

# **New Mexico Department of Health Immunization Protocols**

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**Prepared by:**

**The Immunization Program  
Infectious Disease Bureau  
Public Health Division  
New Mexico Department of Health  
1190 St. Francis Drive  
Santa Fe, New Mexico 87502**

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**User Reviews:**

Name: _____	Date: _____
Name: _____	Date: _____
Name: _____	Date: _____
Name: _____	Date: _____
Name: _____	Date: _____

**Approved by:**

Program Manager	<u>Gayle M. Kenny</u>	Date	<u>1/26/09</u>
Bureau Chief	<u>Gayle M. Kenny Acting</u>	Date	<u>1/26/09</u>
PHD Medical Director	<u>Maggie Hall</u>	Date	<u>1/26/09</u>
Regional Health Officer	<u>Winn Spafford</u>	Date	<u>1/30/09</u>
PHD Chief Nurse	<u>Barbara E. Hobok</u>	Date	<u>1/28/09</u>

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**Please Note: Annual Influenza Vaccine Protocol and the Adult Hepatitis Vaccine Protocol are not included in this document. They are stand-alone protocols on the PHD intranet. The influenza protocol is updated each flu season.**

# VACCINES FOR CHILDREN (Children 0-18 years)

## DIPHTHERIA, PERTUSSIS, AND TETANUS VACCINE PROTOCOL (DTaP, DT, Td and Tdap)

### BACKGROUND

#### ***Diphtheria***

Clinical features: the disease can involve any mucous membrane. The most common sites are pharynx and tonsils, with gradual onset of sore throat, malaise low-grade fever; within 2-3 days a characteristic grayish-white membrane forms on the affected mucosal surface and may lead to respiratory obstruction. Forms less commonly observed include nasal, laryngeal, cutaneous, vaginal, conjunctival or otic infections; most complications are attributable to effects of the toxin and include myocarditis, neuritis affecting motor nerves, and death. Airway obstruction is most common in infants.

Transmission: person-to-person via respiratory tract. Transmission may occur from intimate contact with a patient's or carrier's discharges from the nose, throat, eye, and skin lesions; rarely fomites or food-borne sources serve as vehicles.

Incubation: 2-5 days, range 1-10 days

Communicability: variable, usually 2 to 4 weeks; a carrier can shed the organism for > 6 months

#### ***Tetanus***

Clinical features: an acute disease characterized by painful muscular contractions, primarily of the masseter and neck muscles, secondarily of the trunk muscles; forms less commonly observed include local and cephalic tetanus. Thirty percent of reported cases are fatal; fatalities are most common in the elderly and infants.

Transmission: tetanus spores introduced into the body usually through a puncture wound or crush injury contaminated with soil, street dust or animal/human feces; through lacerations, burns and trivial/unnoticed wounds; by injected contaminated street drugs

Incubation: 3-21 days, average 8 days

Communicability: not transmitted from person-to-person

#### ***Pertussis***

Clinical features: an acute disease characterized by a catarrhal stage of mild upper respiratory symptoms; progresses to a paroxysmal stage characterized by severe paroxysms of cough with a characteristic inspiratory whoop followed by vomiting, (in adolescents and adults may be simple cough >7 days) fever is absent or minimal; symptoms wane gradually during a convalescent stage

Transmission: respiratory route through contact with respiratory droplets or secretions, by airborne droplets or freshly contaminated articles.

Incubation: 7-10 days, range 4-21 days

Communicability: highly contagious in early catarrhal stage before paroxysmal stage, thereafter communicability gradually decreases

### Vaccine Types:

1. **DTaP:** diphtheria, tetanus and acellular pertussis vaccine (6 weeks – 6 yrs)
2. **Td:** adolescent/adult tetanus and diphtheria vaccine (7 years and older)
3. **Tdap:** adolescent/adult tetanus, diphtheria, and acellular pertussis vaccine (11-64 yrs of age)
4. **DT:** pediatric diphtheria and tetanus vaccine (used in children with excessive reactivity to pertussis components)

### SERVICE POPULATION (DOH Vaccine Use)

All individuals 6 weeks through 18 years of age need to receive diphtheria, tetanus, and/or pertussis-containing vaccine (DTaP, DT, Td or Tdap). Tdap is required for 7<sup>th</sup> grade in New Mexico as of the 2007-08 school year, if it has been at least 5 years since their last tetanus-containing vaccine. Adults also need vaccination with diphtheria & tetanus (Td) or diphtheria, tetanus & pertussis-containing vaccine (Tdap) for wound management. **Do not use VFC vaccines for individuals over age 18.** See “Adult Vaccines” section on Tdap page.

### METHODOLOGY

#### Vaccines Brands:

Pentacel™ – DTaP-IPV-Hib – Sanofi Pasteur (6 weeks – 5 years)

Infanrix™ – DTaP – GlaxoSmithKline (6 weeks – 6 yrs)

DAPTACEL™ - DTaP - Sanofi Pasteur (6 weeks - 6 yrs)

Pediarix™ - DTaP, HepB, and IPV – GlaxoSmithKline (6 wks - 6 years)

Kinrix™ – DTaP-IPV GlaxoSmithKline (booster dose at 4-6 years)

Boostrix™ - Tdap – GlaxoSmithKline (10 - 18 yrs)

DECAVAC™ – Td – Sanofi Pasteur (7 yrs or older)

#### Dosages and routes of administration: (for all listed vaccines)

1. Administer 0.5 ml intramuscularly (IM) into the antero-lateral thigh of infants and toddlers and the deltoid muscle of older children
2. Needle length for IM injections: a 1 inch long needle is required for infants, toddlers and older children; for adolescents and adults, the needle should be from 1-2 inches in length depending on the weight of the individual; a 22-25-gauge needle is appropriate for most IM vaccine injections
3. May be administered simultaneously with other vaccines, using a separate syringe at a different anatomical site

### Vaccine Schedule for Children <7 Years of Age (Infanrix, DAPTACEL, Pentacel, Pediarix, Kinrix or DT<sup>^</sup>):

Dose	Normal Schedule Age	Minimum Interval from Previous Dose	Vaccine	If using Pediarix™ ***	If using Pentacel™
1	6 wks – 2 months		DTaP	Pediarix™	Pentacel™
2	4 months	4 weeks	DTaP	Pediarix™	Pentacel™
3	6 months	4 weeks	DTaP	Pediarix™	Pentacel™
4 (Booster)	15-18 months*	6 months**	DTaP	DTaP	Pentacel™
5 (Booster)	4-6 years		DTaP****	DTaP	DTaP

<sup>^</sup> Use DT vaccine if encephalopathy has occurred after a previous dose of pertussis-containing vaccine; if the child is <1 year at the time of the 1<sup>st</sup> dose of DT the child should receive a total of 4 primary DT doses, if >1 year old, a 3<sup>rd</sup> dose administered 6-12 months after the 2<sup>nd</sup> dose completes the primary series. A booster dose should be administered at 4-6 years of age.

\* The 4<sup>th</sup> dose of DTaP may be administered as early as 12 months of age. This recommendation is incorporated into the NM 'Done By One' optimized childhood schedule.

\*\* The minimum interval between the 3<sup>rd</sup> and 4<sup>th</sup> DTaP is 6 months. However, **DTaP4 does not need to be repeated if the interval between the 3<sup>rd</sup> and 4<sup>th</sup> shots is ≥ 4 months.**

\*\*\* **Pediarix™: Combination DTaP-HepB-Polio Vaccine is licensed for use at 2, 4, and 6 months of age. Pediarix is not approved for the Hep B birth dose and cannot be given to infants < 6 weeks of age or individuals ≥7 years of age. This vaccine may be used when administration of any component of this combination vaccine is indicated for the primary series and if no components are contraindicated. The 3<sup>rd</sup> dose of Pediarix™ should be given at least 16 weeks after the first dose, preferably at 6 months of age but not before 24 weeks of age. Infants who receive a birth dose of Hepatitis B vaccine are approved to receive the full three doses series of Pediarix at 2, 4, and 6 months. A dose of Pediarix inadvertently administered as the 4<sup>th</sup> or 5<sup>th</sup> dose of the DTaP-IPV series does NOT need to be repeated.**

1. Do not restart the vaccine series even if there are prolonged intervals between the doses.
2. The 5<sup>th</sup> dose of DTaP or DT is not necessary if the 4<sup>th</sup> dose in the series is administered on or after the fourth birthday.

**Note:** ACIP and AAP state that children who have recovered from documented pertussis (recovery of *Bordetella pertussis* from culture) do not need further doses of pertussis vaccine and may continue their series with DT. However, immunity from the disease is not lifelong and additional booster doses of pertussis-containing vaccine are recommended.

### **Catch-Up Schedule for Children ≥7 Years of Age Who Have Never Received DIPHtheria/TETANUS/PERTUSSIS Vaccine (Td or Tdap)**

DTaP is not licensed for children >7 yrs of age. Unimmunized children older than 7 yrs of age should be protected by administration of 3 catch-up doses of Tdap and Td vaccine as shown below. Tdap can substitute for any one of the three Td doses. No pertussis vaccines are approved for use in children 7-9 years of age. Td should be used in this age group.

Dose	Minimum Interval	Product <sup>Φ</sup>
1	-	Td ( Use Tdap*, if ≥ 10 yrs of age)
2	4 weeks after dose 1	Td
3	6 months after dose 2	Td

<sup>Φ</sup> Use Td for all doses if pertussis components are contraindicated.

\* Boostrix is approved for children 10-18 years of age.

## **Children previously vaccinated with one or more doses of DTaP:**

- **Pediarix™** may be used to complete the first three doses of the DTaP series in infants who have received 1 or 2 doses of **DTaP** and are also scheduled to receive the other vaccine components of **Pediarix™**.

### **Vaccine Interchangeability:**

Whenever possible, the same DTaP product should be used for all doses. If the same product is not available, any DTaP product can be used.

### **Protective efficacy:**

Estimates for vaccine efficacy range from (71%-84%) for vaccines currently licensed in the United States.

### **Contraindications:**

If either of the following events occurs after administration of DTaP, subsequent vaccination with DTaP is contraindicated:

1. Immediate anaphylactic reaction to DTaP.
2. Encephalopathy not attributed to another identifiable cause within 7 days of vaccination.

### **Precautions:**

If any of the following events occurs within the specified period after administration of DTaP or Tdap, the risks and benefits of administering subsequent doses of a pertussis-containing vaccine should be evaluated by a physician:

1. Temperature of  $\geq 105^{\circ}\text{F}$  within 48 hrs, not attributed to another identifiable cause.
2. Collapse or shock-like state (hypotonic hyporesponsive episode) within 48 hours
3. Persistent crying lasting  $\geq 3$  hours, occurring within 48 hours
4. Convulsions with or without fever, occurring within 3 days
5. Latex allergies: The tip and rubber plunger of the BOOSTRIX® (Tdap) Tip-Lok syringe presentation contains latex. This BOOSTRIX® product should not be administered to adolescents with a history of a severe (anaphylactic) allergy to latex; this product may be administered to persons with less severe allergies (e.g. contact allergy to latex gloves). The BOOSTRIX® (Tdap) single dose vial presentation and ADACEL (Tdap) contain no latex.
6. Guillain-Barre syndrome (GBS) within 6 weeks after a previous dose of tetanus toxoid containing vaccines.
7. Acute, moderate or severe illnesses with or without fever.
8. Vaccination with DTaP should be delayed in the presence of an evolving neurologic disorder (e.g., uncontrolled epilepsy, infantile spasms, progressive encephalopathy) until the child has been evaluated and the condition stabilized. Stable or resolved neurologic conditions (epilepsy, cerebral palsy, developmental delay) are not a contraindication to pertussis vaccination.

### **Adverse Reactions:**

1. Mild systemic reactions such as fever, drowsiness, fretfulness and anorexia

2. Rarely, moderate to severe systemic events such as temperature of  $\geq 105^{\circ}\text{F}$ , febrile seizures, persistent crying lasting  $\geq 3$  hours and hypotonic hyporesponsive episodes
3. Local reactions, including extensive swelling, erythema and tenderness, sometimes involving the entire extremity, have been reported after the 4<sup>th</sup> and especially 5<sup>th</sup> dose of DTaP. The reactions appear to be temporary and resolve without sequelae. The fifth dose should not be withheld if the reaction occurred after the 4<sup>th</sup> dose.
4. Administration of **Pediarix™** is associated with increased frequency of mild or moderate fever when compared to separately administered vaccine. Highest rates of fever were observed on the day of administration and the following day. 98% of these fever events resolved within 4 days. Rates of high fever ( $>103.1^{\circ}$ ) and rates of other adverse events were not increased when compared to separately administered vaccine.

### **BOOSTER IMMUNIZATION (Tdap or Td for ages 11-18 years)**

Tdap is preferred over Td as a booster because adolescents are susceptible to pertussis due to waning immunity.

History		
Completed DTaP series	Previous Td Booster	Tdap Booster <sup>Φ</sup> (11-18 yrs)
Yes	No	11-12 yrs of age*, or $\leq 10$ yrs after last DTaP
Yes	Yes	5 yrs after last Td**
No	See <u>Catch-up</u> above	See <u>Booster</u> schedule below

<sup>Φ</sup> Use Td for boosting if pertussis components are contraindicated.

**\* A 5 year interval between Tdap and the last tetanus-containing vaccine is permissible for students in the 7<sup>th</sup> grade or who will be in the 7<sup>th</sup> grade the following fall. Vaccine providers should administer Tdap and tetravalent meningococcal polysaccharide-protein conjugate vaccine ([MCV4] Menactra™) (which contains diphtheria toxoid) during the 11-12 yr. visit if both vaccines are indicated and available. If simultaneous vaccination is not feasible, inactivated vaccines can be administered at any time before or after a different inactivated or live vaccine. There is, however, a theoretical risk of increased rates of local or systemic reactions when two diphtheria toxoid-containing vaccines (i.e. MCV4 and Tdap or Td) are administered within a short interval (on different days).**

**\*\* A 5-year interval between Td and Tdap is encouraged to reduce the risk of local or systemic reactions. However, intervals shorter than 5 years between Td and Tdap can be used in special situations such as outbreak control and for caregivers of infants.**

**There is insufficient evidence to address the safety of Tdap during pregnancy. If an adolescent is pregnant, provide Td if tetanus and/or diphtheria protection is needed immediately. If the pregnant adolescent is likely to have sufficient protection against tetanus and diphtheria, she may defer the Td vaccine indicated during pregnancy and substitute the Tdap vaccine in the immediate postpartum period.**

## Booster Schedule for Individuals 7-18 years Who Completed the 3-Dose Catch-Up Series

Situation	Minimum Interval	Current Age	Booster Dose*
1 <sup>st</sup> Dose given at $\geq$ 12 months	6 months After Dose 3	7-9 yrs	Td (7-9 yrs)
		10 -18 yrs	Tdap (Boostrix <u>only</u> )
1 <sup>st</sup> Dose given at >12 months, 3 <sup>rd</sup> dose at <7 yrs	5 years After Dose 3	7-9 yrs	Td (7-9 yrs)
		10-18 yrs	Tdap (Boostrix <u>only</u> )
3 <sup>rd</sup> Dose given at 7-18 yrs	5 – 10 Years After Dose 3	11-18 years	Tdap (Boostrix <u>only</u> )
Previous Td booster	5 Years After Td**	11-18 years	Tdap (Boostrix <u>only</u> )

\* Use Td if pertussis components are contraindicated.

\*\* A 5-year interval between Td and Tdap is recommended for students who will be entering the 7<sup>th</sup> grade or who are currently in the 7<sup>th</sup> grade to meet the NM School Requirements. For older children and adults, the interval should be 10 years. However, intervals shorter than 5 years between Td and Tdap can be used in outbreaks and for household caregivers of young infants.

### Tetanus Wound Management (7-18 yrs):

Vaccination history	Clean, minor wounds		All other wounds <sup>^</sup>	
	Tdap/Td <sup>&amp;</sup>	TIG*	Tdap/Td <sup>&amp;</sup>	TIG*
Unknown or <3 doses	Yes	No	Yes	Yes
3+ doses	No**	No	No***	No

<sup>&</sup>Td is indicated in patients 7-10 years old. Tdap is preferred for better pertussis protection in individuals 11-64 years of age.

\* TIG – Tetanus Immune Globulin

\*\*Yes, if >10 years since last dose

\*\*\*Yes, if >5 years since last dose

<sup>^</sup> Such as, but not limited to, wounds contaminated with feces, soil, and saliva; puncture wounds; avulsions; and wound resulting from missiles, crushing, burns and frostbite

1. DTaP (DT, if pertussis vaccine is contraindicated) is indicated for routine wound management in children <7 years old.
2. If TIG is indicated, check with your health officer or the Office of Epidemiology.

#### Vaccine storage and handling:

Store and ship at 35° – 46° F -- Do Not Freeze

#### REFERENCE/COMPANION MANUAL

“Epidemiology and Prevention of Vaccine-Preventable Diseases” – 10<sup>th</sup> Ed, Revised February 2008, CDC. (<http://www.cdc.gov/vaccines/pubs/pinkbook/pink-chapters.htm>)

“General Recommendations on Immunization” – Recommendations of the Advisory Committee of Immunization Practices (ACIP): February, 2002

Red Book Online: <http://aapredbook.aappublications.org/>

Advisory Committee on Immunization Practice (ACIP) Votes to Recommend Routine Use of Combined Tetanus, Diphtheria and Pertussis (Tdap) Vaccines for Adolescents  
[http://www.cdc.gov/nip/vaccine/tdap/tdap\\_acip\\_recs.pdf](http://www.cdc.gov/nip/vaccine/tdap/tdap_acip_recs.pdf)

All ACIP statements are available at: <http://www.cdc.gov/nip/publications/ACIP-list.htm>

“Preventing Tetanus, Diphtheria, and Pertussis Among Adults: Use of Tetanus-Toxoid, Reduced Diphtheria, and Acellular Pertussis Vaccine. Recommendations of the Advisory Committee on Immunization Practices. December 15, 2006.

