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## PEDIATRIC IMMUNIZATIONS: IMMUNIZATION SCHEDULE AND RECOMMENDATIONS

### 2.27 Contact Hours

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#### OBJECTIVES

1. List the current recommended schedule of immunizations per the CDC and discuss how the list is updated.
2. Identify 10 preventable diseases for which children routinely receive immunizations.
3. Discuss symptoms and complications of these diseases.
4. Be familiar with combination vaccines and their components.
5. Explain the proper nursing procedure for administering vaccinations.
6. Identify the potential reactions that may occur from immunizations.
7. Describe any contraindications to receiving immunizations.
8. Identify common misconceptions about vaccinations and describe the nurse's role in changing this.

## CURRENT RECOMMENDED IMMUNIZATION SCHEDULE

The Centers for Disease Control and Prevention (CDC) recommends a schedule of routine vaccinations to protect against 17 diseases that are still in existence. The majority of these are given during infancy and childhood. This schedule is developed by the Advisory Committee on Immunization Practices (ACIP), a group of medical and public health experts. The ACIP meets at the CDC in Atlanta, Georgia three times a year to update these recommendations based on new research regarding vaccine safety and effectiveness, disease outbreaks, and vaccine shortages.

The most current recommended schedule can be viewed at:

<http://www.cdc.gov/vaccines/schedules/hcp/imz/child-adolescent.html>

## **ROUTINE IMMUNIZATIONS**

In this course, we will focus on the recommended immunization schedule for healthy children. Children with various medical conditions, contraindications to components of the vaccinations, or who are on a catch-up schedule for immunizations will deviate from this schedule.

### HEPATITIS B

Hepatitis B virus (HBV) is a virus that attacks the liver. It is transmitted through infectious blood or bodily fluids coming into contact with breaks in the skin or the mucous membranes. HBV infections may be asymptomatic, acute or chronic. At its most severe, HBV infection can lead to cirrhosis, liver failure, liver cancer, and death (CDC, 2014).

In 1991, the CDC added the Hepatitis B vaccine to its list of recommended vaccines for children, and this group has shown the greatest decline of HBV infections (CDC, 2014).

Hepatitis B vaccine is given as a series of three intramuscular injections. The first is given between birth and two months. The second and third are given one and six months after the first (CDC, 2014).

The vaccine may be given as a single antigen, or as part of a combination vaccine such as Comvax® or Pediarix® (CDC, 2014).

### DIPHTHERIA, TETANUS, AND PERTUSSIS (DTAP, TDAP, TD)

Diphtheria is a bacterial respiratory infection. It is spread through airborne droplets or by coming into contact with contaminated items. The hallmark of diphtheria is a thick gray covering on the back of the throat. This can lead to breathing difficulties, heart failure, paralysis and death (CDC, 2013).

Tetanus is also referred to as lockjaw. It causes severe muscle tightening throughout the body. It can lead to death in one out of five cases. Tetanus bacteria can enter the body through wounds (CDC, 2013).

Pertussis, or whooping cough, is a very contagious respiratory infection. It can cause severe coughing spells that make it difficult to breathe. Pertussis is especially dangerous to infants (CDC, 2013).

The DTaP vaccination is given as a series of five intramuscular injections from infancy to age seven. It is most commonly given at two months, four months, six months, 15 to 18 months, and four to six years. Td or Tdap is given as a booster to adolescents. Td protects only against tetanus and diphtheria, while Tdap also adds protection against pertussis. Tdap is currently recommended due to the recent rise in cases of pertussis (CDC, 2013).

DTaP may be given by itself or as a component of Pediarix®, Kinrix®, or Pentacel®.

### POLIO

Polio is caused by a virus that is spread person to person through oral or nasal secretions or fecal matter. Prior to the development of the polio vaccine in 1955, this virus affected thousands of people in the United States. The majority of people infected with the polio virus are



asymptomatic, but for a small percentage of people, polio can lead to paralysis or death (CDC, 2014).

There are two kinds of polio vaccines, inactivated poliovirus vaccine (IPV) and oral poliovirus vaccine (OPV). OPV has not been used in the United States since 2000 (CDC, 2014).

IPV is given as a series of four intramuscular or subcutaneous injections. The first is given at two months, the second at four months, the third between six and 18 months, and the fourth as a booster between four and six years old (CDC, 2014).

