

Caring for Children with Anaphylaxis in Community Program Settings

**Unified Referral and Intake System (URIS)
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Manitoba Health ° Manitoba Family Services and Labour ° Manitoba Education

Anaphylaxis

This manual was developed in consultation with health care professionals in the areas of anaphylaxis and community health. The Unified Referral and Intake System (URIS) wishes to acknowledge the contribution of the following individuals.

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INTRODUCTION

Unified Referral and Intake System

The Unified Referral and Intake System (URIS) is a joint initiative of the provincial Departments of Health, Family Services and Labour and Education. URIS supports community programs in the care of children with specific health care needs. Community programs that are eligible for URIS support include schools, licensed child care facilities, selected accredited recreation programs and agencies providing respite services.

URIS provides a standard means of classifying the complexity of health care needs and establishes the level of qualification required by personnel to support children with these health care needs. Health care needs that are classified as 'Group B' can be delegated to non-health care personnel who receive training and monitoring by a registered nurse. For children with 'Group B' health needs (e.g., anaphylaxis), the nurse provides the following support:

- develops and maintains a written health care plan;
- provides training to community program personnel that are responsible for the child; and
- monitors community program personnel that receive training.

URIS Group B Support for Children with Anaphylaxis

A child with anaphylaxis is eligible for URIS Group B support if he/she is diagnosed with a life-threatening allergy by a physician and prescribed an adrenaline auto-injector.

This document provides standard clinical information that is relevant to the care of children with anaphylaxis in community program settings. Supplemental documents are also provided to assist the nurse in the development of the health care plan and training and monitoring of community program personnel.

CLINICAL INFORMATION

The following information is considered 'best practice' in community program settings and is the basis for all anaphylaxis information contained in this document and its supplements.

Allergies

An allergy is the immune system's excessive reaction to a normally harmless substance, called an allergen. In susceptible individuals, exposure to an allergen results in the body creating IgE antibodies specific to that allergen. When the body is exposed to the allergen again, the IgE antibodies cause chemicals (e.g., histamine) to be released from mast cells, which are found in many areas of the body including the airway, mouth, nose, eyes and stomach. When mast cells release these chemicals, signs such as hives, itching and swelling are seen.

Allergic reactions can vary from mild to life-threatening.

Anaphylaxis

Anaphylaxis is a severe allergic reaction that can result in death due to airway obstruction or a severe drop in blood pressure. It is an extreme total body reaction.

A person with a life-threatening allergy must be diagnosed and treatment prescribed by a doctor. It is recommended that an allergy specialist assess the child to confirm the diagnosis. Education for the child and parent/guardian in managing their allergy is essential.

The course of a life-threatening allergy can vary from person to person. It may be unpredictable and rapid in onset. Anaphylaxis can occur even when a person has experienced only minor allergic reactions previously. Others may show a general progression of increasingly severe allergic reactions that lead up to anaphylaxis. A person may experience an anaphylactic reaction without any previous signs of an allergy.

Anaphylactic reactions can be triggered by minute amounts of an allergen measured in micrograms. For example, children have developed anaphylactic reactions after coming into contact with residual peanut butter on tables that were wiped clean of visible material.

Studies have estimated that 1-2% of Canadians are at risk for anaphylaxis from food and insect stings. More recent studies suggest that nearly 4% of the US population is at risk for food allergies alone. Fatalities from anaphylaxis more often occur away from home and are associated with either not using or a delay in the use of epinephrine. In one study, four out of six deaths from food allergies occurred in school and none of these children had epinephrine available at the time of their reaction.

Children are at higher risk for severe allergic reactions if they also have asthma especially if it is not well controlled.

Allergens

A person can be allergic to any food. However, foods that commonly cause anaphylaxis include peanuts, nuts, milk, eggs, fish, shellfish, wheat, sesame and soy.

Peanut and Tree Nuts

Peanut allergies are one of the most common food allergies. It is estimated that 20% of children may outgrow their peanut allergy.

Peanuts are legumes that grow underground and are not botanically related to tree nuts. Tree nuts include almonds, Brazil nuts, cashews, hazelnuts, chestnuts, hickory nuts, macadamia nuts, pecans, pine nuts, pistachios and walnuts. Individuals who are allergic to peanuts may not be allergic to tree nuts and vice versa. However it is possible to be allergic to both. Those who are allergic to peanut or tree nuts are generally advised to avoid both due to possible cross-contamination of peanuts and nuts during processing and the risk of confusion between different nuts.

Peanut and nut residue is oily in nature and persists on surfaces, putting the child with a life threatening allergy at risk. Very minute quantities of peanut can result in a life-threatening reaction when ingested.

Allergic reactions to foods such as peanuts are triggered by specific food proteins. Food odor is caused by non-protein chemicals. Smelling peanut butter odor is different from inhaling airborne peanut particles (proteins) which might occur from the mass shelling of peanuts in a poorly ventilated area. Peanut-allergic people may feel unwell if they smell peanut butter, but this is likely due to a strong psychological aversion.

