Authorization for EMT-2s and EMT-3sTo Administer Influenza Vaccine During Public Health Training Drills, Mass Vaccination Clinics, and During Public Health Emergencies

Recently, there has been increasing concerns about the potential emergence of novel influenza viruses that could cause new pandemics. This concern has been realized with the emergence of the pandemic caused by the novel H1N1 (Influenza Type A0 virus). The World Health Organization, the Centers for Disease Control and Prevention, the US Department of Health and Human Services, and the State of Alaska have all been working to improve our ability to respond to a public health emergency involving influenza.

One product of these efforts is authorization to allow medical providers to participate in non-traditional ways, such as allowing EMT-2s and EMT-3s to administer influenza vaccine during a public health emergency. If this strategy is to be effective, EMT-2s and EMT-3s should work with other public health partners and participate in training drills and mass vaccination clinics. The State EMS Medical Director, Dr. Ken Zafren, has agreed to be the responsible physician and authorize EMT-2s and EMT-3s to administer influenza vaccine under a limited set of circumstances.

Authorization under this program is only valid for EMT-2s and EMT-3s who administer influenza vaccination during State of Alaska Division of Public Health training events such as mass vaccination clinics, or in the event of a declared public health emergency. The following steps must be completed in order to be part of this expanded scope of practice authorization[1]:

- The Section of IPEMS – Influenza Vaccine training course is delivered by a person who is licensed to administer influenza vaccine (e.g. a Public Health Nurse, RN, PA, or physician).
- Each participant demonstrates the administration of either actual influenza vaccine or an IM saline injection to a patient or volunteer under the direct supervision of a person who is licensed to administer influenza vaccine.
- A list must be submitted to the IPEMS department for each EMT-2 or EMT-3 who has completed the training and evaluation, this list must be legible.
  - To participate in a mass vaccination clinic or other DPH-sponsored training exercise, the list must be sent to our office[2] in PRIOR to the start of the mass vaccination clinic.
  - In the event of a declared public health emergency, the list must be sent to our office within 48 hours after the start of the mass vaccination event.

The required forms are available for download on this web link provided below;

- Training and Evaluation Plan: Request for Influenza Vaccine
- Attestation Form

http://www.chems.alaska.gov/EMS/downloads/publications.htm

[1] 7 AAC 26.670

[2] Fax number 907.465.4101 or email to lee.parham@alaska.gov

Learning Objectives:

At the end of this unit, the Expanded Scope EMT-2 and EMT-3 will be able to:

1. List the type of vaccine that will be administered, indications, contraindications and precautions, dosage, side effects, administration for the TIV influenza vaccine. (C-1)
2. State when an EMT-2 or EMT-3 is permitted to administer influenza vaccine. (C-1)
3. List the anatomic sites for intramuscular injections for patients of various ages. (C-1)
4. List the appropriate steps for intramuscular injections (C-1)
5. Demonstrate the safe administration influenza vaccine or saline to a human volunteer or patient. (P-2)

Curriculum

Learning Objective

1. *List the type of vaccine that will be administered, indications, contraindications and precautions, dosage, side effects, administration for the TIV influenza vaccine. (C-1)*

Influenza Viruses

The Vaccines[3]

A. Influenza

It is caused by the influenza virus, which can be spread by coughing, sneezing, or nasal secretions. Other illnesses can have the same symptoms and are often mistaken for influenza. But only an illness caused by the influenza virus is really influenza. Anyone can get influenza, but rates of infection are highest among children. For most people, it lasts only a few days. It can cause: **fever, sore throat, chills, fatigue, cough, headache, and muscle aches. Some people, such as infants, elderly, and those with certain health conditions, can get much sicker. Flu can cause high fever and pneumonia, and make existing medical conditions worse.** It can cause diarrhea and seizures in children. On average, 226,000 people are hospitalized every year because of influenza and 36,000 die – mostly elderly. Influenza vaccine can prevent influenza.

http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-flu.pdf (August 2009)

B. Novel H1N1 (Influenza type A)

H1N1Novel influenza A (H1N1) is a new flu virus of swine origin that first caused illness in Mexico and the United States in March and April, 2009. It is thought that novel influenza A (H1N1) flu spreads in the same way that regular seasonal influenza viruses spread, mainly through the coughs and sneezes of people who are sick with the virus, but it may also be spread by touching infected objects and then touching your nose or mouth**. Novel H1N1 infection has been reported to cause a wide range of flu-like symptoms, including fever, cough, sore throat, body aches, headache, chills and fatigue. In addition, many people also have reported nausea, vomiting and/or diarrhea.**

[3]Center for Disease Control and Prevention. Epidemiology and Prevention of Vaccine-Preventable Diseases. Atkinson W, Hamborsky J, McIntryre L, Wolfe S, eds 11th ed. Washington DC: Public Health Foundation, Public Health Foundation, 2009.

