

Emergency Medical Services

October 2009

Just-in-Time

Paramedic Vaccination Training

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 administration of the vaccine to the deltoid anatomical site only.

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**

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

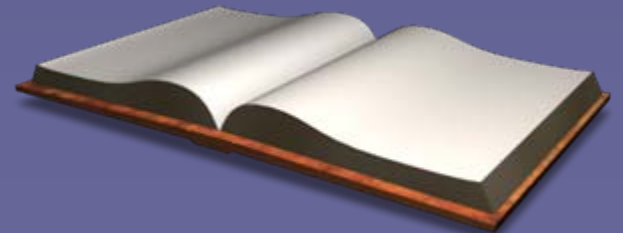
This program is intended to be utilized as part of local community influenza vaccination plans; additionally, the program is part of the organized EMS system under the direction of the Pennsylvania Department of Health.

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

Surveillance

- 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 month 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 an intramuscular injection to the deltoid anatomical site only.
- Vaccinations must follow protocols, documentation, and QI process

Part III

Drug Profile - Vaccination

Profile – Vaccination Drug

- Drug Name
- Classification
- Action
- Indication
- Contraindications
- Route of Administration
- Dose
- Side Effects
- Special Considerations



Drug Profile – Vaccination

Drug Names and Classification

Generic Name:

None

Brand Names:

Afluria

Fluarix

FluLaval

Fluvirin

Fluzone



Classification:

Influenza virus vaccine

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

Drug Profile – Vaccination 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

Drug Profile – Vaccination

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 (Con't)

- 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

Drug Profile – Vaccination

Route of Administration (Con't)

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

Drug Profile – Vaccination

Route of Administration (Con't)

Needle Size for IM Injection

- 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

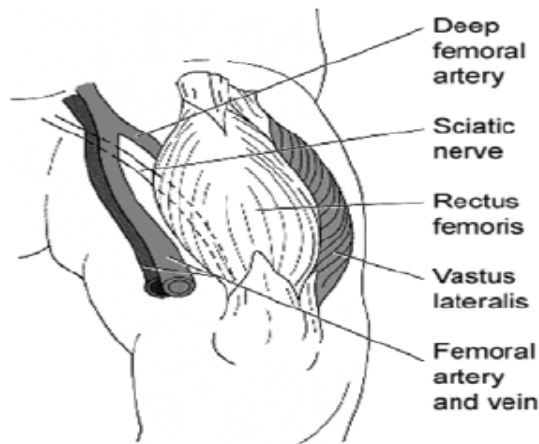
Drug Profile – Vaccination

Route of Administration (Con't)

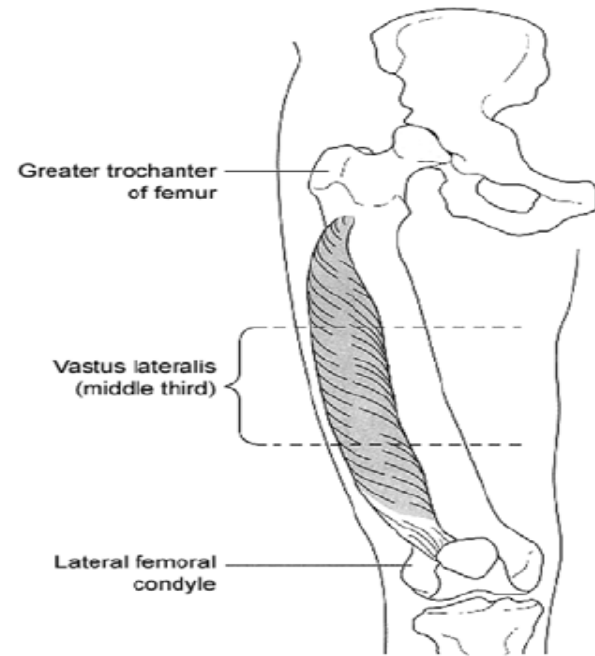
IM Injection Sites



Lynne Larson, www.biovisuals.com



The vastus lateralis muscle of the upper thigh used for intramuscular injections.



The vastus lateralis site of the right thigh, used for an intramuscular injection.

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, sore 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

Part V

Paramedic Skill Verification

Paramedic

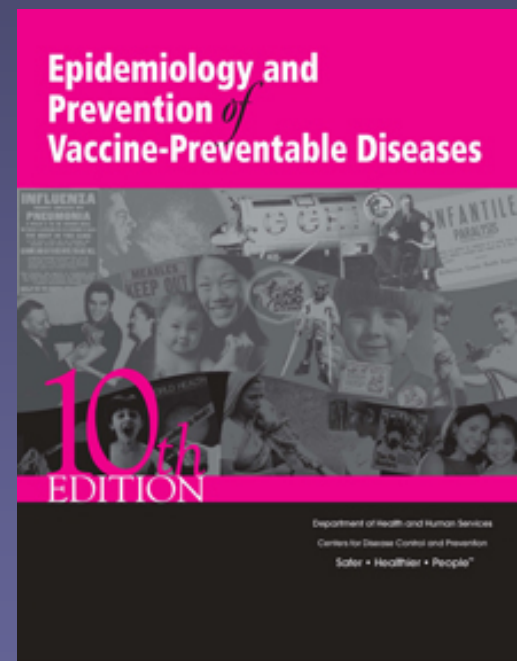
- Completes registration form and forwards to the Regional EMS Council
- The Paramedic completes the Skill Verification with their Unit and/or Regional Medical Director.
- The Regional EMS Council receives the completed verification form and coordinates utilizing the paramedics in the vaccination clinic and provides the Department with the completed and signed skill verification form.

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)



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