digital ASHI Student Book.

Although students may use reference materials while taking the exam, they should not be allowed to openly discuss the exam with other students or the instructor. Their answers should be their own. Instructors may read aloud the exam to the students as necessary without providing the answers.

Consider the following tips to prevent cheating if students take the Written Exam.

1. Before distributing the exams, remind students those who are caught cheating will not receive certification cards.
2. Request a photo ID if you suspect someone may be taking the test in place of a student. Taking an exam for someone else constitutes cheating.
3. Inform students there is to be no talking during the exam. If a student has a question during the exam, ask that student to raise a hand and you will go to him or her.
4. For extra precaution, use both versions of the exam, alternating them between students to make copying from another student more difficult.
5. Walk around the room throughout the exam. Do not do other work while monitoring the exam.

Class Documentation

All of the class documentation forms used in the ASHI Use and Administration of Epinephrine Auto-Injectors training program are available for download in the documents section of Otis. A complete list of those forms can be found in the Appendix of this Instructor Guide.

There may be periodic revisions or updates to the class documentation forms. Refer to Otis for the most current version.

Class Roster

The Class Roster is the principal record of training. The roster verifies student completion of the class. It also documents the results of the Written Exam and remediation, if used during training. A complete, accurate, and legible Class Roster signed by the authorized instructor or submitted online through Otis is required for every training class. The Class Roster must be promptly delivered to the training center responsible for the class or submitted online through Otis. The training center is required to keep clear, legible and orderly class records (paper or digital) for no less than 3 years.

Rate Your Program Course Evaluation

Encouraging class participants to provide feedback and then using that feedback to improve instruction is an essential aspect of any quality educational effort. HSI requires that students be given the opportunity to evaluate any ASHI class using the Rate Your Program course evaluation form.

When used, course evaluations must be promptly delivered to the training center responsible for the class.

Additionally, class participants may provide Rate Your Program feedback directly to HSI http://www.hsi.com/rateyourprogram. All information obtained by HSI through this process is reviewed and shared with the training center, instructor, or instructor trainer as appropriate.
### Initial Class Outline and Time Frame

<table>
<thead>
<tr>
<th>Lesson</th>
<th>Lesson Title</th>
<th>Knowledge Objectives</th>
<th>Skill Objectives</th>
<th>Approximate Length (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
<td>Describe the purpose of the class, health and safety precautions, and conduct a warm-up exercise.</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Anaphylaxis and Epinephrine</td>
<td>Describe what anaphylaxis is and how it occurs. Describe what epinephrine is and why it is used to treat anaphylaxis.</td>
<td>Demonstrate either or both of the following skills:  • How to use an EpiPen Auto-Injector  • How to use an Epinephrine Injection, USP Auto-Injector</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>Recognition and Response</td>
<td>Describe how to recognize signs and symptoms of anaphylaxis. Explain how to use an epinephrine auto-injector.</td>
<td></td>
<td>14–20</td>
</tr>
<tr>
<td>4</td>
<td>Planning and Preparation</td>
<td>Describe how to plan for an anaphylactic emergency.</td>
<td></td>
<td>5</td>
</tr>
</tbody>
</table>

#### Evaluation

<table>
<thead>
<tr>
<th>Skill Evaluation</th>
<th>Written Exam</th>
<th></th>
<th></th>
</tr>
</thead>
</table>
| Skill evaluation, required.  
 | Optional, unless required.  
 |                | 0              | 10–20  |

#### Conclusion

| Documentation and Certification | Verify class documentation and issue certification cards to students who earned them. | 5 |

**Total Time**  

| 37–42  |

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* Skill competency is visually evaluated by instructors during the required small group practices for the class.

* When a Written Exam is not required by a regulatory agency, it is optional. The optional exam may be used before, during, or after class as an active learning tool; however, the participant’s score on an optional exam may not be used to withhold a properly earned certification card. See Written Exam on page 8.