Milk and Egg

Anaphylactic reactions to milk and egg can occur when relatively small quantities are ingested. Most children eventually outgrow their allergy to milk or eggs by the time they reach school age.

Fish and Shellfish

The term "fish" refers to all edible fin fish, both fresh and salt water species. Shellfish from fresh and salt water includes scallops, clams, lobster and shrimp. Individuals with a specific allergy to any of these species are advised to consult with their allergist about possible sensitivity to other species.

When cooking fish, the vapor or steam has been shown to contain allergens which can cause anaphylaxis.

Insect Stings

Bees, wasps, hornets and yellow jackets can cause anaphylaxis from their stings.

Medications

Medications such as antibiotics, muscle relaxants and anti-convulsants can cause anaphylaxis.

Latex

Latex may be an allergen for children who have had multiple surgeries with exposure to latex. An increase in latex use has occurred since the mid 80's and may be a contributing factor to the rise in latex allergies. This may be declining as more non latex products are being used.

Other Allergens

Although it is rare, vigorous exercise and a cold, wet environment can cause anaphylaxis. Anaphylaxis may occur with vigorous exercise alone or with vigorous exercise that occurs after eating certain foods. It may not occur every time the child exercises. Anaphylaxis may also occur when a child is exposed to a cold and wet environment, such as jumping into a pool or immediately immersing the entire body in cold water. These situations are rare.

A person can also be diagnosed with idiopathic anaphylaxis which means the cause is unknown.

Risk Reduction

Avoidance of allergens is the only way to prevent an anaphylactic reaction. Although it can be difficult to achieve complete avoidance of an allergen, reducing the child's exposure to the allergen is possible. Risk reduction strategies should be flexible enough to address the safety of children with anaphylaxis as well as the organizational and physical environment of the community program. Many factors need to be considered when implementing risk reduction strategies such as the age of children, location of eating areas, level of supervision and size of facility. The most successful strategies enlist the support of the entire community including parents, children and community program personnel.

Risk reduction strategies for younger children

Young children are at greatest risk of accidental exposure. The greatest risk of exposure to food allergens occurs in new situations or when normal routines are interrupted such as field trips, birthday parties and other special events. Precautions should be taken when changes in routines occur.

In general, the following strategies are recommended for food allergens

- Adult supervision of young children while eating
- Do not trade or share food or utensils
- Wash hands before and after eating. Liquid or bar soap and antibacterial wipes can effectively remove peanut butter residue from hands. However, anti-bacterial hand sanitizers and water alone are not as effective.

- Clean surfaces with soap and water or a grease-cutting solution where food has been eaten. Care should be taken to clean all surfaces that the children might touch such as tabletops and under-hangs of tables and chairs. Common cleaning products are effective in removing residual peanut allergen from surfaces. Dish soap does not effectively remove residue of peanut butter from surfaces.
- Do not allow eating on buses.
- Avoid craft supplies that contain allergens. Look for allergens hidden in items such as play dough, pet food or stuffed animals.

Other risk reduction strategies for younger children

- Establish an allergen-aware environment (see below for more information).
- Designate safe eating areas. If food containing an allergen is brought to the community program, it is eaten in a designated area where the child with the allergy is not likely to be exposed. Alternately, children with food allergies may eat at a designated “allergen aware” location.
- Do not offer food to children with the allergy without prior approval from parent.
- Children with food allergies should not eat food that has been brought to the community program by someone other than their parent/guardian.
- Use of placemats or napkins on tables while eating.

Establishing an allergen aware environment

If a community programs requests that products containing an allergen are not brought to the community program, it is recommended to use terminology such as “allergen-aware” as opposed to “allergen-free” or “allergen-safe” as it is not possible to guarantee that the allergen will not be present in the facility. The *Allergen Aware Sample Letter* is included as a supplement to this document and may be used by the community program when requesting parents not to send products containing allergens to the community program.

An important component in establishing an allergen-aware policy is reading ingredient labels on foods and other products.

- Ingredient labels should be read each time a product is purchased as ingredients may change. Some community programs compile a list of “safe foods” for all families to help them comply with “allergen aware” requests. While this is well-intended, such lists should be used as a guideline only as these lists may be inaccurate or outdated. The preferred practice is to read food ingredient labels.
- Children with allergies should only eat food that is approved by the parent/guardian as it is unrealistic to expect others who are not affected by food allergies to understand the details required to properly read a food label. For example, alternate names for foods may not be recognized (e.g. casein = milk).
- Some popular brands that are widely recognized as being safe for allergic consumers may be used in other products that may contain allergens (e.g. peanut-free chocolate in ice cream which has a “may contain peanuts” warning).
- It should never be assumed that all formats of an allergen-free product are safe. An allergen-free claim on certain products may be specific to only one size or format of the brand, not to all products using the same brand name. For example,

a regular size candy bar may be considered to be free of an allergen. However, the snack size version could have a “may contain peanuts” warning.