The polio vaccine may be given as a single-antigen or as part of a combination vaccine such as Pediarix® or Kinrix®.

### ROTAVIRUS

Rotavirus is a leading cause of severe vomiting and diarrhea in infants. This may lead to dehydration, hospitalization and even death. According to the CDC, prior to the rotavirus vaccine in the United States, this illness was responsible for 50,000 to 70,000 hospitalizations and 20-60 deaths in children under five years old each year. Studies have shown that the rotavirus vaccine has prevents 85-98% of severe cases of rotavirus illness in the first year of life (CDC, 2014).

Two forms of the vaccine are currently used: Rotarix® and Rotateq®. Both forms are given orally to infants. Rotarix is given as a two dose series at ages two months and four months. Rotateq is administered as a three does series and should be given at ages two months, four months, and six months (CDC, 2014).

### HAEMOPHILUS INFLUENZA B (HIB)

Haemophilus influenza bacteria type b, or Hib, is spread via respiratory secretions. Some people may be colonized with Hib in the back of their throats or in their noses, but never experience any symptoms. However, if Hib enters the bloodstream, it may lead to serious infection (CDC, 2014).

Hib disease can develop into pneumonia, bacteremia, meningitis, cellulitis and otitis media (CDC, 2014). It may lead to death in 3-6% of children who become infected and up to 20% of people who survive Hib meningitis may have hearing loss or other neurologic issues (CDC, 2014).

Hib disease among young children has decreased by 99% since the vaccination has become a routine immunization. It is given intramuscularly as a four-dose series at ages two, four, and six months with a booster dose between 12 and 15 months (CDC, 2014).

Hib vaccination may be given as a single antigen or as a component of the Pentacel® vaccine.

### PNEUMOCOCCAL (PCV 13/ PREVNAR)

Pneumococcal disease is caused by the Streptococcus Pneumoniae bacteria. It can manifest itself as an ear infection or may develop into more serious illness such as pneumonia, bacteremia, or meningitis (CDC, 2013). It is passed from person to person through respiratory secretions.

There has been an increased amount of resistance of the pneumococcal bacteria to antibiotics. As a result, the prevention of this disease through the use of vaccination is even more important (CDC, 2009).

PCV 13 or Prevnar has been approved for use in children under the age of 2. It is given as an intramuscular injection at ages two, four, and six months and at 12-15 months.

## VARICELLA

Varicella is commonly known as chicken pox. It is caused by the varicella zoster virus. Varicella disease generally manifests as a blister-like itchy rash and fever. While generally mild, varicella can lead to complications such as bacterial infections of the skin and soft tissues, pneumonia, and even death (CDC, 2013).

Varicella is very contagious. It may be spread through the air through respiratory secretions or may be spread from the lesions themselves.

Prior to the development of the varicella vaccine, approximately 4 million people in the United States were infected each year, 10,000 were hospitalized and 100-150 people died (CDC, 2014). However, with the recommended two doses of vaccine, there is a 98% protection rate (CDC, 2014).

The vaccination is given subcutaneously at ages 12-15 months, with a booster dose given between four to six years of age. Varicella may be given as a single antigen or as part of the ProQuad® vaccine.

## MEASLES, MUMPS, AND RUBELLA (MMR)

Measles is a viral respiratory illness. It starts with fever and the three “C’s”- cough, coryza, and conjunctivitis and then leads to a maculopapular rash (CDC, 2014). It may cause ear infections, pneumonia and diarrhea. Measles may also result in severe illness causing permanent brain damage or death from respiratory and neurological complications (CDC, 2014).

Mumps is another viral illness that presents with fever, aches, and loss of appetite. It is characteristically known by the swelling of the salivary glands under the ears or jaw. Complications of the mumps include deafness, encephalitis, and inflammation of the ovaries and testicles (CDC, 2010).

Rubella is also known as German measles. It generally is mild with a rash and low fever. Some children may have swollen glands and cold-like symptoms. Pregnant women who acquire rubella may be at risk for birth defects. These can include heart defects, mental retardation, and liver and spleen damage (CDC, 2011).

The MMR vaccine is recommended as a two dose series. It is given as a subcutaneous injection. The first dose should be given at 12-15 months old, with a second booster dose between ages four and six years (CDC, 2011).

