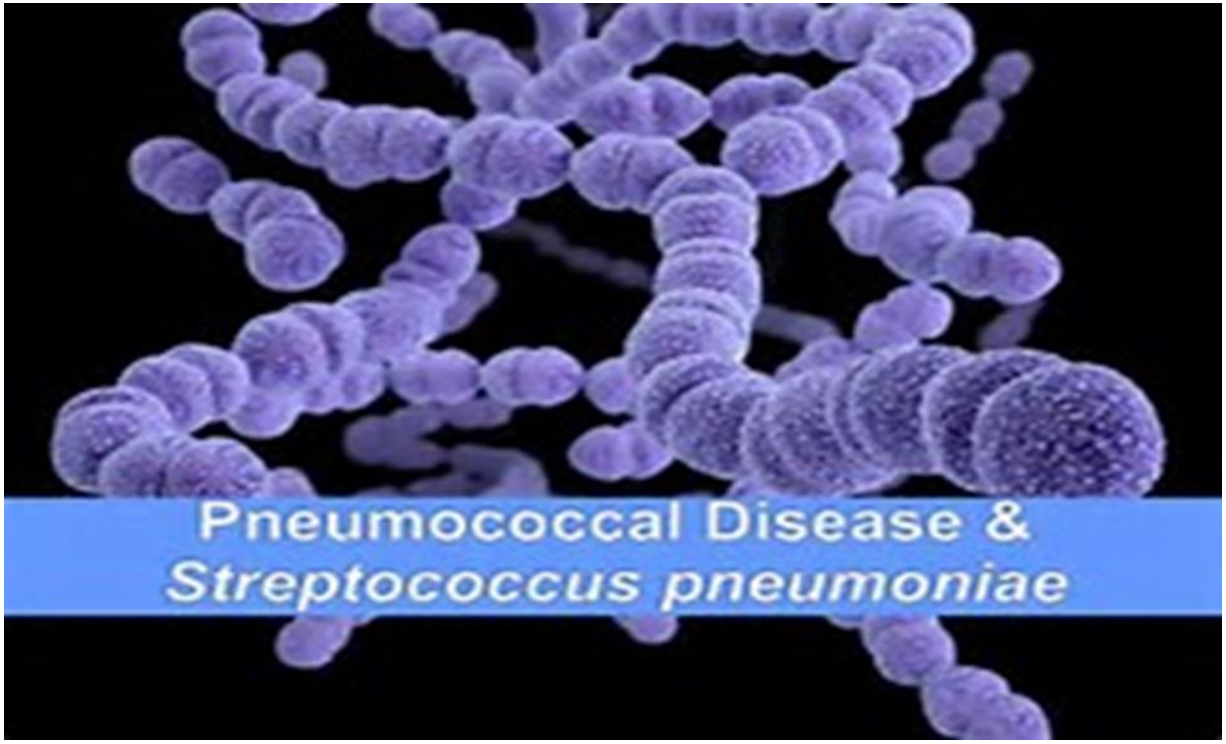
Pneumococcal Polysaccharide Immunization



Introduction

This PowerPoint is a tool for health care professionals to use as a self-learning tool in conjunction with annual influenza immunization orientation.

- There is no requirement by the Alberta Health Services (AHS) Province-wide Immunization Program to formally submit proof of completion to AHS. However, use may differ locally and therefore staff should follow instructions given at a local level for formal submission of the self-test.

For more detailed information it is important for staff to refer to other program resources found on Insite on the AHS Influenza Immunization webpage and the Immunization Program Standards Manual such as:

- AHS Vaccine Biological pages and/or Vaccine Product Monographs
- AHS Vaccine Storage and Handling e-learning modules and Standard
- Guidelines for the reporting of adverse events following immunization
- Reporting requirements and data collection guidelines
- Alberta Health Pneumococcal Immunization Program Policies.

Pneumococcal Immunization Learning Objectives

The immunizer will be able to:

- describe the pneumococcal immunization program within Alberta
- administer pneumococcal polysaccharide vaccine in accordance with local protocols

What is pneumococcal polysaccharide vaccine?

- Pneumococcal vaccines are used to prevent serious illnesses caused by the *Streptococcus pneumoniae* bacteria
  - the vaccine protects against 23 serotypes of this bacteria
- The vaccine is sometimes referred to as the “pneumonia shot”
- The immunization program was implemented nationally in 1998
- The vaccine is provided throughout the year by Public Health and community physician partners. Effective January 1, 2019, it is also provided by community pharmacists to healthy adults 65 years of age and older
- Pneumococcal polysaccharide vaccine is available for eligible people aged 24 months and older
- Onset of immunity is about 10 to 15 days after immunization

Why is pneumococcal polysaccharide vaccine important?