- Effective August 2012, regulations in Canada requires that all prepackaged products containing protein, modified protein or protein fractions from the following foods must be included on the food label using plain language - almonds, Brazil nuts, cashews, hazelnuts, macadamia nuts, pecans, pine nuts, pistachios, walnuts, peanuts, sesame seeds, wheat and triticale, eggs, milk, soybeans, crustaceans (common name of the crustaceans); shellfish (common name of the shellfish); fish (common name of the fish) and mustard seeds.
- Food labelling standards in other countries may not be the same as in Canada.
- Precautionary warnings such as “may contain” are used by food manufacturers at their own discretion. If there is a warning, it is possible that the food contains traces of the allergen. Food-allergic people should not eat products with a “may contain” warning with respect to their allergen(s) unless instructed by their allergist that it is okay. Foods with a precautionary warning should not be an issue if they are consumed by non-allergic children in the presence of older children with food allergies.

Risk reduction strategies for teenagers

Teenagers are thought to be at higher risk for a severe allergic reaction because of their increased independence, peer pressure and a reluctance to carry an adrenaline auto-injector. The management of allergens in secondary schools is a balancing act between safety and a normal social life. Risk reduction strategies are more difficult to implement in secondary schools as supervision is limited and students often leave campus.

High school students with anaphylaxis must take on the primary responsibility for allergen avoidance at school and in other environments. High school students are expected to read food labels carefully and take special precautions such as asking foodservice staff about the preparation and handling of food at the cafeteria if they purchase their lunch at school. Students with food allergy should eat with a friend and advise others quickly if they feel they are having an allergic reaction.

Some possible strategies that may reduce the risk of accidental exposure without imposing unenforceable or unrealistic rules include:

- reducing common allergens in vending machines;
- placing vending machines in a central area; and
- encouraging eating in the cafeteria instead of halls and classrooms.

Children should not eat if they do not have their adrenaline auto-injector with them.

Risk reduction strategies for specific allergens

Peanuts and nuts

Very minute quantities of peanut can result in a life-threatening reaction when ingested. Peanut and nut residue is oily in nature and persists on surfaces, putting the child with a life threatening allergy at risk. For this reason, establishing a nut-aware environment

(i.e., request that products containing peanuts or nuts are not brought to the community program) may be warranted.

Milk

- Request that milk products are NOT brought to classes where there are milk-allergic children
- Exempt classes with milk-allergic children from milk programs.
- Give children straws to put in bevel topped milk containers and teach them to close the top once the straw is inserted.
- Ask children to bring milk from home in a plastic bottle with a straw.
- Have children with milk allergens sit at a table where spill able milk products (e.g. milk, yogurt) are not being consumed.
- On pizza days, parents of milk-allergic children may take their kids home for lunch or send homemade milk-free pizza or an alternative meal to school.
- Special care should be taken after pizza lunches to ensure that children properly wash their hands and mouths and surfaces are properly cleaned.

Egg

- Have children with egg allergies sit at a table away from those who bring eggs for lunch or snack (e.g. hard boiled, egg salad sandwiches) or whose food may contain eggs (e.g. mayonnaise).
- Avoid egg in cooking classes, including egg whites and yolks, either cooked or raw.
- Use plastic or wooden eggs for crafts instead of real eggs (e.g. Easter egg hunts).

Stinging insects

- Avoid areas where insects congregate.
- Keep outdoor garbage covered and away from play areas. Yellow jackets tend to congregate around garbage and food.
- Avoid eating outdoors, especially sweet products such as pop drinks and juice. Insects often fly into pop cans and sting the person when drinking from the can.
- Use straws for drinks whenever possible.
- Avoid perfume and sprays and bright colors. Insects are attracted to bright colors and odors.
- Wear shoes instead of sandals. Do not go barefoot.
- Remove nests or hives from play areas.
- Only the honeybee leaves a stinger. When removing the stinger, scrape your nail over the skin. Grabbing the stinger between your fingers will compress the sac of venom and inject more venom into the body.

Latex

- Provide non-latex gloves for use by staff and children (e.g. science class, first aid kits).
- Inflate and deflate balls outdoors and away from children. Balls that contain latex will send latex particles into the air when inflated or deflated.

- Do not use balloons in the community program if a child has a life threatening allergy to latex. When balloons break, the latex particles become aerosolized.
- Avoid soft rubber balls and stretchy rubber items, such as pink erasers and rubber bands.

Signs of Anaphylaxis

After exposure to the allergen, any combination of the following signs may occur to signal the onset of anaphylaxis. Signs do not always occur in the same sequence, even in the same individual.