“Preventing Tetanus, Diphtheria, and Pertussis Among Adolescents: Use of Tetanus-Toxoid, Reduced Diphtheria, and Acellular Pertussis Vaccine. Recommendations of the Advisory Committee on Immunization Practices. February 23, 2006.

**NOTE:** All ACIP statements are available online at:  
<http://www.cdc.gov/nip/publications/ACIP-list.htm>

Recommendations and FAQs about **Pediarix™** usage are at:  
<http://www.cdc.gov/nip/vaccine/pediarix/pediarix-fqs-hcp.htm#R3>

## POLIO VACCINE PROTOCOL

### BACKGROUND

1. Poliovirus: a highly infectious enterovirus consisting of serotypes 1, 2, and 3; infection occurs in the GI tract, invades the lymphoid tissue, enters the blood stream, and then may infect cells of the central nervous system. Up to 95% of all polio cases are inapparent or asymptomatic; flaccid paralysis occurs in <1% of infections. The Western Hemisphere was certified polio free in 1994; however, importation to this hemisphere remains a threat
2. Transmission: primarily person-to-person; principally via the fecal-oral route; oral-oral transmission may account for some cases
3. Incubation: 6-20 days, range 3-35 days
4. Communicability: most infectious 7-10 days before and after onset of symptoms, virus may be present in the stool for 3 - 6 weeks
5. Post-Polio Syndrome: after 30-40 years, 25-40% of persons who contracted wild paralytic polio as a child experience muscle pain and exacerbation of existing weakness or develop new weakness or paralysis; risk factors for post-polio syndrome: a) increasing length of time since acute infection, b) presence of permanent residual impairment, and c) female
6. Vaccine-Associated Paralytic Polio (VAPP): attributed to oral polio vaccine (OPV) with an overall risk of one case in 2.4 million OPV doses distributed; the majority of cases occur among children <1 year of age receiving the first dose of OPV or among their close contacts who are immunocompromised or unvaccinated. Use of OPV was discontinued in the United States in 2000.

### SERVICE POPULATION

All children 6 weeks to 18 years of age, who need to complete the polio vaccine series.

### METHODOLOGY

#### Vaccines:

1. IPOL™ – Sanofi Pasteur
2. Pediarix™ – DTaP, IPV, and Hepatitis B combination – Glaxo SmithKline
3. Pentacel™ – DtaP, IPV, Hib combination – Sanofi Pasteur (ages 6 weeks up to 5 years)
4. Kinrix™ – DtaP, IPV booster dose at age 4 to 6 years – Glaxo SmithKline
5. Oral Poliovirus Vaccine (OPV) – Is no longer available in the United States; however, you may see children who have received prior doses of OPV.

#### Vaccine dosage and route of administration:

1. Administer 0.5 ml subcutaneously or intramuscularly into the antero-lateral thigh of infants and toddlers or in the upper arm of older children
2. Needle length for subcutaneous injections: 5/8-3/4 inches long, 23-25 gauge needle
3. May be administered simultaneously with other vaccines, using a separate syringe at a different anatomical site

### Vaccination schedule for children:

<b>IPV</b>	<b>2 months</b>	<b>4 months</b>	<b>6-18 months</b>	<b>4-6 years</b>
<b>If Pediarix™</b>	<b>2 months</b>	<b>4 months</b>	<b>6 months</b>	<b>IPV*</b>
<b>If Pentacel™</b>	<b>2 months</b>	<b>4 months</b>	<b>6 months</b>	<b>15-18 months</b>
<b>Kinrix™ Booster</b>				<b>4-6 years</b>

1. IPV and **Pediarix™** can be administered as early as 6 weeks of age; the minimum interval between doses of IPV is 4 weeks and 6 weeks for **Pediarix™**.
2. The minimum interval between OPV and IPV is 4 weeks.
3. \* **Pediarix™** can only be used for first three doses of 4 dose polio series.

### Children previously vaccinated with one or more doses of IPV:

**Pediarix™** may be used to complete the first 3 doses in the IPV series in infants who have received 1 or two doses of IPV and are also scheduled to receive the other vaccine components of **Pediarix™**.

### Vaccine interchangeability:

Any combination of OPV and IPV vaccine is acceptable; all children receiving a combined schedule must receive four doses of polio vaccine to complete the series.

### Protective efficacy:

After 3 doses of OPV,  $\geq 95\%$  of recipients develop long-lasting, (probably life-long), immunity to all 3 poliovirus serotypes. For IPV, there is little or no immunity after the first dose, 90% after two doses and 99% after three doses. A person who receives IPV could become infected with wild poliovirus in an endemic area, and then shed the wild virus on return to the US, and transmit it to a contact. The person would be protected from paralytic polio. Seroconversion rates after three doses of combination IPV/OPV vaccine is lower (85% in one study), particularly to type 3 virus. A fourth dose usually produces seroconversion rates similar to three doses of either OPV or IPV.

### Contraindications:

1. Anaphylactic reaction to a previous dose of IPV or an anaphylactic reaction to streptomycin (IPV only), polymyxin B, neomycin, or yeast (Pediarix only)
2. **For Pediarix, see also the contraindications for Hep B and DTaP.**

### Adverse Reactions:

1. Minor local reactions, (pain and redness). No serious side effects have been associated with IPV.
2. Administration of **Pediarix™** is associated with increased frequency of mild or moderate fever when compared to separately administered vaccine. Highest rates of fever were observed on the day of administration and the following day. 98% of these fever events resolved within 4 days. Rates of high fever ( $>103.1^{\circ}$ ) and rates of other adverse events were not increased when compared to separately administered vaccine.

### Vaccine storage and handling:

1. Store and ship at  $35^{\circ}$  -  $46^{\circ}$ F -- Do not freeze

## REFERENCE/COMPANION MANUAL

“General Recommendations on Immunizations” - Recommendations of the Advisory Committee on Immunization Practices (ACIP), February, 2002.

“Epidemiology and Prevention of Vaccine-Preventable Diseases” – 10<sup>th</sup> Ed, Revised February 2008, CDC. (<http://www.cdc.gov/vaccines/pubs/pinkbook/pink-chapters.htm>)

Red Book Online: <http://aapredbook.aappublications.org/>

NOTE: All ACIP statements are available online at:  
<http://www.cdc.gov/nip/publications/ACIP-list.htm>

Recommendations and FAQs about **Pediarix™** usage are at:  
<http://www.cdc.gov/nip/vaccine/pediarix/pediarix-faqs-hcp.htm#R3>

## HAEMOPHILUS INFLUENZAE TYPE B (Hib) VACCINE PROTOCOL

### BACKGROUND

1. Clinical Features: *Haemophilus influenzae* type b (Hib) is a gram-negative bacterium that can cause serious illness, especially in children less than 5 years of age. Prior to 1990, *Haemophilus influenzae* type b was a leading cause of bacterial meningitis, and other invasive bacterial disease among children <5 years old. The most common types of invasive disease caused by *H. influenzae* type b include meningitis, epiglottitis, pneumonia, arthritis, and cellulitis. Since Hib conjugate vaccines were first introduced, the incidence of invasive Hib disease in the U.S. and New Mexico has declined by 99% in infants and children.
2. Six distinct serotypes have been described; type b accounts for 95% of strains that cause invasive disease. Hib vaccines will not protect against infection with other serotypes.
3. Hib is uncommon in children over 5 years of age.
4. For earliest protection against invasive Hib disease, children should receive Hib conjugate vaccines beginning at 6 weeks-2 months of age; **when Hib vaccination is delayed, children do not need the same number of doses** (see **Vaccination Schedule**).

### SERVICE POPULATION

1. All children 6 weeks to 5 years of age
2. Persons >5 years of age with functional or anatomic asplenia or HIV disease

### METHODOLOGY

#### Route of administration:

1. Administer intramuscularly (IM) into the antero-lateral thigh of infants and toddlers and deltoid muscle of children
2. Needle length for IM injections: a 7/8–1 inch long needle is required for infants, toddlers and other preschoolers; a 22-25-gauge needle is appropriate for most IM vaccine injections
3. May be administered simultaneously with other vaccines, using a separate syringe at a different anatomical site when possible; if it is necessary to use the same anatomical site, separate the injection sites by at least 1 inch.

#### Vaccines available:

- ActHIB™ - PRP-T, Hib, Sanofi Pasteur
- PedvaxHIB™ - PRP-OMP Hib, Merck
- COMVAX™ - PRP-OMP, Hib/hepatitis B combination, Merck
- Pentacel™ - DTaP-IPV- PRP-T Hib, Sanofi Pasteur

## Hib Vaccination Schedule and Dosage:

Hib Vaccine	Age at 1 <sup>st</sup> dose (months)	Volume (ml)	Primary series	Booster Dose
ActHib™ or Pentacel™ (PRP-T)	2-6	0.5 ml	3 doses, 2 mos apart	12-15 mos
	7-11		2 doses, 2 mos apart	12-18 mos
	12-14		1 dose	2 mos after previous dose
	15-59		1 dose	--
PedvaxHIB™ COMVAX™ (PRP-OMP)	2-11	0.5 ml	3 doses, 2 mos apart	12-15 mos
	12-14		1 dose	2 mos after previous dose
	15-59		1 dose	--

1. An interval of 2 months between doses of Hib vaccine in the primary series is recommended, a minimum interval of 1 month is acceptable, if absolutely necessary.
2. After the primary vaccination series is completed, any of the 4 Hib conjugate vaccines may be used as a booster dose at age 12-15 months.
3. The conjugate Hib vaccines are interchangeable, a total of 3 doses of any combination constitutes the primary series.
4. Premature infants should follow the same schedule as other infants beginning at 2 months of age.
5. Children < 24 months of age who develop invasive Hib disease should begin/receive the Hib vaccine series 1 month after onset of disease or as soon as possible thereafter (second episode is possible due to low anticapsular antibody concentrations in convalescent sera).

### COMVAX™ vaccination schedule:

	Birth	6 wk – 2 m	4 m	6 m	12-15 m
<b>Option 1</b>	Hep B	COMVAX™*	PedvaxHIB™	--	COMVAX™*
<b>Option 2</b>	Hep B	COMVAX™*	ActHIB™ (PRP-T)	ActHIB™ (PRP-T)	COMVAX™*
<b>Option 3</b>	--	COMVAX™*	COMVAX™*	--	COMVAX™*

**\* Dosage is 0.5 ml administered IM**

1. COMVAX™ is licensed for use when either or both hepatitis B and Hib vaccines are indicated, and neither antigen is contraindicated. It should not be used in infants less than six weeks of age.
2. COMVAX™ is not licensed for infants whose mothers are HBsAg positive. However, the vaccine contains the same dose of Merck's hepatitis B vaccine recommended for these infants, so response to hepatitis B component of COMVAX™ should be adequate.
3. If, at a particular visit, COMVAX™ fits the schedule for vaccines due, use it. If it doesn't, use the appropriate single antigen vaccine.
4. COMVAX™: 1<sup>st</sup> dose may be given as early as 6 weeks of age, (preferably at 2 months); minimum interval between 1<sup>st</sup> and 2<sup>nd</sup> dose is 1 month, (preferably 2 months); minimum interval between 2<sup>nd</sup> and 3<sup>rd</sup> dose is 2 months, but the child must be at least 12 months of age at the time the 3<sup>rd</sup> dose is administered.

**Protective efficacy:**

Clinical trials for all Hib vaccine and Hib combination vaccines indicate high protective efficacy after completion of the vaccine series. (Efficacy for prevention of disease and prevention of colonization.)

**Contraindications:**

***Hib vaccines***

1. Hypersensitivity to any component of the vaccine
2. Moderate to severe illness

**COMVAX™ (Hib/Hepatitis B vaccine)**

1. Hypersensitivity to any component of the vaccine
2. Moderate to severe illness
3. Hypersensitivity to yeast

**Adverse Reactions:**

***Hib vaccines***

Local and systemic reactions following Hib conjugate vaccines are uncommon.

Swelling, erythema, and tenderness at injection site have been reported in 5%-30% of recipients. Fever and irritability are infrequent.

***Combination Hib Vaccines (COMVAX)***

Adverse reactions are the same as those of the individual vaccines (i.e., hepatitis B – Hib vaccine).

**Vaccine storage and handling:**

All vaccines: store and ship at 35°– 46° F. Do Not Freeze. ActHIB should be used within 24 hours of reconstitution.

**REFERENCE/COMPANION MANUAL**

“Epidemiology and Prevention of Vaccine-Preventable Diseases” – 10<sup>th</sup> Ed, Revised February 2008, CDC. (<http://www.cdc.gov/vaccines/pubs/pinkbook/pink-chapters.htm>)

Red Book Online: <http://aapredbook.aappublications.org/>

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**<http://www.cdc.gov/nip/publications/ACIP-list.htm>**

## HEPATITIS B VACCINE PEDIATRIC PROTOCOL (0-18 yrs of age)

### BACKGROUND

1. Clinical Features: Hepatitis B: a viral infection transmitted by exposure to contaminated blood and body fluids. About half of acute Hep B infections are subclinical. Symptoms of acute hepatitis include nausea, vomiting, abdominal pain, jaundice, dark urine and pale stools. Most resolve in a few weeks or months, but 5%-10% of adults and 90% of perinatally infected infants become chronic carriers. Carriers remain contagious indefinitely and are at risk for chronic liver disease (cirrhosis, liver failure) and primary hepatocellular carcinoma.
2. Duration of acute infection: *preicteric or prodromal phase* – initial symptoms (to onset of jaundice) last 3-10 days with insidious onset of malaise, anorexia, nausea, vomiting, right upper quadrant abdominal pain, fever, headache, myalgias, skin rashes, arthralgias, arthritis, and dark urine (beginning 1-2 days before onset of jaundice); *icteric phase* – usually lasts 1–3 weeks with jaundice, light or gray stools, hepatitic tenderness, and hepatomegaly; *convalescent phase* – malaise and fatigue persisting for weeks or months while jaundice, anorexia, and other symptoms disappear.
3. Transmission: by parenteral and permucosal exposure to contaminated blood and other body fluids (serous fluids, semen, and rarely saliva) by sexual exposure to an infected person, mother-to-child contact (mainly at birth), direct percutaneous exposure to needles (injection drug use, tattooing, acupuncture, needle-sticks) and household exposure to infectious body fluids through sharing razors and toothbrushes and other means (breaks in the skin {scratches, abrasions} may serve as a route of entry).
4. Incubation period: 45 – 160 days (average, 120 days)
5. Communicability: the presence of HBsAg generally indicates that a person is infectious. HBsAg can be detected as early as 1-2 weeks after exposure to HBV. The presence of HBeAg indicates high infectivity.

### SERVICE POPULATION (0-18 years)

1. Infants of hepatitis B-infected women.
2. All children 0 through 18 years of age seen in local health offices and other VFC provider offices, including school clinics
3. Household/sexual contacts of acute and chronic hepatitis B cases.
4. Adolescents who are in or have been in detention centers.

### METHODOLOGY

#### Vaccines available:

1. Engerix-B – available in both ped/adolescent formulations, GlaxoSmithKline
2. Recombivax HB – available in ped/adol., adolescent 2-dose formulations, Merck
3. COMVAX (combination Hib/Hep B), Merck
4. Pediarix™ (combination DTaP/IPV/HepB), GlaxoSmithKline
5. Hep B vaccines are produced through recombinant DNA technology and no viral or human products are used; therefore, there is no risk of transmission of hepatitis B from the vaccine.

**Route of administration:**

Administer intramuscularly (IM). The recommended site is the anterolateral thigh in neonates and small children, and the deltoid muscle in children and adults; **never administer in the buttocks**

1. Needle length for IM injections: for infants less than 1 year old a 7/8" to 1", 22-25 gauge needle is recommended, for toddlers and older children 7/8" to 1 1/4", 22-25 gauge needle should be used if using the anterolateral thigh, if the deltoid 5/8" to 1 1/4" is usually adequate
2. May be administered simultaneously with other vaccines, using a separate syringe at a different anatomical site
3. If administered at the same time as DTaP, it is preferable not to administer the hepatitis B vaccine into the same muscle mass
4. May be given at the same time as hepatitis B immune globulin (HBIG), using a separate syringe at a different anatomical site.

**Protective efficacy:**

Completion of the vaccine series induces a protective antibody response in more than 90% of healthy adults and in more than 95% of infants, children, and adolescents; by 60 years old, only 75% will develop protective antibodies.

**Contraindications:**

1. Severe allergic reaction to a prior dose of hepatitis B vaccine, or to any component of the vaccine (yeast etc.)
2. Moderate to severe illness.

Note: Pregnancy or lactation is NOT a contraindication to vaccination because HBV infection may result in severe disease for the mother and infant.

**Adverse Reactions Following Immunization:** Pain at the site of injection and fever are the most common side effects in children and adults. Mild systemic complaints such as fatigue, headache, and irritability have also been reported. Serious systemic adverse events and allergic reactions are rarely reported following hepatitis B vaccination.

