Administration of Vaccines
Paramedic Vaccination Training

- This program is for the "Administration of Influenza Vaccine by Paramedics" and is intended to assist in statewide training and implementation
- This education is designed for paramedics
- This information is for the intramuscular/intranasal administration of approved vaccines as an optional Scope of Practice (SOP) under local medical control and as part of the local emergency medical system
- This program is to prepare paramedics to give vaccines when added to SOP

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Why Are We Here?

- Current pandemic of Novel H1N1 Influenza A Virus (H1N1 Influenza or Swine flu)
- Largest vaccination program since polio
- The local health/EMS systems have jointly determined that administration of influenza vaccine by paramedics is a key part of the local vaccination plan
- This optional SOP is time limited

Training in Administration of Influenza Vaccine

I. Public Health Principles for Infectious Diseases and Influenza
II. Principles of Vaccinations
III. Drug Profile - Vaccinations
IV. Documentation for Vaccinations
V. Protocols, Procedures and Documentation (LEMSA and provider specific information)
Objectives

- Discuss general public health principles for infectious diseases and influenza
- Introduce general principles of vaccination
- Review the drug profile for vaccination including drug name, classification, action, indication, contraindications, route of administration, dose, and side effects
- Discuss documentation for vaccine administration.
- Understand the role of EMS as part of your local public health vaccination plan

Note: You are NOT here to learn how to give IM injections, however you will be demonstrating your skill proficiency

Development of Educational Process

This program is intended to be utilized as part of local community influenza vaccination plans; additionally, the program is part of the organized local EMS system under the direction of the local EMS Medical Director in coordination with the local Health Officer.

Part I

Public Health Principles for Infectious Diseases and Influenza
History of Vaccines

- Vaccines are designed to reduce or eliminate diseases caused by infectious organisms; for example, routine immunization has obliterated smallpox.
- Routine immunization has led to the near elimination of wild polio virus; additionally, vaccines have reduced some preventable infectious diseases to an all-time low.
- Today, few people experience the effects of measles, pertussis, and other illnesses due to vaccination.

Safety

- No vaccine is 100% safe or effective; however, in conjunction with good infection control including good hand hygiene, vaccines are an excellent defense against infectious diseases.
- In general, the benefits of a vaccine far exceed the risks posed by the disease.
- Differences in the way individual immune systems react to a vaccine account for rare occasions when people are not protected following immunization or when they experience side effects related to vaccination.

Immunization Event

- Vaccination is a common and memorable event, any illness following immunization may be inappropriately attributed to the vaccine.
- While some of these reactions may be caused by the vaccine, many are unrelated events that occur after vaccination by coincidence.
- Unfortunately, some vaccine reactions and many unrelated events have shifted some public opinion.
- The majority of side effects with influenza vaccine include mild soreness and swelling at the injection site and low grade fever.
Survveillance

- Clinical trials provide important information on vaccine safety; however, the data is limited due to the small number of participants.
- Rare side effects and delayed reactions may not surface until the vaccine is administered broadly.
- The federal government has established a surveillance system to monitor adverse events following vaccination.
- This project is known as the Vaccine Adverse Event Reporting System (VAERS).
- More recently, large-linked databases containing information on millions of individuals have been created to study rare vaccine adverse events.

Part II

Principles of Vaccination

What is a Vaccine?

A vaccine is any preparation intended to produce immunity to a disease by stimulating the production of antibodies.
Principles of Vaccination

Immunity
- Immunity
  - Antigen
  - Antibody
- Passive Immunity
  - Protection (antibodies) transferred from another human or animal
- Active Immunity
  - Protection produced by the person’s own immune system
    - Cellular and humoral (antibody) immunity

Principles of Vaccination

Vaccine Origins
- Inactivated Vaccine - Influenza
  - No live organism
  - No risk of transmitting influenza
  - Can generally use in persons with weakened immune systems
- Live attenuated Vaccine
  - The vaccine contains living but weakened virus
  - Produces a mild illness similar to the natural illness the vaccine is designed to protect against
  - Generally not used in those with weakened immune systems

