

2022-2023

Administered Epinephrine Auto-Injectors in Schools Report



TEXAS
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Texas Department of State
Health Services

Table of Contents

Executive Summary	3
Introduction.....	4
Methods	5
Results.....	6
Analysis and Discussion	14
Conclusion	15
List of Acronyms	16
General Information	17
Appendix A. Schools - Required Reporting of Administered Epinephrine Auto-Injectors to DSHS Form.....	A-1
Appendix B: Regional Education Service Center Map.....	B-1
Appendix C: Youth Facilities.....	C-1

Executive Summary

[Texas Education Code Section 38.209](#) and the [Texas Administrative Code, Title 25, Part 1, Chapter 37, Section 37.608](#) require K-12 schools that adopt an epinephrine auto-injector policy to report the use of an epinephrine auto-injector. The school must submit a report within 10 business days to the:

- school district,
- charter holder or the governing body of the school,
- physician or other person who prescribed the epinephrine auto-injector,
- commissioner of the Texas Education Agency, and
- commissioner of the Texas Department of State Health Services (DSHS).

Schools submitted the data through the web form, *Required Reporting of Administered Epinephrine Auto-Injectors to DSHS* ([Appendix A](#)) during the 2022-2023 school year. The DSHS School Health Program and the DSHS Chronic Disease Epidemiology Branch (CDE) analyzed the reported data.

During the 2022-2023 school year, a total of 161 uses of an epinephrine auto-injector in school settings were reported to DSHS. The majority of injections were given to students (88.2%). The adult dose of epinephrine, suitable for individuals weighing more than 66 pounds¹, was most frequently administered (70.8%). Nearly half of the injections were given to people with a known history of anaphylaxis or allergies. In most cases, the school's unassigned epinephrine auto-injector was used. The most reported symptoms were tightness in throat or chest (66.5%), itchiness (50.9%), trouble breathing or shortness of breath (48.4%), anxiety (43.5%), wheezing or coughing (39.8%), and rapid pulse (37.9%). Food was selected as the suspected cause or trigger for slightly more than half of the cases (55.9%).

¹ EPIPEN. (n.d). Dosage and Administration. Retrieved from <https://www.epipen.com/hcp/about-epipen-and-generic/dosage-and-administration>

Introduction

The purpose of this report is to understand the use of epinephrine auto-injectors in K-12 schools across Texas. This information will be used by DSHS and the [Stock Epinephrine Advisory Committee \(SEAC\)](#) to inform future program activities and areas of focus.

The [Texas Education Code, Section 38.209](#) and [Texas Administrative Code, Title 25, Part 1, Chapter 37, Section 37.608](#) requires a school district, open-enrollment charter school, or private school that adopts an epinephrine auto-injector policy under Section 38.209 to report the use of an epinephrine auto-injector.

The school must submit a report within 10 business days to the:

- school district,
- charter holder if the school is an open-enrollment charter school, or the governing body of the school if the school is a private school,
- physician or other person who prescribed the epinephrine auto-injector,
- commissioner of the Texas Education Agency, and
- commissioner of the Texas Department of State Health Services (DSHS).

Schools submitted the data through the web form, Required Reporting of Administered Epinephrine Auto-Injectors to DSHS during the 2022-2023 school year. The DSHS School Health Program collaborated with the DSHS Chronic Disease Epidemiology Branch (CDE) to analyze the reported data.

It is also important to note that a stand-alone Youth Facilities section is included in the [appendix](#) part of this report to capture the administration of unassigned epinephrine auto-injections among youth facilities in Texas, required by The [Texas Administrative Code, Title 25, Part 1, Chapter 40, Subchapter C, Section 40.23](#) and [Texas Health and Safety Code, §773.0145](#).

Methods

The method used to report use of an epinephrine auto-injector in a school is, the *Required Reporting of Administered Epinephrine Auto-Injectors to DSHS* web form. This action is required within ten days of the use of an epinephrine auto-injector in a school ([Appendix A](#)).