**Vaccine storage and handling:**

Store and ship at 35°– 46° F -- Do Not Freeze

## Vaccination schedule and dosage:

Group	Recombivax HB Dose (ml)	Engerix-B Dose (ml)	No. Doses	Schedule	Minimum Interval between previous dose
Infants of HBV carrier mothers	5 $\mu$ m (0.5 ml)	10 $\mu$ m (0.5 ml)	3	Birth + HBIG (0.5ml IM) 1 -2 months of age 6 months of age	--- 1 month 2 months At least 6 months of age
Other infants and children 0 to 10 years	5 $\mu$ m (0.5 ml)	10 $\mu$ m (0.5 ml)	3	Birth, 2 and 6 months or COMVAX 2,4,12 months --or -- Initial dose, 1-2 months later, and 2-4 months after the 2 <sup>nd</sup> dose	--- 1 month 2 months --- 1 month 2 months
Adolescents 11 through 15 years	10 $\mu$ m		2	Initial dose, 4-6 months after the 1 <sup>st</sup> dose	4 months
Adolescents 11 through 19 years	5 $\mu$ m (0.5 ml)	10 $\mu$ m (0.5 ml)	3	Initial dose, 1 -2 months after the 1 <sup>st</sup> dose, 2-4 months after the 2 <sup>nd</sup>	--- 1 month 2 months

1. Use the correct formulation for age.
2. Recombivax HB and Engerix-B vaccines may be used interchangeably according to their respective dosage.
3. Only Recombivax HB 2-dose formulation is licensed for use in the two-dose adolescent (11-15 years old) schedule.
4. Never restart the series.
5. Routine vaccination at birth is not recommended for premature infants weighing <2000grams. Post exposure management is recommended if mother is HBsAg+.
6. If using an accelerated schedule, the minimum interval between the 1<sup>st</sup> and 2<sup>nd</sup> dose is four weeks, at least 2 months between the 2<sup>nd</sup> and 3<sup>rd</sup> dose, as long as there is at least 16 weeks between the 1<sup>st</sup> and 3<sup>rd</sup> dose. The infant should be at least 6 months of age before receipt of the 3<sup>rd</sup> dose.

### COMVAX™ Vaccination Schedule

	Birth	6 wk – 2 m	4 m	6 m	12-15 m
<b>Option 1</b>	Hep B	COMVAX™*	PedvaxHIB™	--	COMVAX™*
<b>Option 2</b>	Hep B	COMVAX™*	ActHIB™ (PRP-T)	ActHIB™ (PRP-T)	COMVAX™*
<b>Option 3</b>	--	COMVAX™*	COMVAX™*	--	COMVAX™*

- ***Dosage is 0.5 ml administered IM***

**COMVAX™** is licensed for use when either or both hepatitis B and Hib vaccines are indicated, and neither antigen is contraindicated. It should not be used in infants less than six weeks of age.

1. ACIP allows the use of COMVAX in infants whose mothers are HBsAg positive. ACIP also allows a full 3-dose course of COMVAX or Pediarix to be administered even if a birth dose of monovalent Hep B vaccine was administered (see Option 1). Although not labeled for this indication by the FDA, ACIP allows the use of Pediarix and COMVAX in infants whose mothers are HbsAg positive or whose HbsAg status is not known.
2. If, at a particular visit, COMVAX fits the schedule for vaccines due, use it. If it doesn't, use the appropriate single antigen vaccine.
3. COMVAX: 1<sup>st</sup> dose may be given as early as 6 weeks of age, (preferably at 2 months); minimum interval between 1<sup>st</sup> and 2<sup>nd</sup> dose is 1 month, (preferably 2 months); minimum interval between 2<sup>nd</sup> and 3<sup>rd</sup> dose is 2 months, but the child must be at least 12 months of age at the time the 3<sup>rd</sup> dose is administered.

### **Pediarix™ Vaccination Schedule**

	<b>Birth</b>	<b>6 wk – 2 m</b>	<b>4 m</b>	<b>6 m</b>
<b>Option 1</b>	Hep B	Pediarix™	Pediarix™	Pediarix™

***Dosage is 0.5 ml administered IM***

1. Pediarix is not approved for the birth dose of hepatitis B vaccine. It should not be administered before 6 weeks of age.
2. ACIP allows 4 total doses of Hepatitis B vaccine when using either Pediarix™ or COMVAX™. Although not labeled for this indication by the FDA, ACIP allows the use of Pediarix and status is not known. COMVAX, and in infants whose mothers are HBsAg positive or whose HBsAg

### **Perinatal hepatitis B - infants and sexual/household contacts of HBV infected mothers:**

#### **Prenatal Testing**

1. Screen all pregnant women for active hepatitis B [HB] infection during each pregnancy (test for hepatitis B surface antigen, HBsAg). Because of the occasional occurrence of false positive HBsAg tests in pregnancy, a positive result in a woman without a prior positive HBsAg result should be evaluated further. Further evaluation should include repeat HBsAg, anti-hepatitis B core total antibody (if positive/reactive, anti-HBc IgM antibody). Complete a "Hepatitis B Questionnaire for HBsAg Positive Prenatal Patients" for each positive client and submit it quarterly to your district's Hepatitis B Nurse.
2. Reassess high-risk pregnant clients for recent symptoms of hepatitis (jaundice) or exposure to HB since they were screened (injection drug use or sexual contact with a person with HB). Repeat testing if indicated.
3. Discuss follow-up for HBsAg positive prenatal client, her sexual and household contacts.
4. Ensure that HBIG and hepatitis B vaccine will be available at the birthing facility.

### **Infants of HBV Infected Mothers**

1. If the mother was HBsAg positive/reactive on the screening test, she should be considered to be hepatitis B virus [HBV] contagious (unless additional testing has indicated that she is not infected with HBV or is no longer contagious). To prevent neonatal infection with HBV, it is mandatory that her newborn infant receives hepatitis B immune globulin [HBIG] and the first dose of HB vaccine as soon after birth as feasible (preferably within 12 hours of birth). If the infant weighs <2 kilos (4 pounds, 6 ounces) post-exposure prophylaxis is administered as described above. However, the first dose of vaccine should not be counted as part of the 3-vaccine series, the next dose should be given when the child weighs >2 kilos (this will be considered the first dose in the three-dose series.)
2. The dose of HB vaccine is a 0.5 ml of the pediatric/adolescent formulation. The dose of HBIG is 0.5 ml regardless of the infant's weight. HB vaccine and HBIG are given intramuscularly; they may be given at the same time but at different sites. When delivery of an infant to an HBsAg+ mother expected, HBIG should be stocked in advance. HBIG can be obtained from the NM Department of Health, Immunization Program (827-2463). In an emergency, contact the Office of Epidemiology (827-0006).
3. Post-vaccine testing for HBsAg and anti-Hbs is recommended 3 - 9 months after the infant completes the hepatitis B vaccine series. If testing shows that the child is infected with hepatitis B virus, refer the infant to private provider for long-term follow-up.

### **Infants of HBV Negative Mothers**

Newborns should receive HB vaccine within two days of birth.

**It is recommended that all newborns should receive the first dose of HB vaccine before discharge from the birthing facility, especially if:**

- the mother was not tested for HBsAg during her current pregnancy ;
  - test results are not available at the time of admission for delivery;
  - the mother has had symptoms of hepatitis or exposure to HB since screening.
1. Although not labeled for this indication by the FDA, ACIP allows the use of Pediarix and COMVAX in infants whose mothers are HBsAg positive or whose HBsAg status is not known, but not as the birth dose.
  2. Blood should be drawn for HBsAg testing at the time of mother's admission to labor and test results should be reviewed as soon as possible (preferably before discharge). If the mother is HBsAg positive, the infant should receive HBIG as soon as possible, (within 7 days of birth). Retest the mother before discharge.

**Universal vaccination of children 0 through 18 years of age in the local health office and VFC provider clinic:**

1. Any child 0 through 18 years of age presenting at local health office clinics or other VFC provider clinics should be immunized with the hepatitis B vaccine series.
2. Follow the immunization schedule appropriate for age.

**Implementation schedule for the school hepatitis B immunization regulation:**

For the 2008-09 school year and all years after that, the hepatitis B series will be required for all grades K-12.

**REFERENCE/COMPANION MANUAL**

“Epidemiology and Prevention of Vaccine-Preventable Diseases” – 10<sup>th</sup> Ed, Revised February 2008, CDC. (<http://www.cdc.gov/vaccines/pubs/pinkbook/pink-chapters.htm>)

Red Book Online: <http://aapredbook.aappublications.org/>

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<http://www.cdc.gov/nip/publications/ACIP-list.htm>

## HEPATITIS A VACCINE PEDIATRIC PROTOCOL

### BACKGROUND

1. Hepatitis A: an acute self-limited viral illness with abrupt onset of fever, malaise, jaundice, dark urine, anorexia, abdominal discomfort, and nausea. Infection is subclinical in 80% of infants and 50% of young children. Twenty-five to 30% of older children and adults have subclinical infection as well. Fulminant hepatitis A is rare; chronic infection does not occur.
2. Duration: typically several weeks to two months, but prolonged or relapsing disease lasting as long as 6 months can occur.
3. Transmission: most commonly person to person, resulting from fecal contamination and oral ingestion. Common-source outbreaks have been related to contaminated water, food contaminated by infected food handlers, raw or under-cooked mollusks harvested from contaminated waters, and contaminated produce such as lettuce and strawberries.
4. Incubation period: 15–50 days, averaging 28 days.
5. Communicability: peaks two weeks before and one week after onset of illness.

### SERVICE POPULATION

1. Routine hepatitis A vaccination is recommended for all New Mexican children 1 – 18 years of age.
2. Adults at increased risk for acquiring Hepatitis A as defined in Hepatitis High-Risk Adult Protocol

### METHODOLOGY

1. **Vaccines available:**
  - a. HAVRIX Pediatric – GlaxoSmithKline
  - b. VAQTA – Merck
2. **Route of administration:**
  - a. Administer intramuscularly (IM) into the deltoid muscle.
  - b. Needle length should be 1” to ensure injection into the muscle mass.
  - c. May be administered simultaneously with other vaccines, using a separate syringe at a different anatomical site.
  - d. May be given at the same time as immune globulin (IG), but at separate anatomical sites.

### 3. Vaccination schedule and dosage:

Vaccine	Age (yrs)	Dose	Volume (ml)	No. doses	Route/ Site	Schedule
HAVRIX Pediatric dose	1-18	720 U	0.5	2	IM in Deltoid	Initial dose followed by 2 <sup>nd</sup> dose 6-12 months later.
VAQTA Pediatric	1-18	25 U	0.5	2	IM in Deltoid	Initial dose followed by 2 <sup>nd</sup> dose 6-18 months later.

Give the first dose of vaccine even if you are not sure the client will return for the second dose. The majority of people will seroconvert after one dose.

4. **Protective efficacy:**
  - a. Hepatitis A vaccine is comprised of inactivated viral antigens. In clinical trials and outbreak settings, the currently licensed hepatitis A vaccines have been shown to be highly protective against the development of clinical hepatitis (94% - 100% protective efficacy), even after the administration of just one dose. Duration of immunity is unclear at present but is thought to be at least 20 years.
  - b. HAVRIX and VAQTA are both equally efficacious in preventing clinical hepatitis A, as is Twinrix, the bivalent Hep A/Hep B vaccine. Since data determining the interchangeability of vaccines from different manufacturers are not available, completion of the immunization regimen with the same product is preferable, but vaccination with either product is acceptable, particularly if the product given for the first dose is not known.
  
5. **Contraindications and precautions:**
  - a. Contraindicated if a history of hypersensitivity to any component of the vaccine (e.g. alum, or the preservative 2-phenoxyethanol)
  - b. Moderate or severe acute illness
  - c. Pregnancy is not an absolute contraindication, but routine use during pregnancy is not recommended
  
6. **Adverse reactions:**

No serious adverse reactions have been associated with the vaccine. The most frequently reported adverse reaction is a local reaction at the site of the injection, pain, erythema, and swelling is reported in up to 50% of recipients. Mild systemic complaints (fever, malaise, fatigue) are reported in less than 10% of recipients.
  
7. **Vaccine storage and handling:**

Store and ship at 35° F (2°C) to 46° F (8°C). DO NOT FREEZE.

#### **POSTEXPOSURE PROPHYLAXIS:**

1. Recent exposure to a confirmed case of hepatitis A (<2 weeks): Healthy persons aged 12 months - 40 years should receive prophylaxis of a single-antigen hepatitis A vaccine at the age-appropriate dose. Persons who have received one or more hepatitis A vaccinations at least one month previously do not need IG. Persons who have received one Hep A vaccination should complete their series.
2. Infants <12 mos of age should receive immune globulin (IG) 0.02 ml/kg IM.

#### **REFERENCE/COMPANION MANUAL**

1. "Epidemiology and Prevention of Vaccine-Preventable Diseases" – 10<sup>th</sup> Ed, Revised February 2008, CDC. (<http://www.cdc.gov/vaccines/pubs/pinkbook/pink-chapters.htm>)
2. Red Book Online: <http://aapredbook.aappublications.org/>
3. **NOTE:** All ACIP statements are available online at: <http://www.cdc.gov/nip/publications/ACIP-list.htm>
4. Manual for the Investigation and Control of Selected Communicable Diseases in New Mexico. NMDOH, April 2008 (<http://www.health.state.nm.us/epi/CDManualFinal04.pdf>)
5. Postexposure Prophylaxis for Hepatitis A. <http://www.cdc.gov/hepatitis/HAV/HAVfaq.htm#protection>

# MEASLES, MUMPS, RUBELLA and VARICELLA VACCINES PEDIATRIC PROTOCOL

## BACKGROUND

### ***Measles***

Clinical features: an acute systemic viral infection characterized by prodromal fever, conjunctivitis, coryza, cough and Koplik spots on the buccal mucosa; red blotchy rash appears on the 4<sup>th</sup> day after onset of fever and lasts 4-7 days, beginning on the face and moving to the neck, trunk and extremities; the most commonly reported complications include diarrhea, otitis media, pneumonia, encephalitis and death.

Transmission: person-to-person via droplet and airborne spread (virus can stay airborne for up to 2 hours), direct contact with nasal or throat secretions of infected persons, and less commonly by articles freshly soiled with nose and throat secretions

Incubation: from exposure to rash averages 14 days; range 7-18 days

Communicability: one of the most highly communicable infectious diseases; contagious from 4 days prior to and 4 days after onset of rash

### ***Mumps***

Clinical features: an acute viral disease characterized by fever, swelling and tenderness of one or more salivary glands; complications include orchitis, CNS involvement, pancreatitis, oophoritis, deafness and death. As many as 20% of mumps infections are asymptomatic and an additional 40-50% may have only nonspecific or respiratory symptoms.

Transmission: airborne, or by direct contact with saliva or droplet

Incubation: 14-18 days, range 14-25 days

Communicability: 3 days before and 4 days after. However, the virus has been isolated in saliva 7 days before to 9 days after onset of parotitis

### ***Rubella (German Measles)***

Clinical features: A moderately contagious, usually mild viral infection. The rash that is faint, macularpapular, and does not coalesce, first appears on the face and progresses from the head to foot; 30% - 50% of cases are subclinical. In older children and adults there is often a 1-5 day prodrome of low-grade fever, malaise, swollen glands, and URI. Common complications include arthralgia or arthritis. Thrombocytopenic purpura, and encephalitis occur in 1/3000 and 1/5000 cases respectively.

Transmission: airborne or direct contact with nasopharyngeal secretions of infected persons

Incubation: 16 -18 days, range 12-23 days

Communicability: Most contagious when the rash is erupting, virus may shed 1 week before and 1 week after onset of rash; infants with CRS shed virus for up to one year

Congenital Rubella Syndrome (CRS): Rubella in early gestation can lead to intrauterine death, spontaneous abortion, and congenital defects; up to 85% of infants infected in the first trimester of pregnancy are found to be affected. Congenital infection can affect all organ systems, resulting in deafness, cataracts, microphthalmia, congenital glaucoma, microcephaly, mental retardation, patent ductus arteriosus, atrial or ventricular septal defects, purpura, hepatosplenomegaly, jaundice and radiolucent bone disease.

## ***Varicella (Chicken Pox)***

Clinical features: an acute, highly infectious disease caused by varicella zoster virus; because the disease develops in nearly all persons who live in the US, before the vaccine, the incidence approximated the birth cohort.

Clinical manifestations: in adults 1-2 days of fever and malaise prior to rash onset; in children rash is often the first sign of the disease. The rash that begins at the scalp moves to the trunk and extremities, is pruritic, and progresses from macules to papules to vesicular lesions before crusting; lesions commonly occur in successive crops and are more abundant on the trunk, atypical and unapparent disease can occur. Adults may have a more severe disease and a higher incidence of complications; complications include secondary bacterial infection of lesions (especially severe when caused by Group A Streptococcus), viral pneumonia and CNS manifestations including aseptic meningitis, encephalitis, and cerebellum involvement.

Attack and case-fatality rates: varicella has a secondary attack rate of 90% for susceptible household contacts; overall US case-fatality rate is 1/100,000 but rises to 25/100,000 in adults; neonates whose mothers develop the disease from 5 days before to 2 days after delivery are at increased risk of developing severe generalized chickenpox with a fatality rate of up to 30%; the rate of neonatal fatality greatly diminishes with the use of Varicella Zoster Immune Globulin (VZIG) which should be administered as soon as possible (within 96 hours) after exposure.