An anaphylactic reaction most commonly begins within seconds or minutes of exposure to the allergen, with the majority of reactions occurring within thirty minutes. The time from the first signs of anaphylaxis to death can be as little as a few minutes, if the reaction is not treated. It is possible, but rare, for signs of anaphylaxis to occur up to four hours after exposure to the allergen. Even when signs have subsided after initial treatment, they can return as long as eight hours after exposure. This second (biphasic) reaction may occur in up to 20% of cases.

When remembering the signs of anaphylaxis, think F.A.S.T. (face, airway, stomach, total body). Watch for signs that occur suddenly and are obvious changes in appearance or behavior.

Signs that might be seen in the face

- red watering eyes
- runny nose
- itchiness
- redness and swelling of face, lips and tongue
- hives (red, raised & itchy rash) – if a person has eaten a food that contains the allergen, hives often appear around the mouth.

Signs that the airway might be closing

- throat tightness
- change of voice
- difficulty swallowing
- difficulty breathing
- coughing
- wheezing

Signs that might relate to the stomach

- severe vomiting
- severe diarrhea
- severe cramps

Signs that might involve the total body

- swelling may occur on any part of the body, most often in eyes, lips, face or tongue. Swelling may be described by the child as itching, stinging or burning.

- hives (red, raised & itchy rash)
- itchiness
- feeling of “sense of doom”
- change in behavior – the child may say he doesn’t feel right, become unusually quiet or withdrawn, become suddenly tired, scream, appear very agitated or stop eating in the midst of eating well.
- pale or bluish skin
- dizziness and fainting are signs that blood pressure is dropping
- loss of consciousness

Children have a unique ways of describing their experiences and perception. Some children, especially very young ones, put their hands in their mouths or pull or scratch at their tongues in response to an allergic reaction. Children’s voices may change (e.g., become hoarse or squeaky) and they may slur their words.

The following are examples of the words a child might use to describe an allergic reaction:

- “This food is too spicy.”
- “My tongue is hot (or burning).”
- “It feels like something is poking my tongue.”
- “My tongue (or mouth) is tingling (or burning).”
- “My tongue (or mouth) itches.”
- “My tongue feels like there is hair on it.”
- “My mouth feels funny.”
- “There’s a frog in my throat.”
- “There’s something stuck on my throat.”
- “My tongue feels full (or heavy).”
- “My lips feel tight.”
- “It feels like there are bugs in there.” (to describe itchy ears)
- “My throat feels thick.”
- “It feels like a bump is on the back of my tongue.”

Treatment of Anaphylaxis

Epinephrine is the drug used to treat anaphylaxis. It is a chemical that the body naturally produces and is responsible for the “adrenaline-rush” under stress. Epinephrine is effective in treating anaphylaxis by constricting muscles around blood vessels which elevates blood pressure, relaxing airway muscles, reducing swelling, reducing the release of chemicals that cause anaphylaxis and stimulating the heart.

If ANY combination of signs is present and there is reason to suspect anaphylaxis, give epinephrine immediately and activate 911/EMS. There is clear evidence that a delay in injecting epinephrine increases the odds of the person dying from anaphylaxis.

There is no significant cause for concern if epinephrine is given to a child for whom it is prescribed and an anaphylactic reaction is not actually taking place. The lifesaving benefit of epinephrine in cases of suspected anaphylaxis outweighs any small risk of side effects. In normally healthy individuals, epinephrine will not cause harm if given unnecessarily.

Side effects from epinephrine are generally mild and subside within a few minutes. Possible side effects include:

- rapid heart rate;
- paleness;
- dizziness;
- weakness;
- tremors; and
- headache.

Antihistamines are not recommended in the treatment of anaphylaxis. The main benefit of antihistamines is in treating hives or skin symptoms. Antihistamines will not increase blood pressure or open the airway. Older generation antihistamines may also cause drowsiness and may mask the signs of progressing anaphylaxis.

Clinical experts recommend that a child with a life-threatening allergy wear Medic Alert® identification. The Canadian MedicAlert® Foundation offers free MedicAlert® identification to children from age 4-14 in schools that are registered in the program. Parents may contact their child's school or visit the website at www.nochildwithout.ca for more information

Asthma & anaphylaxis

For children that are diagnosed with both anaphylaxis and asthma and there is uncertainty whether the person is experiencing an anaphylactic reaction or an asthma episode, epinephrine should always be used first. Epinephrine can be used to treat life-threatening asthma attacks as well as anaphylactic reactions. Children with anaphylaxis and asthma should carry their adrenaline auto-injector and asthma reliever medication with them.

Adrenaline Auto-injector

Adrenaline auto-injectors (e.g., EpiPen®, Twinject®, Allerject™) are the device of choice due to its simplicity of use. They contain a spring-loaded, self injectable syringe with a concealed needle. They should always be administered in the outer middle thigh. Adrenaline auto-injectors are available in two doses. In general, the 0.3 mg dosage is prescribed for adults and children weighing 30 kg or more and the 0.15 mg dosage is prescribed for children weighing less than 30 kg. They should be stored in protective tubing and kept at stable room temperature (15-30 °C). They should not be refrigerated or left in extreme temperatures (e.g. in the car) for long periods of time. If the epinephrine freezes, the auto-injector should be replaced.

