INFORMATION REPORT

TO: Mayor and Members Board of Health	**WARD(S) AFFECTED:** CITY WIDE
COMMITTEE DATE: October 21, 2013	
SUBJECT/REPORT NO: Anaphylaxis (BOH13040) (City Wide)	
SUBMITTED BY: Elizabeth Richardson, MD, MHSc, FRCPC Medical Officer of Health Public Health Services Department	**PREPARED BY:** Brent Browett (905) 546-2424 Ext. 2230
SIGNATURE:	

Council Direction:

At the April 22, 2013 Board of Health meeting, based on concerns expressed by the Rotary Club of Ancaster regarding the potential of anaphylactic events (a severe allergic reaction) that may occur in food service outlets, the Board of Health directed the Medical Officer of Health to prepare a report outlining:

(i) How we can get the Epinephrine Auto-Injector (EAI) into every food service outlet in Hamilton?

(ii) How employees of every food service outlet can be trained to do the auto injections for people suffering from the symptoms?

(iii) How EAI kits can be maintained and monitored in every facility?

(iv) Provide an approximate cost for full implementation.

Information:

Historical context

Since receiving this direction Public Health Services (PHS) has been collecting information on this matter and been in regular contact with various parties including representatives of the Rotary Club of Ancaster; Dr. Waserman a local physician that is an expert the study of anaphylaxis; the Executive Director of Anaphylaxis Canada; School Board representatives and representatives of the pharmaceutical industry. While PHS does not have a mandate to directly deliver such a service the staff have been facilitating the dialogue on this matter to assist the community.

PHS has the greatest influence in population health by providing advice and support. For some matters PHS is charged to ensure activities, and less frequently PHS provides direct service where required to do so by standard or Board of Health direction. As it applies to anaphylaxis PHS has no direction or standard to be involved in the operations and the review of this matter is based on PHS fulfilling its advisory role.

Definition and Background

"Anaphylaxis is a serious allergic reaction that is rapid in onset and may cause death."[1] Anaphylaxis can occur after someone is exposed to something they are allergic to that may or may not have been identified prior to the event (e.g. peanut butter) and it is important to react quickly and appropriately.[2] The key signs and symptoms of anaphylaxis that a person may have include one or more of the following: trouble breathing; hives or swelling, a drop in the person blood pressure, and abdominal cramps.[3]

Ben-Shoshan et al (2010) reported that in Canada, "Food allergy affects up to 2.5% of the adult population and 6% to 8% of children less than 3 years of age and is associated with significant morbidity and mortality. The incidence rate of anaphylaxis is increasing, and recent US reports suggest that it may be as high as 49.8 per 100,000 person-years. Foods are primary inciting allergens for anaphylaxis, and hospitalizations because of food-induced anaphylaxis are reported to have increased by 350% during the last decade."[4] In addition to these findings, Lieberman et al (2010) noted that "food is the most common cause of anaphylaxis in the outpatient setting."[5]

Based on the results of research conducted in Ontario between 1986 to 2000, "63 confirmed deaths due to anaphylaxis were identified with 32 were related to adverse reaction to food."[6] Extrapolating from this data, it is estimated that in Hamilton there would be approximately 1 fatality every 11 years from anaphylaxis. If that one event occurred in a food court and the EAI was immediately available and the problem was immediately recognized and the EAI was used in a timely manner, it may be effective. Xu et al (2010) identified gaps in the management of anaphylaxis by the patients and the care givers citing that, "Studies on mortality in Ontario due to food related

anaphylaxis showed that delayed or no administration of epinephrine was a factor in many of the deaths."[7]

Based on the evidence reviewed it is appropriate for the community to revisit current methods of addressing this health issue and to explore novel approaches.

The following section outlines the findings related to the motion

(i) How we can get the Epinephrine Auto-Injector (EAI) into every food service outlet in Hamilton?

The following steps should be considered:

- Identify who in the food industry has interest in participating;
- Identify a sustainable funding source for the project;
- Develop a means for the food industry to have access, and the authority to dispense the medication.