Transmission: person-to-person by direct contact, droplets or aerosols from vesicular fluid of skin lesions; secretions from the respiratory tract; vesicular fluid of persons with herpes zoster; indirectly through articles freshly soiled by discharges from vesicles and mucous membranes of infected persons

Incubation period: usually 14-16 days, range 10-21 days

Communicability: 1-2 days before rash onset to when all lesions crusted over

Congenital Varicella Syndrome: occurs (up to 2% of the time) among infants born to women infected during the first half of pregnancy and may be manifested by low birth weight, cutaneous scarring, limb hypoplasia, microcephaly, cortical atrophy, chorioretinitis, and other manifestations

Shingles (herpes zoster): following varicella disease, the virus persists in latent form in sensory-nerve ganglia without clinical manifestation and can be reactivated, causing shingles in 15% of persons who had varicella disease; shingles develops most frequently in elderly immunocompromised persons and in persons who had varicella in infancy; clinical manifestations include unilateral, irregular lesion crops along nerve pathways, severe pain and post-herpetic neuralgia; incidence increases with age; the rate of shingles is expected to be lower in vaccinated persons than in unvaccinated persons, and vaccinated persons' shingles attacks are milder with fewer complications

Varicella Zoster Immune Globulin (VZIG): is obtained through United Blood Services (or in some areas the American Red Cross Blood Services); susceptible individuals at high risk of developing severe varicella should receive VZIG as soon as possible after exposure but not longer than 96 hours of exposure (Check with your health officer, or the Office of Epidemiology at 505/827-0006); refer individuals who need VZIG to their private health care provider

## SERVICE POPULATION

### 1. MMR

All individuals, 12 months through 18 years of age, needing MMR vaccine who:

- a. do not have laboratory evidence of measles immunity
- b. do not have documentation of 2 doses of MMR vaccine after 12 months of age, with a minimum of 28 days between doses.

#### **Recommended schedule is:**

12-15 months	Primary dose
4-6 years	Second dose

### 2. Varicella

All children 12 months through 18 years of age who do not have at least one of the following:

- a. a reliable history of clinical chickenpox
- b. positive serologic test for immunity (not offered through the Public Health Division, NM Department of Health)
- c. two documented Varicella doses at least 28 days apart.

#### **Recommended schedule:**

12-15 months	Primary dose
4-6 years	Second dose.

### 3. MMRV (PROQUAD)

Children 12 mos-12 years for whom a dose of MMR and varicella vaccine are both indicated (first or second dose). MMRV should not be administered except when both are indicated or if no MMR or Varicella vaccine is available at the time the dose is indicated. Persons 13 years or older should NOT receive MMRV.

## METHODOLOGY

#### **Vaccines available:**

- MMR -- Measles, mumps and rubella live attenuated vaccine, Merck
- VARIVAX -- Varicella live attenuated vaccine, Merck
- MMRV (PROQUAD) -- Measles, mumps, rubella and varicella live attenuated vaccine, Merck

#### **Dosages and routes of administration of MMR:**

1. Administer 0.5 ml subcutaneously into the antero-lateral thigh of infants and toddlers or the upper arm of older children
2. Needle length for subcutaneous injections: 5/8-3/4 inches long, 23-25 gauge needle
3. May be administered simultaneously with other vaccines, using a separate syringe at a different anatomical site
4. May be administered anytime before or after oral typhoid vaccine; however, when administered non-simultaneously with varicella vaccine or other live attenuated virus vaccine, it must be separated by 1 month

**Dosage and route of administration of Varicella Vaccine:**

1. Administer 0.5 ml subcutaneously into the antero-lateral thigh of infants or in the upper arm of older children or adolescents
2. Needle length for subcutaneous injections: 23-25 gauge needle 5/8-3/4 inches long
3. Administered simultaneously or before or after other vaccines (DTaP, Td, DT, Hib, hepatitis A, hepatitis B, IPV, and any combination vaccine containing these vaccines) using a separate syringe at a different anatomical site
4. Administer simultaneously with MMR (at a different anatomical site), but if not administered simultaneously, the interval between administration of varicella and MMR vaccine must be a minimum of 28 days
5. Only reconstitute vaccine with the diluent supplied with the vaccine
6. Once reconstituted, vaccine must be administered within 30 minutes or must be discarded. Varicella vaccine can be stored in a refrigerator at 36° - 46°F for up to 72 hours; if not administered within that 72 hours, the vaccine must be discarded  
-- Do Not Refreeze varicella vaccine

**Dosage and route of administration of MMRV:**

1. Administer subcutaneously as a single 0.5-mL dose.
2. MMRV may be used whenever any components of the combination vaccine are indicated and the other components are not contraindicated. Using combination vaccines containing some antigens not indicated at the time might be justified when 1) products that contain only the needed antigens are not readily available or would result in extra injections and 2) potential benefits to the child outweigh the risk of adverse events associated with the extra antigens.
3. At least 1 month should laps between a dose of measles-containing vaccine and a dose of MMRV vaccine.
4. MMRV may be administered simultaneously with other vaccines recommended at ages 12 months – 12 years.

**Recommended MMR vaccine schedule:**

1. It is recommended that all children and young adults receive 2 doses of MMR vaccine. The first dose may be administered at or after 12 months of age, 2<sup>nd</sup> dose is given a minimum of 28 days after the first dose.
2. The New Mexico guidelines for school children require 2 doses of measles, mumps, and rubella (MMR) vaccine and 1 dose of Varicella vaccine prior to school entry.

Dose	Age	Minimum Interval
1	12-15 months	--
2	4-6 years	28 days

3. MMR vaccine administered more than 4 days prior to the first birthday is considered invalid, and the dose must be re-administered.
4. Pregnancy should be avoided for 1 month after receiving MMR vaccine.
5. Live viruses can interfere with the response to tuberculin testing causing a false negative response. Therefore, tuberculin testing may be done either on the

same day as the administration of the live vaccine or no sooner than 30 days after receipt of the vaccine (4-6 weeks recommended).

6. MMR vaccine may be given as early as 6 months of age during a measles outbreak or when an individual is traveling to areas of the world where measles is endemic; check with your health officer or Office of Epidemiology.

**Recommended Varicella vaccine schedule:**

Age	Schedule	Minimum Interval
12 months – 15 months	Primary dose	--
4-6 years	Second dose	3 months if dose 1 administered at <13 years of age; 4 weeks if dose 1 administered at >13 years of age

1. Varicella vaccine administered more than 4 days prior to the first birthday is considered invalid and the dose must be readministered.
2. Pregnancy should be avoided for 1 month after receiving varicella vaccine.
3. While there are no conclusive data showing efficacy of post-exposure vaccination with varicella vaccine, exposure to varicella (chicken pox or shingles) may provide an opportunity for vaccination of susceptible persons.
4. Vaccine recipients should not take salicylates for 6 weeks after vaccination because Reye's Syndrome has been reported following use of salicylates during natural varicella infection.
5. Vaccine recipients in whom a rash develops should avoid direct contact with immuno-compromised, susceptible persons for the duration of the rash; if contact inadvertently occurs, routine use of VZIG is not recommended because transmission is rare and disease, if it develops, is mild.
6. The following individuals using corticosteroids may be immunized with varicella vaccine:
  - a. those using inhaled corticosteroids.
  - b. those taking systemic corticosteroids (<2 mg/kg of body weight or a total of 20 mg/day of prednisone or its equivalent for children weighing >10 kg) for asthma and other conditions who are not otherwise immunocompromised.
  - c. those taking short-term (less than 14 days) corticosteroids regardless of the dosage.
7. Live viruses can interfere with the response to tuberculin testing; therefore tuberculin testing may be done either on the same day as the administration of the live vaccine, no sooner than 30 days after receipt of the vaccine (4-6 weeks recommended), or at the time the PPD is read.

**Household contacts of immunocompromised persons:**

Vaccinating household contacts of immunocompromised persons may pose a small risk of transmission of varicella vaccine virus to the immunocompromised person. However, the risk is very low, disease caused by vaccine virus in immunocompromised persons is mild, and varicella due to wild virus in immunocompromised persons is severe.

Therefore, benefits of vaccinating household contacts of immunocompromised persons outweigh the potential risks.

**Protective efficacy:**

**MMR:** Clinical studies show 99% efficacy after 2 doses of measles vaccine. More than 97% of persons who are susceptible to mumps develop measurable antibody following vaccination and, in controlled clinical trials, one dose of vaccine was approximately 95% efficacious in preventing mumps disease. However, field studies have documented lower estimates of vaccine efficacy, ranging from 75% to 95%. In clinical trials,  $\geq 95\%$  of susceptible persons aged  $\geq 12$  months who received a single dose of rubella vaccine developed serologic evidence of immunity.

**MMRV:** Clinical studies indicate that children who received 1 dose of MMRV vaccine developed levels of antibody to measles, mumps, rubella, and varicella similar to those of children who received 1 doses of MMR and 1 dose of varicella vaccine.

**Varicella:** Studies indicate that after a single dose of varicella vaccine, 97% of children develop antibody titers, providing 90% protection against infection and 95% against severe disease for 7-10 years after vaccination. After a single dose of vaccine in teens, 80% respond. Two doses separated by a minimum interval of 3 months are recommended. However, if the 2nd dose is administered at least 28 days following the first dose, the 2nd dose does not need to be repeated. In 2006, ACIP made changes to the original recommendations for varicella vaccination to include routine two dose varicella vaccination of children and second dose catch-up varicella vaccination for children, adolescents and adults who previously had received only one dose.

**Contraindications:**

- Anaphylactic reaction to a prior dose of MMR or Varicella or to any vaccine component ( i.e. gelatin or neomycin)
- Moderate to severe illness
- Pregnancy (however, a pregnant household member is NOT a contraindication)
- Thrombocytopenia within 6 weeks after previous dose of MMR vaccine; defer and test for serologic evidence of immunity
- Untreated, active TB
- Immunosuppression (generalized malignancy, leukemia, lymphoma, or other immune deficiency disease)
- Receiving high doses of immunosuppressive therapy (systemic steroids  $>2$  mg/kg of body weight or a total of 20 mg/day of prednisone or its equivalent)
- Recent administration of blood, plasma or immune globulin; may vaccinate 5 months later

**Note:** Egg allergy is not a contraindication for MMR vaccine administration. Studies have shown that anaphylactic reactions to measles- and mumps-containing vaccines are not associated with hypersensitivity to egg antigen, but to other components of the vaccine such as gelatin.

**Note: Measles and Varicella vaccine & HIV infection**

1. MMR and other measles-containing vaccines are not recommended for HIV-infected persons with evidence of severe immunosuppression.

2. MMR is recommended for all asymptomatic HIV-infected persons, and should be considered for symptomatic persons who are not severely immunosuppressed.
3. HIV-infected infants without severe immunosuppression should routinely receive MMR vaccine as soon as possible after their 1<sup>st</sup> birthday; consideration should be given to administering the 2<sup>nd</sup> dose of MMR vaccine as soon as 30 days after the 1<sup>st</sup> dose rather than waiting until school entry (Vaccination early in the course of HIV infection may be more likely to induce an immune response because immunologic response to vaccine may decrease as HIV disease progresses).
4. A theoretical risk of an increase (probably transient) in HIV viral load following MMR vaccination exists because such an effect has been shown with other vaccines.
5. Asymptomatic or mildly symptomatic HIV-infected children aged > 12 months will age-specific CD4+ T-lymphocyte counts > 15% and without evidence of varicella immunity should receive two doses of varicella vaccine 3 months apart. MMRV should not be administered as a substitute for component vaccines when vaccinating children with HIV infection until revised recommendations can be considered for the use of MMRV vaccine in this population.

#### **Adverse reactions: MMR**

Fever >103° F occurs 7-12 days after vaccination in 5%-15% of susceptible persons; it usually lasts 1-2 days, transient rashes 7-10 days after vaccination is reported in 5% of vaccinees; about 25% of adult women report joint pain 1-3 weeks after vaccination lasting 1-3 days. Thrombocytopenia is estimated to occur in 1/30,000 vaccinees and encephalopathy in less than one case in a million vaccinees.

#### **Adverse Reactions: Varicella:**

Pain, redness swelling, erythema, induration at the site of injection  
 <5% - mild varicella-like rash at injection site consisting of 2 lesions and occurring 8-19 days postvaccination, and <5% - generalized rash consisting of 5 lesions and occurring within three weeks of vaccination  
 Fever reported in 15% of vaccinees within 42 days of vaccination (most attributed to intercurrent illness rather than the vaccine)

#### **Adverse Reactions: MMRV**

Rates of most local and systemic adverse events for children vaccinated with MMRV were comparable to rates for MMR and varicella vaccines administered concomitantly. Fever of >102°F was observed in 21.5% of MMRV recipients versus 14.9% of MMR and varicella recipients, and measles-like rash was observed in 3% of MMRV recipients vs. 2.1% of those administered MMR and varicella vaccines. Rash at the injection site was the only local adverse event reported more commonly among MMRV recipients than among MMR and varicella vaccine recipients. Among 1,035 children who received 2 doses of MMRV, rates of adverse events after the second dose were generally similar or lower than those observed with the first dose.

#### **Vaccine storage and handling:**

##### **MMR:**

Vaccine may be stored separately from diluent.  
 Store vaccine at 35° – 46° F (may be frozen) – Protect From Light At All Times.  
 Store diluent at 59° – 86° F (room temperature) -- Do Not Freeze.

After reconstitution, the vaccine must be used within 8 hours, otherwise it must be discarded.

**Varicella:**

Varicella vaccine must be stored frozen at 5°F or colder

May be stored frozen in self-defrosting refrigerators; however, CANNOT be stored frozen in refrigerators with ice compartments inside the refrigerator or where the freezer is not a separate, sealed, insulated compartment, i.e., small dormitory-style refrigerators

Store diluent at 59° – 86° F (room temperature) or in refrigerator -- Do Not Freeze

Unreconstituted Varicella vaccine may be stored at refrigerator temperature (36°-46° F) for up to 72 continuous hours. Vaccine stored at refrigerator temperature that is not used within 72 hours, must be discarded.

**MMRV:**

MMRV must be stored frozen at an average temperature of < 5° F. Unlike single antigen varicella vaccine, MMRV cannot be stored at refrigerator temperature for any length of time. Once reconstituted, the vaccine should be used immediately to minimize loss of potency and should be discarded if not used within 30 minutes. The diluent should be stored separately at room temperature or in the refrigerator.

**Vaccine shipping:**

Varicella and MMRV are shipped directly from Merck. Varicella and MMRV must be shipped on dry ice and when received by the clinic the container should have residual dry ice; if not, call Merck. (1-800-672-6372)

**REFERENCE/COMPANION MANUAL**

“Epidemiology and Prevention of Vaccine-Preventable Diseases” – 10<sup>th</sup> Ed, Revised February 2008, CDC. (<http://www.cdc.gov/vaccines/pubs/pinkbook/pink-chapters.htm>)

Red Book Online: <http://aapredbook.aappublications.org/>

**NOTE:** All ACIP statements are available online at:  
<http://www.cdc.gov/nip/publications/ACIP-list.htm>

Advisory Committee on Immunization Practices: Provisional Recommendations on Varicella vaccination, June 2006.

Advisory Committee on Immunization Practices, VFC Resolution No. 6/06-3, Adopted and Effective June 29, 2006.

2006 Red Book: Report of the Committee on Infectious Diseases, 27<sup>th</sup> Edition, American Academy of Pediatrics

“Notice to Readers: Licensure of a Combined Live Attenuated Measles, Mumps, Rubella, and Varicella Vaccine: - MMWR 12/27/2005.

## PNEUMOCOCCAL VACCINE PEDIATRIC PROTOCOL

### BACKGROUND

1. *Streptococcus pneumoniae*: a bacterial pathogen; remains a leading cause of serious illness among children and adults. It causes more deaths in the U.S. than all other vaccine-preventable diseases; young children, the elderly and persons with certain underlying diseases are at highest risk. Ninety different serotypes have been identified; the 10 most common are estimated to account for 62% of the invasive disease worldwide. The organism colonizes the upper respiratory tract and can cause: a) disseminated invasive infections, including bacteremia and meningitis, b) pneumonia and other lower respiratory tract infections, and c) upper respiratory infections such as otitis media and sinusitis. In children less than 2 years old bacteremia without a known site of infection accounts for 70% of invasive pneumococcal disease; bacteremic pneumonia accounts for 12% -16%. *S. pneumoniae* is the leading cause of bacterial meningitis among children <5 years old in the United States.
2. Morbidity and mortality: each year in the U.S., pneumococcal disease causes an estimated 3,000 cases of meningitis, 50,000 cases of bacteremia, 500,000 cases of pneumonia, and 7 million cases of otitis media; pneumococcal infection causes an estimated 40,000 deaths annually in the U.S.
3. Transmission: droplet spread, direct oral contact, or indirectly through articles freshly soiled with respiratory discharges
4. Incubation period: not well determined, may be as short as 1-3 days
5. Communicability: until discharges of mouth and nose no longer contain pneumococci in significant number; healthy non-susceptible persons are at low risk for contracting the disease, even after close contact with an infected person.

### SERVICE POPULATION FOR PNEUMOCOCCAL POLYSACCHARIDE VACCINE (PPV23)

1. Persons aged 2-18 years old who have functional or anatomic asplenia, chronic renal failure, nephrotic syndrome, other chronic illnesses including cardiovascular disease, pulmonary disease, cirrhosis, diabetes mellitus, alcoholism, cerebral spinal fluid leaks, or are immunosuppressed, (including persons with HIV infection, leukemia, lymphoma, Hodgkin's disease, generalized malignancy), or are receiving immunosuppressive chemotherapy, including long-term systemic corticosteroids should receive the polysaccharide vaccine (**PPV23**).
2. Persons aged 2-18 years old who live in special environments or social settings such as certain Alaskan Native and American Indian populations; residents of nursing homes and other long-term care facilities should receive the polysaccharide vaccine (**PPV23**).
3. **PPV23** is not to be administered to children less than 2 years of age.