In April 2009, a novel influenza A (H1N1) virus that is similar to influenza viruses previously identified in swine was determined to be the cause of an influenza respiratory illness that spread across North America and was identified in many areas of the world by May 2009. This disease is now officially a pandemic. The symptoms of novel influenza A (H1N1) virus infection are similar to those of seasonal influenza. The epidemiology of this illness is still being studied and prevention issues related to this newly emerging Influenza virus will be published separately.

http://www.cdc.gov/flu/professionals/acip/background.htm (August 2009)

Vaccine Indications[4]

A. TIV (Trivalent Inactivated Influenza Virus)

"TIV is recommended for all persons 50 years of age or older and all children 6 months through 18 years of age, regardless of the presence of chronic illness. Other groups targeted for TIV include residents of long-term care facilities, pregnant women, and persons 6 months through 18 years of age receiving chronic aspirin therapy (because of the risk of Reye syndrome following influenza infection). These chronic illnesses include the following:

- Pulmonary illnesses, such as emphysema, chronic bronchitis, or asthma.
- Cardiovascular illnesses, such as congestive heart failure.
- Metabolic diseases, including diabetes mellitus.
- Renal dysfunction.
- Hemoglobinopathy, such as sickle cell disease.
- Immunosuppression, including human immunodeficiency virus (HIV) infection.
- Any condition (e.g., cognitive dysfunction, spinal cord injury, seizure disorder, or other neuromuscular disorder) that can compromise respiratory function or the handling of respiratory secretions.

http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-flu.pdf (August 2009)

B.The Novel H1N1 (Influenza type A)

The groups <u>who should</u> receive the novel H1N1 influenza vaccine include:

- **Pregnant women** because they are at higher risk of complications and can potentially provide protection to infants who cannot be vaccinated;
- **Household contacts and caregivers for children younger than 6 months of age** because you. Younger infants are at higher risk of influenza-related complications and cannot be vaccinated. Vaccination of those in close contact with infants less than 6 months old might help protect infants by "cocooning" them from the virus;
- **Healthcare and emergency medical services personnel** because infections among healthcare workers have been reported and this can be a potential source of infection for vulnerable patients. Also, increased absenteeism in this population could reduce healthcare system capacity;
- **All people from 6 months through 24 years of age**
  - **Children from 6 months through 18 years of age** because we have seen manycases of novel H1N1 influenza in children and they are in close contact with each other in school and day care settings, which increases the likelihood of disease spread.

[4] Ibid

- **Young adults 19 through 24 years of age** because we have seen many cases of novel H1N1 influenza in these healthy young adults and they often live, work, and study in close proximity, and they are a frequently mobile population; and;

- **Persons aged 25 through 64 years who have health conditions associated with higher risk of medical complications from influenza.**

http://www.cdc.gov/h1n1flu/vaccination/acip.htm (August 2009)

Persons who have contact with high-risk persons should receive TIV. These include; healthcare workers, employees of long-term care facilities, and household contacts of high-risk persons." (The Pink Book: Chapters, Epidemiology and Prevention of Vaccine Preventable Diseases, Updated 11th Edition, pp 145-146, 2009).

Contraindications and Precautions: (This is the same for both Vaccines)

Persons with a severe allergic reaction to a prior dose of inactivated influenza vaccine, or to a vaccine component (e.g., eggs) should not receive TIV or H1N1. Persons with a moderate or severe acute illness normally should not be vaccinated until their symptoms have decreased. Pregnancy, breastfeeding, and immunosuppression are not contraindications to inactivated influenza vaccination

Dosage:
One dose of TIV or the H1N1 may be administered annually for persons 9 years of age or older. Children 6 months to 9 years of age receiving influenza vaccine for the first time should receive two doses administered at least 1 month apart. The vaccine is available in both pediatric (0.25-mL dose) and adult (0.5-mL dose) formulations.

