

2021-2022

Administered Epinephrine Auto-Injectors in Schools Report



TEXAS
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Texas Department of State
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Executive Summary

[Texas Education Code Section 38.209](#) and the [Texas Administrative Code, Title 25, Part 1, Chapter 37, Section 37.608](#) require 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).

The DSHS School Health Program and the DSHS Chronic Disease Epidemiology Branch (CDE) analyzed the reported data. Schools submitted the data through the *Required Reporting of Administered Epinephrine Auto-Injectors to DSHS* web form ([Appendix A](#)) during the 2021-2022 school year. The purpose of this report is to understand the use of epinephrine auto-injectors in schools across Texas.

A total of 116 uses of an epinephrine auto-injector in a school were reported to DSHS. The majority of injections were given to students (85.3%). The adult dose of epinephrine, suitable for individuals weighing more than 66 pounds, was most frequently administered (73.3%). 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 (61.2%), trouble breathing or shortness of breath (45.7%), rapid pulse (41.4%), itchiness (41.4%), and anxiety (38.8%). Food was selected as the suspected cause or trigger for slightly more than half of the cases (55.2%).

It is important to note that schools in Texas were impacted by the COVID-19 pandemic. Thus, epinephrine auto-injector needs and reporting may have

been affected by the pandemic. It is likely that fewer injections were reported due to school closures, reduced in-person attendance and the availability of virtual learning.

Introduction

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).

The DSHS School Health Program collaborated with the DSHS Chronic Disease Epidemiology Branch (CDE) to analyze the reported data. Schools submitted the data through the *Required Reporting of Administered Epinephrine Auto-Injectors to DSHS* web form during the 2021-2022 school year.

The purpose of this report is to understand the use of epinephrine auto-injectors in schools throughout Texas. This information will be used by DSHS and the Stock Epinephrine Advisory Committee to inform future program activities and areas of focus. It is important to note that schools in Texas were impacted by the coronavirus disease (COVID-19) pandemic. Thus, epinephrine auto-injector reporting may also have been affected by the pandemic with fewer injections due to school closures, reduced in-person attendance and the availability of virtual learning.

Methods

School health services personnel completed the *Required Reporting of Administered Epinephrine Auto-Injectors to DSHS* web form within ten days of the use of an epinephrine auto-injector in a school ([Appendix A](#)). The web form consists of 22 questions, including 10 open-ended, seven multiple-choice and five 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 2022, a CDE program evaluator analyzed the records submitted between August 1, 2021, to July 31, 2022, using Microsoft Excel.

Results

A total of 116 records were submitted during this period. DSHS received records from 43 independent school districts (ISD), four private schools, and two charter schools. Education Service Center (ESC) Region 10 (26.7%), Region 11 (24%), and Region 13 (16.4%) ([Appendix B](#)) submitted the most records.

Schools reported epinephrine auto-injections administered to students, school personnel/volunteers, and visitors. The age range of people who received an epinephrine auto-injector injection was 3 to 70 years old. The average age was 15.5 years old. Most respondents reported that the epinephrine auto-injector injection was administered in a clinic (62.1%) or nurse's office (23.3%). Epinephrine was most frequently administered by a nurse (90.5%), followed by "other" such as a principal, assistant principal, teacher, or parent (4.3%), clinic assistant (2.6%), or self-administered by a student (2.6%).

Table 1 shows the frequency and percent of responses to each question on the web form. Most epinephrine auto-injector injections were administered to students (85.3%). Many individuals received an adult dosage (73.3%) and almost all received one dose (96.6%) of epinephrine.

Almost half the individuals who received the epinephrine auto-injector injection had a known history of anaphylaxis (48.2%). In most cases (88.8%) the school's unassigned epinephrine auto-injector was used. Lastly, local emergency medical services were notified for 76.7% of those who received the epinephrine auto-injector.