The web form consists of 22 questions, including nine open-ended, six single-answer and seven multi-select questions. The web form can be found on the [DSHS website](#).

The School Health Program staff collected the data from the webform to prepare the database for CDE to analyze. In August 2023, a CDE program evaluator analyzed the K-12 School records submitted between August 1, 2022, through July 31, 2023, using Microsoft Excel.

Results

A total of 161 records were submitted during this period. DSHS received records from 54 independent school districts (ISDs), six private schools, and one charter school. The age range of people (student, school personnel, or school volunteer) who received an epinephrine auto-injector injection in the school setting was 1 to 64 years old.

Note that early childhood schools such as preschools were included. The average age of recipient was 15 years old. Not all schools adopt this policy and hence are not required to report DSHS. This limitation should be kept in mind when interpreting the data.

Table 1: Frequency and Percent of Epinephrine Auto-Injector Use in Texas Schools by ESC Region (n=161)

Education Service Center (ESC) Region	Frequency (n)	Percent (%)
Region 1	14	8.7
Region 3	1	0.6
Region 4	11	6.8
Region 5	1	0.6
Region 6	4	2.5
Region 7	2	1.2
Region 8	3	1.9
Region 9	1	0.6
Region 10	34	21.1
Region 11	42	26.1
Region 12	3	1.9
Region 13	24	14.9
Region 14	2	1.2
Region 17	3	1.9
Region 18	1	0.6
Region 19	3	1.9
Region 20	12	7.5
Total	161	100.0

Table 1 Interpretation: Seventeen Education Service Centers (ESC) regions submitted 161 records in total. The most records were submitted by ESC

Region 11 (26.1%), ESC Region 10 (21.1%), and ESC Region 13 (14.9%) ([Appendix B](#)).

Table 2: Frequency and Percent of Epinephrine Auto-Injector Use in Texas Schools by Recipient (n=161)

Administered to	Frequency (n)	Percent (%)
Students	142	88.2
School Personnel/Volunteer	19	11.8
Total	161	100.0

Table 2 Interpretation: Schools reported that the majority of epinephrine auto-injector injections were administered to students (88.2%). School personnel and/or volunteers received 11.8% of epinephrine auto-injector injections.

Table 3: Frequency and Percent of Epinephrine Auto-Injector Use in Texas Schools by Administrator (n=161)

Administered by	Frequency (n)	Percent (%)
Nurse	149	92.5
Other	9	5.6
Clinic Staff	2	1.2
Student (self-administer)	1	0.6
Total	161	100.0

Note: Nurse includes RN, LVN, Campus Nurse, or LPN. Others include principal, teacher, or office staff. Clinic Staff includes a paramedic or EMT. Percent by administrator may not total 100.0 due to rounding.

Table 3 Interpretation: Epinephrine auto-injector injection was most frequently administered by a nurse (92.5%), followed by “other” such as a principal, teacher, or office staff (5.6%), clinic staff (1.2%), or self-administered by a student (0.6%).

Table 4: Frequency and Percent of Epinephrine Auto-Injector Use in Texas Schools by Location Administered (n=161)

Location Administered	Frequency (n)	Percent (%)
Clinic/Nurse's Office	138	85.7
Other	17	10.6
Classroom	5	3.1
Playground/Recess	1	0.6
Total	161	100.0

Note: Clinic/Nurse's Office includes nurse's office, school clinic, nurse clinic, health room/office, or nurse's station. Classroom includes art room. Other includes hallway, athletic training room, ERO vehicle, cafeteria, locker room, restroom, or parking lot.

Table 4 Interpretation: Most respondents reported that the epinephrine auto-injector injection was administered in a clinic/nurse's office (85.7%). A few respondents (10.6%) indicated other locations including hallway, athletic training room, ERO vehicle, cafeteria, locker room, restroom, or parking lot.