Side Effects: **(This is the same for both Vaccinations)**
Tenderness, pain, swelling, and redness at the injection site are the most common and adverse reactions. Less than 1% of vaccine recipients get general symptoms like headache, fever, chills or muscle aches. The 1976 swine influenza vaccine was associated with an increased frequency of Guillain-Barré syndrome (GBS). Evidence for a causal relation of GBS with subsequent vaccines prepared from other influenza viruses is unclear. If influenza vaccine does pose a risk, it is probably slightly more than 1 additional case/1 million persons vaccinated.

Administration of Intramuscular Vaccinations

TIV and H1N1 are given by intramuscular injection.

Learning Objective

2. *State when an EMT-2 or EMT-3 is permitted to administer influenza vaccine. (C-1)*

An EMT-2 or EMT-3 authorized under this program can only give influenza vaccine under the following conditions:

- A State of Alaska, Division of Public Health training drill or mass vaccination clinic, or
- In the event of a declared public health emergency when the State Medical Officer orders/allows the mass vaccination of the population with influenza vaccine.

Learning Objective

3. *List the anatomic sites for intramuscular injections influenza vaccine for patients of various ages. (C-1)*

- In adults, EMT-2s and 3s will be administering Influenza in the deltoid muscle in upper the arm.
- In children, the appropriate location is in the middle third of the thigh muscle (on the front of the leg) slightly to the outside (lateral) of midline.

Injection Site and Needle Size (provided from the Immunization Action Coalition)

Subcutaneous Injection (SC) Injection

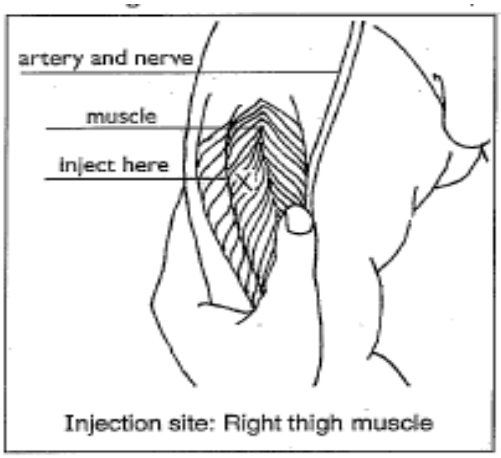
Use a 23-25 gauge needle. Choose the injection site that is appropriate to the person's age and body mass.

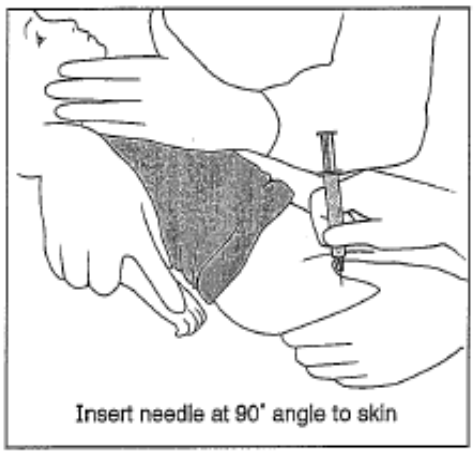
Age	Needle Length	Injection Site
Infants (1-12 mos)	5/8"	Fatty tissue over anterolateral thigh muscle
Children 12 mos or older, adolescents, and adults	5/8"	Fatty tissue over anterolateral thigh muscle or fatty tissue over triceps

Intramuscular (IM) Injection

Use a 22-25 gauge needle. Choose the injection site and needle length appropriate to the person's age and body mass.

Age	Needle Length	Injection Site
Newborns (1st 28 days)	5/8"	Anterolateral thigh muscle
Infants (1-12 mos)	1"	Anterolateral thigh muscle
Toddlers (1-2 yrs)	1"-1 ¼ "	Anterolateral thigh muscle or deltoid muscle of arm
Children and teens (3-18 yrs)	1" – 1 ¼"	Deltoid muscle of arm or anterolateral thigh muscle
Adults 19 yrs or older Male or Female Less than 130 lbs	1"	Deltoid muscle of arm
Female 130-200 lbs Male 130-260 lbs	1"-1 ½"	Deltoid muscle of arm
Female 200+ lbs Male 260+ lbs	1 ½"	Deltoid muscle of arm





In adults, EMT-2s and 3s will be administering TIV in the deltoid muscle in upper the arm. In children, the appropriate location is in the middle third of the thigh muscle (on the front of the leg) slightly to the outside (lateral) of midline.