Table 1: Frequency and Percent of Epinephrine Auto-Injector Use in Texas Schools. (n=116)

Questions	Answers	Frequency (n)	Percent (%)
Education Service Center (ESC) Regions	Region 1	4	3.4
	Region 2	5	4.3
	Region 4	7	6.0
	Region 6	3	2.6
	Region 7	2	1.7
	Region 8	1	0.9
	Region 9	1	0.9
	Region 10	31	26.7
	Region 11	28	24.0
	Region 12	1	0.9
	Region 13	19	16.4
	Region 14	3	2.6
	Region 16	1	0.9
	Region 17	1	0.9
	Region 19	1	0.9
	Region 20	8	6.9
Administered to	Students	99	85.3
	School Personnel/Volunteer	16	13.8
	Visitors	1	0.9
Administered by	Nurse	105	90.5
	Other ¹	5	4.3
	Clinic Assistant	3	2.6
	Student (self-administer)	3	2.6
Dosage Type	Adult	85	73.3
	Pediatric	31	26.7
Number of Doses Administered	One	112	96.6
	Two	4	3.4
History of Anaphylaxis	Yes	56	48.2
	No	51	44.0

Questions	Answers	Frequency (n)	Percent (%)
	Unknown	9	7.8
Unassigned Auto-Injector Utilized²	Yes	103	88.8
	No	13	11.2
Notified Emergency Medical Services³	Yes	89	76.7
	No	27	23.3
Total		116	100.0

¹ Other includes principal, assistant principal, teacher, or parent.

²The unassigned auto-injector is assigned to the school and not 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.

³ The DSHS School Health Program changed the epinephrine reporting question from “transported to emergency medical services” to “notified emergency medical services” midway through the data collection period in late March 2022.

Table 2 shows the reported signs and symptoms experienced by the individuals who received the injection. Respondents could select multiple symptoms. All respondents (100%) reported at least one symptom.

Of those individuals who experienced respiratory symptoms, 61.2% reported tightness in the throat or chest, 45.7% reported having trouble breathing or shortness of breath. Of those who experienced skin symptoms, 38.8% reported itchiness, 34.5% reported hives, and 30.2% reported rash. Nearly a quarter of individuals (23.3%) experienced gastrointestinal symptoms such as vomiting and cramps. Of those who experienced central nervous system symptoms, 38.8% reported experiencing anxiety, and 33.6% reported tingling or numbing sensation. Lastly, of those who experienced cardiovascular symptoms, 41.4% reported rapid pulse.

Fifty-seven respondents indicated “other” symptoms. Nineteen respondents specified that the individual experienced throat pain (i.e., swelling, hoarseness, tightness, etc.). Several respondents also indicated other symptoms that included, but are not limited to face swelling, nausea, and flushed skin.

**Table 2: Frequency and Percent of Symptom Information¹
(n=116)**

Symptom Type	Specific Symptoms	Frequency (n)	Percent (%)
Respiratory	Tightness in throat or chest	71	61.2
	Trouble breathing or shortness of breath	53	45.7
	Wheezing or coughing	43	37.1
Skin	Itchiness	45	38.8
	Hives	40	34.5
	Rash	35	30.2
Gastrointestinal	Vomiting	18	15.5
	Cramps	9	7.8
Central Nervous System	Anxiety	45	38.8
	Tingling or numbing sensation	39	33.6
	Headache	4	3.4
	Loss of consciousness	2	1.7
Cardiovascular System	Rapid pulse	48	41.4
	Dizzy or lightheaded	16	13.8
	Low blood pressure	5	4.3

¹ Percent was calculated by using the total number of participants (116). Respondents could select all symptoms that apply. Therefore, the total frequency will not equal to 116, and the total percent will not equal to 100.

Table 3 shows the suspected causes or triggers of the anaphylaxis. Over half (55.2%) of the cases were suspected to be due to food while almost a quarter (24.1%) had an unknown trigger. Fewer respondents selected an insect bite or sting as a suspected trigger (9.5%).

Ten respondents indicated “other” suspected triggers. Of those that provided text responses, food allergies, allergy shot, and dust mites were noted.