MMR may be given on its own or as part of the ProQuad® vaccination. Single antigen measles, mumps, or rubella vaccines have not been available in the United States for several years.

## HEPATITIS A

Hepatitis A is a virus that causes inflammation of the liver. It is spread person to person through the fecal-oral route or through contaminated food or water (CDC, 2013). Children under the age of six are often asymptomatic, but older children and adults can experience fever, nausea, vomiting, abdominal pain, and jaundice (CDC, 2013).

Hepatitis A vaccination is recommended as a two-dose series, given six months apart. The first vaccine is often given intramuscularly between 12 and 23 months of age (CDC, 2013).



### HUMAN PAPILLOMA VIRUS (HPV)

Human papillomavirus is the most common sexually transmitted disease. Most people will be infected with it at some point in their lives (CDC, 2012). Many types of HPV are short-lived and have no symptoms, but others can lead to genital and respiratory warts. Certain types of HPV can cause cervical cancer and cancers of the anus, penis, vulva and vagina (CDC, 2012).

Quadrivalent HPV vaccine (Gardasil) protects against four strains of HPV. These strains cause 70% of cervical cancers and 90% of genital warts. This vaccine also offers protection against cancers of the anus, vulva and vagina (CDC, 2012). There is also a bivalent HPV vaccine (Cervarix), which protects against two strains of HPV (CDC, 2012).

Gardasil or Cervarix are recommended for girls 11 and 12 years old. Only Gardasil is recommended for 11 or 12 year old boys. They are given as a series of three intramuscular injections. The second dose is given two months after the first, and the third dose is given six months after the first.

### MENINGOCOCCAL

Meningococcal disease is caused by the bacteria *Neisseria meningitidis*. It can develop quickly in previously healthy children and lead to bacteremia, pneumonia, and meningitis. Ten to fifteen percent of those who are affected with meningococcal disease will die, and twenty percent will have lasting issues such as hearing loss or brain damage (Benaroch, 2014). Adolescents have the highest incidence of meningococcal disease (CDC, 2014).

There are two types of meningococcal vaccine approved for use in the United States Meningococcal polysaccharide vaccine (MPSV4), and Meningococcal conjugate vaccine (MCV4). The conjugate vaccine, Menactra® or Menveo® is recommended for adolescents (CDC, 2014).

When the vaccine was first recommended for adolescents at age 11 or 12, it was thought that the protection would last for 10 years. However, new information suggests that the coverage wanes around 5 years. Therefore to provide effective protection during the most critical times, ages 16-21 and living in college dormitories, a second booster dose is now recommended (CDC, 2014).

The starting age for the first dose of meningococcal conjugate vaccine still advised as age 11 or 12. A booster dose should then be given at age 16. If the first vaccination is not administered until 13 or 15, a booster dose should be given between ages 16 and 18. If a first dose is not given until after age 16, a booster is not needed (CDC, 2014).

### INFLUENZA

Influenza, or the flu, is a very contagious respiratory virus. It tends to peak during the winter months, and cases are often seen from October to May. The most common symptoms are cough, fever and sore throat. However, influenza can have severe complications, especially in young children and those with chronic health problems like diabetes and asthma (CDC, 2014).

The CDC recommends that all children over the age of six months old get a flu vaccine every year. The first year of receiving the flu vaccine, two doses should be given, with the second given 28 days after the first (CDC, 2014).

There are two types of flu vaccines available in the United States. A trivalent flu vaccine, which is the traditional flu vaccine, protects against two types of influenza A and one type of influenza B. It is given as an injection. The second type of flu vaccine is a quadrivalent vaccine, which offers protection against a second

type of influenza B. The quadrivalent vaccine may be given as an injection or as a nasal spray in children over the age of 2 who are healthy and have no contraindications.

According to the CDC, preference should be given toward using the nasal spray (LAIV) in healthy children older than two years old. Studies have shown that LAIV may be even more effective in preventing the flu than the injectable form. However, flu vaccination should not be delayed if LAIV is not readily available (CDC, 2014).

CDC's current recommended immunizations chart can be viewed here:

<http://www.cdc.gov/vaccines/parents/downloads/parent-ver-sch-0-6yrs.pdf>

## COMBINATION VACCINES

There are currently several combination vaccines that are approved for use in the United States. The number of shots needed to meet the CDC recommendations is substantially reduced when single antigens are combined to form one injection.