* Class size, class location, instructor-to-student ratios, and other factors will affect the actual schedule.

* Projected times for lessons take into account video run times, brief introductions and answers to questions, demonstrations, and student practices with either 2 or 3 students. Lesson times are influenced by class preparation, available equipment, and instructor efficiency. These could increase the time needed to meet the core learning objectives.
Anaphylaxis and Epinephrine

Class Method: Initial
Class Type: Classroom
Length: 8 minutes

Why This Topic Matters
Anaphylaxis is a serious, rapidly developing, life-threatening condition. A patient’s likelihood of survival is greatly enhanced by the early administration of epinephrine.

What Students Should Learn
After completing this lesson, the student should be able to state or identify the following:
- Describe what anaphylaxis is and how it occurs.
- Describe what epinephrine is and why it is used to treat anaphylaxis.

Instructor Activities

1. Present Knowledge Content — Video (6:14) or Slides
- Emphasize key points as needed.
  ✓ Anaphylaxis
    - Fast-developing reaction by the body’s immune system that affects the entire body and can quickly become life-threatening.
    - A person must be exposed to an allergen such as found in peanuts or bee venom that “triggers” the reaction.
    - Allergens can enter the body through ingestion, injection, skin absorption, or inhalation.
    - Someone who has had a severe allergic reaction in the past is likely to have another reaction when exposed to the same allergen.
    - The faster a reaction occurs, the more serious it is likely to be. Death can occur within minutes.
  ✓ Epinephrine
    - Also known as adrenaline, it is a hormone secreted by the adrenal glands in the human body.
    - Injected epinephrine can quickly counter the life-threatening symptoms of anaphylaxis and provide time to treat the underlying cause.
    - The administration of epinephrine by a lay bystander may be the only opportunity to save a person’s life.
  ✓ Epinephrine Auto-Injectors
    - Simple-to-use medical devices that allow individuals with minimal training to administer epinephrine quickly in an emergency.
    - Automatically inject epinephrine through a spring-loaded needle when pressed firmly against the skin.
    - Individuals who have experienced a serious allergic reaction are typically prescribed epinephrine auto-injectors to carry and use.
    - Auto-injectors are also available for use by certain trained lay providers in situations where anaphylactic reactions may occur more frequently, or in areas that have longer EMS response times.
  ✓ Barriers for Use
    - Many of those who are prescribed auto-injectors do not carry them consistently. Anyone with a prescribed epinephrine auto-injector should have it nearby at all times.
    - Even when an epinephrine auto-injector is available, there is often hesitation to use it.
    - Not carrying an auto-injector, or hesitating to use one, is dangerous. It is the only early treatment available to save a life in an anaphylactic emergency.
    - Many people don’t yet realize they are severely allergic.
Legal Considerations

- Federal law allows schools in the United States to train personnel to administer epinephrine to a student suffering a life-threatening anaphylactic emergency.
- The majority of states now have regulations allowing or requiring schools to have epinephrine auto-injectors and to train school personnel on how to use them.
- Several states also have regulations allowing certain trained laypeople to administer epinephrine in a remote setting with extended EMS response times.
- These regulations provide Good Samaritan protection for trained lay providers and the organizations providing the emergency assistance.

- Ask for and briefly answer any questions.
- Refer students to pages 1–3 of the Student Book.
- Use the Knowledge Check activity to evaluate and increase retention.

2 Wrap It Up

- Ask for and answer any questions before moving on to the next lesson.

Knowledge Check

True or false? Early use of epinephrine in an anaphylactic emergency quickly reverses life-threatening symptoms and buys time for the body and other medications to control the underlying problems.

True. Early use of epinephrine in an anaphylactic emergency quickly reverses life-threatening symptoms and buys time for the body and other medications to control the underlying problems.
Anaphylaxis is a serious, rapidly developing, life-threatening condition. A person’s likelihood of survival is greatly enhanced by the early administration of epinephrine.