### SERVICE POPULATION FOR PNEUMOCOCCAL CONJUGATE VACCINE (PCV7)

1. In DOH Public Health Offices, all children at least 6 weeks through 24 months old should be offered the pneumococcal conjugate vaccine (PCV7) (Prevnar™).
2. Furthermore, DOH nurses need to screen children 25-59 months and offer the vaccine if they meet the following criteria: **children with sickle cell disease and other hemoglobinopathies; anatomic asplenia; chronic disease including chronic cardiac or pulmonary disease and diabetes mellitus; CSF leak; HIV**

**infection; immunocompromising conditions; immunosuppressive chemotherapy or long-term systemic corticosteroids use; and those who have received a solid organ transplant**

**SERVICE POPULATION FOR BOTH PNEUMOCOCCAL VACCINES ( PPV23) & (PCV7)**

1. Children aged 24-59 months who have: functional or anatomic asplenia, sickle cell disease, chronic renal failure or nephrotic syndrome, chronic cardiopulmonary illnesses, (excluding asthma), diabetes mellitus, CSF leaks, or are immunosuppressed (malignancies, immunosuppressive chemotherapy, including long-term systemic corticosteroids, organ transplant, infection with HIV) should receive **one dose** of PPV23 at age 2 years (at least 2 months after the last dose of PCV7).
2. American Indian children aged 24-59 months should be offered both the polysaccharide vaccine (**PPV23**) and the conjugate vaccination (**PCV7**). If they have not received either of the vaccines, you should immunize them first with the PCV7 and followed 2 months later by the PPV23.
3. **If both pneumococcal vaccines are recommended, the conjugate vaccine series should be given first, the minimum interval between the conjugate PCV7 and polysaccharide vaccine PPV23 is 2 months.**

**METHODOLOGY**

**Vaccines:**

1. **Pneumococcal Polysaccharide Vaccine (PPV23)** - Manufactured by Merck (Pneumovax®23) and Wyeth-Lederle (Pnu-Immune®23). It includes antibodies against 23 serotypes of *S. pneumoniae* (includes 88% of serotypes that cause human disease). Overall vaccine efficacy is estimated at 60% - 70% effective in preventing invasive disease.
2. **Pneumococcal Conjugate Vaccine (PCV7)** - Manufactured as (Prevnar™) by Wyeth-Lederle. It includes antibodies against 7 serotypes of *S. pneumoniae*. In a large clinical trial PCV7 was shown to be >95% effective against invasive disease caused by vaccine serotypes and 89% effective against invasive disease caused by all *S. pneumoniae* serotypes. It is less effective against pneumonia and acute otitis media.

**PCV7 Vaccination Schedule and Dosage:**

<b>Age of first PCV7 vaccination</b>	<b>Recommended Schedule – No shortage</b>
<b>&lt;6 months</b>	<b>2, 4, 6, and 12-15 months</b>
<b>7-11 months</b>	<b>2-doses at 2 m interval; 12-15 month dose</b>
<b>12-23 months</b>	<b>2-doses at 2 month interval</b>
<b>≥24 months</b>	<b>1 dose should be considered</b>

**Notes:**

3. *The booster dose must be administered at least 2 months after the previous dose.*
4. ***High risk children*** *who begin vaccination with PCV7 at >23 months should receive 2 doses of PCV7.*
5. ***High-risk children*** *who are at least 2 years old who completed the PCV7 vaccine series before 2 years old should receive 1 dose of the polysaccharide vaccine PPV23, (at least 2 months after completing the PCV7 series).*
6. ***Highest-risk children*** *(i.e. immunocompromised children { HIV infection, leukemia, lymphoma, Hodgkin's disease, multiple myeloma, generalized malignancy, chronic renal failure, nephrotic syndrome, organ transplant, and those receiving immunosuppressive chemotherapy} or children with sickle cell disease or functional or anatomic asplenia) should receive a second dose of the polysaccharide vaccine as recommended below in indications for revaccination.*

### **Selective Revaccination For PPV23:**

#### **Indications for revaccination after a 1<sup>st</sup> dose of PPV23:**

1. Children aged 2-10 years who continue to be at highest risk for serious pneumococcal infection should receive a single revaccination dose 3 years after the 1<sup>st</sup> dose.
2. Children aged 10-18 years who continue to be at highest risk for severe pneumococcal infection should receive a single revaccination dose if it has been at least 5 years since the previous dose.

### **Duration of immunity:**

Following **PPV23** pneumococcal vaccination, serotype-specific antibody levels decline after 5-10 years and decrease in some groups more rapidly than others. The relation between antibody titer and protection from invasive disease is not well understood, routine revaccination of immunocompetent persons is not recommended.

### **Administration:**

1. Both vaccines may be administered intramuscularly (IM).
2. **PPV23** pneumococcal vaccine may also be administered subcutaneously (SQ).
3. Use appropriate needle length for age and mode of administration (1 inch is recommended to ensure depositing the vaccine into the muscle mass).
4. Manufacturer's prefilled syringes may be used for **PPV23**.
5. Both may be administered simultaneously with other vaccines, using separate syringe at a different anatomical site

### **Pneumococcal Vaccines Contraindications**

1. Severe allergic reaction to a prior dose
2. Severe allergic reaction to any vaccine component
3. Moderate or severe acute illness with or without fever
4. To increase the likelihood of eliciting a protective antibody response the interval between vaccination and initiation of chemotherapy or immunosuppressive therapy should be at least 2 weeks (if possible) Patients vaccinated during chemotherapy or radiation therapy should be revaccinated 3 months after discontinuation of therapy.

5. During pregnancy immunization with **PPV23** should generally be deferred. Women who are at high risk for pneumococcal disease and who are candidates for pneumococcal vaccination should be vaccinated before pregnancy.
6. Minor illnesses, such as upper respiratory infections, are not a contraindication to vaccination

**Note: Uncertainty about prior receipt of vaccine should generally not be a contraindication to vaccination**

#### **Pneumococcal Vaccines Adverse Reactions:**

1. Local reactions (e.g., 30%-50% of vaccinees report pain at injection site, erythema, and swelling) persisting for less than 48 hours.
2. Moderate systemic reactions (e.g., fever and myalgias) are reported <1% of vaccinees with PPV23; in 11%-30% of children receiving the conjugate vaccine (**PPV7**)
3. Severe adverse reactions are rare.
4. Adverse reactions following revaccination with **PPV23**: studies suggest that revaccination after intervals of 4 or more years is not associated with an increased risk of adverse effects; the rate of adverse reactions after the second dose of vaccine is no greater than the rate after the 1<sup>st</sup> dose; therefore, uncertainty about prior receipt of vaccine should generally not be a contraindication to vaccination
5. Although there is some evidence that the polysaccharide pneumococcal vaccine (**PPV23**) may cause transient increases in HIV replication, pneumococcal vaccine is clearly indicated for people with HIV infection because there is a 10-fold increase in serious pneumococcal disease among HIV patients as compared to age-matched members of the community

#### **Vaccine Storage and handling**

Store and ship at 35°– 46° F – DO NOT FREEZE.

#### **REFERENCES/COMPANION MANUAL**

“Prevention of Pneumococcal Disease” Recommendations of the Advisory Committee Immunization Practices (ACIP), *MMWR*, Vol. 46, No. RR-8, April 4, 1997.

Red Book Online: <http://aapredbook.aappublications.org/>

Advisory Committee on Immunization Practices: VFC Vaccines To Prevent Pneumococcal Disease, Resolution #6/00-1 Effective June 21, 2000

“General Recommendations on Immunizations” - Recommendations of the Advisory Committee on Immunization Practices (ACIP), February, 2002

**NOTE:** All ACIP statements are available online at <http://www.cdc.gov/nip/publications/ACIP-list.htm>

## MENINGOCOCCAL VACCINE PROTOCOL

### BACKGROUND

1. *Neisseria meningitidis*: a bacterial pathogen; Has become a leading cause of bacterial meningitis in the United States after dramatic reductions in the incidence of *Streptococcus pneumoniae* and *Haemophilus influenzae* type b (Hib) infections have been achieved as a result of using conjugate vaccine. Three main clinical forms of disease occur: meningitis (49% of cases), blood infection (33%), and pneumonia (5%). Humans are the only host. *N. meningitidis* colonizes mucosal surfaces of nasopharynx and is transmitted through direct contact with large droplet respiratory secretions from the patients or asymptomatic carriers. The highest rate of meningococcal disease is among infants aged <1 year, and the rate among persons aged 11–19 years is also higher than that for the general population. 62% of meningococcal disease in the United States occurs among persons aged >11 years. Serogroups B, C, and Y are the major causes of meningococcal disease in the United States, each being responsible for approximately one third of cases. The proportion of cases caused by each serogroup varies by age group. Among infants aged <1 year, >50% of cases are caused by serogroup B, for which no vaccine is licensed or available in the United States. Of all cases of meningococcal disease among persons aged >11 years, 75% are caused by serogroups (C, Y, or W-135), which are included in the vaccines available in the United States.
2. Morbidity and mortality: An estimated 1,400–2,800 cases of meningococcal disease occur in the United States each year. Despite the continued sensitivity of meningococcus to multiple widely available antibiotics, including penicillin, the case-fatality ratio for meningococcal disease is 10%–14%. Meningococcal disease also causes substantial morbidity; 11%–19% of survivors have sequelae (e.g., neurologic disability, limb loss, and hearing loss)
3. Transmission: *N. meningitidis* colonizes mucosal surfaces of nasopharynx and is transmitted through direct contact with large droplet respiratory secretions from the patients or asymptomatic carriers.
4. Incubation period: 1-10 days; usually less than 4 days.
5. Communicability: Close contacts of patients with meningococcal disease are at increased risk of developing infection. Outbreaks have occurred in semi-closed communities, including daycare centers, schools, colleges, and military recruit camps.

### SERVICE POPULATION FOR MENINGOCOCCAL CONJUGATE VACCINE (MCV4):

1. Children ages 2-10 years with terminal complement deficiencies or anatomic or functional asplenia and certain other high-risk groups
2. **ACIP recommends targeting vaccination with the meningococcal conjugate vaccine (MCV4) to adolescents in the following groups:**
  - a. **at age 11–12 years OR**
  - b. **at age 13-18 years if not previously vaccinated OR**

c. to previously unvaccinated college freshmen living in dormitories

**Note: MCV4 vaccine provided by the VFC program can only be used to immunize children 2-18 yrs of age.**

**METHODOLOGY**

**Meningococcal conjugate vaccine (MCV4):**

- Manufactured by Sanofi Pasteur (Menactra®). Contains *Neisseria meningitidis* serogroup A,C,Y and W-135 capsular polysaccharide antigens individually conjugated to diphtheria toxoid protein. The four meningococcal components, present as individual serogroup-specific glycoconjugates, compose the final formulated vaccine. No preservative or adjuvant is added during manufacturing.

**Meningococcal polysaccharide vaccine (MPSV4) Is NOT supplied by the VFC Program**

**VACCINATION SCHEDULE AND DOSAGE**

Note: MCV4 vaccine provided by the VFC program can only be used to immunize children 2-18 yrs of age.

<b>11-18 yrs</b>	<b>A single dose of MCV4*:</b> <ul style="list-style-type: none"> <li>• at age 11–12 years OR</li> <li>• at age 13-18 years if not previously vaccinated OR</li> <li>• previously unvaccinated college freshmen living in dorms; 0.5 ml IM</li> </ul>
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*\*Meningococcal conjugate vaccine.*

§ Persons who travel to or in areas where *Neisseria meningitidis* is hyperendemic or epidemic are at increased risk of exposure, particularly if contact with the local population will be prolonged. Vaccination is especially recommended to those visiting the “meningitis belt” of sub-Saharan Africa during the dry season (December–June). Advisories for travelers are available at <http://www.cdc.gov/travel/outbreaks.htm>, <http://www.cdc.gov/travel>, or by calling CDC’s Travelers’ Health Hotline at 877-FYI-TRIP (toll-free). **VFC vaccine may not be used for travelers. Refer to travel health clinic.**

\*\* The use of vaccination in outbreak settings has been described previously (Source: CDC. Control and prevention of meningococcal disease, and Control and prevention of serogroup C meningococcal disease: evaluation and management of suspected outbreaks: recommendations of the Advisory Committee on Immunization Practices [ACIP]. MMWR 1997;46 [No. RR-5]:13–21).

**Duration of immunity MCV4**

Longer than for MPSV4, but not currently known.

**Administration:**

1. MCV4 is administered intramuscularly (IM) .
2. Use appropriate needle length for age and mode of administration (1 inch length recommended to ensure delivery into muscle mass).
3. Both may be administered simultaneously with other vaccines, using separate syringe at a different anatomical site

### **MCV4: Contraindications**

1. Moderate or severe acute illness with or without fever
2. Persons known to have a severe allergic reaction to any component of the vaccine, including diphtheria toxoid (for MCV4), or to dry natural rubber latex.
3. Because MCV4 is an inactivated vaccine, it may be administered to persons who are immunosuppressed as a result of disease or medications;
4. **Considering the lack of safety data on use of MCV4 in pregnant women, routine vaccination of pregnant women with MCV4 is not currently recommended.**

### **Meningococcal Vaccines Adverse Reactions**

1. Fever (i.e., temperature >100°F [ $>38^{\circ}\text{C}$ ]) was reported by 5.1% of those who received MCV4.
2. 13% of those who received MCV4 reported pain that limited movement in the arm of injection. The frequency of local reactions is related to the amount of diphtheria toxoid contained in MCV4. The frequency of local adverse reactions reported after MCV4 was similar to that reported after Td vaccine (97,98).
3. Serious adverse events reported within a 6-month period after vaccination occurred at a rate of 1.3% after MCV4 in clinical trials.. The events reported were consistent with events expected among healthy adolescent and adult populations.

### **Vaccine Storage and handling**

Store and ship at 35°– 46° F – DO NOT FREEZE. Protect from light.

### **REFERENCES/COMPANION MANUAL**

Prevention and Control of Meningococcal Disease: Recommendations of the Advisory Committee on Immunization Practices (ACIP), MMWR vol. 54:RR-7, May 27<sup>th</sup>, 2005.

## ROTAVIRUS VACCINE PROTOCOL

### BACKGROUND

1. Rotavirus: is a leading cause of severe acute gastroenteritis in infants and young children, with over 95% of these children infected by the time they are 5 years old. The most severe cases occur among infants and young children between 6 months and 24 months of age.
2. Transmission: through fecal-oral transmission.
3. Incubation: 2 days
4. Communicability: Rotavirus is very contagious spreading from easily from children who are infected to other children or adults.
5. Symptoms: Vomiting, watery diarrhea lasting from 3-8 days. May cause dehydration. Can be re-infected.

### SERVICE POPULATION

All children 6 weeks to 32 weeks of age

### METHODOLOGY

#### Vaccines available:

1. RotaTeg<sup>TM</sup> – (RV5) Live, Oral, Pentavalent – Merck
2. Rotarix<sup>TM</sup> – (RV1) Glaxo Smith Kline

#### Vaccine dosage and route of administration:

1. FOR ORAL USE ONLY. NOT FOR INJECTION. Each dose is supplied in a container consisting of a squeezable plastic, latex-free dosing tube with a twist-off cap. The dosage tube is contained in a pouch.
2. Minimum age for first dose is 6 weeks. **Do not start the series after 14 weeks + 6 days of age. Therefore, vaccination should not be initiated for infants who are 15 weeks +0 days or older.**
3. Minimum interval between doses is 4 weeks.
4. Maximum age for last dose is 8 months + 0 days.
5. May be administered simultaneously with other vaccines.
6. Do not re-administer the vaccine if the infant spits it out.

#### Vaccination schedule for children:

<b>RotaTegTM M (3 doses)</b>	<b>2 months</b>	<b>4 months</b>	<b>6 months</b>	<b>Final dose should not be given after 8 months + 0 days.</b>	<b>Minimum interval between doses is 4 weeks.</b>
<b>RotarixTM (2 doses)</b>	<b>2 months</b>	<b>4 months</b>	<b>-----</b>	<b>Final dose should not be given after 8 months + 0 days.</b>	<b>Minimum interval between doses is 4 weeks.</b>

#### Interchangeability of Rotavirus Vaccines

1. ACIP recommends that the rotavirus vaccine series be completed with the same product whenever possible. However, vaccination should not be deferred if the product used for previous doses is not available or is unknown. In this situation,

the provider should continue or complete the series with the product available. If a child gets a dose from different products, the child needs 3 doses to complete the series.

2. If any dose in the series was RV5 or the product is unknown for any dose in the series, a total of three doses of rotavirus vaccine should be given.

**Protective efficacy:**

1. Primary efficacy against any grade of severity of rotavirus gastroenteritis caused by naturally occurring serotypes G1, G2, G3, or G4 through the first rotavirus season after vaccination was 74% (95% CI: 66.8%, 79.9%).
2. Primary efficacy against severe rotavirus gastroenteritis caused by naturally occurring serotypes G1, G2, G3, or G4 through the first rotavirus season after vaccination was 98% (95% CI: 88.3%, 100%).
3. The efficacy of RotaTeq against severe disease was also demonstrated by a reduction in hospitalizations among all subjects enrolled in the Rotavirus Efficacy and Safety Trial.