- This vaccine can prevent serious infections, such as bacteremia and meningitis caused by the *Streptococcus pneumoniae* bacteria
- Certain populations are more at risk of serious illness caused by this bacteria, so the vaccine is offered to them to provide protection
- This bacteria is becoming resistant to some of the antibiotics used to treat this infection
- Vaccine effectiveness is dependent on the age and immune competency of the vaccine recipient
  - The immunity conferred is serotype specific
  - The vaccine is 56% - 81% effective in preventing invasive pneumococcal disease

Pneumococcal polysaccharide vaccine eligibility

I.Routine Recommended Immunization

- Individuals 65 years of age and older

II. Medically at Risk

- Individuals 24 months up to and including 64 years of age with the following:
  - Alcoholism; includes individuals with any history of alcohol abuse
  - Anatomic or functional asplenia, splenic dysfunction
  - Chronic cardiac disease; includes congestive heart failure, myocardial infarction and individuals taking heart medications or being followed by a cardiac specialist
  - Chronic cerebrospinal fluid (CSF) leak
  - Chronic liver disease; including hepatic cirrhosis due to any cause, hepatitis B carriers, hepatitis C infection
  - Chronic neurologic conditions that may impair clearing of oral secretions

Pneumococcal polysaccharide vaccine eligibility (cont'd)

- Chronic pulmonary disease (including asthma requiring medical treatment within the last 12 months regardless of whether they are on high dose steroids)
- Chronic renal disease; includes nephrotic syndrome and renal dialysis
- Cochlear implant (candidates and recipients)
-Congenital immune deficiencies involving any part of the immune system, including B-lymphocyte (humoral) immunity; T-lymphocyte (cell) mediated immunity; complement system (properdin or factor D deficiencies); or phagocytic functions
-Diabetes mellitus; includes both insulin and noninsulin dependent (controlled by oral medication or diet)
-Hematopoietic stem cell (HSCT) recipients 24 months of age and older
- See Standard for Immunization of Transplant Candidates and Recipients #08.304

Pneumococcal polysaccharide vaccine eligibility (cont'd)

- HIV infection
- Illicit injection drug use
- Immunosuppressive therapy including:
  - use of long-term corticosteroids, chemotherapy, radiation therapy, post-organ transplant therapy
  - biologic and non-biologic immunosuppressive therapies for:
    - Inflammatory arthropathies, e.g., systemic lupus erythematous (SLE), rheumatoid or juvenile arthritis
    - Inflammatory dermatological conditions, e.g., psoriasis, severe atopic dermatitis and eczema
    - Inflammatory bowel disease, e.g., Crohn's disease, ulcerative colitis
- Malignant hematologic disorders including leukemia, Hodgkin's and non-Hodgkin's lymphomas, multiple myeloma and other malignancies

Pneumococcal polysaccharide vaccine eligibility (cont'd)

-Malignant solid organ tumors either currently **or within the past 5 years**
- Sickle cell disease and other hemoglobinopathies
- Solid Organ Transplant (SOT) candidates and recipients

Note:
Previous invasive pneumococcal disease does not confer immunity or preclude immunization with pneumococcal vaccine.

Pneumococcal polysaccharide vaccine eligibility (cont'd)

III. High Risk Setting

- Individuals 24 months up to and including 64 years of age who are homeless or living in chronic disadvantaged situations
  - Includes those with no fixed address or home or living in shelters
- Individuals 24 months up to and including 64 years of age who are residents of Congregate Care facilities

Pneumococcal polysaccharide vaccine

- Provincially funded product - Pneumovax®23 (Merck)
- Dosage is 0.5 mL (comes in a single dose vial)
- Intramuscular injection given in the deltoid
  - use 3 cc syringe
  - needle size dependent on muscle mass
- Eligible person can receive pneumococcal vaccine with influenza vaccine on the same visit but it must be given in a separate injection, in a different immunization site (e.g., one vaccine in left deltoid, one in the right)
- The vaccine should be given at least 14 days prior to initiation of immunosuppressive therapies (e.g., chemotherapy)
- Check your local protocol for clients who are unsure of past pneumococcal polysaccharide immunization history

Schedule and reinforcing dose

- One primary dose is sufficient for most individuals
  - Two doses are required for HSCT recipients
- **A one-time** reinforcing dose is recommended ONLY for individuals at highest risk of invasive pneumococcal disease. This includes people with:
  - Functional or anatomic asplenia, splenic dysfunction or sickle cell disease
  - Chronic renal failure or nephrotic syndrome
  - Chronic liver disease including hepatic cirrhosis
  - Congenital immunodeficiencies involving any part of the immune system
  - HIV infection
  - Immunosuppression related to therapy