It is important to note that there are approximately 1900 food service outlets in Hamilton that prepare food (Source PHS Food Inspection Division).

(ii) How employees of every food service outlet can be trained to do the auto injections for people suffering from the symptoms?

The first training objective is to teach employees to recognize the signs of an anaphylactic event and when to use the EAI. This is a more challenging decision than deciding if you should shock a person with a defibrillator in the setting of a full cardiac arrest. In that scenario the signs of cardiac arrest are more dramatic, and more importantly the defibrillator interprets the cardiac rhythm and determines for the rescuer if a shock should be given. The determination to administer the epinephrine in an anaphylactic event is based on the rescuers interpretation.

The second training objective is how to use the EAI. This is a skill based activity that is relatively easy to train. Anaphylaxis Canada has developed an electronic learning module that instructs people on how and when to administer the EAI. The Anaphylaxis Canada Training Program could serve as the basis for the initial educational content for the majority of the audience. Using one educational resource would standardize the education and encourage a consistent approach. Given that the knowledge and skills will be used very infrequently there should be regular refresher education. Anaphylaxis Canada has also developed relevant tools that include an "Anaphylaxis Emergency Plan" intended to improve the evaluation of a person thought to be suffering from anaphylaxis.[8]

It is important to note food court handlers are relatively transient staff compared to some other positions. To contain the training demands leaders of this initiative may want to consider training other groups such as security guards covering a food court setting. This has the potential to contain the number of persons to be trained and to maintain their skills and knowledge.

(iii) How EAI kits can be maintained and monitored in every facility?

The EAI expires and must be changed every 18 months. A process must be established to track the location of the EAI and regularly monitor the expiry dates. If the EAI is used or has expired, a system needs to be in place so that it is immediately replenished.

This process is similar to tracking public access defibrillators, the batteries and defibrillation pads. Locally, this function has been assumed by the Hamilton Paramedic Service in city facilities. The Paramedic Service is also the lead agency for quality control. The food industry could learn from the Public Access Defibrillator model when they consider these functions for the EAIs.

The effort for the Public Access Defibrillation involving ~220 units with defibrillation pads that are replaced every 5 years requires approximately 0.2 FTE to oversee all the program functions. The food agency could consider the PAD experience as a guide for the assessing the effort and how to coordinate the oversight of an EAI initiative.

(iv) Provide an approximate cost for full implementation

To conduct a full cost analysis of implementing and maintaining an EAI program some decisions need to be finalized by the food agency or their designate as to the supporting model they are proposing. The following will provide some guidance on cost implications:

There are approximately 1900 food service outlets in Hamilton. If each site has one EAI and they are on an 18 month replacement cycle, then each year 1,266 EAI would have to be replaced. Each EAI is approximately $100 so the total annual replacement cost for EAIs is $126,660.

The educational content to train a rescuer how and when to use and EAI is available through Anaphylaxis Canada. In general, initial basic training could be accomplished within 2 to 3 hour session and regular training refreshers are required as this is low frequency use. To assess the training cost implication, each employer needs to determine if successfully completing the training is a job requirement, if the employer is paying for the employee time while being trained, and any potential compensation for this additional duty.

There are approximately 14,000 food handlers at any given time in Hamilton and they are certified every 5 years (2800 food handlers each year). This may create the opportunity to evaluate the skill of the food handlers if it was added to the recertification process.

Other Considerations/Next Steps

Dr. Waserman's advice is to conduct more research to identify the needs related to anaphylactic events and then formulate a strategy to address key gaps. Dr. Waserman has agreed to lead this analysis and seeking grant funding. Arising from this review there may be an opportunity for a local feasibility study to test an operational model (i.e. in food outlets or food courts with food handlers or security staff). PHS will continue to support Dr. Waserman and the community in their review of this initiative. PHS will also work with Dr. Waserman, Anaphylaxis Canada and others to support their public awareness campaigns related to anaphylaxis.

Summary

PHS will continue to provide policy advice as it relates to population health and anaphylaxis and facilitate conversations between the parties as appropriate.

References

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