DATA HEALTH BRIEF: EPINEPHRINE ADMINISTRATION IN SCHOOLS
Massachusetts Department of Public Health
Center for Community Health
Division of Primary Care and Health Access
School Health Unit
August 1, 2004 – July 31, 2005 (School Year 2004 – 2005)

This annual data health brief documents the epidemiology of epinephrine administration for the treatment of allergic reactions in Massachusetts schools. Data were reported to the Massachusetts Department of Public Health (MDPH), School Health Unit, during the 2004 – 2005 school year. During this period of time, 68 school districts and one vocational-technical school reported 132 administrations of epinephrine for the treatment of allergic reactions in schools. Data on epinephrine administration in schools is submitted to the MDPH on a standardized form, Report of EpiPen® Administration, by the school district at the time of the occurrence.*

- All regions of the state reported epinephrine administration. The Southeast region reported the greatest number of administrations (27%), whereas the Greater Boston region reported the fewest (5%).

- While most school districts reported only one administration of epinephrine, 27 school districts reported more than one and six school districts reported five or more epinephrine administrations during the school year.

- More than half (59%) of the administrations occurred during the months of September, October, March and April.

Characteristics of Individuals Receiving Epinephrine

- Twelve of the administrations were to adult staff members; the remaining 120 were administered to students ranging in age from 3 – 18 years (Figure 1).

Figure 1. Number of Epinephrine Administrations by Age of Student
Massachusetts, August 2004-July 2005 (N = 118)

Data Source: Report of EpiPen Administration forms.

*Reporting of epinephrine administration in schools became mandatory under 105 CMR 210 for all public and nonpublic schools in November 2003.

- More males (52%) received epinephrine than females (48%).

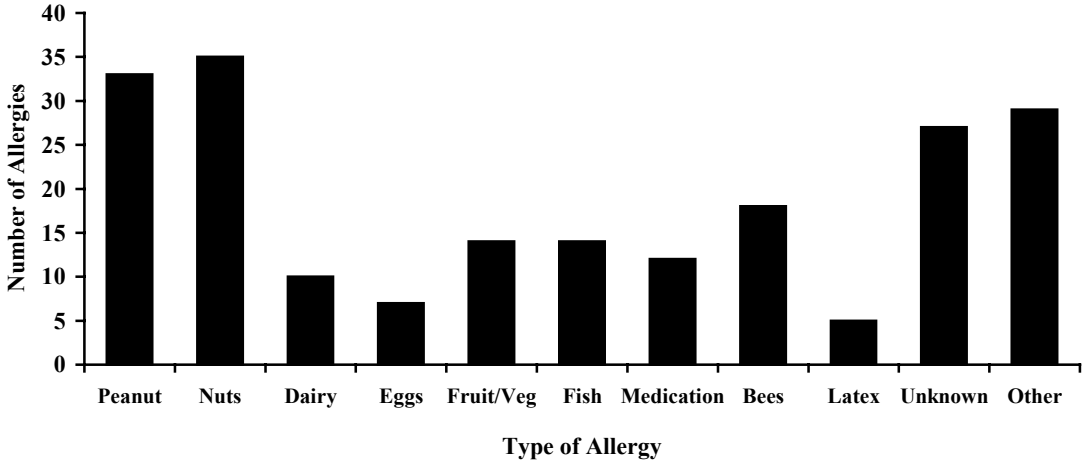
- The most frequently reported allergens were tree nuts and peanuts (Figure 2).

- Thirty-one percent of the individuals receiving epinephrine reported having multiple allergies. Among these individuals, several different combinations of allergens were reported, including allergies to peanuts, tree nuts, dairy, egg, fish/shellfish, soy, sesame seeds, chocolate, certain fruits and vegetables, latex, insect venom, and others. The most common allergens reported by those with multiple allergies were tree nuts (49%) and peanuts (44%).

- Types of allergies listed in the "Other" category included allergies to perfume, mold, pollen, pet dander, medicines, food dye, and miscellaneous foods. Also included in this category are reactions caused by exposure to cold temperatures.

- In 19% of the cases, the student was not known to have an allergic condition at the time of the anaphylactic event.

Figure 2. Number of Types of Allergies Reported by Individuals Receiving Epinephrine, Massachusetts, August 2004 - July 2005 (N = 132)**



Data Source: Report of EpiPen Administration forms.