Schedule and reinforcing dose (cont'd)

- Immunosuppression related to therapy:
  - use of long term corticosteroids, chemotherapy, radiation therapy, post-organ transplant therapy
  - biologic and non-biologic immunosuppressive therapies for:
    - Inflammatory arthropathies, e.g., systemic lupus erythematosus (SLE), rheumatoid or juvenile arthritis
    - Inflammatory dermatological conditions, e.g., psoriasis, severe atopic dermatitis and eczema
    - Inflammatory bowel disease, e.g., Crohn's disease, ulcerative colitis
- Malignant hematologic disorders including leukemia, Hodgkin's and non-Hodgkin's lymphomas, multiple myeloma and other malignancies

Schedule and reinforcing dose (cont'd)

- Sickle cell disease
- Solid organ transplant

- **This one-time** reinforcing dose should be given:
  - 5 years after the initial dose of pneumococcal polysaccharide vaccine

Exception:
Individuals will be eligible for a dose of pneumococcal polysaccharide vaccine at 65 years of age and older (as long as 5 years have passed since a previous dose of this vaccine), regardless of the number of doses received prior to 65 years of age.

Reactions to pneumococcal polysaccharide vaccine

Common Reactions

- injection site pain, redness, warmth, swelling and local induration, fever (less than 38.8˚C), asthenia, fatigue, myalgia, headache

Rare Reactions

- chills, malaise, nausea, vomiting, lymphadenitis, lymphadenopathy, rash, urticaria, arthralgia and paresthesia, fever, afebrile and febrile seizures, cellulitis-like reaction, allergic reactions, anaphylaxis

As with any immunization, unexpected or unusual side effects can occur. Refer to product monograph for more detailed information.

People who have a reaction that concerns them or is an unusual reaction should contact Health Link at 811 for direction

Contraindications

Pneumococcal polysaccharide vaccine is contraindicated for the following people:

- People who have experienced anaphylaxis to a previous dose of pneumococcal polysaccharide vaccine
- People who have a known severe hypersensitivity to any component of the vaccine
- Children under 24 months of age

Special consideration needs to be given to clients undergoing splenectomies, transplants or immunosuppressive therapy. Refer these individuals to Public Health (in some zones to the Communicable Disease Unit) for assessment.

Reporting of adverse events following immunization (AEFI)

An adverse event following immunization is defined as a serious or unexpected event temporally associated with immunization.

Local reactions are the most commonly reported event following immunization. A local reaction of pain and/or swelling is ONLY reportable if:

1. the onset of swelling is within 48 hours following immunization;

AND

2. swelling extends past the nearest joint

OR

3. severe pain that interferes with the normal use of the limb lasting greater than 4 days

OR

4. reaction requires hospitalization

AEFI reporting (cont'd)

Any of the following are also reportable adverse events:

- Anaphylaxis
- Other allergic reactions
- Any reaction outside of what is expected

Consult with AHS Adverse Event Following Immunization (AEFI) Team at AEFI@ahs.ca or call 1-855-444-2324 as soon as possible for any case where there is uncertainty as to whether a symptom following immunization is related to the immunization.

Severe reactions (anaphylaxis and death) should be reported within 24 hours and all other reactions within 3 days to the AEFI Team. "Reportable AEFIs" are reported to Alberta Health, and in turn to the National Surveillance Program.

Anaphylaxis

- Anaphylaxis is a potentially life-threatening allergic reaction
- Very rare (with an estimated occurrence of about 1 per 1,000,000 doses of vaccine administered) however even so, it should be anticipated with every client
- Pre-immunization screening can prevent episodes – ask questions about possible allergy to the vaccine or any vaccine component

Anaphylaxis cont'd

- Every immunizer should be familiar with the symptoms of anaphylaxis and be ready to initiate appropriate interventions
- Most instances begin within 15 minutes after immunization
- All clients are encouraged to wait for 15 minutes after immunization
- For clients with any known anaphylactic allergies, extend this recommended wait period to 30 minutes after immunization
  - Have clients remain within a short distance and return immediately for assessment if they feel unwell

Anaphylaxis cont'd

Alberta Health Services employees need to ensure they have completed the Anaphylaxis Management | Insite (albertahealthservices.ca) learning module.

Covenant Health employees need to ensure they have completed Covenant Health Anaphylaxis Learning Module found on CLiC.

All other providers must have Anaphylaxis Management Guidelines in place.