PEDIARIX® BY GLAXOSMITHKLINE- This is a combination of DTaP, IPV, and HepB. It is approved for the first three doses of the DTaP primary series and is often given at two, four, and six months of age. It should not be given to children younger than six weeks and older than seven years ("Ask the Experts", 2014).



PENTACEL® BY SANOFI PASTEUR- This vaccine combines DTaP, IPV and Hib. It is given as a four dose series for ages two, four, six, and 15 to 18 months. It should not be given to children older than five years or as the booster dose for ages four to six years ("Ask the Experts", 2014).

KINRIX® BY GLAXOSMITHKLINE- Kinrix® is a combination of DTaP and IPV. It is given as the booster dose for four to six year olds. It should not be given to children under four ("Ask the Experts", 2014).

PROQUAD BY MERCK- This is a combination of MMR and the varicella vaccine. It can be used for both the first and second MMR and varicella vaccinations at ages 12 to 15 months and four to six years. It is approved for use in those aged 12 months to 12 years ("Ask the Experts", 2014).

In 2010, the CDC added some additional recommendations for this vaccine after the ACIP showed an increase of one febrile seizure per 2600 children when the combination vaccination was given to children ages 12 to 23 months, as opposed to MMR and varicella given separately. Providers are encouraged to discuss the risks and benefits of the combination vaccine with the child's parents. If the parents do not have a preference, the CDC recommends MMR and varicella is administered separately for the first dose at 12-15 months old. If there is any family history of seizures it is also recommended that MMR and varicella be given separately ("Ask the Experts", 2014).

COMVAX® BY MERCK- Comvax® combines HepB and Hib. Comvax® should not be used in infants under six weeks or after the fifth birthday. Merck announced in March 2014 that it would no longer be manufacturing this vaccination. It will continue to be available for purchase and use while supply still exists ("Ask the Experts", 2014).

## VACCINATION ADMINISTRATION

As with any medication administration, the “Seven Rights” must be addressed prior to giving a vaccination. These include:

- ✓ the right patient
- ✓ the right vaccine
- ✓ the right time - the correct age, interval, and before expiration
- ✓ the right dosage
- ✓ the right route
- ✓ the right site
- ✓ the right documentation



Allow ample time for discussion with the patient and his or her family. Screenings for contraindications and precautions to the vaccine should be done routinely, even if the child has previously had the vaccine. Contraindications will be discussed further in a subsequent section.

Discuss risks and benefits of vaccine and vaccine-preventable diseases with parents. Parents should be provided with the appropriate Vaccine Information Statements and encouraged to address questions or concerns. Include possible side effects and home care in the conversation.

Address the needs and fears of the child as necessary. Maintain a positive attitude and use a calm tone of voice. Explain what to expect and in an age-appropriate fashion, why vaccinations are needed. It is often helpful to have the parent hold the child both for restraint and comfort. Research also shows that children tend to do better when sitting upright versus lying down (CDC, 2012). Consider having two nurses administer injections simultaneously if possible.

Standard Precautions should always be taken to minimize the risk of infection while administering a vaccine. Wash hands with soap and water for at least 20 seconds. Gloves should be applied as needed, though not required by OSHA if there is little likelihood of coming in contact with bodily fluids and there are no open lesions on the hands (CDC, 2012).

It is important to choose the proper syringe and needle length based on the age of the child and the method of delivery. Vaccinations are given in either a 1-mL or 3mL syringe. For the pediatric population, needle length will vary from 5/8 inch to 1 ¼ inch with a 22-25 gauge (CDC, 2012).

The expiration date of the vaccine and diluent should be checked, and they should appear normal and free of damage. Reconstitute just prior to administering vaccine. Instill diluent as required and shake to ensure there is no particulate matter remaining. Label syringes with lot number and date (CDC, 2012).

Pediatric vaccines are delivered via the oral, intranasal, intramuscular or subcutaneous route. Rotavirus is the only oral vaccination. It is given carefully inside the cheek, taking care to not squirt too quickly or down the throat. It should be given prior to any injections that may upset the child. If the child spits out the vaccine, it is not recommended to readminister. Instead, just follow the remaining recommended schedule (CDC, 2012).