Adrenaline auto-injectors are stamped with an expiry date and should be replaced when expired. If an adrenaline auto-injector is expired, it is still safe to use it as long as the epinephrine is clear and colorless. The benefit of using an expired medication is greater than no medication. However, epinephrine may remain clear for a long time after it has expired and its effectiveness continues to decrease over time. It should not be used if the solution is brown as the child may experience hallucinatory symptoms. Manufacturers of the EpiPen®, Twinject® and Allerject™ offer online programs to assist patients in keeping track of the expiration dates of their adrenaline auto-injector. See the manufacturers' website for additional information.

When removing the blue safety cap from EpiPen®, it should not be pulled sideways, bent or twisted off as this may cause the auto-injector to spontaneously activate or not work correctly. After the EpiPen® is administered, an orange cover automatically extends and locks into place to ensure the needle is not exposed.

The Twinject® has a second dose of epinephrine in a needle and syringe that is not safety regulated and cannot be delegated to community program personnel. Therefore, they should not be trained to administer the second dose of the Twinject®.

The Allerject™ contains an electronic voice instruction system that guides the user through the steps in administering the injection. The voice recording will begin when the device is removed from the outer sleeve. If the voice instruction does not work for any reason, the Allerject™ may still be used. When the red safety cap is removed, the Allerject™ is primed and must be used or discarded. After the Allerject™ has been administered, the black base locks into place to ensure the needle is not exposed.

The child should carry the adrenaline auto-injector at all times. Most children are able to carry their own auto-injector by age six or seven. If the child is not developmentally able to carry the adrenaline auto-injector, it should be worn by the adult responsible or kept in an unlocked, safe and accessible location. Children with stinging insect allergy usually carry their adrenaline auto-injector only during insect season (i.e., warmer months). It is the responsibility of community program personnel to be aware of the location of the child(ren)'s adrenaline auto-injector.

Children should be encouraged to take as much responsibility as possible in preventing and managing anaphylaxis. However, it can never be assumed that a person of any age will have the ability to judge when epinephrine is required and to self-inject in an emergency situation.

An adrenaline auto-injector that is prescribed to a child cannot be administered to another child. If a back-up adrenaline auto-injector purchased by the community program is being used, it is the responsibility of the community program personnel to ensure its dosage is equivalent to the dosage prescribed to the child.

If a child is exhibiting signs of anaphylaxis but is *not* prescribed an adrenaline auto-injector, the community program's standard emergency procedure (i.e., call 911/EMS) should be implemented.

Administering an Adrenaline Auto-injector

1. Secure the child's leg. The child should be sitting or lying down
 - If the child is feeling lightheaded or dizzy, he/she should lie down on their back with the legs raised above heart level. However, if the child is having difficulty breathing, keep them in an upright position. If the child is vomiting, they should be placed on their side. The child should not sit or stand immediately following a reaction as this could result in another drop in blood pressure.
 - It may be necessary to hold or straddle the child. Infants and toddlers can be held in an adult's lap.
2. Identify the injection area on the outer middle thigh.
 - The adrenaline auto-injector will penetrate one layer of regular clothes but snowsuits or other bulky clothing should be removed.
 - The middle of the thigh can be found by dividing the leg between the knee and hip into three sections and choosing the middle section. The outer portion of the thigh is found between the outer seam and centre crease of a pant leg. Feel the spot with your hand to avoid seams or items in a pocket.
 - Avoid injection into the hands or feet, as this may result in loss of blood flow to the affected area. If there is an accidental injection into these areas, 911/EMS should be initiated.
3. Grasp the adrenaline auto-injector in your fist with the thumb tucked in, not over the end of the device.
4. Remove the safety cap(s) by pulling straight off. Do not bend or twist it off.
 - The EpiPen® and Allerject™ have one cap to remove. The Twinject® has two caps to remove.
5. Firmly press the tip of the adrenaline auto-injector into the thigh at a 90° angle until you hear a click.
6. Hold the adrenaline auto-injector in place for a slow count of 5 to ensure all the medication is injected.
 - The EpiPen® and Allerject™ have a plastic cover will extend and lock into place to ensure the needle is not exposed. If this did not occur, check to see if the safety cap was removed and inject again, pressing more firmly.
 - The needle in the Twinject® will be exposed after it has been administered. If the needle is not visible, it has not been used properly. Check to see if the safety caps have been removed and inject again, pressing more firmly.
 - There will be liquid that remains in the adrenaline auto-injector after it has been injected.
7. Discard the used adrenaline auto-injector following the community program's policy for disposal of sharps or give to EMS personnel.
 - The Twinject® may be placed back in its plastic container after injection.