Table 5: Frequency and Percent of Epinephrine Auto-Injector Use in Texas Schools by Dosage Type (n=161)

Dosage Type	Frequency (n)	Percent (%)
Adult	114	70.8
Child	47	29.2
Total	161	100.0

Table 5 Interpretation: While 70.8% of individuals received the adult dose of the epinephrine auto-injector injection, 29.2% received the child dose. The adult dose of epinephrine is suitable for individuals weighing more than 66 pounds.

Table 6: Frequency and Percent of Epinephrine Auto-Injector Use in Texas Schools by Number of Doses (n=161)

Number of Doses	Frequency (n)	Percent (%)
One	154	95.7
Two	7	4.3
Total	161	100.0

Table 6 Interpretation: While most individuals received one dose of the epinephrine auto-injector injection (95.7%), a few received two doses (4.3%).

Table 7: Frequency and Percent of Epinephrine Auto-Injector Use in Texas Schools by History of Anaphylaxis (n=161)

History of Anaphylaxis	Frequency (n)	Percent (%)
Yes	85	52.8
No	63	39.1
Unknown	13	8.1
Total	161	100.0

Table 7 Interpretation: At least half of individuals who received the epinephrine auto-injector injection had a known history of anaphylaxis (52.8%). Approximately 39.1% of individuals did not have a history of anaphylaxis. The history of anaphylaxis was unknown for 8.1% of cases reported.

Table 8: Frequency and Percent of Epinephrine Auto-Injector Use in Texas Schools by Utilization of Unassigned Auto- Injector (n=161)

Unassigned Auto- Injector Utilized	Frequency (n)	Percent (%)
Yes	149	92.5
No	12	7.5
Total	161	100.0

Note: The unassigned auto-injector is assigned to the school and not to a specific student. Texas Education Code, Section 38.209 relates to unassigned auto-injectors. However, the Stock Epinephrine Advisory Committee (SEAC) suggested that schools also report the administration of assigned auto-injectors to show the extent to which anaphylactic reactions are treated in schools. As such, some schools report the administration of both assigned and unassigned auto-injectors.