LAIV (FluMist®) Intranasal Spray

In order to provide assistance to the limited staff routinely available to local Public Health offices State Certified EMT-2s and EMT-3s should be authorized to administer the following LAIV (FluMist®) Intranasal Spray vaccination during Public Health Training Drills, Mass Dispensing Clinics, Mass Vaccination Clinics and during declared Public Health emergencies:

Both LAIV and TIV contain strains of influenza viruses that are antigenically equivalent to the annually recommended strains: one influenza A (H3N2) virus, one influenza A (H1N1) virus, and one influenza B virus, but the differences in the vaccines are that the TIV vaccine is made from inactivated strains, *LAIV contains live, attenuated influenza viruses that have the potential to cause mild signs or symptoms (e.g., runny nose, nasal congestion, fever, or sore throat). LAIV is administered intranasally by sprayer, whereas TIV is administered intramuscularly by injection. LAIV is licensed for use among nonpregnant persons aged 2--49 years; safety has not been established in persons with underlying medical conditions that confer a higher risk for influenza complications. TIV is licensed for use among persons aged ≥6 months, including those who are healthy and those with chronic medical conditions*. **See package Insert PDF document below (**Table 1).

See Flu Mist Package Insert Information PDF below;

http://www.medimmune.com/pdf/products/flumist_pi.pdf (October 26, 2009)

TABLE 1. Live, attenuated influenza vaccine (LAIV) compared with inactivated influenza vaccine (TIV) for seasonal influenza, United States formulations

Factor	LAIV	TIV
Route of administration	Intranasal spray	Intramuscular injection
Type of vaccine	Live virus	Noninfectious virus (i.e., inactivated)
No. of included virus strains	Three (two influenza A, one influenza B)	Three (two influenza A, one influenza B)
Vaccine virus strains updated	Annually	Annually
Frequency of administration	Annually*	Annually*
Approved age	Persons aged 2--49 yrs[†]	Persons aged ≥6 mos
Interval between 2 doses recommended for children aged ≥6 mos -- 8 yrs who are receiving influenza vaccine for the first time	4 wks	4 wks
Can be administered to persons with medical risk factors for influenza-related complications[†]	No	Yes
Can be administered to children with asthma or children aged 2--4 yrs with wheezing in the past year[§]	No	Yes
Can be administered to family members or close contacts of immunosuppressed persons not requiring a protected environment	Yes	Yes
Can be administered to family members or close contacts of immunosuppressed persons requiring a protected environment (e.g., hematopoietic stem cell transplant recipient)	No	Yes
Can be administered to family members or close contacts of persons at high risk but not severely immunosuppressed	Yes	Yes
Can be simultaneously administered with other vaccines	Yes[¶]	Yes**
If not simultaneously administered, can be administered within 4 wks of another live vaccine	Space 4 wks apart	Yes
If not simultaneously administered, can be administered within 4 wks of an inactivated vaccine	Yes	Yes

* Children aged 6 months--8 years who have never received influenza vaccine before should receive 2 doses. Those who only receive 1 dose in their first year of vaccination should receive 2 doses in the following year, spaced 4 weeks apart.

† Persons at higher risk for complications of influenza infection because of underlying medical conditions should not receive LAIV. Persons at higher risk for complications of influenza infection because of underlying medical conditions include adults and children with chronic disorders of the pulmonary or cardiovascular systems; adults and children with chronic metabolic diseases (including diabetes mellitus), renal dysfunction, hemoglobinopathies, or immunnosuppression; children and adolescents receiving long-term aspirin therapy (at risk for developing Reye syndrome after wild-type influenza infection); persons who have any condition (e.g., cognitive dysfunction, spinal cord injuries, seizure disorders, or other neuromuscular disorders) that can compromise respiratory function or the handling of respiratory secretions or that can increase the risk for aspiration; pregnant women; and residents of nursing homes and other chronic-care facilities that house persons with chronic medical conditions.