Live attenuated influenza vaccine (LAIV) is the only vaccine to be given intranasally. A plastic clip is in place on the syringe to divide the dose into two. With the patient seated and breathing normally, insert the syringe into one nare. Depress the plunger until the clip is reached. Remove the clip and repeat in the other nare (CDC, 2012).

MMR and Varicella are both given subcutaneously (SQ). For infants, the recommended site is the thigh, and for older children, the outer tricep is the site of choice for SQ vaccination. A 5/8-inch, 23 to 25-gauge needle is used. Cleanse the skin with alcohol. Pinch the fatty tissue and insert the needle at a 45-degree angle. Depress the plunger and withdraw the needle. Apply pressure with gauze as needed (CDC, 2012).

The intramuscular (IM) route is used for vaccinations such as DTaP, Hep B, and Hib. The vastus lateralis muscle for infants and the deltoid muscle for older children are the recommended sites. A 22-25-gauge needle that is long enough to reach muscle should be used. The site of administration, the age of the child, and the method of delivering the vaccination (whether bunching the muscle or spreading the skin taut) will determine the length of the needle. Cleanse the skin with alcohol. Insert at a 90-degree angle and depress the plunger. Withdraw the needle and apply pressure with gauze (CDC, 2012).

Vaccinations should be recorded in the patient's medical record. This should include the date, manufacturer, vaccine lot number, name and title of the person administering the vaccine, route, dose and site. Also document that Vaccine Information Sheets were given to parents (CDC, 2012).

## VACCINATION REACTIONS

Though generally not severe, side effects can occur as a result of vaccine administration. The most common reactions are redness, swelling and pain at the injection site. Fever and behavioral changes such as poor eating may also occur. These usually occur within a few days of receiving the vaccination. Comfort measures such as Tylenol and a warm bath are often helpful. Motrin should not be given to infants under six months of age (CDC, 2014).

Live vaccines such as MMR and varicella may have a delayed reaction time of 5-60 days. Rashes may appear at the injection site or elsewhere on the body (CDC, 2014).

Rarely, severe complications such as anaphylaxis can occur. Usually, this is not from the antigen itself, but from things added during the production process such as gelatin or egg protein (CDC, 2014).

Severe reactions can include hives, breathing difficulties, rapid heartbeat and swelling of the face or throat. If this occurs, instruct parents to call 9-1-1 or to go to the nearest hospital. The reaction should also be reported to the Vaccine Adverse Reporting system at [www.vaers.hhs.gov](http://www.vaers.hhs.gov) or by calling 1-800-822-7967 (CDC, 2014).





## CONTRAINDICATIONS TO RECEIVING VACCINATIONS

The most common reason vaccinations are withheld is for febrile illness. While it has not been shown that illness decreases the effectiveness of vaccines or increases serious side effects, it is recommended that children who are moderately to severely sick wait until the illness subsides before receiving a vaccination. Mild illnesses such as cold symptoms or ear infections are not contraindications (CDC, 2014).

A severe reaction to a prior dose of the vaccine or a component of the vaccination is always a contraindication. Vaccines may contain components such as neomycin, yeast, lactose, yeast or egg protein. Care must be taken to differentiate a mild or local reaction with a severe reaction, such as anaphylaxis (CDC, 2014).

If a vaccine contains pertussis, such as DTaP or Tdap, encephalopathy within seven days of a previous dose that cannot be attributed to another cause is considered a contraindication (CDC, 2014).

Rotavirus vaccination is contraindicated for children with a previous history of intussusception or severe combined immunodeficiency (SCID) (CDC, 2014).

Vaccinations that contain weakened live viruses, such as MMR, varicella, and LAIV, are contraindicated in immunosuppressed patients. Examples would be patients receiving chemotherapy or those with advanced HIV disease. These vaccinations should also not be given to pregnant women (CDC, 2014).

The ACIP also advises against LAIV in children who have asthma or chronic medical conditions such as diabetes or kidney disease (CDC, 2014).

## MISCONCEPTIONS ABOUT VACCINATIONS



There are many misconceptions about childhood vaccinations. Caregivers, therefore, have an important role in properly educating parents regarding the safety of immunizations and the need for them in society.