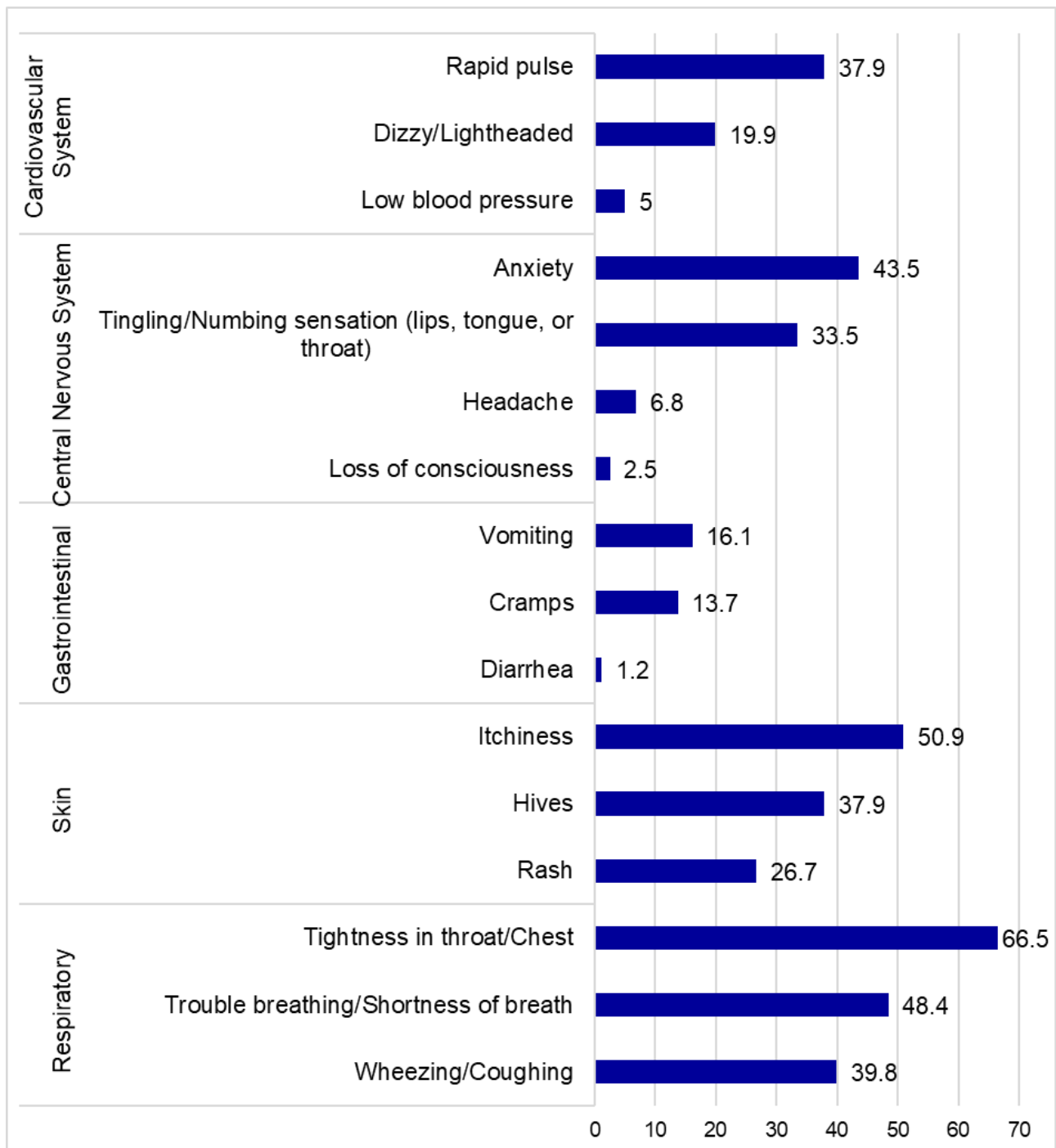
Table 8 Interpretation: The unassigned auto-injector is assigned to the school and not to a specific student. In most cases (92.5%), the school's unassigned epinephrine auto-injector was used.

Table 9: Frequency and Percent of Epinephrine Auto-Injector Use in Texas Schools by Notification of Emergency Medical Services (n=161)

Notified Emergency Medical Services	Frequency (n)	Percent (%)
Yes	153	95.0
No	8	5.0
Total	161	100.0

Table 9 Interpretation: While local emergency medical services were notified for 95% of individuals who received the epinephrine auto-injector, for 5% of individuals who received the epinephrine auto-injector, emergency medical services were not notified.

Figure 1: Percent of Symptoms that the Individual who Got the Auto-injector Injection was Exhibiting in Texas Schools



Note: Percent was calculated by using the total number of participants (161) as the denominator for each symptom. Respondents could select all symptoms that apply. Therefore, the total frequency will not equal to 161, and the total percent will not equal to 100.0.

Figure 1 Interpretation: Figure 1 shows the percentage of reported signs and symptoms experienced by individuals who received the injection.

Respondents could select multiple symptoms. Of those individuals who experienced respiratory symptoms, 66.5% reported tightness in the throat or chest, 48.4% reported having trouble breathing or shortness of breath, and 39.8% reported wheezing or coughing. Of those who experienced skin symptoms, 50.9% reported itchiness, 37.9% reported hives, and 26.7% reported a rash. Over a quarter of individuals (31%) experienced gastrointestinal symptoms such as vomiting, cramps, or diarrhea. Of those who experienced central nervous system symptoms, 43.5% reported experiencing anxiety, and 33.5% reported tingling or numbing sensation in the lips, tongue, or throat. Lastly, of those who experienced cardiovascular symptoms, 37.9% reported rapid pulse.