After the adrenaline auto-injector is injected, the child may appear pale, complain of headache, dizziness, pounding heart, nausea or shakiness. The child may become very quiet. These effects are from the epinephrine and will pass quickly. Improvements in the signs of anaphylaxis will occur within minutes.

Responding to an Anaphylactic Reaction

1. Inject the adrenaline auto-injector in the outer middle thigh.
 - It is essential that the adrenaline auto-injector is given as soon as possible. Giving the first dose in a timely manner decreases the likelihood of needing additional doses of epinephrine
2. Activate 911/EMS.
 - It is essential that a person having an anaphylactic reaction be taken to a hospital to receive immediate medical attention, even if the adrenaline auto-injector has been given and the signs of anaphylaxis disappear.
 - Activating 911/EMS should be done simultaneously with injecting the adrenaline auto-injector by delegating the task to a responsible person. NEVER leave the child who is experiencing an anaphylactic reaction alone.
3. Notify the child's parent/guardian.
4. If signs of anaphylaxis persist or recur, give another adrenaline auto-injector (if available) every 5 to 15 minutes.
 - Signs that the reaction is not under adequate control are that the child's breathing becomes more difficult or there is a decreased level of consciousness
 - It is important to note the time of administration of the first adrenaline auto-injector.
 - The administration of more than two doses may increase risk of cardiac side effects but if a child is in extreme medical distress due to anaphylaxis (e.g., unable to breathe, loss of consciousness), additional doses are warranted.
 - Whenever possible, parents/guardians should provide a back-up adrenaline auto-injector for use at the community program in the event that a second dose of epinephrine is required.
5. Stay with the child until the EMS personnel arrive.
 - Information that should be provided to EMS personnel includes signs of anaphylaxis seen in child, time frames, where adrenaline auto-injector was given (right or left thigh) and effect of epinephrine on the child.

HEALTH CARE PLAN

When a community program receives URIS Group B support for children with URIS 'Group B' health care needs, a written health care plan is developed and maintained by a registered nurse on an annual basis, minimally. The development and implementation of the health care plan should reflect the principles of inclusion, normalization and independence. From a practical standpoint, these principles mean:

- A child with anaphylaxis is foremost a child within a family, child-care facility, classroom or other community program.
- The environment should be changed to support the child, not the child changed to suit the environment.
- Interventions should be as non-intrusive as possible and be delivered in a manner that respects the child's dignity and privacy as well as the normal routines and patterns of the community program.
- The parent/guardian and child have rights and obligations and should be actively encouraged to participate in decisions affecting themselves and their children.

A standard health care plan may be used as the response to an anaphylactic reaction in community program settings is the same for every child. Standardized health care plans may be completed by the parent/guardian and reviewed by the nurse.

The health care plan should be kept in a location that is secure and accessible at the community program. All community program personnel that may be responsible for a child with anaphylaxis should be aware of the location of the health care plan. It should also accompany the child on excursions outside the facility.

If the child is prescribed an adrenaline auto-injector but does not bring it to the community program, completion of the anaphylaxis health care plan is not required. In such situations, the response to an anaphylactic reaction is to call 911/EMS.

Content

The following information is included in the anaphylaxis health care plan. The *Anaphylaxis Health Care Plan* contains this information and is included as a supplement to this document.

Demographic information

- Child name
- Birth date
- Community program name
- Parent/guardian name and phone number(s)
- Alternate emergency contact name and phone number(s)
- Physician
 - Allergist and phone number
 - Family physician/pediatrician and phone number

Allergy Information

- Life-threatening allergen(s)
- Non life-threatening allergen(s)
- Availability of Medic-Alert® identification

Adrenaline auto-injector information

- Name of adrenaline auto-injector (e.g., EpiPen®, Twinject®, Allerject™)
- Dosage
- Location of adrenaline auto-injector during attendance at the community program
- Availability of back-up adrenaline auto-injector at community program and its location

Responding to anaphylactic reaction

- Signs of anaphylaxis
- Steps in administering adrenaline auto-injector
- Steps in responding to anaphylactic reaction

Documentation

- Template for recording interventions and actions performed by nurse and/or community program personnel (e.g., communication, actions taken)
- Signatures & dates
 - Nurse signature & date
 - Parent/guardian signature & date

Administration of Anti-histamines

Anti-histamines are not recommended for the treatment of anaphylaxis and should not be included in the anaphylaxis health care plan. If the parent/guardian requests the administration of anti-histamine for non-life-threatening allergic reactions, this should be addressed as outlined in the community program's policy for administration of medication.

Risk Reduction Strategies

Schools and licensed child care facilities in Manitoba are required to develop and implement policy that addresses anaphylaxis in their facility including strategies for reducing risk of exposure to allergens. In October 2008, the *Public Schools Amendment Act – Anaphylaxis Policies* was passed to formalize a school board's obligation to develop an anaphylaxis policy. The Bill also gives the Minister of Education the discretionary authority to make regulations in this area. The amendment was proclaimed effective November 1, 2009. For more information about *The Public Schools Amendment Act*, go to <http://web2.gov.mb.ca/bills/39-2/b232e.php>.