§ Clinicians and immunization programs should screen for possible reactive airways diseases when considering use of LAIV for children aged 2--4 years and should avoid use of this vaccine in children with asthma or a recent wheezing episode. Health-care providers should consult the medical record, when available, to identify children aged 2--4 years with asthma or recurrent wheezing that might indicate asthma. In addition, to identify children who might be at greater risk for asthma and possibly at increased risk for wheezing after receiving LAIV, parents or caregivers of children aged 2--4 years should be asked: "In the past 12 months, has a health-care provider ever told you that your child had wheezing or asthma?" Children whose parents or caregivers answer "yes" to this question and children who have asthma or who had a wheezing episode noted in the medical record during the preceding 12 months should not receive LAIV.

¶ LAIV coadministration has been evaluated systematically only among children aged 12--15 months who received measles, mumps, and rubella vaccine or varicella vaccine.

** TIV coadministration has been evaluated systematically only among adults who received pneumococcal polysaccharide or zoster vaccine.

http://www.cdc.gov/mmwr/preview/mmwrhtml/rr58e0724a1.htm#tab1 (July 2009)

Dosage, Administration, and Storage

TIV: Dosage, Administration, and Storage

The composition of TIV varies according to manufacturer, and package inserts should be consulted. TIV formulations in multidose vials contain the vaccine preservative thimerosal; preservative-free, single-dose preparations also are available. TIV should be stored at 35°F--46°F (2°C--8°C) and should not be frozen. TIV that has been frozen should be discarded. Dosage recommendations and schedules vary according to age group (Table 2). Vaccine prepared for a previous influenza season should not be administered to provide protection for any subsequent season.

The intramuscular route is recommended for TIV. Adults and older children should be vaccinated in the deltoid muscle. A needle length of 1 inch or longer (>25 mm) should be considered for persons in these age groups because needles of <1 inch might be of insufficient length to penetrate muscle tissue in certain adults and older children. When injecting into the deltoid muscle among children with adequate deltoid muscle mass, a needle length of 7/8--1.25 inches is recommended.

Infants and young children should be vaccinated in the anterolateral aspect of the thigh. A needle length of 7/8--1 inch should be used for children aged <12 months.

LAIV: Dosage, Administration, and Storage

Each dose of LAIV contains the same three vaccine antigens used in TIV. However, the antigens are constituted as live, attenuated, cold-adapted, temperature-sensitive vaccine viruses. Providers should refer to the package insert, which contains additional information about the formulation of this vaccine and other vaccine components. LAIV does not contain thimerosal. LAIV is made from attenuated viruses that are able to replicate efficiently only at temperatures present in the nasal mucosa. LAIV does not cause systemic symptoms of influenza in vaccine recipients, although a minority of recipients experience nasal congestion or fever, which is probably a result of effects of intranasal vaccine administration or local viral replication or fever.

LAIV is intended for intranasal administration only and should not be administered by the intramuscular, intradermal, or intravenous route. LAIV is not licensed for vaccination of children aged <2 years or adults aged >49 years. LAIV is supplied in a prefilled, single-use sprayer containing 0.2 mL of vaccine. Approximately 0.1 mL (i.e., half of the total sprayer contents) is sprayed into the first nostril while the recipient is in the upright position. An attached dose-divider clip is removed from the sprayer to administer the second half of the dose into the other nostril. LAIV is shipped at 35°F--46°F (2°C--8°C). LAIV should be stored at 35°F--46°F (2°C--8°C) on receipt and can remain at that temperature until the expiration date is reached. Vaccine prepared for a previous influenza season should not be administered to provide protection for any subsequent season**. See Table 2 below on dosage for LAIV¶ (**FluMist® shipping, storage and administration)**

TABLE 2. Approved influenza vaccines for different age groups --- United States, 2009–10 season