**Contraindications:**

1. Allergic reaction to a previous dose of RotaTeq or an allergy to any component of the vaccine.

**Adverse Reactions:**

1. A large study of 70,000 children, designed specifically to assess the risk of intussusception similar to what was found for the previous rotavirus vaccine, was conducted before licensure of RotaTeq. In that study, there was no association found between the vaccine and an increased risk of intussusception.
2. Adverse events that occurred at statistically higher incidence within 42 days of any dose among recipients of RotaTeq as compared with placebo recipients include diarrhea (24% vs. 21%), vomiting (15%, 13%), Otitis media (14.5%, 13%), Nasopharyngitis (6.9%, 5.8%), Bronchospasm (1.1%, 0.7%).

**Vaccine storage and handling:**

1. Store and ship refrigerated at 36° - 46°F. RotaTeq should be administered as soon as possible after removal from refrigeration.
2. Protect from light.
3. Discard in approved biological waste containers.

**REFERENCE/COMPANION MANUAL**

“General Recommendations on Immunizations” - Recommendations of the Advisory Committee on Immunization Practices (ACIP), February, 2002.

**NOTE:** All ACIP statements are available online at:  
<http://www.cdc.gov/nip/publications/ACIP-list.htm>

Recommendations and FAQs about RotaTeq™ usage are at:  
<http://www.cdc.gov/nip/diseases/rota/rota-faqs.htm>

## HUMAN PAPILLOMA VIRUS VACCINE (HPV) PROTOCOL

### Background:

Worldwide, two HPV types (16 and 18) account for approximately 70% of all invasive cervical cancers and high grade cervical dysplasias. Multiple other less common high risk HPV types account for the remaining 30%. Other genital HPV types, cause genital warts and/or low grade cervical dysplasia but do not cause cancer.

Quadrivalent Gardasil® HPV is comprised of non-infectious, recombinant HPV viral-like particles (VLP) manufactured by Merck, approved in May 2006 by the US Food and Drug Administration (FDA)<sup>28</sup>. The Vaccines for Children Program (VFC), voted to include Gardasil® HPV vaccine in its program. The HPV vaccine series does not replace Pap smears for screening of cervical pathology.

### Service Population for NM VFC Program HPV Vaccine

The NM VFC Program recommends that VFC providers focus HPV vaccination efforts on girls 11 and 12 years of age. Providers may administer the vaccine to girls 9 through 18 years of age using their clinical judgment, keeping in mind that the vaccine becomes less effective after sexual debut. HPV vaccine should not be given during pregnancy.

### Methodology

Vaccine: Gardasil, manufactured by Merck, live, recombinant, Quadrivalent contains 4 vaccine immunogens for HPV types 6, 11, 16, and 18. It contains no preservatives or antibiotics. Licensed by FDA in May 2006.

Vaccine dosage and route of administration: Administer intramuscularly as three separate 0.5 ml doses according to the following schedule:

<b>First dose</b>	At elected date
<b>Second dose</b>	2 months after first dose (minimum of 4 weeks after first dose)
<b>Third dose</b>	6 months after first dose (minimum of 12 weeks after second dose and 24 weeks after the first dose)

May be administered simultaneously at separate sites with other recommended vaccines.

**Storage:** Store refrigerated at 36 to 46° F. Do not freeze. Protect from light.

**Protective efficacy:** Among women (ages 15-26) who completed the vaccination regimen, did not violate the protocol and had no virological evidence of infection with the respective HPV vaccine type at study entry through one month following the third vaccine dose (vaccine=5,301 versus placebo=5,258), vaccine efficacy was 100 percent (97.96% confidence interval [CI] 76%–100%) for preventing HPV16- or HPV18-related CIN 2/3 and adenocarcinoma in situ.

Among women (aged 16-23) who completed the vaccination regimen, did not violate the protocol and who had no virological evidence of infection with the respective HPV vaccine type at study entry through one month following the third vaccine dose (vaccine=2,261 versus placebo=2,279), vaccine efficacy was 100 percent (97.5%, CI

88%-100%) for preventing HPV6/11/16/18-related external genital warts or vulvar/vaginal intraepithelial neoplasia of any grade. In this population (vaccine=2,240 versus placebo=2,258), the vaccine prevented 100 percent of HPV6/11/16/18-related cervical lesions of any grade. For Gardasil®, no significant benefit was observed in women who were already infected with HPV vaccine types.<sup>28, 37</sup>

**Contraindications:** Gardasil should not be administered to any person with a history of hypersensitivity to yeast or a previous Gardasil vaccination. Gardasil is not recommended for use in pregnant women.

**Precautions:** Individuals with impaired immune responsiveness may have reduced antibody response to active immunization. As with other IM injections, individuals with bleeding disorders should not be given Gardasil unless the potential benefits clearly outweigh the risk of administration.

**Adverse Reactions:** Vaccine related adverse experiences that were observed among female recipients of Gardasil at a frequency of at least 1% include local symptoms (pain, swelling, erythema and pruritis at the injection site) and fever. In clinical trials of Gardasil, a total of 102 out of 21,464 total subjects who received both Gardasil and placebo reported a serious adverse experience on Day 1-15 post any vaccination visit. The most frequently reported serious adverse events were headache (.03% Gardasil vs. .02% placebo), gastroenteritis (.03% vs. .01% placebo), appendicitis (0.2% vs. .01% placebo), PID (.02% vs. .01% placebo).

**Reporting Adverse Events:** The U.S Dept. of Health and Human Services Vaccine Adverse Reporting System (VAERS) accepts all reports of suspected adverse events after administration of vaccines. For information or a copy of the reporting form call 800-822-7967 or report on line to [www.vaers.hhs.gov](http://www.vaers.hhs.gov).

# ADULT VACCINES

## Adult MMR Vaccination Protocol

### BACKGROUND

In 2007 the New Mexico legislature provided limited State General Funds to the Department of Health to purchase MMR (Measles, Mumps & Rubella) vaccine for adults.

### SERVICE POPULATION

A limited supply of MMR vaccine will be available for adults seen in Public Health offices. This vaccine will be prioritized as follows:

1. Women >18 years of age who:
  - a. Are of childbearing age, AND
  - b. Are not pregnant, AND
  - c. Are not immune to rubella as determined by current DOH Family Planning Program and Prenatal Care protocols, AND
  - d. Are uninsured or have insurance that does not cover immunizations.

MMR vaccine should not be given during pregnancy. When MMR vaccine is given to women >18 years of age in Public Health settings, the following criteria must be met:

  - a. Menstrual history is obtained, and
  - b. Sexual history is obtained, and
  - c. An order for the vaccine is given by a credentialed independent medical provider (MD, DO, PA or CNP) who is employed by NM DOH/PHD. The pertinent information identified above will be communicated to the provider when the order is requested.
2. Prevention of secondary cases if there is a suspected/confirmed case of measles, mumps or rubella in a community.
3. Adults, at the discretion of a credentialed independent medical provider employed by NM DOH/PHD, who:
  - Were born in 1957 or later who have not received at least 2 doses of MMR and are unsure of their immune status, AND
  - Are uninsured or have insurance that does not cover immunizations.

### METHODOLOGY

**Vaccine:** M-M-R<sup>®</sup> II - Merck

1. Administer 0.5 ml subcutaneously, immediately after reconstitution. Needle length for subcutaneous injections: 5/8-3/4 inches long, 23-25 gauge
2. May be administered simultaneously with other vaccines, using a separate syringe at a different anatomical site
3. May be administered anytime before or after oral typhoid vaccine; however, when administered non-simultaneously with a live-attenuated vaccine (e.g., varicella), it must be separated by one (1) month
4. A single dose is recommended for protection against rubella

## **PRECAUTIONS**

1. Women of child bearing age who are likely to become pregnant within four weeks
2. History of severe local reaction following a prior dose
3. Moderate or severe acute illness (delay until illness has improved)

## **CONTRAINDICATIONS**

1. Pregnancy
2. Severe allergic reaction to vaccine component or following a prior dose
3. Recent blood product recipient (delay for minimum of 3 months)
4. Immunosuppression

## **ADVERSE REACTIONS**

Most adverse events reported following MMR vaccine, i.e. fever (5-15%), rash (5%), and joint symptoms (25%), are attributable to the measles or rubella components. No adverse reactions were reported in large-scale field trials. Rare occurrences of thrombocytopenia, parotitis, deafness, and encephalopathy have been reported.

## **VACCINE STORAGE AND HANDLING**

Store vaccine at 35°– 46° F (may be frozen). Protect from light at all times. Ship at a temperature of 50° F or less. Store diluent at room temperature--DO NOT FREEZE. After reconstitution, the vaccine must be used within 8 hours. Otherwise, it must be discarded.

## **REFERENCES**

“Epidemiology and Prevention of Vaccine-Preventable Diseases” - 10<sup>th</sup> Edition, Revised February 2008, Centers for Disease Control and Prevention, Dept of Health and Human Services.

# Adult Tdap Vaccination Protocol

## BACKGROUND

In 2007 the New Mexico legislature provided limited State General Funds to the Department of Health to purchase Tdap (tetanus, diphtheria & pertussis) vaccine for use in parents of infants <12 months of age. Infants experience the most severe complications of pertussis, including hospitalization and death. Studies have shown that when a source can be identified, parents are commonly the source of pertussis in infants.

## SERVICE POPULATION

The Department of Health (DOH) will purchase a limited number of Tdap doses for adults with the State funds provided. Due to the limited doses available for adults, Tdap will be made available through the Public Health Division to:

1. Adults, aged 19-64 years of age, who:
  - a. Are uninsured or whose insurance does not cover this; AND
  - b. Are the parent or caretaker of an infant <12 months of age; AND
  - c. Have not received a tetanus booster in the last 2 years; AND
  - d. Have never received a dose of Tdap.
2. Adults who don't meet the above criteria whose providers do not have tetanus vaccine can be provided a single dose of Tdap to replace one Td booster if needed for wound management.

## METHODOLOGY

**Vaccine:** ADACEL™ - Tdap – Sanofi Pasteur

1. Use ADACEL™ - Tdap – Sanofi Pasteur (ages 11 - 64 yrs).
2. Administer 0.5 ml intramuscularly (IM) as a single dose. Needle length for adult IM injections: 1 to 1½ inches long, 22-25 gauge.
3. Tdap vaccine may be given at the same visit, or any time before or after any other vaccine, using a separate syringe at a different anatomical site.
4. A single dose of Tdap can be given to replace one Td booster, to protect against pertussis in adults <65 years of age.
5. If vaccination is needed during **pregnancy**, Td is preferred over Tdap.

## PRECAUTIONS

1. History of severe local reaction following a prior dose of tetanus toxoid containing vaccine
2. Moderate or severe acute illness
3. History of Guillain-Barré syndrome
4. Progressive neurologic disorder, until condition stabilized

## CONTRAINDICATIONS

1. Severe allergic reaction to a vaccine component or following prior dose
2. Encephalopathy not due to another identifiable cause occurring with 7 days after vaccination with a pertussis-containing vaccine

**ADVERSE REACTIONS**

The most common adverse reaction is a local reaction at the site of injection, such as pain (66%), redness (25%) or swelling (21%). No serious adverse events have been attributed to Tdap.

**VACCINE STORAGE AND HANDLING**

Store and ship at 35°– 46° F – DO NOT FREEZE.

**REFERENCES**

“Epidemiology and Prevention of Vaccine-Preventable Diseases” - 10<sup>th</sup> Edition, Revised February 2008, Centers for Disease Control and Prevention, Dept of Health and Human Services.

# Adult Pneumococcal Vaccination (PPV23) Protocol

## BACKGROUND

The New Mexico legislature provides limited State General Funds to the Department of Health to purchase pneumococcal vaccine for adults.

## SERVICE POPULATION

A limited supply of pneumococcal vaccine (PPV23) will be available for adults seen in Public Health offices.

## Initial Vaccination

This vaccine will be prioritized to adults who have not previously received pneumococcal vaccine and who:

1. Are uninsured, whose insurance does not cover this, or whose provider does not provide this vaccine; **AND**
2. Are 65 years of age or older, **OR**
3. Are of the ages 19-64 years who have chronic conditions, including:
  - a. Cardiovascular disease,
  - b. Pulmonary disease (e.g. COPD, emphysema, not asthma),
  - c. Cochlear implants,
  - d. Diabetes mellitus,
  - e. Alcoholism, chronic liver disease,
  - f. CSF leaks,
  - g. Living in special environments or social settings such as residents of long-term care facilities, or
  - h. Immunocompromised due to:
    - i. HIV infection
    - ii. Hodgkin's disease, multiple myeloma, generalized malignancy
    - iii. Chronic renal failure or nephrotic syndrome
    - iv. Organ or bone marrow transplants
    - v. Immunosuppressive therapy
    - vi. Functional or anatomic asplenia.

## Revaccination

1. Because of the lack of evidence of improved protection with multiple doses of pneumococcal vaccine, routine revaccination of immunocompetent persons previously vaccinated is not recommended.
2. Because data are insufficient concerning the safety of PPV23 when administered three or more times, revaccination following a second dose is NOT recommended.
3. If revaccination is requested, please discuss with your Regional Health Officer and obtain a verbal order before providing immunization.

## METHODOLOGY

**Vaccine:** PNEUMOVAX® 23 (Pneumococcal Vaccine Polyvalent) - Merck

1. Administer pneumococcal polysaccharide vaccine (PPV23) 0.5 ml intramuscularly (IM) or subcutaneously (SC). **Always check the package insert prior to administration of any vaccine.**
2. For adults >18 years of age, use a 1- to 2-inch needle.
3. PPV23 vaccine may be given at the same visit, or any time before or after any other vaccine, using a separate syringe at a different anatomical site.
4. If possible, observe patient for an allergic reaction for 15-20 minutes after administering vaccine.
5. Because the safety of pneumococcal vaccine has not been studied in pregnant women, pregnant women should consult their provider before taking PPV23.
6. Interval between vaccination and immunosuppressive therapy should be at least two weeks.
7. Vaccination during chemotherapy or radiation should be avoided.
8. If elective splenectomy is being planned, vaccine should be administered at least two weeks before surgery.

### **PRECAUTIONS**

The safety of pneumococcal vaccine for pregnant women has not been studied. Women who are at high risk of pneumococcal disease and who are candidates for PPV23 should be vaccinated before pregnancy, if possible.

### **CONTRAINDICATIONS**

1. Do not vaccinate persons who experienced an anaphylactic reaction to a previous dose of pneumococcal vaccine or a vaccine component.
2. Defer vaccine in persons with moderate or severe illness, with or without fever, until symptoms have resolved.

### **ADVERSE REACTIONS**

#### **TYPE OF EVENT with FREQUENCY OF OCCURRENCE**

- erythema (usually lasts <48 hrs) 30-50%
- pain at injection site (usually lasts <48 hrs) 30-50%
- fever <1%
- myalgia <1%
- severe local reactions <1%
- anaphylaxis--rarely reported

NOTE: Local reactions occur more frequently after the second dose of pneumococcal vaccine.

### **VACCINE STORAGE AND HANDLING**

Store and ship at 35°– 46° F – DO NOT FREEZE.

### **REFERENCES**

“Epidemiology and Prevention of Vaccine-Preventable Diseases” - 10<sup>th</sup> Edition, Revised February 2008, Centers for Disease Control and Prevention, Dept of Health and Human Services.

# Appendices

## Appendix A – Immunization Protocols

# RECOMMENDATIONS FOR MEDICAL EMERGENCIES

### INTRODUCTION

The current vaccines and medications used by the Public Health Division rarely cause serious adverse reactions. This protocol is not intended to replace the information on contraindications, precautions or side effects contained in the appropriate informational/informed consent statements. Rather, it is directed at the reactions, which may infrequently occur within a short period of time after vaccine or drug administration or during or after performance of procedures. Each local field office has the responsibility to ensure that appropriate emergency equipment is available and accessible to all clinical staff to respond to any serious reactions to vaccine or medication administration or to procedures performed. All serious vaccine reactions are to be reported to VAERS (Vaccine Adverse Event Reporting System).

### METHODOLOGY

1. All clinical personnel must have up-to-date certification in the management of emergency reactions, including cardiopulmonary resuscitation (CPR) and other emergency procedures necessary to deal with reactions to vaccines or biologicals.
2. All new nursing personnel must be trained in emergency procedures within the first quarter of employment with the agency, if at all possible, during orientation.
3. Refresher courses in emergency reactions and their management must be conducted at least annually. The responsibility for coordinating and assuring adequate training rests with regional supervisory personnel, who should maintain a "tickler file" as a reminder that a review is needed.
4. Emergency supplies and equipment, as outlined in the protocol on vaccine reactions and their management, must be maintained by each office. Maintenance includes renewal of medications as needed, testing of equipment and replacement of used or worn-out components. An itemized sheet to record dates of emergency equipment checks is recommended to assure proper maintenance of said equipment.
5. Each office should have a written plan including designated roles for various staff members in emergent situations, location of emergency supplies and equipment, who will keep track of supplies and equipment, and who will re-order/replace when necessary, who will document emergency events. Offices must practice doing "mock codes" annually to test their plans.

### MANAGEMENT OF REACTIONS:

The most important part of managing vaccine or drug -related reactions is to be prepared ahead of time for any emergency which may arise. Such preparedness includes the following essential components:

1. Understanding the protocol.
2. Reviewing emergency procedures.
3. Thinking ahead as if "rehearsing" how to handle an emergency.
4. Quality assurance that all required materials are on the emergency tray and
5. that no materials are out of date, damaged, or broken.