One such belief is that many of the vaccine-preventable diseases are no longer in existence, and as a result, these vaccines are unnecessary. This is untrue. While the incidence of these diseases has decreased greatly in the United States, many of them are still very prevalent in other parts of the world. Travelers could then bring the disease into the United States. This could spread rapidly among unvaccinated people (CDC, 2011).

For example, both pertussis and measles have had a recent spike in the number of cases in the United States (Barlay, 2014). Those who are not protected by vaccination are putting themselves at risk. Also, for the small group of people who are either too young to receive immunizations or have a medical contraindication, their only chance of protection from disease comes from those around them being safely vaccinated (CDC, 2011). They would be put at risk by no choice of their own.

Another common misconception is that it is dangerous for children to receive so many immunizations at the same time and over a short number of years. Studies have also disproven this idea. Both the Advisory Committee on Immunization Practices (ACIP) and the American Academy of Pediatrics (AAP) have undertaken studies that have shown no increased risk for side effects and no decrease in effectiveness for

vaccines that are given simultaneously (CDC, 2011). The Food and Drug Administration requires these studies prior to the approval of an additional vaccine to the schedule (Fisher, 2009).

It is important for parents to understand that the epidemiology of the disease determines when the vaccination is given. Levels of maternal antibodies and incidence of disease are studied. Based on this, the vaccination schedule is created to provide younger children with optimal protection (Fisher, 2009).

Spreading out the vaccination schedule would just prolong the period of time that a child is unprotected. This would also lead to a greater number of doctor's visits and more visits in which immunizations would be given. With no increased risk for side effects with multiple vaccinations, it is hard to justify the benefit of this (Fisher, 2009).

Perhaps one of the biggest misconceptions regarding vaccination involves the link between immunization, particularly MMR, and the development of autism. In 1998, Andrew Wakefield, a British surgeon and researcher, released a now-disproven study that claimed an association between the MMR vaccine and autism. Several studies since that time have been unable to replicate Wakefield's results. The Institute of Medicine, after review, has said, "the evidence favors rejection of a causal relationship between thimerosal-containing vaccines and autism" (CDC, 2014). The CDC also supports this view that there is no link between the two.

The preservative thimerosal has been removed or is reduced to trace amounts in all pediatric vaccinations, with the exception of one type of influenza vaccine, since 2001. A thimerosal-free version of the influenza vaccine is available, however (CDC, 2014).

## THE FUTURE FOR PEDIATRIC IMMUNIZATIONS

As with all areas of medicine, knowledge of pediatric immunizations is continuously evolving. New studies are released, products are developed, and practices change. As a healthcare provider, therefore, it is important to remain up to date on the most current recommendations in order to provide the best care to our patients.



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## CE EXAM

## PEDIATRIC IMMUNIZATIONS

**MULTIPLE CHOICE** Circle the correct answer to each question below.

1. Which of the following is a contraindication to receiving the rotavirus vaccine?
  - A. Currently taking antibiotics
  - B. Cough and congestion
  - C. History of intussusception
  - D. Patient age of 4 months
  
2. A reaction to a vaccination should be reported to which agency:
  - A. AAP
  - B. VAERS
  - C. CDC
  - D. ACIP
  
3. Which of the following is a live vaccine?
  - A. MMR
  - B. DTap
  - C. Tdap
  - D. Hep B
  
4. A mother does not want to give her two-month old son his vaccinations because she is worried about him developing autism. The nurse's best response would be:
  - A. "That is your choice. If you aren't planning on travelling out of the country, then you won't have to worry about him being exposed to these diseases."
  - B. "Maybe you should consider an alternative vaccination schedule that would allow you to spread out his vaccines over a longer period of time."
  - C. "These diseases still exist in the world, and his risks associated with him contracting one of these diseases are much worse than the risks of the vaccination."
  - D. None of the above

5. The components of the ProQuad® vaccination are:
  - A. DTaP, IPV, HepB
  - B. DTaP, IPV, Hib
  - C. Hib, HepB
  - D. MMR, Varicella
  
6. A nurse is preparing to give several vaccinations to a 5-year-old boy. Which of the following is appropriate?
  - A. Tell the child to relax because “it isn’t going to hurt at all.”
  - B. Ask the parents to step out of the room since their presence will probably make the child less cooperative.
  - C. Have the child lie down and close his eyes.
  - D. Explain that “this shot will give your body extra strength and protection against getting sick.”
  