In 2008, Manitoba passed the *Child Care Safety Charter*, the first legislation of its kind in Canada which mandates safety plans and codes of conduct in child care facilities. This legislation requires them to develop comprehensive and coordinated policies and procedures to meet the needs of children with anaphylaxis. The Charter was proclaimed

on May 1, 2010. For more information about the Child Care Safety Charter, go to <http://web2.gov.mb.ca/laws/statutes/2008/c01808e.php>

If a community program has not established risk reduction strategies, the nurse should assist them in doing so. Many factors should be considered when establishing risk reduction strategies such as the age of children, location of eating areas, level of supervision and size of facility. The most successful strategies enlist the support of the entire community including parents, children and community program personnel. The *Risk Reduction Strategies Template* may be used for this purpose and is included as a supplement to this document. The *Allergen Aware Sample Letter* is also included as a supplement to this document and may be used by the community program when establishing an allergen-safe environment (i.e., requesting that products containing allergens are not brought to the community program). Other resources that may be useful in the development of risk reduction strategies include the *Anaphylaxis: A Handbook for School Boards (2001)* and *Anaphylaxis in Schools and Other Settings (2011)*.

TRAINING

When a community program receives URIS Group B support, training is provided to community program personnel by a registered nurse. Training is provided on an annual basis minimally. The training of community program personnel should reflect the principles of adult learning. From a practical standpoint, these principles mean:

- Identifying and integrating the learning needs of participants into the training session.
- Information should be applicable to the participants' responsibilities and focus on what is most useful to them.
- Adults have accumulated a foundation of life experiences and knowledge and need to connect learning to this knowledge/experience base.
- An organized training session with clearly defined elements assists participants in identifying and attaining learning goals.

It is recommended that all community program personnel that may be responsible for a child with anaphylaxis attend the training session. As an example, community program personnel that may be responsible for a child with anaphylaxis may include:

- in schools - teachers, teaching assistants, school administrators, office staff, substitute teachers, bus drivers, lunch room supervisors;
- in licensed child care facilities - child care providers, child care directors; and
- in recreational programs – staff members, administrators, volunteers.

The community program is responsible to ensure relevant personnel attend the training session. It is recommended to keep a written record that indicates community program personnel in attendance and date that training occurred.

Adequate time should be scheduled for training to ensure community program personnel obtain the knowledge and skill necessary to safely respond to the needs of children with anaphylaxis in their facility. The amount of time required to train community program personnel will vary depending on several factors such as the existing knowledge of community program personnel, number of personnel attending the session and format of training resources used (e.g., PowerPoint, Worksheet).

Whenever possible, training should be scheduled when all community program personnel can attend to ensure service is provided in an efficient manner. If the training session is poorly attended (i.e., there is not an adequate number of community program personnel to safely address the child's needs), additional training should be scheduled. If subsequent training sessions are also poorly attended, alternate strategies should be discussed with the community program to ensure training is provided in an efficient manner.

When the community program has not received training in the past, a child with anaphylaxis may still attend the community program prior to the training session. In such situations, the community program's policy for emergency situations (e.g., call 911/EMS) is implemented, if required.

Content

The following clinical information and child specific information is included in the training session. A demonstration and return demonstration of administering an adrenaline auto-injector is also performed at the training session.

Clinical information

- Definition of allergies and anaphylaxis
- Common allergens
- Risk reduction
- Signs of anaphylaxis
- Treatment of anaphylaxis
 - Epinephrine
 - Asthma and anaphylaxis
 - Adrenaline auto-injectors
 - Administration of adrenaline auto-injector – including demonstration and return demonstration (see below for more details)
 - Responding to an anaphylactic reaction

Child specific information

- Life threatening allergen(s)
- Name and location of adrenaline auto-injector

Demonstration and return demonstration

The nurse demonstrates the administration of the adrenaline auto-injector(s) prescribed for children in the community program and observes community program personnel performing a return demonstration.

Training devices are required for demonstration purposes and can be purchased through the manufacturer's websites.

- www.epipen.ca
- www.twinject.ca
- www.allerject.ca

Training Resources

The following resources are included as supplements to this document. If alternate resources are used, it is the responsibility of the nurse to ensure its content is consistent with the clinical information included in this document.

- Anaphylaxis Handout
- Anaphylaxis PowerPoint
- Anaphylaxis DVD

- Anaphylaxis Worksheet (Word and PowerPoint version) is recommended for community program personnel that have previously attended an anaphylaxis training session. The Microsoft Word version may be better suited for individuals or small groups. The Microsoft PowerPoint version may be more suitable for large groups.
- Child Specific Information for Anaphylaxis Training Session may be used to review child specific information at the training session.