Respondents were also asked to provide text responses for signs or symptoms that were not already listed in the form. Seventy-three respondents provided text responses. Some symptoms mentioned included swelling (eyes, lips, tongue, face), difficulty speaking, difficulty swallowing, nausea, itching, or low oxygen.

Figure 2: Percent of Suspected Causes or Triggers of Anaphylaxis in Texas Schools

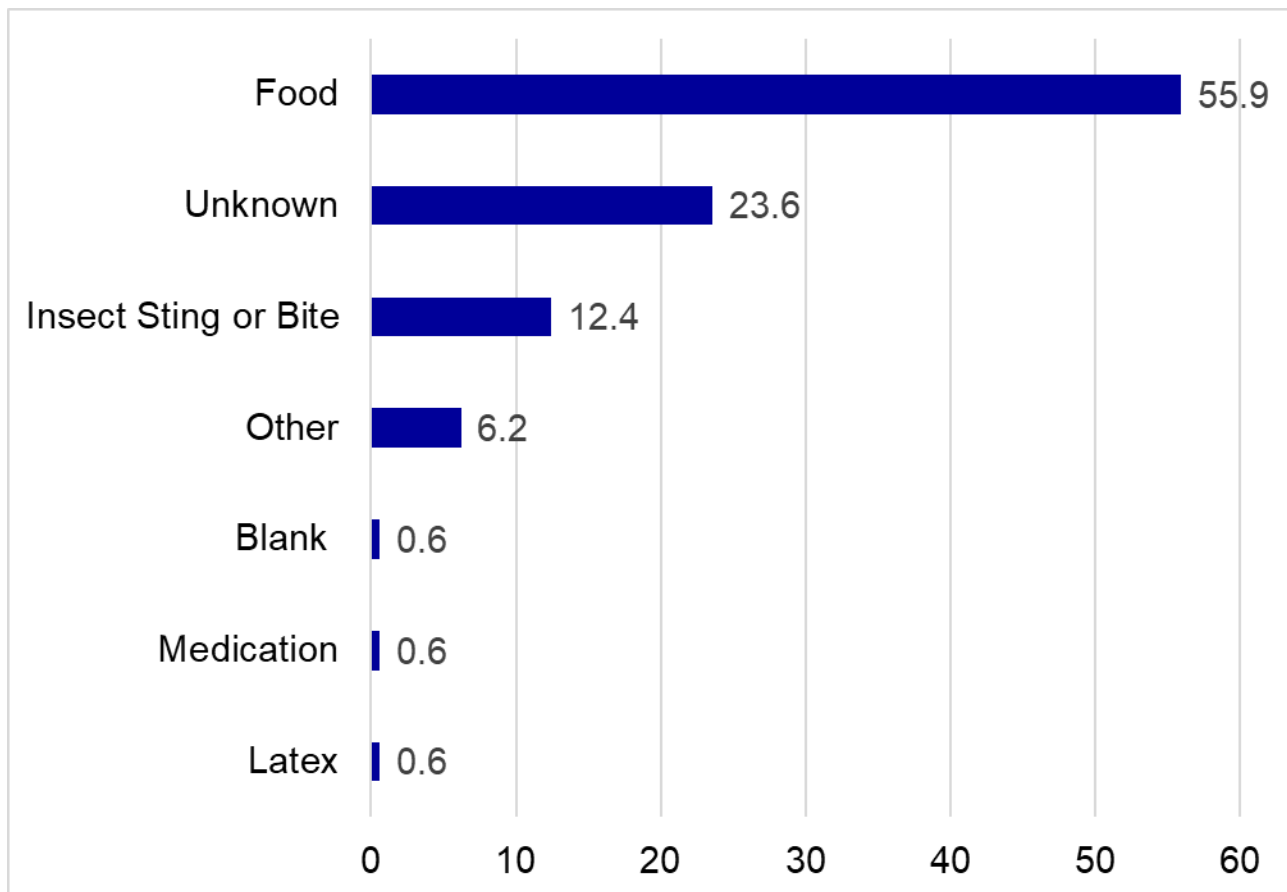


Figure 2 Interpretation: Figure 2 shows the suspected causes or triggers of anaphylaxis. Over half (55.9%) of the cases were suspected to be due to food while almost a quarter (23.6%) had an unknown trigger. Fewer respondents selected an insect bite or sting as a suspected trigger (12.4%).