Seasonal Influenza Vaccine
- Given by IM injection or intranasal route every year
- Virus changes slightly every year
- Priority groups generally include:
  - Elderly
  - Children
  - Health care workers
  - Those with chronic diseases (COPD, Diabetes, Heart Disease, etc.)
- **NO** protection for H1N1 Influenza virus
H1N1 Influenza Vaccine

- Vaccination for the H1N1 Influenza will need to be administered **IN ADDITION** to seasonal vaccine
- H1N1 is a new influenza virus
- Different target population for H1N1 vaccination

Initial Target Populations for H1N1 Vaccination

- Pregnant women
- All persons greater than 6 months through 24 years of age
- Healthcare and EMS personnel
- Households and caregivers with children less than 6 months of age
- Persons 25 to 64 years of age with co-morbidities associated with higher risk of medical complication from influenza or immunocompromised

Vaccinations for Influenza

- Paramedics are authorized to administer the influenza vaccine as part of the organized local EMS System under a local optional SOP requested by the local EMS Medical Director to the EMS Authority
- Vaccinations must follow local protocols, documentation, and QI process
## Part III

**Drug Profile - Vaccination**

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## Profile – Vaccination

**Drug**

- **Drug Name**: Generic Name: None
- **Classification**: Influenza virus vaccine
- **Brand Names**: Afluria, Fluarix, FluLaval, Fluvirin, Fluzone

**Drug Names and Classification**

<table>
<thead>
<tr>
<th>Generic Name:</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brand Names:</td>
<td>Afluria, Fluarix, FluLaval, Fluvirin, Fluzone</td>
</tr>
<tr>
<td>Classification:</td>
<td>Influenza virus vaccine</td>
</tr>
</tbody>
</table>

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**Route of Administration**

**Dose**

**Side Effects**

**Indication**

**Contraindications**

**Special Considerations**
**Drug Profile – Vaccination**

**Action**
- Influenza virus vaccines induce humoral antibodies against hemagglutinins
- These antibodies neutralize influenza viruses
- A hemagglutinin inhibition titer greater than or equal to 1:40 in the serum is considered to be protective
- Influenza virus vaccines provide protection for the ongoing influenza season

**Indication**
- Influenza virus vaccines are indicated for active immunization of adults and children against influenza disease caused by influenza virus types A and B
- The Advisory Committee on Immunization Practices (ACIP) has issued recommendations regarding the use of the inactivated influenza virus vaccine
- Annual vaccination with the current vaccine is necessary because immunity declines during the year after vaccination
- Vaccine prepared for a previous influenza season should not be administered to provide protection for the current season
- Optimal time to vaccinate is October to November

**Contraindications**
- Influenza vaccine is not approved for children less than 6 months of age
- Allergy to eggs, vaccine component
- Moderate to severe acute illness with fever
- Previous adverse reaction
- History of Guillain-Barre Syndrome (progressive neurological disorder) within 6 weeks of previous influenza vaccines
- Any contraindications to inactivated influenza vaccine
**Drug Profile – Vaccination**

**Contraindications (Cont')**

- Less than 5 years with asthma
- Children or adolescent with long-term aspirin treatment
- Pregnancy
- Muscle or nerve disorder
- Immunocompromised
- Chronic health conditions
- If a recipient has a concern about a possible contraindication they should consult their primary care provider before receiving the vaccination

**Drug Profile – Vaccination**

**Route of Administration**

**H1N1 Vaccine may be given:**

- Intramuscular (adult)
  - Deltoid
- Intramuscular (pediatric)
  - Deltoid
  - Left vastus lateralis
- Intranasal

**Drug Profile – Vaccination**

**Route of Administration (Cont')**

**IM Administration:**

- Cleanse area with alcohol using circular motion moving from a center point outward
- Allow area to dry so alcohol is not injected into the tissue
- Hold skin taut and insert needle into the muscle at 90-degree angle with quick, darting motion
- Aspirate slightly on the syringe plunger to ensure proper needle placement
Drug Profile – Vaccination
Route of Administration (Con't)