### **A. The Emergency Tray:**

1. The emergency tray must contain all of the materials listed (see Standard Emergency Tray List).
2. A nurse must be assigned responsibility for the following duties:
  - a. Assurance that the emergency tray is complete and fully stocked.
  - b. Monthly check and written record of materials and oxygen.
  - c. Immediate replacement of broken equipment or outdated medications.
  - d. Immediate availability of the emergency tray at any site where medications are being administered.
  - e. The emergency tray must be present in the room where medications are being given.
  - f. If several rooms are involved, the tray is to be kept in a central and immediately accessible location.
  - g. All personnel involved in the operation of an immunization clinic must know where the tray is located.

### **B. Thinking Ahead to "Rehearse" How to Handle an Emergency**

It is essential to think through an emergency so that problems can be solved before an actual emergency occurs. This review should include the following components:

1. Be certain that a working telephone is always available.
2. Have emergency telephone numbers (ambulance, police, fire, rescue squad, etc.) taped to an easily accessible telephone.
3. Have a plan for how to transport a critically affected person to the nearest adequately prepared medical facility.
4. Know which medical facilities to have patient(s) transported to.
5. Periodic emergency response drills are required annually.

### **C. Review of Protocols**

1. It is essential that nursing and other involved personnel learn, review and understand the entire approach to drug reactions and their management.
2. Periodic refresher courses should be taken in order to assure this familiarity with the management of adverse drug reactions.

### **D. Availability of Protocols**

Laminated copies of Emergency Protocols should be kept with the Emergency Tray.

## **TYPES OF REACTIONS**

### **1. Local Reactions from Vaccination/Medication Administration:**

- a. bleeding from the injection site
- b. wheal and erythema caused by histamine release

### **2. Systemic Reactions**

- a. Occur in our clinical settings mostly from:
  - i. drawing blood;
  - ii. obtaining urethral specimens;
  - iii. IUD insertion in addition to the possibility of reaction to vaccinations, medications, and biologicals.

### **3. Near-Syncope (dizziness and fainting)**

- a. Usually described as light-headedness, dizziness, pre-faint during which the individual maintains consciousness. "Pre-faint," i.e., a perception that loss of consciousness is imminent, feeling weak and/or nauseous.
  - i. Immediately lie the person down; and
  - ii. Elevate the legs, if possible; and
  - iii. Measure respiratory rate, pulse, and blood pressure.
  - iv. If the vital signs are within normal limits and if the person feels normal and able to stand, you may move the person to a location which will not interfere with ongoing clinic activities.
  - v. If the client wishes to proceed with remainder of visit, i.e. giving medication, vaccination, or drawing blood, do so with person lying down.

#### 4. Syncope

- a. Is defined as a sudden temporary loss of consciousness not caused by head trauma or a seizure and in most cases reflects a transient near-cessation of cerebral blood flow that is secondary to a fall in systemic arterial blood pressure. Premonitory symptoms such as nausea, sweating, tachycardia, and loss of color are usual. It is more likely to occur in patients with known heart disease, young men, and young women, who are prone to vasovagal episodes (the most frequent type of vasodepressor syncope, also called vasovagal hypotension). Syncope is often initiated by stressful, painful, or claustrophobic experiences; typically abrupt in onset, transient, lasting for seconds to a few minutes.
- b. Treatment
  - i. Immediately lie the patient down and remove the inciting stimulus.
  - ii. Call for help.
  - iii. Nurse or other trained and capable staff should monitor and record vital signs including respiratory rate, pulse, and blood pressure.
  - iv. If any of the vital signs are abnormal or if there is difficulty breathing, a change of skin color, or any obvious distress, staff should immediately notify MD for consultation or use other emergency protocols if MD unavailable, including activating Emergency Medical System.
  - v. If vital signs are stable, apply supplemental oxygen at 4-6 L/minute.
  - vi. If the client does not regain consciousness within 1 -2 minutes, causes other than assumed "vasovagal," neurally mediated, reaction to medication administration, blood draw, or procedure must be considered (e.g. transient ischemic attack or progressing stroke, hypoglycemia, other) and an ambulance and ER evaluation may be required. Consult with MD on duty at ER or with client's physician or MD on call and notify RHO or his/her designee.
  - vii. If the client fell during faint and has known or potential injury, complete an incident report and notify MD or RHO on call. Recommend to client that they be evaluated at hospital emergency room or by their private physician. Treat any associated traumatic injuries.
  - viii. Record client's name, address, and phone number for follow-up if it is needed.
  - ix. Record the events, recommendations, decisions/disposition of the case on the chart.

**5. Carotid sinus hypersensitivity (vasomotor syncope) and postmicturition syncope:**

May be accompanied by vagal-induced sinus bradycardia, sinus arrest, and atrioventricular block, which may themselves be the cause of syncope. Or, it may also be due to excessive vagal tone, or impaired reflex control of the peripheral circulation.

**6. Orthostatic (postural) hypotension:**

Especially in the elderly, diabetics, or other people with autonomic neuropathy, blood loss or hypovolemia, and patients taking vasodilators, diuretics, and adrenergic blocking drugs.

**7. Cardiogenic syncope** can occur on a mechanical or arrhythmic basis.

**8. Rash and/or Urticaria:**

- a. "hives" and "wheals" are popular names for urticaria which are itchy red papules and plaques of variable size that arise suddenly, often within a few minutes, and may last 6-24 hours though they can stay for days. Rash and urticaria have immunopathogenic components and result from the release
- b. Treatment (for rash or urticaria)
  - i. Measure and record respiratory rate, pulse, blood pressure. Watch for any respiratory difficulty, examine for any oropharyngeal swelling. Call staff physician or RHO, but if they are not quickly available, do not delay treatment if symptoms are severe or progressing rapidly.
  - ii. Administer Benadryl (Diphenhydramine) 50 mg IM to adult or 1.5 mg/kg IM (maximum dose 50 mg) to child.
  - iii. If the hives are very extensive or progressing rapidly, give Epinephrine 1:1000 at dose of 0.3 cc subcutaneously for adults. See dosage chart for children. Dosage may be repeated in 15 minutes and again 15 minutes later, if needed.
  - iv. Loosen clothing around neck, chest and arms to assist taking of blood pressure, monitoring pulse and auscultating lungs and heart.
  - v. Monitor and record vital signs every 15 minutes X 4.
  - vi. If hives persist despite Benadryl and/or Epinephrine, client should be sent to the Emergency Room.
  - vii. If decision is made to send client home, review status and disposition with staff physician prior to release. Have plan documented for local physician to be on call for follow-up. Advise/document that client is to report to nearest emergency room if hives recur or if any subjective respiratory difficulty arises, with or without rash and/or hives.
  - viii. If Benadryl has been administered, that client should not operate a motor vehicle and should be assisted in reaching their destination.
  - ix. Record all findings, treatment, and final disposition plans in the chart. Document the client's status upon leaving the clinic (include skin color and describe urticaria if still present, respiratory status, mental status, normal vital signs, instructions given).

## 9. Angioedema:

- a. If the lesions are deeper and the swelling much more extensive than in urticaria (hives) and either condition may occur independently (they are both thought to be a manifestation of the release of mast cell-related mediators). The face and tissues of the oropharynx are sometimes affected by the angioedema, which can lead to life threatening difficulties with swallowing and breathing.

## 10. Bronchospasm:

- a. Is a spasmodic contraction of the smooth muscle of the bronchi, as occurs in asthma, which causes difficulty breathing and may be manifest by cough, wheezing, and/or dyspnea.
- b. Treatment (for both Angioedema and Bronchospasm):
  - i. Administer Epinephrine immediately. (1:1000) solution at dose of 0.3 cc subcutaneously for adults and also 1:1000 solution at dose determined by dosage chart for children. Dose can be repeated at 15 minute intervals X 2 for total of 3 doses if needed.
  - ii. Call for help (staff physician or RHO) and have someone access 911.
  - iii. Administer oxygen, 4-6 liters by facemask.
  - iv. Remove clothing from trunk and arms to facilitate taking blood pressure, monitoring pulse, determining respiratory rate, and auscultating lungs and heart.
  - v. Monitor vital signs every 5 minutes (respiratory rate, blood pressure, pulse) and document.
  - vi. Client should be transferred to Emergency Room. If clinically indicated, PHN or clinician may accompany client in ambulance and administer treatment if required en route.
  - vii. All findings, treatment, consultations, plans should be recorded with original for chart and copy for Emergency Room.

## 11. Anaphylaxis

- a. Is a complex manifestation of immediate hypersensitivity and potentially life threatening signs and symptoms which are secondary to exposure to a foreign substance resulting in life-threatening respiratory distress, usually followed by vascular collapse and shock.
- b. Anaphylactic reactions are rare but one of the most common life threatening emergencies that may occur. They are the most severe manifestation of a systemic allergic reaction and usually occur within 30 minutes of being exposed to the antigen to which the sensitized person is allergic. The quicker the reaction to the antigen, the more severe the reaction is likely to be. Early recognition is critical to prevent full blown anaphylaxis and possible death.
- c. The symptoms of anaphylaxis are:
  - i. urticaria (hives, generalized itching),
  - ii. angioedema (lip, facial, tongue and/or uvula swelling),
  - iii. upper airway obstruction (laryngeal swelling, hoarseness, lump in throat, difficulty swallowing and breathing),
  - iv. bronchospasm (wheezing, cough), and
  - v. hypotension (faint, weak, pale, feeling of impending doom).

- d. In an anaphylactic reaction one, several, or all these symptoms may be present. Sometimes, an anaphylactic reaction may present as shock or upper airway obstruction. Anyone who suddenly develops hives needs to be closely observed for the development of other signs of systemic anaphylaxis. Some of the most common sensitizing agents that may be encountered are:
- i. foods (such as, nuts, legumes, shellfish, eggs),
  - ii. stinging insects (such as wasps, bees), and
  - iii. antibiotics (such as penicillin, cephalosporins, sulfa).
- e. Most people who are sensitized don't know it and therefore reactions are unexpected. A careful history of the preceding 3 - 4 hours should be obtained and documented. It may involve any organ, but it is a true emergency when the respiratory and cardiovascular systems are affected. Patients who develop anaphylaxis may have pruritus, rash, urticaria, or angioedema before manifestations of anaphylaxis such as hypotension, life-threatening or irreversible bronchospasm, or impending airway obstruction due to laryngeal edema, and shock. Typically, there is vasodilatation that causes hypotension, often accompanied by stridor and bronchospasm. The client may appear extremely anxious because of airway obstruction and hypoxia. The patient may also have vomiting, diarrhea, tachyarrhythmias, and chest pain. There may be no prior history of allergy or exposure to the offending substance, i.e., antibiotics where the initial exposure is in utero or through ingestion of food from treated animals. Anaphylaxis is a medical emergency and requires immediate attention. In general, the sooner the symptoms develop, the more severe the reaction will be.
- f. **Treatment (for anaphylaxis)**
- i. Obtain staff assistance and call a physician to the room.
  - ii. **Access 911 immediately.**
  - iii. The patency of the airway is the first priority. Allow the patient to assume a position of comfort and if pulse oximetry is available and documents adequate ventilation and oxygenation do not change the patient's position but give 100% oxygen.
  - iv. If assisted ventilation is necessary, place the airway in a neutral position using either the head tilt, chin lift or jaw thrust maneuvers and ventilate with a bag-valve-mask.
  - v. In the early stages of anaphylaxis if there are no signs of shock, immediately give epinephrine 1:1000 at dose of 0.3 cc IM to adults. The standard dose of epinephrine for children is a minimum of .01 mg per kilogram of body weight (see chart). Repeat dose, if needed, at 15 minute intervals X 2 for total of 3 doses.
  - vi. For severe anaphylaxis, give 0.01 mg/kg (0.1 mL/kg, max 10 mL) of a 1:10,000 solution of epinephrine intravenously if trained staff and equipment are available.
  - vii. Remove clothing from trunk and arms to facilitate starting IV's, taking blood pressure, monitoring pulse and respiratory rate, and auscultating lungs and heart.

- viii. If clinically indicated, PHN or clinician may accompany client in ambulance and administer treatment en route, unless ALS personnel are on ambulance.
  - ix. All findings, treatment, consultation, and plans should be recorded with one copy remaining in local health office and one copy sent to hospital facility.
- g. **ANAPHYLAXIS IN INFANTS OR YOUNG CHILDREN** may manifest as respiratory failure and/or shock. The clinical signs to watch for include:
- i. Altered levels of consciousness, i.e., inability of infant or child to recognize their family.
  - ii. Hypotonia.
  - iii. Tachycardia: heart rate >180 in <5 year old or >160 in >5 year old.
  - iv. Bradycardia: heart rate <80 in < 5 year old is most commonly a vasovagal reaction, but could be a sign of impending cardiovascular collapse in a critical child.
  - v. Tachypnea (>60 breaths/minute).
  - vi. Increased work of breathing seen by nasal flaring, retractions, stridor, wheezing or hoarseness.
  - vii. Slow capillary refilling (>2 seconds) after blanching of the nailbed of fingers or toes.
  - viii. Mottling, pallor, and/or peripheral cyanosis, except in newborns in which cyanosis of the hands or feet may be seen normally, indicate poor skin perfusion.
  - ix. Cyanosis is a late and inconsistent sign of respiratory failure best seen in the mucous membranes of the mouth and in the nailbeds. Get transport to hospital facility as soon as possible.

## 12. Cardiopulmonary Arrest:

- a. Client is without respirations, neither visible nor audible signs, no pulses (no carotid pulse palpable), and no audible apical heart sounds. The factors, listed in order of importance, that most affect chances for successful resuscitation are rapid defibrillation for Ventricular Fibrillation (VF) or pulseless Ventricular Tachycardia (VT). Whatever its cause, resuscitation must occur at both the basic and advanced levels in a standardized fashion, and must be instituted as quickly as possible. Basic cardiopulmonary resuscitation focuses on the "ABCs" (airway maintenance, breathing, and circulation), and should be within the capabilities of each office.
- b. **Treatment (for cardiopulmonary arrest)**
  - i. Access 911 immediately
  - ii. Initiate CPR, note time, and call for help.
  - iii. Identify team leader to assess patient, direct and supervise other team members.
  - iv. Place patient on cardiac board, or firm horizontal surface.
  - v. Continue effective CPR with establishment of a secure airway.
  - vi. Administer 100% oxygen.
  - vii. Establish venous access if trained personnel and equipment are available.

## **STANDARD EMERGENCY SUPPLIES AND EQUIPMENT**

### Resuscitation Equipment

1. Pocket Mask with 1-way valve . . . . . 1
2. Infant Mask with 1-way valve . . . . . 1
3. Disposable Airways
  - a. Adult size . . . . . 2
  - b. Child size . . . . . 2
  - c. Infant size . . . . . 2
4. Adult and pediatric ambu bag

### Evaluation Equipment

1. Blood pressure cuff – Adult . . . . . 1
2. Blood pressure cuff – Pediatric . . . . . 1
3. Manometer appropriate for both cuffs
4. Stethoscope . . . . . 1

### Treatment Equipment

1. Tourniquet . . . . . 2
2. Alcohol wipes . . . . . 15
3. Syringes – Disposable
  - a. 3 cc with 20 g 1 ½ inch needle . . . . . 5
  - b. 1 cc TB with 25 g 5/8 inch needle . . . . . 5
4. 4 X 4's . . . . . One box
5. Band-Aids . . . . . one box
6. Adhesive tape . . . . . one roll

### Drugs

1. Epinephrine – 1:1000 1 cc ampoule . . . . . 5
2. Benadryl – 50 mg/cc 10 ml multidose vial . . . . . 1
3. Oxygen equipment . . . . . 1

Note: Ipecac should not be kept in emergency trays any more.

Note: Ammonia inhalants should not be kept in emergency trays any more.

### Other Materials

1. Copy of updated protocols (laminated)
2. Event recording sheet (see Event Record below)

## **EPINEPHRINE DOSE SCHEDULE FOR CHILDREN AND ADULTS**

Weight in Pounds Weight in Kg Epinephrine Dilution  
(1:1000)

Use tuberculin syringe

10 4.5 .05 cc

20 9.1 .10 cc

35 16.0 .15 cc  
45 20.5 .20 cc  
60 27.3 .25 cc  
70 31.8 .30 cc  
> 70 .30 cc

Note: Maximum dose (any weight over 70 pounds) is .30 cc  
May give a dose every 15 minutes X 3 total doses if necessary.  
Consult with emergency physician before giving more than total of 3 doses.  
Dose. There are 2.2 pounds/kg so to calculate:  
10 pound child divided by 2.2 kg = 4.5 kg  
50 kg child times 2.2 lb. = 110 pounds

**EVENT RECORD (documentation)**

Today's Date \_\_\_\_\_  
Name of Local Health Office Address \_\_\_\_\_  
Name of Patient, D.O.B, Age \_\_\_\_\_  
Allergies Oxygen administered Airway (Y/N) \_\_\_\_\_  
Action/Drugs Time RR BP HR Pt. Condition Initials \_\_\_\_\_  
Narrative (Type of Drug Reaction, Diagnosis, Patient Status/Time of Departure): \_\_\_\_\_  
Pt. discharged to \_\_\_\_\_  
With follow-up care by \_\_\_\_\_ When \_\_\_\_\_  
Pt. Transferred to \_\_\_\_\_  
Via \_\_\_\_\_  
Signature \_\_\_\_\_  
Date \_\_\_\_\_

## APPENDIX B

### NM VFC Vaccine Management & Storage Procedures

Vaccines are very sensitive and lose potency if they are not stored in the recommended temperature range. This is true for vaccine kept too warm or too cold. Erring on the side of colder temperatures is not OK.