Nineteen respondents provided text responses for other suspected triggers. Some triggers noted included food allergies, allergy shot, fragrance/spray, or pet dander.

Analysis and Discussion

The main purpose of this analysis was to understand the use of epinephrine auto-injectors in K-12 schools throughout Texas.

During the 2022-2023 school year, 161 uses of an epinephrine auto-injector in a school setting were reported to DSHS. Most of these injections were given to students who received one adult dose of epinephrine. Nearly half of the injections were given to people with a known history of anaphylaxis or allergies. In most cases, the school's unassigned epinephrine auto-injector was used. The most reported symptoms were tightness in throat or chest, trouble breathing or shortness of breath, itchiness, anxiety, and rapid pulse. In over half of the reports, the suspected cause or trigger was food.

Conclusion

This report sought to understand the use of administered epinephrine auto-injectors in schools across Texas during the 2022-2023 school year. Nearly half of the injections were given to people with a known history of anaphylaxis or allergies. Food was the top suspected cause or trigger, and the most common symptoms reported were tightness in throat or chest, trouble breathing or shortness of breath, itchiness, anxiety, and rapid pulse. The DSHS School Health Program plans to use the data provided in this report to monitor and guide future reporting and projects for allergy control in the school setting. The School Health Program will examine trends in stock epinephrine reporting over time to guide future reporting and projects. These projects may include greater outreach, revisions to the reporting forms for additional information, or collaboration with other stakeholders interested in epinephrine auto-injector use in schools in Texas.

List of Acronyms

Acronym	Full Name
DSHS	Texas Department of State Health Services
CDE	Chronic Disease Epidemiology
ISD	Independent School District
ESC	Education Service Center

General Information

Contact Information

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Appendix A. Schools - Required Reporting of Administered Epinephrine Auto-Injectors to DSHS Form

Required Reporting of Administered Epinephrine Auto-Injectors to DSHS

If you are a school district, open-enrollment charter school, private school, or institution of higher education, there are reporting rules. The rules apply to unassigned epinephrine auto-injectors. The rule says you must report the administration of unassigned epinephrine auto-injectors. This requirement is in the Texas Education Code, [§38.209](#) and [§51.883](#).

You must report no later than 10 business days after the date of an unassigned epinephrine auto-injection is administered in accordance with the [Texas Administrative Code, Title 25, Part 1, Chapter 37, Section 37.608](#) and [Texas Administrative Code, Title 25, Part 1, Chapter 40, Section 40.7](#).

School districts, open-enrollment charter schools, and private schools must report to the:

- school district
- charter holder if the school is an open-enrollment charter school
- governing body of the school if the school is a private school
- prescribing physician
- commissioner of the Department of State Health Services (DSHS)

Institutions of higher education must report to the:

- prescribing physician
- commissioner of DSHS

NOTE: Texas Education Code, Chapter 61, §61.003 defines institution of higher education as a:

- technical institute
- junior college or community college
- college or university
- medical or dental school
- public state college
- agency of Higher Education

We currently do not require private institutions of higher education to submit reports. DSHS encourages all institutions of higher education to report the use of epinephrine auto-injectors.

Please fill out the entire form and provide detailed information.
All fields with an asterisk (*) must be completed.