7. Which is the correct location for giving an intramuscular injection to a 12-month old child?
  - A. Anterolateral thigh
  - B. Gluteal muscle
  - C. Deltoid
  - D. None of the above
  
8. An 11-year old girl receives her first dose of the Meningococcal vaccine. Her nurse informs her mother that a booster for the vaccine should be given:
  - A. In one month
  - B. At age 16
  - C. At age 18
  - D. No booster is needed for this vaccination.
  
9. Which of the following statements indicates that a father understands proper home care for his 4-month old following routine immunizations?
  - A. “I will give my baby Motrin to help with the discomfort.”
  - B. “A warm bath will help my baby feel better.”
  - C. “If my baby is more drowsy than normal, I should be concerned.”
  - D. “Redness at the injection site means my baby is having a reaction to the vaccine.”

10. The recommended age to begin receiving the influenza vaccination is after:
- A. 2 months
  - B. 6 months
  - C. 1 year
  - D. 2 years



## CE Exam

**DOMESTIC VIOLENCE:  
HOW THE NURSE CAN BE AN ADVOCATE**

Your opinion is important to us. Please answer the following questions by circling the response that best represents your experience.		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
<b>COURSE OBJECTIVES &amp; CONTENT</b>						
1.	The activity was valuable in helping me achieve the stated learning objectives.	5	4	3	2	1
2.	The content was up to date.	5	4	3	2	1
2.	The number of credit hours was appropriate for the content.	5	4	3	2	1
<b>TEACHING/LEARNING METHODS</b>						
4.	The teaching/learning methods, strategies, and slides were effective in helping me learn.	5	4	3	2	1
5.	The material was clearly explained.	5	4	3	2	1
6.	The answers to the post-test questions were appropriately covered in the activity.	5	4	3	2	1
<b>OVERALL ACTIVITY</b>						
7.	The online course/download supported the achievement of the stated learning objectives.	5	4	3	2	1
8.	The material was relevant to my professional development.	5	4	3	2	1
9.	Overall, I am pleased with this activity and would recommend it to others.	Yes	No			
10.	The content was presented free of commercial bias. *	Yes	No			
11.	Did the material presented increase your knowledge and/or understanding of this topic? *	Yes	No	NA		

Continued on Next Page



\* If you responded "No" to question 10, please explain why:

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\* If you answered "Yes" to question 11, what change do you intend to make?

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What barrier, if any, may prevent you from implementing what you learned?

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Cite one new piece of information you learned from this activity:

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Additional comments/suggestions:

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With my signature I confirm that I am the person who completed this independent educational activity by reading the material and completing this self evaluation.

Signature \_\_\_\_\_ Date: \_\_\_\_\_



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## UNDERSTANDING IMPLICIT BIAS

The goal of healthcare is to provide the best possible care to all patients; indeed, many healthcare professionals must recite a pledge similar to the Hippocratic oath upon licensure. However, it is possible for healthcare professionals to have implicit bias that leads to substandard care.

Implicit bias is an unconscious attitude leading to stereotypes that influence thought and action. Not being aware of this bias can lead to unintentional discrimination in patient assessment and diagnosis, treatment, follow-up care, etc. Discrimination, unconscious or otherwise, in these impacted areas of healthcare leads to disparities where disadvantaged patient populations receive unequal care. Patient groups especially at risk of receiving unequal care may include:

- Those with lower income
- Women
- Minorities
- Those who speak English as a second language
- The elderly

An example of healthcare disparities can be seen in breast cancer mortality rates. Black women are 41% more likely to die from breast cancer than white women. Additionally, they are less likely to be diagnosed with stage I breast cancer, but twice as likely to die from early breast cancer.

Eliminating implicit bias can help reducing disparities in healthcare. Strategies for healthcare professionals to remove bias from their practice may include:

- Regulating emotions – being aware of, and control, thoughts and feelings
- Building partnerships – working with patients to achieve a common goal
- Taking perspective – understand the patient perspective during all phases of healthcare

Recognizing implicit bias and working to remove it from practice will help healthcare professionals to give the best care possible to all patients and reduce the disparities between patient populations.

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