In this class, you will learn about causes of severe allergic reaction, how to recognize and treat anaphylaxis, legal considerations for administering epinephrine, and how to prepare for an anaphylactic emergency.

**Anaphylaxis**

Anaphylaxis is a severe allergic reaction by the body’s immune system. This fast-developing reaction affects the entire body and can quickly result in life-threatening symptoms.

A person must be exposed to something he or she is sensitive to in order to have an anaphylactic reaction. These causes, or triggers, are known as allergens.

Allergens can enter the body through ingestion, injection, skin absorption, or inhalation.

These foods and food groups account for 90% of severe allergic reactions:1

- Milk
- Eggs
- Fish
- Crustacean shellfish
- Wheat
- Soy
- Peanuts
- Tree nuts

Thousands of people are stung by insects each year, and as many as 90 to 100 people in North America die each year as a result of anaphylaxis from insect stings.2

Medications, such as penicillin and aspirin, can cause severe allergic reactions.

Latex, often used in disposable gloves or other manufactured products, is also a common cause of severe allergic reaction, especially if someone has had frequent exposure to it.

Someone who has had a severe allergic reaction in the past is likely to have another reaction when exposed to the same allergen.

A severe allergic reaction can develop rapidly. In general, the faster the reaction occurs, the more severe it is. Without treatment, death can occur within minutes.3
Epinephrine

Epinephrine, also known as adrenaline, is a hormone secreted by the adrenal glands in the human body. As an injectable medication, epinephrine can quickly counter the life-threatening symptoms of anaphylaxis and provide more time to treat the underlying cause.

Because of the speed of an anaphylactic reaction, the administration of epinephrine by a lay bystander may be the only opportunity to save a person’s life.⁴

Epinephrine Auto-Injectors

Epinephrine auto-injectors are simple-to-use medical devices that allow individuals with minimal training to administer epinephrine quickly in an emergency. Auto-injectors automatically inject epinephrine through a spring-loaded needle when pressed firmly against the skin.

Individuals who have experienced a serious allergic reaction or are at risk for one are typically prescribed epinephrine auto-injectors to carry and use. In addition, epinephrine auto-injectors are available for use by certain trained lay providers in situations where anaphylactic reactions may occur more frequently, such as by teachers in schools, or by lay providers in remote areas that have longer EMS response times.

Barriers for Use

Most epinephrine auto-injectors are prescribed for self-administration during a life-threatening anaphylactic emergency. However, many of those who are prescribed auto-injectors do not carry them consistently.

Anyone with a prescribed epinephrine auto-injector should have it nearby at all times, especially when there is a higher risk for exposure to a known allergen.

Even when an epinephrine auto-injector is available, there is often hesitation to use it. Common reasons for hesitation include the following:⁵

- Failure to recognize the symptoms of anaphylaxis
- Uncertainty about how and when to use an auto-injector
- Belief that EMS professionals can provide timely care
- Fear of making things worse

Not carrying an epinephrine auto-injector, or hesitating to use or administer one, is dangerous. It is the only early treatment available to save a life in an anaphylactic emergency.⁶

Many people don’t yet realize they are severely allergic. For example, about 25% of anaphylactic reactions at schools occur in students previously undiagnosed.⁷
Legal Considerations

Federal law allows elementary and secondary schools in the United States to train personnel to administer epinephrine to a student suffering a life-threatening anaphylactic emergency. As a result, the majority of states now have regulations that allow or require schools to have epinephrine auto-injectors and to train school personnel on how to administer them. In addition to school personnel, several states have regulations that allow certain trained laypeople to administer epinephrine in a remote setting. This includes individuals such as law enforcement, outdoor camp staff, wilderness guides, and forest workers.

These regulations also provide Good Samaritan protection for trained lay providers and the organizations providing the emergency assistance.

Knowledge Check

True or false? Early use of epinephrine in an anaphylactic emergency quickly reverses life-threatening symptoms, buying time for the body and other medications to control the underlying problems.