Vaccine	Trade name	Manufacturer	Presentation	Mercury content (mcg Hg/0.5 mL dose)	Age group	No. of doses	Route
TIV*	Fluzone	Sanofi Pasteur	0.25mL prefilled syringe	0	6–35 mos	1 or 2†	Intramuscular§
			0.5 mL prefilled syringe	0	36 mos and older	1 or 2	Intramuscular
			0.5 mL vial	0	36 mos and older	1 or 2	Intramuscular
			5.0 mL multidose vial	25	6 mos and older	1 or 2	Intramuscular
TIV	Fluvirin	Novartis Vaccine	5.0 mL multidose vial	24.5	4 yrs and older	1 or 2	Intramuscular
			0.5 mL prefilled syringe	<1.0	4 yrs and older	1 or 2	Intramuscular
TIV	Fluarix	GlaxoSmithKline	0.5 mL prefilled syringe	<1.0	18 yrs and older	1	Intramuscular
TIV	FluLaval	GlaxoSmithKline	5.0 mL multidose vial	25	18 yrs and older	1	Intramuscular
TIV	Afluria	CSL Biotherapies	0.5 mL prefilled syringe	0	18 yrs and older	1	Intramuscular
			5.0 mL multidose vial	25	18 yrs and older	1	Intramuscular
LAIV¶	FluMist**	MedImmune	0.2–mL sprayer	0	2–49 yrs	1 or 2††	Intranasal

* Trivalent inactivated vaccine. A 0.5-mL dose contains 15 mcg each of A/Brisbane/59/2007 (H1N1)-like, A/Brisbane/10/2007 (H3N2)-like, and B/Brisbane/60/2008-like antigens.

† Two doses administered at least 1 month apart are recommended for children aged 6 months--8 years who are receiving TIV for the first time and those who only received 1 dose in their first year of vaccination should receive 2 doses in the following year.

§ For adults and older children, the recommended site of vaccination is the deltoid muscle. The preferred site for infants and young children is the anterolateral aspect of the thigh.

¶ Live attenuated influenza vaccine. A 0.2-mL dose contains 106.5--7.5 fluorescent focal units of live attenuated influenza virus reassortants of each of the three strains for the 2008--09 influenza season: A/Brisbane/59/2007(H1N1), A/Brisbane/10/2007(H3N2), and B/Brisbane/60/2008.

** FluMist is shipped refrigerated and stored in the refrigerator at 2°C--8°C (36°F to 46°F) after arrival in the immunization clinic. The dose is 0.2 mL divided equally between each nostril. FluMist should not be administered to persons with asthma. Health-care providers should consult the medical record, when available, to identify children aged 2--4 years with asthma or recurrent wheezing that might indicate asthma. In addition, to identify children who might be at greater risk for asthma and possibly at increased risk for wheezing after receiving FluMist, parents or caregivers of children aged 2--4 years should be asked: "In the past 12 months, has a health-care provider ever told you that your child had wheezing or asthma?" Children whose parents or

caregivers answer "yes" to this question and children who have asthma or who had a wheezing episode noted in the medical record during the preceding 12 months should not receive FluMist.

†† Two doses administered at least 4 weeks apart are recommended for children aged 2--8 years who are receiving LAIV for the first time, and those who only received 1 dose in their first year of vaccination should receive 2 doses in the following year.

NOTE: The text above is taken from Prevention & Control of Seasonal Influenza with Vaccines - Recommendations of the Advisory Committee on Immunization Practices (ACIP) 2009. MMWR 2009 Jul 24; Early Release: 1-52.
National Center for Immunization and Respiratory Diseases (NCIRD)

http://www.cdc.gov/flu/professionals/acip/dosage.htm (August 3, 2009)

Spacing of Multiple Doses of the Same Antigen

Vaccination providers are encouraged to adhere as closely as possible to the recommended childhood immunization schedule. Clinical studies have reported that recommended ages and intervals between doses of multidose antigens provide optimal protection or have the best evidence of efficacy. Recommended vaccines and recommended intervals between doses are provided in this report (Table 1).