**Since those with multiple allergies reported more than one allergen, the total number of allergies reported will be greater than the number of cases

Characteristics of Allergic Reactions

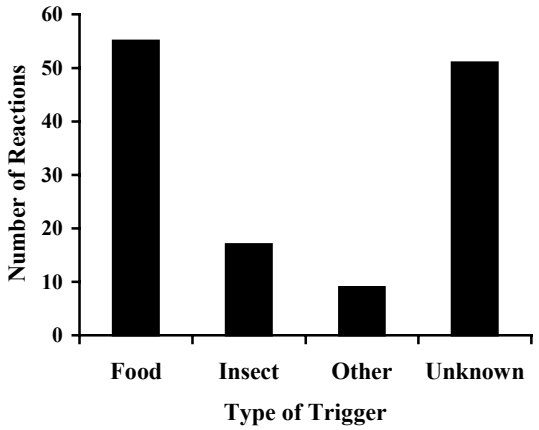
- Some type of food was believed to be the cause of 42% of the reactions (Figure 3).

- In 39% of the cases, the allergen that triggered the reaction was unknown (Figure 3).

- In the majority of cases (70%), the symptoms reported involved the respiratory tract such as tightness of the throat, coughing, wheezing, shortness of breath, or difficulty swallowing.

- Symptoms most frequently developed in the classroom (53%). Other locations included the cafeteria (14%), health office (13%), playground/sports field (8%) and various locations both within and outside the school building, including school buses.

Figure 3. Number of Allergic Reactions by Type of Trigger, Massachusetts, August 2004 - July 2005 (N=132)



Data Source: Report of EpiPen Administration forms.

- Most (91%) of the epinephrine administrations occurred in the health office. Other locations included the classroom, gym, school bus, and various other locations both within and outside the school building.

- The majority of epinephrine administrations were performed by registered nurses (88%). In ten cases, epinephrine was administered by other types of personnel as follows: three LPNs, two Emergency Medical Technicians, two coaches/athletic trainers, two school administrators, and one parent. All unlicensed personnel had been appropriately trained in the administration of epinephrine.

- One adult and five students, ranging in age from 13 years to 15 years, self-administered the epinephrine. In all cases involving self-administration, appropriate protocols were followed in notifying school personnel of the administration.

- The average time between development of symptoms and the administration of epinephrine for all individuals (with both known and unknown allergic conditions) was 11 minutes, with a range of 0 – 90 minutes.

- Of those students with known allergies, 80% had an individualized health care plan (IHCP) in place.

- Eight individuals (7 students and 1 adult) were not transported to a medical facility via the Emergency Medical System. In all cases involving students, the decision not to transport was made by a parent or physician.

Characteristics of Cases Involving Individuals with Unknown Allergic Conditions

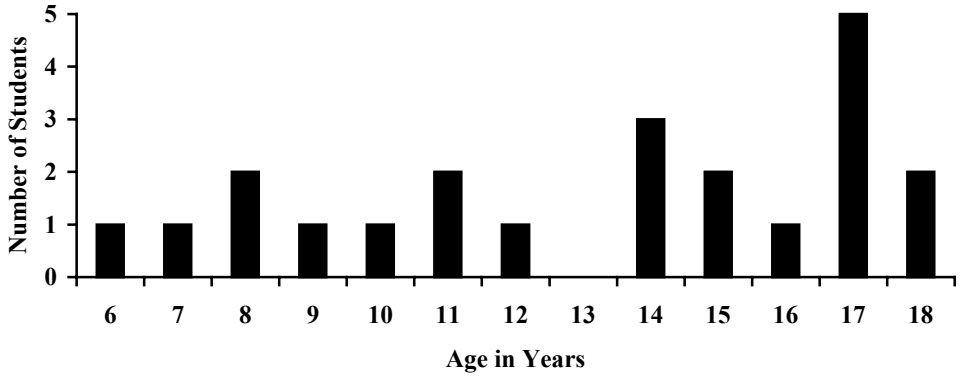
- Twenty-five cases involved individuals with unknown allergic conditions.

- The average age of students with unknown allergic conditions was 13 years, with a range of 6 – 18 years (Figure 4).

- Seventy-six percent of individuals with unknown allergic conditions experienced symptoms involving the respiratory system such as tightness of the throat, wheezing, coughing, shortness of breath, or difficulty swallowing.

- The average amount of time between onset of symptoms and administrations of epinephrine in those individuals with no known allergies was 12 minutes, with a range of 2 – 60 minutes (compared to an average response time of 11 minutes, with a range of 0-90 minutes for individuals with known allergies).

Figure 4. Number of Students with Unknown Allergies by Age, Massachusetts, August 2004 - July 2005 (N=22)



Data Source: Report of EpiPen Administration forms.