**Table 3: Frequency and percent of suspected cause
(n=116)**

Suspected Cause	Frequency (n)	Percent (%)
Food	64	55.2
Unknown	28	24.1
Insect Bite/Sting	11	9.5
Other	10	8.6
Medication	2	1.7
Latex	1	0.9
Total	116	100.0

Analysis and Discussion

During the 2021-2022 school year, 116 uses of an epinephrine auto-injector in a school were reported to DSHS. Most of these injections were given to students who received one adult dose of epinephrine. Almost 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.

It is important to note that the COVID-19 pandemic may have affected administered epinephrine auto-injectors reporting. Reduced in-person school attendance and virtual learning was available during this school year.

The school health program plans to look at 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.

Conclusion

The purpose of this report is to understand the use of administered epinephrine auto-injectors in schools across Texas during the 2021-2022 school year. 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.

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

Texas School Health Program
Community Health Worker and School Health Branch
Health Promotion and Chronic Disease Prevention Section
PO Box 149347, MC 1945
Austin, TX 78714-9347
1100 West 49th Street
Austin, Texas 78756
Email: schoolhealth@dshs.texas.gov
Phone: 512-776-7279
dshs.texas.gov/schoolhealth/

Author Information

Prepared by Calandra Jones, MPH
Program Evaluator
Chronic Disease Epidemiology
Health Promotion and Chronic Disease Prevention Section

Reviewed by Justin Buendia, PhD
Manager
Chronic Disease Epidemiology
Health Promotion and Chronic Disease Prevention Section

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Appendix A. 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:



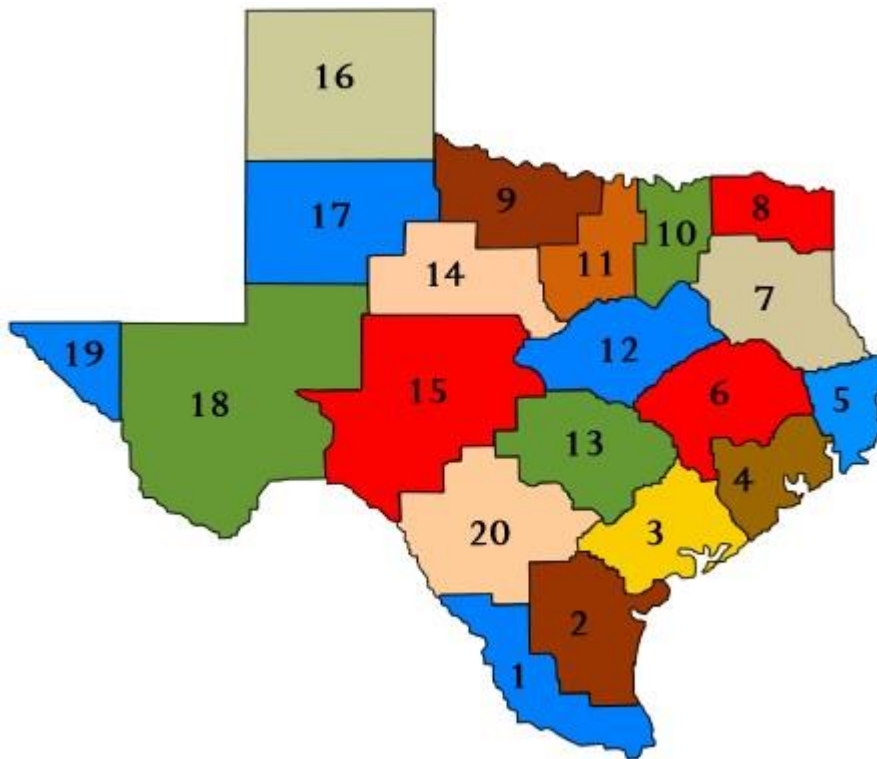
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Appendix B: Regional Education Service Center Map



School Health Program

dshs.texas.gov/schoolhealth