- Additional information available in the Canadian Immunization Guide – Vaccine Safety

Syncope post immunization

- Syncope or vasovagal syncope is often referred to as fainting
- Defined as a temporary loss of consciousness and postural tone secondary to a lack of blood flow to the brain
- Vasovagal syncope is triggered by a stimulus, could be an internal trigger such as invasive procedure (immunization) or an experiential trigger, seeing trauma (injections or blood)
- When a stimulus triggers an exaggerated response, both heart rate and blood pressure drop, quickly reducing blood flow to the brain and leading to loss of consciousness

Syncope post immunization

- In about 25% of cases, reduced blood flow can result in myoclonic jerks that resemble seizures
- These movements are more common when fainting occurs soon after immunization, and disappear when consciousness is regained
- Clients fainting due to vasovagal syncope recover quickly, usually within seconds or a few minutes

Signs and symptoms of syncope

As reported by client:

- Nausea
- Dizziness, weakness
- Ringing in ears
- Spots before eyes
- Light-headed

Signs and symptoms of syncope (cont'd)

Observed Signs:

Respiratory	• Normal • Yawning
Skin	• Pale/Grey • Sweating
Gastrointestinal	• Vomiting
Cardiovascular	• Hypotension • Slow or weak pulse • Consciousness to unconsciousness
Musculoskeletal	• Muscles relaxed • Clonic jerks of limbs and face may occur

Facts about syncope

- There is a clear incidence peak in persons 11 to 18 years of age
- 50% of all people will experience a syncopal event at least once in their life
- A study done by the Centres for Disease Control in the United States found that 78% of the post immunization syncope cases occurred in women.
- A case series study done in the United States identified that of 571 syncopal events 63.2% occurred within 5 minutes of less of immunization and 88.8% occurred within 15 minutes or less of immunization.
- Fainting can result in head trauma if a client falls

The goal is to prevent falls!

Tips to prevent syncope

- Administer vaccine while client is seated
- Maintain a calm and confident demeanor
- Try to keep vaccine preparation out of client's line of site when possible
- Observe anxious client until anxiety has resolved after immunization
- Have clients with a history of fainting lie down prior to administering vaccine
- Clients with pre-syncopal symptoms (such as dizziness, anxiety, pallor, perspiration, trembling, or cool, clammy skin) should sit or lie down until symptoms resolve

Assisting clients after syncope

- Assist the client to lay down with feet elevated
- Ensure the client's airway is open (ABCs)
- Monitor for signs of allergic reaction
- Call for assistance if needed
- Cover the client with a blanket for warmth if available
- Wipe the client's forehead with a damp cool cloth
- May offer fluids
- Have the client resume a standing position in stages (sit, stand, walk)
- Observe the client until the symptoms have resolved

Anxiety Spells Signs and Symptoms

As reported by client

- Nausea
- Dizziness, weakness
- Throbbing ears
- Headache
- Lump in throat
- Tingling of tongue, mouth, face or limbs
- Uneasiness
- Restlessness

Anxiety Spells Signs and Symptoms (cont'd)

Observed Signs:

Respiratory	• Normal to mild hyper-ventilation
Skin	• Normal to flushed or pallor • Sweating
Gastrointestinal	• Vomiting may occur • Often normal
Cardiovascular	• Normal, possible slight hypertension • Rapid pulse • Conscious

Breath holding

- Occurs in young children when upset, as many as 5% of toddlers, typically between 6 months to 2 years of age, generally self resolving by 3 to 4 years of age
- Is considered a syncopal event
- Signs and symptoms:
  - Suddenly become quiet but still very agitated
  - Facial flushing & perioral cyanosis
  - Often ends with resumption of crying, or a brief period of unconsciousness during which time breathing resumes
- Treatment
  - Reassurance, no evidence of long term sequela

Anaphylaxis and Syncope Knowledge Check

Review Questions Section 3

1. What is the incidence of anaphylaxis after immunization?
2. What is the percentage of people who experience jerking movements that resemble seizures after fainting?

Note: Answers can be found at the end of the power point.

Infection Prevention and Control (IPC)

IPC's mandate is to reduce the incidence of healthcare associated infections in patients, residents, and clients by:

- process and outcome surveillance
- outbreak identification and management
- consultation and education
- guideline, policy, and procedure development
- Research

For more information go to the AHS IPC website at:

https://www.albertahealthservices.ca/info/page6410.aspx

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Answer Key

Anaphylaxis & Syncope Knowledge Check Answers

1. What is the incidence of anaphylaxis after immunization?

- Although anaphylaxis is very rare with an incidence of about 1 per 1,000,000 doses, it should be anticipated with every client.

2. What is the percentage of people who experience jerking movements that resemble seizures after fainting?

- In about 25% of cases, reduced blood flow can result in jerking movements that resemble seizures. These movements are more common when fainting occurs soon after immunization and disappear when consciousness is regained