In certain circumstances, administering doses of a multidose vaccine at shorter than the recommended intervals might be necessary. This can occur when a person is behind schedule and needs to be brought up-to-date as quickly as possible or when international travel is impending. In these situations, an accelerated schedule can be used that uses intervals between doses shorter than those recommended for routine vaccination. Although the effectiveness of all accelerated schedules has not been evaluated in clinical trials, the Advisory Committee on Immunization Practices (ACIP) believes that the immune response when accelerated intervals are used is acceptable and will lead to adequate protection. The accelerated, or minimum, intervals and ages that can be used for scheduling catch-up vaccinations is provided in this report (Table 1). Vaccine doses should not be administered at intervals less than these minimum intervals or earlier than the minimum age.*****

See Table 1 below on page 12

TABLE 1. Recommended and minimum ages and intervals between vaccine doses*

Vaccine and dose number	Recommended age for this dose	Minimum age for this dose	Recommended interval to next dose	Minimum interval to next dose
Hepatitis B1†	Birth–2 mos	Birth	1–4 mos	4 wks
Hepatitis B2	1–4 mos	4 weeks	2–17 mos	8 wks
Hepatitis B3§	6–18 mos	6 mos¶	—	—
Diphtheria and tetanus toxoids and acellular pertussis (DTaP)1	2 mos	6 wks	2 mos	4 wks
DTaP2	4 mos	10 wks	2 mos	4 wks
DTaP3	6 mos	14 wks	6–12 mos	6 mos¶**
DTaP4	15–18 mos	12 mos	3 yrs	6 mos¶
DTaP5	4–6 yrs	4 yrs	—	—
Haemophilus influenzae, type b (Hib)1††	2 mos	6 wks	2 mos	4 wks
Hib2	4 mos	10 wks	2 mos	4 wks
Hib3§§	6 mos	14 wks	6–9 mos	8 wks
Hib4	12–15 mos	12 mos	—	—
Inactivated poliovirus vaccine (IPV)1	2 mos	6 wks	2 mos	4 wks
IPV2	4 mos	10 wks	2–14 mos	4 wks
IPV3	6–18 mos	14 wks	3.5 yrs	4 wks
IPV4	4–6 yrs	18 wks	—	—
Pneumococcal conjugate vaccine (PCV)1††	2 mos	6 wks	2 mos	4 wks
PCV2	4 mos	10 wks	2 mos	4 wks
PCV3	6 mos	14 wks	6 mos	8 wks
PCV4	12–15 mos	12 mos	—	—
Measles, mumps, and rubella (MMR)1	12–15 mos¶¶	12 mos	3–5 yrs	4 wks
MMR2	4–6 yrs	13 mos	—	—
Varicella***	12–15 mos	12 mos	4 wks***	4 wks***
Hepatitis A1	≥2 yrs	2 yrs	6–18 mos¶	6 mos¶
Hepatitis A2	≥30 mos	30 mos	—	—
Influenza†††	—	6 mos¶	1 mo	4 wks
pneumococcal polysaccharide (PPV)1	—	2 yrs	5 yrs§§§	5 yrs
PPV2	—	7 yrs§§§	—	—

* Combination vaccines are available. Using licensed combination vaccines is preferred over separate injections of their equivalent component vaccines (**Source:** CDC. Combination vaccines for childhood immunization: recommendations of the Advisory Committee on Immunization Practices (ACIP), the American Academy of Pediatrics (AAP), and the American Academy of Family Physicians (AAFP). MMWR 1999;48[No. RR-5]:5). When administering combination vaccines, the minimum age for administration is the oldest age for any of the individual components; the minimum interval between doses is equal to the greatest interval of any of the individual antigens.

† A combination hepatitis B-Hib vaccine is available (Comvax®, manufactured by Merck Vaccine Division). This vaccine should not be administered to infants aged <6 weeks because of the Hib component.

§ Hepatitis B3 should be administered ≥8 weeks after Hepatitis B2 and 16 weeks after Hepatitis B1, and it should not be administered before age 6 months.

¶ Calendar months.

** The minimum interval between DTaP3 and DTaP4 is recommended to be ≥6 months. However, DTaP4 does not need to be repeated if administered ≥4 months after DTaP3.

†† For Hib and PCV, children receiving the first dose of vaccine at age ≥7 months require fewer doses to complete the series (see CDC. Haemophilus b conjugate vaccines for prevention of *Haemophilus influenzae*, type b disease among infants and children two months of age and older: recommendations of the ACIP. MMWR 1991;40[No. RR-1]:1–7, and CDC. Preventing pneumococcal disease among infants and young children: recommendations of the Advisory Committee on Immunization Practices [ACIP]. MMWR 2000;49[No. RR-9]:1–35).

§§ For a regimen of only polyribosylribitol phosphate-meningococcal outer membrane protein (PRP-OMP, PedvaxHib®, manufactured by Merck), a dose administered at age 6 months is not required.