**IM Administration:**
- Inject vaccine into the tissue slowly in one continuous motion using steady pressure
- Quickly withdraw needle at angle of insertion
- Gently massage the area to dispense vaccine into the muscle
- Apply light pressure for several seconds with dry gauze or cotton ball if bleeding is noted
- Dispose of needle and syringe in sharps container

**Needle Size for IM Injection**
- 6 months to 12 months
  - Anterolateral thigh muscle with 22 to 27 gauge 1 inch needle
- 1 to 3 years
  - Anterolateral thigh muscle with 22 to 27 gauge 1 inch needle
  - Deltoid muscle with 22 to 27 gauge 5/8 to 1 inch needle
- 3 years to Adult
  - Deltoid muscle with 22 to 27 gauge 1 inch needle
  - 5/8 inch may be used in deltoid if less than 130 pounds
- Larger adults (female greater than 200 pounds or male greater than 260 pounds)
  - May need 1 ½ inch needle

**IM Injection Sites**
Drug Profile – Vaccination
Route of Administration (Con’t)

IM Administration Guidelines:
- Wash your hands and maintain aseptic technique throughout procedure
- Select the appropriate syringe and needle
- Verify correct vaccine name
- Check vial expiration date
- Double check vial label
- Utilize instructions on vial to reconstitute influenza vaccine if indicated

Drug Profile – Vaccination
Route of Administration (Con’t)

Intranasal Administration:
- Utilizes live attenuated virus
- Nasal cavity provides direct route into the blood stream
- Position recipient's head in neutral position
- Spray into nostril vertically
- If recipient gags, coughs or sputters during administration, the vaccine is being too quickly and administration rate should be slowed down

Drug Profile – Vaccination
Dose

Follow dosing guidance for vaccine
Drug Profile – Vaccination
Side Effects

Injection
- The viruses in the flu shot are killed (inactive), so you CANNOT get the flu from the flu shot
- Soreness, redness or swelling where the shot was given
- Fever (low grade)
- Malaise

Intranasal
- Headache
- Runny nose, stuffy throat
- Wheezing (children)
- Fever (low grade)
- Muscle aches
- Vomiting (children)

Drug Profile – Vaccination
Special Considerations

- Intranasal vaccines should only be administered to healthy people
- Storage guidelines are mandatory (set by CDC and CDPH)
  - When stored vaccines must be refrigerated
  - Influenza vaccines are sensitive to both excessive heat and freezing
- Vaccine recipient questions should be directed to their primary medical provider

Part IV
Documentation for Vaccine Administration
Forms/Documents

- Complete the following required by local, state, and federal policies
  - Patient consent
  - Screening questionnaire
  - Vaccine Information Sheets (VIS)
  - Vaccine Administration Record

Documentation

Information To Be Included

- Date
- Name
- Vaccine lot number
- Manufacturer
- Site
- Vaccine information sheet
- Update patient’s Immunization Record

Vaccine Adverse Event Reporting System (VAERS)

- Cooperative Centers for Disease Control (CDC) and Food and Drug Administration (FDA) programs
- Post-marketing safety surveillance program
- Collects information on adverse events (possible side effects)
- Web site provides national data collection
- VAERS Web Site disseminates vaccine safety-related information at [www.vaers.org](http://www.vaers.org) or information line at 800-822-7967
Information Resources for People Receiving the Vaccine

- Centers for Disease Control National Immunization Program
  - http://www.cdc.gov/nip
- Immunization Action Coalition
  - http://www.immunize.org
- American Academy of Pediatrics
  - http://www.aap.org
- National Network for Immunization Info
  - http://www.immunizationinfo.org

Vaccine Administration Procedure

- Reference Appendix CDC Immunization Guide

- CDC's “Pink Book” Epidemiology and Prevention of Vaccine-Preventable Diseases (10th Edition)

Part V

Protocols, Procedures and Documentation
(Insert Local Information Here)
Questions?

References


Acknowledgments
- Future-based-Genera/Boosted