

Life-Threatening Allergies, Anaphylactic Events and the Administration of Epinephrine in School

Massachusetts

2016-2017 School Year

1. Allergy Prevalance and Epinephrine Prescription Rates (Public School Students)

Type of allergy	Number of Students	Percent of Enrollment
Insect sting	2,787	0.5
Food	38,917	6.6
Latex	1,422	0.2

Students with epinephrine prescriptions	17,134	2.9
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	Number of Students	% of MA public school enrollment
Student enrollment in districts reporting allergy and prescription data*	587,911	61.6
Total MA public school enrollment	953,748	100.0

* n = 136 districts

2. Characteristics of Individuals Who Experienced an Anaphylactic Event (Public and Private Schools)

Type of person treated for anaphylaxis	Number of Individuals	Percent of Total
Staff/Visitor	35	10.8
Student	289	89.2
TOTAL	324	100.0

Age	Number of Individuals	Percent of Total
5 or under	15	4.6
6	13	4.0
7	7	2.2
8	13	4.0
9	16	4.9
10	18	5.6
11	17	5.2
12	33	10.2
13	24	7.4
14	28	8.6
15	36	11.1
16	39	12.0
17	24	7.4
18 or older	40	12.3
Unknown	1	0.3
TOTAL	324	100.0

Gender	Number of Individuals	Percent of Total
Female	188	58.0
Male	135	41.7
Unknown	1	0.3
TOTAL	324	100.0

Race/Ethnicity	Number of Individuals	Percent of Total
African American non-Hispanic	32	9.9
Asian non-Hispanic	28	8.6
Hispanic	44	13.6
White non-Hispanic	191	59.0
Unknown or Other	29	9.0
TOTAL	324	100.1

History of life threatening allergy

Did not have an allergy history	68	21.0
Had an allergy history	243	75.0
Unknown	13	4.0
TOTAL	324	100.0

Existence of an allergy action plan

Did not have an allergy action plan	69	21.3
Had an allergy action plan	214	66.0
Unknown	2	0.6
Not applicable (there was no history of allergy)	39	12.0
TOTAL	324	100.0

History of anaphylaxis

No history of anaphylaxis	132	40.7
Had a history of anaphylaxis	145	44.8
Unknown	47	14.5
TOTAL	324	100.0

Previous epinephrine use

No prior epinephrine use	154	47.5
Prior epinephrine use	114	35.2
Unknown	56	17.3
TOTAL	324	100.0

Previous epinephrine prescription

No prior epinephrine prescription	73	22.7
Prior epinephrine prescription	236	73.3
Unknown	13	4.0
TOTAL	322	100.0
<i>Not reported: 2</i>		

History of asthma

No history of asthma	168	51.9
Had a history of asthma	138	42.6
Unknown	18	5.6
TOTAL	324	100.0

3. Characteristics of Anaphylactic Events

Trigger

Food	203	64.6
Insect sting	7	2.2
Other	7	2.2
Unknown	97	30.9
TOTAL	314	100.0
<i>Not reported: 10</i>		

Mode of contact with food allergen

Ingested	179	55.2
Inhaled	8	2.5
Touched	6	1.9
Unknown	10	3.1
Not applicable (food was not the trigger)	121	37.3
TOTAL	324	100.0

Location where symptoms developed

Bus	5	1.6
Cafeteria	68	21.7
Classroom	144	45.9
Health office	22	7.0
Playground	13	4.1
Other	62	19.7
TOTAL	314	100.0
<i>Not reported: 10</i>		

Location where epinephrine was administered

Health office	267	88.7
Other	34	11.3
TOTAL	301	100.0
<i>Not reported: 23</i>		

Location where epinephrine was stored

Health office	244	83.0
Carried by person given epinephrine	48	16.3
Main office or administrative office	21	7.1
Other	37	12.6
TOTAL	294	*

*Not reported: 30. *Percentages sum to more than 100% since respondents could select more than one answer.*

Type of person that administered the epinephrine

Registered nurse	266	88.4
Student	21	7.0
Teacher	8	2.7
Other	6	2.0
TOTAL	301	100.0

Not reported: 23

Self-administration

Epinephrine was self-administered	24	7.9
Epinephrine was not self-administered	278	92.1
TOTAL	302	100.0

Not reported: 22

Time elapsed between onset of symptoms and communication of symptoms

Less than or equal to 5 minutes	139	46.3
6 - 10 minutes	71	23.7
11 - 15 minutes	19	6.3
16 - 30 minutes	22	7.3
31 - 60 minutes	14	4.7
Greater than 60 minutes	11	3.7
Unknown	24	8.0
TOTAL	300	100.0

Not reported: 24

Time elapsed between communication of symptoms and administration of epinephrine

Less than or equal to 5 minutes	126	41.7
6 - 10 minutes	71	23.5
11 - 15 minutes	31	10.3
16 - 30 minutes	40	13.2
31 - 60 minutes	30	9.9
Greater than 60 minutes	3	1.0
Unknown	1	0.3
TOTAL	302	100.0

Not reported: 22

Emergency room transfer

Individual was transferred to the ER	292	97.0
Individual was not transferred to the ER	6	2.0
Unknown	3	1.0
TOTAL	301	100.0

Not reported: 23

Presence of a biphasic reaction

A biphasic reaction occurred	33	11.2
No biphasic reaction occurred	151	51.2
Unknown	111	37.6
TOTAL	295	100.0

Not reported: 29

Second dose of epinephrine

A second epinephrine dose was required	37	12.5
A second epinephrine dose was not required	184	62.2
Unknown	75	25.3
TOTAL	296	100.0
<i>Not reported: 28</i>		

Notes for Section 1: 1) While the epinephrine administration data in sections 2 and 3 are the main focus of this report, allergy prevalence and epinephrine prescription data are included here to put those administrations in context. Note that the allergy and prescription data are only available for public school districts affiliated with the Essential School Health Services program, and while these data include more than 60% of the state's public school population, they may not be representative of the entire state. 2) Charter schools and collaboratives are counted as districts for purposes of this report. 3) For consistency, the allergy prevalence and epinephrine prescription rates that are shown in the table only include districts that reported data in both categories. 4) For calculating allergy prevalence, a student may be counted as having an allergy even if that student has never experienced an anaphylactic reaction.

Notes for Sections 2 and 3: 1) These data show the number of epinephrine administrations due to suspected anaphylactic events. 2) These data are compiled from reports of epinephrine administration submitted by public and private schools throughout Massachusetts, and are not limited to schools participating in the Essential School Health Services program. 3) An online data collection tool is used to facilitate the collection of epinephrine administration data. 4) "Other" race/ethnicity includes American Indian/Alaskan Native and Native Hawaiian/Other Pacific Islander. 5) "Not reported" indicates that the respondent skipped the question or failed to complete the questionnaire, and as a result, nothing can be inferred from the answer. "Unknown" is a response option, however, and indicates that the respondent answered the question by selecting "unknown." If a response was "not reported" it is also "unknown," but not all "unknown" answers are "not reported."

Note for Sections 1, 2, and 3: Percentages may not sum to 100% due to rounding.