School Information	
Select if you are reporting for a K-12 school or an institution of higher education:*	<input type="radio"/> K-12 School <input type="radio"/> Institution of Higher Education
Name of the institution of higher education, school district, open-enrollment charter school, or private school:*	
<input type="text"/>	
Email address of person completing this form:*	
<input type="text"/>	
Education Service Center region for your school district, open-enrollment charter school, or private school: (Enter N/A if this report is for an institution of higher education.)*	
<input type="text"/>	
Recipient Information	
Person who received the epinephrine auto-injector injection:*	<input type="radio"/> Student <input type="radio"/> School Personnel or School Volunteer <input type="radio"/> Visitor
Age of person who received the epinephrine auto-injector injection:*	<input type="text"/>

Location and Dosage Information

Physical location where you administered the injection:*

(Examples: cafeteria, classroom, school bus, hallway, football field, etc. You do not need to include mailing address.)

Number of doses administered:*

(1 dose = 1 epinephrine auto-injector)



Type of dosage administered:*

☐ Child dose

☐ Adult dose

Other Information

Date administered:*

[None]  

Title of the person who administered the injection:*

(Examples: 6th grade teacher, school librarian, basketball coach, school volunteer, etc.)

Did the person who received the epinephrine auto-injector injection have a known history of anaphylaxis or allergies requiring epinephrine auto-injectors?*

☐ Yes

☐ No

☐ Unknown

Was the school's unassigned epinephrine auto-injector utilized?*

☐ Yes

☐ No

[Texas Administrative Code §37.605\(e\)](#) requires schools to notify local emergency medical services when an individual is suspected of experiencing anaphylaxis and when an epinephrine auto-injector is administered. For information on this requirement, please read [EMS Evaluation After Administering Epinephrine in Schools](#) (PDF).

Were local emergency medical services (EMS) notified about the individual who received the injection from the epinephrine auto-injector?*

(Examples: 9-1-1 was called, individual was transported by local EMS to hospital, etc.)

- ☐ Yes
☐ No

Symptom Information

A person experiencing anaphylaxis may have many signs and symptoms. Please select the symptoms that the individual who received the auto-injector injection was exhibiting. Please mark all that apply. If no symptoms for a particular group occurred, choose "N/A."*

Respiratory	<input type="checkbox"/> Wheezing or coughing <input type="checkbox"/> Trouble breathing or shortness of breath <input type="checkbox"/> Tightness in throat or chest <input type="checkbox"/> N/A (no respiratory symptoms)
Skin	<input type="checkbox"/> Rash <input type="checkbox"/> Hives <input type="checkbox"/> Itchiness <input type="checkbox"/> N/A (no skin symptoms)
Gastrointestinal	<input type="checkbox"/> Cramps <input type="checkbox"/> Diarrhea <input type="checkbox"/> Vomiting <input type="checkbox"/> N/A (no gastrointestinal symptoms)
Central Nervous System	<input type="checkbox"/> Headache <input type="checkbox"/> Tingling or numbing sensation (lips, tongue, or throat) <input type="checkbox"/> Loss of consciousness <input type="checkbox"/> Anxiety <input type="checkbox"/> N/A (no CNS symptoms)

Cardiovascular System	<input type="checkbox"/> Dizzy or lightheaded <input type="checkbox"/> Rapid pulse <input type="checkbox"/> Low blood pressure <input type="checkbox"/> N/A (no cardiovascular symptoms)
Other	Please list signs or symptoms not listed above, if applicable: <div style="border: 1px solid black; height: 50px; width: 100%;"></div>

Suspected Cause

Please indicate the suspected cause or trigger of the anaphylaxis:*

- ☐ Food
- ☐ Latex
- ☐ Insect sting or bite
- ☐ Medication
- ☐ Unknown
- ☐ Other

If you selected "Other" for the suspected cause question above, please explain:



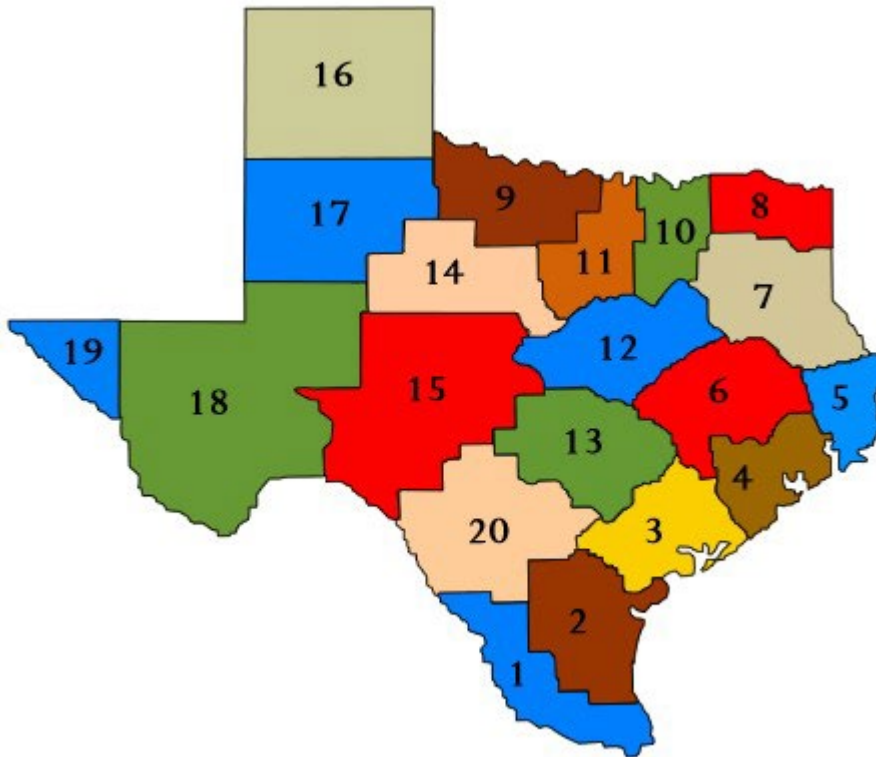
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Appendix B: Regional Education Service Center Map



Appendix C: Youth Facilities

The [Texas Administrative Code, Title 25, Part 1, Chapter 40, Subchapter C, Section 40.23](#) and [Texas Health and Safety Code, §773.0145](#) requires youth facilities to report the administration of unassigned epinephrine auto-injectors within 10 business days to the:

- owner of the facility
- prescribing physician
- commissioner of the Department of State Health Services (DSHS)

Youth facilities are defined as:

- Child-care facility,
- Day camp or youth camp,
- Youth center,
- Small employer-based day-care facility,
- Temporary shelter day-care facility,
- Listed family homes, and
- Any other private or public entity that would benefit from the possession and administration of epinephrine auto-injectors, that provide services for youth under the age of eighteen.

Youth facilities submitted the data through the web form, [Youth Facilities - Required Reporting of Unassigned Administered Epinephrine Auto-Injectors to DSHS](#) during the 2022-2023 school year. The DSHS School Health Program collaborated with the DSHS Chronic Disease Epidemiology Branch (CDE) to analyze the reported data.

Between August 1, 2022, and July 31, 2023, a total of three uses of an epinephrine auto-injector were submitted to DSHS by three youth facilities in Texas. For all cases reported (100%), the epinephrine injection was administered to a student or youth, one dose was administered, and

emergency medical services were notified. The age range of youth who received an epinephrine injection was 3 to 12 years old.

Table 10: Frequency and percent of suspected Cause or Trigger of Anaphylaxis in Texas Youth Facilities (n=3)

Suspected Cause	Frequency (n)	Percent (%)
Food	2	66.7
Insect Sting or Bite	1	33.3
Total	3	100.0

Table 10 Interpretation: Table 10 shows the suspected causes or triggers of anaphylaxis in Texas youth facilities. While food was the suspected trigger for two of the cases (66.7%), an insect bite or sting was the suspected cause for one case (33.3%).

School Health Program

dshs.texas.gov/schoolhealth