¶¶ During a measles outbreak, if cases are occurring among infants aged <12 months, measles vaccination of infants aged ≥6 months can be undertaken as an outbreak control measure. However, doses administered at age <12 months should not be counted as part of the series (**Source:** CDC. Measles, mumps, and rubella — vaccine use and strategies for elimination of measles, rubella, and congenital rubella syndrome and control of mumps: recommendations of the Advisory Committee on Immunization Practices [ACIP]. MMWR 1998;47[No. RR-8]:1–57).

*** Children aged 12 months–13 years require only one dose of varicella vaccine. Persons aged ≥13 years should receive two doses separated by ≥4 weeks.

††† Two doses of inactivated influenza vaccine, separated by 4 weeks, are recommended for children aged 6 months–9 years who are receiving the vaccine for the first time. Children aged 6 months–9 years who have previously received influenza vaccine and persons aged ≥9 years require only one dose per influenza season.

§§§ Second doses of PPV are recommended for persons at highest risk for serious pneumococcal infection and those who are likely to have a rapid decline in pneumococcal antibody concentration. Revaccination 3 years after the previous dose can be considered for children at highest risk for severe pneumococcal infection who would be aged <10 years at the time of revaccination (see CDC. Prevention of pneumococcal disease: recommendations of the Advisory Committee on Immunization Practices [ACIP]. MMWR 1997;46[No. RR-8]:1–24).

General Recommendations on Immunization http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5102a1.htm#tab1 (August 2009)

Learning Objective

4. *List the appropriate steps for intramuscular injections*[5,6] *(C-1)*

- Take appropriate PPE according to the written clinic protocol.
- Ask the patient (or parent for a minor child) if they are allergic to eggs or have previously had a problem with receiving influenza vaccine.
- Draw up the correct dosage of the TIV vaccination in a syringe (follow the mass vaccination clinic protocol). The vaccination and dose I dependent on the age and weight of the patient.
- Choose the injection site.
- Clean injection site well with alcohol wipe.
- Hold the skin (do not pinch the skin).
- With the bevel up, insert the needle at a 90 degree angle in one quick motion.
- Pull back slightly on the plunger (aspirate) to ensure needle placement. If no blood is aspirated, gently and smoothly inject the medication. If blood is present on aspiration, withdraw the needle, discard the medication and equipment, and begin again.
- After the injection, withdraw the needle at the same angle it was inserted. Use an alcohol swab to massage the site.
- Dispose of the syringe/needle in a sharps container.
- Send the patient to the next station at the mass vaccination site.

Learning Objective

5. *Demonstrate the safe administration influenza vaccine or saline to a human volunteer or patient. (P-2)*

- Demonstrate the safe administration of an intramuscular injection of either influenza vaccine or saline to person. This must be done under the direct supervision of a person who is licensed to administer influenza vaccinations (e.g. an RN, PHN, PA-C, or physician).

Listed below is a link and PDF references from the Center for Disease Control and Prevention on recommendation for Guidelines, Screening and Checklists, Reference Tables, and Comforting Techniques. Recommendations and Guidelines from the CDC:

Novel H1N1 Vaccination Recommendations

http://www.cdc.gov/h1n1flu/vaccination/acip.htm

ACIP Recommendations: Introduction and Biology of Influenza

http://www.cdc.gov/flu/professionals/acip/background.htm

Seasonal Influenza Vaccination Resources for Health Care Workers

http://www.cdc.gov/flu/professionals/vaccination/index.htm#summary

CDC Vaccine List

http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/us-vaccines-508.pdf

Administering Vaccines: Dose, Route, Site, and Needle Size

http://www.immunize.org/catg.d/p3085.pdf

Appendix E: Vaccine Administration

http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/appdx-full-d.pdf

---

[5] Peabody, SM., Brainerd HC. Garrett, AM., Rounds-Riley, J., Curda, LG. *Alaska Community Health Aide/Practitioner Manual –CHAM- Medicine Handbook 4th Edition.* © 2006 Alaska Native Health Board and Alaska Native Tribal Health Consortium. M-29.

[6] Sanders, MJ. *Mosby's Paramedic Textbook Revised 2nd Edition*. Mosby, Publishers: St Louis. 2001. Page 322-323.