On-site training by a registered nurse is required to delegate knowledge and skill to community program personnel in the management of anaphylaxis. Other teaching strategies may be used as supplements to on-site training at the discretion of the nurse. The following on-line resources may be useful for training purposes.

- Online Anaphylaxis Training - www.eworkshop.on.ca/allergies
- Food Allergies in Schools: What School Staff Need to Know - www.allergyhome.org
- Twinject® video - www.twinject.ca
- EpiPen® video - www.epipen.ca
- Allerject™ video - www.allerject.ca

MONITORING

Monitoring of trained community program personnel by a nurse is required to ensure that the knowledge and skill necessary to safely care for children with anaphylaxis has been acquired and/or retained. Monitoring is required on an annual basis, minimally.

The frequency and timing of monitoring is based on the professional judgment of the nurse as well as the complexity of information taught, maturational issues and the skill demonstrated by community program personnel. The following strategies may be used for monitoring purposes.

- Completion of an evaluation form by community program personnel that attend the training session. The *Anaphylaxis Training Session Evaluation Form* is included as a supplement to this document.
- Observation of community program personnel performing a return demonstration (i.e., administration of adrenaline auto-injector) at the training session.
- Asking community program personnel questions during the training session. The *Anaphylaxis Worksheet* is included as a supplement to this document.

REFERENCES

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- NIAID-Sponsored Expert Panel (2010) Guidelines for the Diagnosis and Management of Food Allergy in the United States: Report of the NIAID-Sponsored Expert Panel. *The Journal of Allergy and Clinical Immunology*, 126(6) Supplement, S1-S58.
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RESOURCES

The following list includes resources that may be relevant to community programs in the care of children with anaphylaxis. The purpose of these agencies/organizations may not be consistent with the purpose and content of this document.

Alberta Education - Allergy and Anaphylaxis Informational Response (AAIR)

www.education.alberta.ca/admin/healthandsafety/aaair.aspx

Allergy Home – educational website

<http://www.allergyhome.org/>

- Online and written resources for schools and other community programs

Allergy Safe Communities

www.allergysafecommunities.ca

- Based on *Canadian Society of Allergy and Clinical Immunology Anaphylaxis in Schools and Other Settings*, 2011
- Resources for community programs

Anaphylaxis Canada

www.anaphylaxis.ca

- Resources for community programs and families
- Items to purchase (e.g., training devices, books, posters)
- Online anaphylaxis training e-learning module - www.eworkshop.on.ca/allergies
- Website for youth – www.whyriskit.ca
- Website for children – www.safe4kids.ca

Allergy Asthma Information Association

www.aaia.ca

- Resources for community programs and families

Association québécoise des allergies alimentaires

www.aqaa.qc.ca

- Resources for community programs and families (French)

Allergic Living Magazine

www.allergicliving.com

- Resources for community programs and families

Allerject

www.allerject.ca

- How to use Allerject® – Online video
- Expiration Reminder service

British Columbia School Trustees Association - Anaphylaxis Resource
<http://dsweb.bcsta.org/docushare/dsweb/View/Collection-7655>

Canadian Food Inspection Agency

www.inspection.gc.ca

- Food Recalls/Allergy Alerts -
www.inspection.gc.ca/english/corpaffr/recarapp/recaltoce.shtml

Canadian Medic Alert – No Child Without

www.nochildwithout.ca

- FREE medic alert bracelet for children ages 4-14 that attend a school participating in the program.

Canadian School Boards Association (CSBA)

www.cdnsba.org

- Anaphylaxis: A Handbook for School Boards
http://www.cdnsba.org/wp-content/uploads/2010/07/anaphylaxis_eng1.pdf

EpiPen® Canada

www.epipen.ca

- How to use EpiPen® – Online video
- Expiration Reminder service

Food Allergy and Anaphylaxis Network

www.foodallergy.org

- Website for Kids - www.fankids.org
- Website for Teens - www.faanteen.org

Health Canada

www.healthcanada.gc.ca/foodallergies

- Advisories, Warnings and Recalls
www.hc-sc.gc.ca/ahc-asc/media/advisories-avis/index_e.html
- Food Labelling
www.hc-sc.gc.ca/fn-an/label-etiquet/index_e.html

Kids with Food Allergies Foundation

www.kidswithfoodallergies.org

Manitoba Department of Education

www.edu.gov.mb.ca

- Unified Referral and Intake System - www.edu.gov.mb.ca/k12/specedu/plan_part.html
- Legislation and Policies - www.edu.gov.mb.ca/k12/specedu/plan_part.html

National Education Association (NEA) Health Information Network

www.neahin.org

- Resources for community programs

The Food Allergy & Anaphylaxis Alliance
www.foodallergyalliance.org

Twinject® Canada
www.twinject.ca

- How to use Twinject® – Online video
- Expiration Reminder service