- **All vaccines, except for Varicella and MMRV: Store refrigerated between 35°F and 46° F with a desired average temperature of 40° F.**
- **Varicella and MMRV vaccine: Store in the freezer at 5°F or lower. Do not re-freeze after reconstitution.**

**CDC/VFC recommends revaccination of any child vaccinated with compromised vaccine. It is your practice's responsibility to protect your VFC vaccine.**

#### VFC Provider Responsibilities:

1. Log temperatures twice per day, A.M. and P.M. VFC Temp Logs are available at: [http://www.health.state.nm.us/immunize/pages/provider/VFC Program/vacchild.html](http://www.health.state.nm.us/immunize/pages/provider/VFC_Program/vacchild.html)
2. Send the completed temperature chart to your VFC representative (**ON** the 1st of every month). The VFC Program will not fill vaccine orders unless the temperature charts are received and approved by the regional representative.

#### **Improper Vaccine Storage:**

**Immediate action must be taken to correct improper vaccine storage conditions, including inappropriate storage temperatures outside the recommended ranges and inappropriate exposure to light.**

- a. If the vaccine is stored improperly, **NEVER assume that vaccine is damaged – store it under recommended conditions with a sign that states, “DO NOT USE” until issue is resolved.**
- b. Begin stabilizing refrigerator/freezer by slightly turning the knob. Aim for 40° F in the refrigerator and 5° F in the freezer. See *Vaccine Storage Equipment* page 5 in the *Vaccine Storage and Handling Guide* for more details.
- c. Immediately call your local VFC representative (name and # on temp. log)  
Name: \_\_\_\_\_ Phone #: \_\_\_\_\_,  
or the VFC Health Educator at 827-2415.
- d. Call the vaccine manufacturers (names and numbers at bottom of page).
- e. Document your actions on the *VFC Troubleshooting Record*.
- f. If vaccines need to be moved to an alternate location (power outage or broken unit), follow directions on reverse.

#### VACCINE MANUFACTURERS

SANOPI-PASTEUR	800-822-2463	GLAXO SMITH KLINE	866-475-8222
MERCK & CO.	800-672-6372	WYETH VACCINES	800-358-7443
MedImmune	877-633-4411		

## APPENDIX C

# REGIONAL TEMPERATURE LOGS

The following forms can be found at:

<http://www.health.state.nm.us/immunize/Pages/Provider/VFC%20program/vacchild.html#anchor-vcf-5>

For Temperature Logs and Troubleshooting Records, select the appropriate county where VFC provider is located.

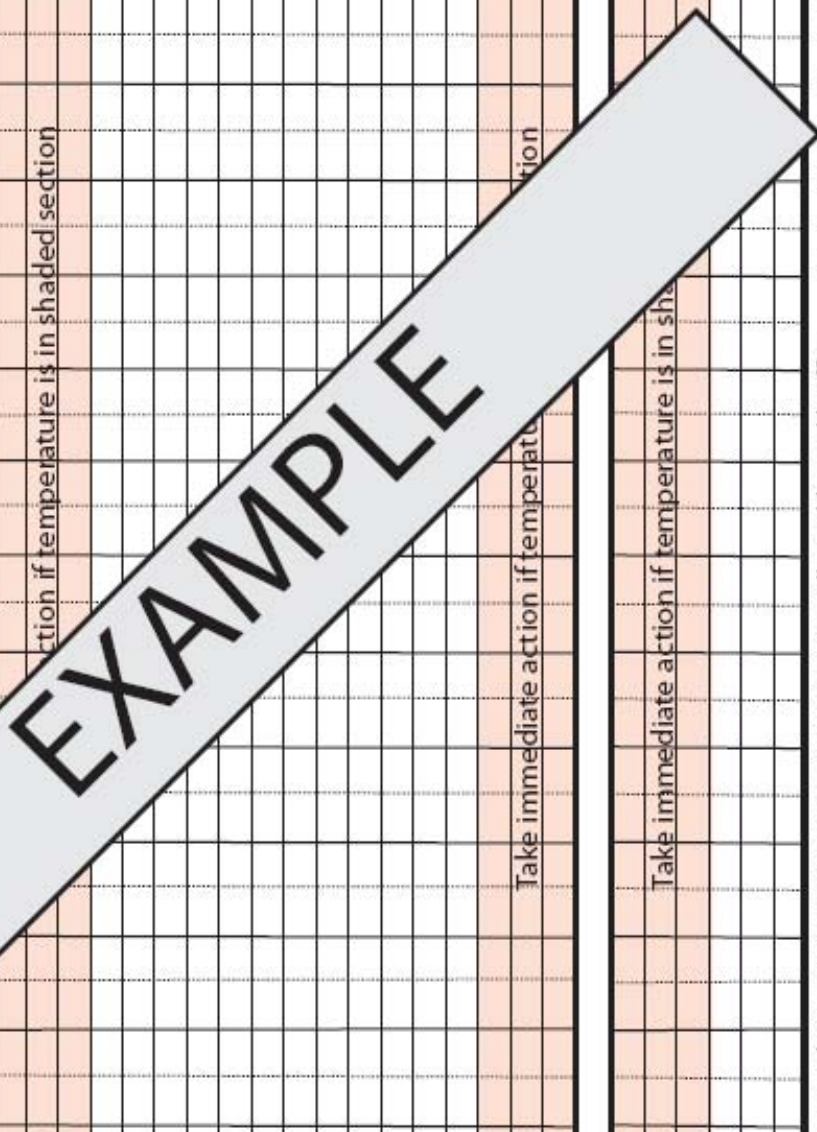
Facility Name: \_\_\_\_\_ VFC PIN# \_\_\_\_\_ Telephone \_\_\_\_\_

NM VFC Temperature Log for Vaccines (Fahrenheit) Regions 1 & 3 Unit \_\_\_\_\_ of \_\_\_\_\_ Month/Year. \_\_\_\_\_ Days 1-15

Completing this temperature log: Monitor the temperatures in both the refrigerator and the freezer compartments of your vaccine storage units at least twice each working day. Place an "X" in the box that corresponds with the temperature. Also record the ambient (room) temperature, the time of the temperature reading, and your initials. Save each month's completed form for 3 years.

\*GlaxoSmithKline 800-672-6372 Wyeth 800-999-9384 Sanofi Pasteur 800-822-2463

Day of Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Staff Initials															
Room Temp.															
Exact Time															
QF Temp	am; pm	am; pm	am; pm	am; pm	am; pm	am; pm	am; pm	am; pm	am; pm	am; pm	am; pm	am; pm	am; pm	am; pm	am; pm
≥49°															
48°															
47°															
46°															
45°															
44°															
43°															
42°															
41°															
40°															
39°															
38°															
37°															
36°															
35°															
34°															
33°															
≤32°															



Refrigerator temperature  
 Aim for 40°  
 Too warm  
 Too cold

Freezer temp  
 Too warm  
 Too cold

APPENDIX D

VFC Troubleshooting Record

VFC Provider Name: _____	Description of Event:
VFC PIN # _____	
Prepared by: _____	
Date Submitted: _____	
Date of Event: _____	
Refrigerator Temp: _____ Freezer Temp: _____	

Sanofi-Pasteur (800-822-2463) Contact Person \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Case# \_\_\_\_\_

Name of Vaccine: \_\_\_\_\_ # of Doses: \_\_\_\_\_ Advice Given: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Merck & Co. (800-672-6372) Contact Person \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Case# \_\_\_\_\_

Name of Vaccine: \_\_\_\_\_ # of Doses: \_\_\_\_\_ Advice Given: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Glaxo Smith Kline (800-475-8222) Contact Person \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Case# \_\_\_\_\_

Name of Vaccine: \_\_\_\_\_ # of Doses: \_\_\_\_\_ Advice Given: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Wyeth Vaccines (800-358-7443) Contact Person \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Case# \_\_\_\_\_

Name of Vaccine: \_\_\_\_\_ # of Doses: \_\_\_\_\_ Advice Given: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# APPENDIX E IMMUNIZATION SCHEDULES

**KEEP YOUR CHILD HEALTHY!**

Use this card to record and help schedule immunizations necessary to your child's well being. Following the recommended immunization schedule will protect your child from serious diseases. Bring this card with you each time you take your child to see a health care provider.

**TOO SICK TO GET A SHOT?**

Even if you think your child is too sick to get a shot, don't miss a scheduled visit. If your child is too sick to get a shot, the child will need to see a health care provider anyway.

**REAL REASONS NOT TO GIVE SHOTS**

- Moderate or severe acute illness
- Diagnosed immune deficiency
- Severe reaction to a previous shot

**SHOTS SHOULD BE GIVEN EVEN IF THERE IS:**

- A mild illness, even with a fever
- A cold, ear infection, or diarrhea
- Mild reactions to previous vaccines
- Prematurity
- A pregnant or nursing mom
- Family history of seizures
- Allergies

**State of New Mexico  
HEALTH PASSPORT**



NAME \_\_\_\_\_  
DATE OF BIRTH \_\_\_\_\_

PASTE  
PHOTO  
HERE





If you have questions, call the NM Immunization Hotline toll-free at: **1-888-231-2367** or visit our web site at: <http://www.health.state.nm.us/immunize/>

If you find this card, please return to: Immunization Program, NM Department of Health, 1190 St. Francis Dr., Santa Fe, New Mexico 87502 - 0110 USA

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**STATE OF NEW MEXICO VACCINATION CARD**

CHILD'S NAME: \_\_\_\_\_ DATE OF BIRTH: \_\_\_\_\_

RECOMMENDED INTERVALS - CHILD'S AGE IN MONTHS/YEARS (months colored squares for each completed vaccine)

VACCINE	DOSE	0	1	2	3	4	5	6	7	8	9	10	11	12	18	24	36	48	DATE	CLINIC	NOT RECORDED
DIPHTHERIA, TETANUS & PERTUSSIS	1st																				
	2nd																				
	3rd																				
	4th																				
HEPATITIS A	1st																				
	2nd																				
HEPATITIS B	1st																				
	2nd																				
MEASLES, MUMPS & RUBELLA	1st																				
	2nd																				
	3rd																				
INFLUENZA	1st																				
	2nd																				
	3rd																				

RECOMMENDED INTERVALS - CHILD'S AGE IN MONTHS/YEARS (months colored squares for each completed vaccine)

*Is your child up-to-date?*  
To check, place a ruler at the current age of your child. Are there 2 or all the colored boxes to the left of the ruler?  
If not, ask your health care provider to check your card and give any needed shots.  
Keep in a safe place and ALWAYS bring with you to any type of child health activity.

VACCINE	DOSE	0	1	2	3	4	5	6	7	8	9	10	11	12	18	24	DATE	CLINIC	NOT RECORDED	
MEASLES, MUMPS & RUBELLA	1st																			
	2nd																			
	3rd																			
PREVENCOR (PCV-7)	1st																			
	2nd																			
	3rd																			
POLIO	1st																			
	2nd																			
	3rd																			
ROTAVIRUS	1st																			
	2nd																			
VARICELLA	1st																			
	2nd																			
HUMAN PAPILLOMAVIRUS	1st																			
	2nd																			
	3rd																			
MCV4	1st																			
	2nd																			
Tdap	1st																			

HEPATOCCOL CONJUGATE    TETANUS, DIPHTHERIA & PERTUSSIS

# Recommended Immunization Schedule for Persons Aged 0 Through 6 Years—United States • 2009

For those who fall behind or start late, see the catch-up schedule

Vaccine ▼	Age ►	Birth	1 month	2 months	4 months	6 months	12 months	15 months	18 months	19–23 months	2–3 years	4–6 years
Hepatitis B <sup>1</sup>		HepB	HepB		see footnote 1	HepB						
Rotavirus <sup>2</sup>				RV	RV	RV <sup>2</sup>						
Diphtheria, Tetanus, Pertussis <sup>3</sup>				DTaP	DTaP	DTaP	see footnote 3	DTaP				DTaP
Haemophilus influenzae type b <sup>4</sup>				Hib	Hib	Hib <sup>4</sup>		Hib				
Pneumococcal <sup>5</sup>				PCV	PCV	PCV		PCV			PPSV	
Inactivated Poliovirus				IPV	IPV			IPV				IPV
Influenza <sup>6</sup>							Influenza (Yearly)					
Measles, Mumps, Rubella <sup>7</sup>							MMR			see footnote 7		MMR
Varicella <sup>8</sup>							Varicella			see footnote 8		Varicella
Hepatitis A <sup>9</sup>							HepA (2 doses)				HepA Series	
Meningococcal <sup>10</sup>												MCV

Range of recommended ages  
Certain high-risk groups

This schedule indicates the recommended ages for routine administration of currently licensed vaccines, as of December 1, 2008, for children aged 0 through 6 years. Any dose not administered at the recommended age should be administered at a subsequent visit, when indicated and feasible. Licensed combination vaccines may be used whenever any component of the combination is indicated and other components are not contraindicated and if approved by the Food and Drug Administration for that dose of

the series. Providers should consult the relevant Advisory Committee on Immunization Practices statement for detailed recommendations, including high-risk conditions: <http://www.cdc.gov/vaccines/pubs/acip-list.htm>. Clinically significant adverse events that follow immunization should be reported to the Vaccine Adverse Event Reporting System (VAERS). Guidance about how to obtain and complete a VAERS form is available at <http://www.vaers.hhs.gov> or by telephone, 800-822-7967.

### 1. Hepatitis B vaccine (HepB). (Minimum age: birth)

#### At birth:

- Administer monovalent HepB to all newborns before hospital discharge.
- If mother is hepatitis B surface antigen (HBsAg)-positive, administer HepB and 0.5 mL of hepatitis B immune globulin (HBIG) within 12 hours of birth.
- If mother's HBsAg status is unknown, administer HepB within 12 hours of birth. Determine mother's HBsAg status as soon as possible and, if HBsAg-positive, administer HBIG (no later than age 1 week).

#### After the birth dose:

- The HepB series should be completed with either monovalent HepB or a combination vaccine containing HepB. The second dose should be administered at age 1 or 2 months. The final dose should be administered no earlier than age 24 weeks.
- Infants born to HBsAg-positive mothers should be tested for HBsAg and antibody to HBsAg (anti-HBs) after completion of at least 3 doses of the HepB series, at age 9 through 18 months (generally at the next well-child visit).

#### 4-month dose:

- Administration of 4 doses of HepB to infants is permissible when combination vaccines containing HepB are administered after the birth dose.

### 2. Rotavirus vaccine (RV). (Minimum age: 6 weeks)

- Administer the first dose at age 6 through 14 weeks (maximum age: 14 weeks 6 days). Vaccination should not be initiated for infants aged 15 weeks or older (i.e., 15 weeks 0 days or older).
- Administer the final dose in the series by age 8 months 0 days.
- If Rotarix<sup>®</sup> is administered at ages 2 and 4 months, a dose at 6 months is not indicated.

### 3. Diphtheria and tetanus toxoids and acellular pertussis vaccine (DTaP). (Minimum age: 6 weeks)

- The fourth dose may be administered as early as age 12 months, provided at least 6 months have elapsed since the third dose.
- Administer the final dose in the series at age 4 through 6 years.

### 4. Haemophilus influenzae type b conjugate vaccine (Hib). (Minimum age: 6 weeks)

- If PRP-OMP (PedvaxHIB<sup>®</sup> or Comvax<sup>®</sup> [HepB-Hib]) is administered at ages 2 and 4 months, a dose at age 6 months is not indicated.
- TriHIBit<sup>®</sup> (DTaP/Hib) should not be used for doses at ages 2, 4, or 6 months but can be used as the final dose in children aged 12 months or older.

### 5. Pneumococcal vaccine. (Minimum age: 6 weeks for pneumococcal conjugate vaccine [PCV]; 2 years for pneumococcal polysaccharide vaccine [PPSV])

- PCV is recommended for all children aged younger than 5 years.
- Administer 1 dose of PCV to all healthy children aged 24 through 59 months who are not completely vaccinated for their age.

- Administer PPSV to children aged 2 years or older with certain underlying medical conditions (see MMWR 2000;49[No. RR-9]), including a cochlear implant.

### 6. Influenza vaccine. (Minimum age: 6 months for trivalent inactivated influenza vaccine [TIV]; 2 years for live, attenuated influenza vaccine [LAIV])

- Administer annually to children aged 6 months through 18 years.
- For healthy nonpregnant persons (i.e., those who do not have underlying medical conditions that predispose them to influenza complications) aged 2 through 49 years, either LAIV or TIV may be used.
- Children receiving TIV should receive 0.25 mL if aged 6 through 35 months or 0.5 mL if aged 3 years or older.
- Administer 2 doses (separated by at least 4 weeks) to children aged younger than 9 years who are receiving influenza vaccine for the first time or who were vaccinated for the first time during the previous influenza season but only received 1 dose.

### 7. Measles, mumps, and rubella vaccine (MMR). (Minimum age: 12 months)

- Administer the second dose at age 4 through 6 years. However, the second dose may be administered before age 4, provided at least 28 days have elapsed since the first dose.

### 8. Varicella vaccine. (Minimum age: 12 months)

- Administer the second dose at age 4 through 6 years. However, the second dose may be administered before age 4, provided at least 3 months have elapsed since the first dose.
- For children aged 12 months through 12 years the minimum interval between doses is 3 months. However, if the second dose was administered at least 28 days after the first dose, it can be accepted as valid.

### 9. Hepatitis A vaccine (HepA). (Minimum age: 12 months)

- Administer to all children aged 1 year (i.e., aged 12 through 23 months). Administer 2 doses at least 6 months apart.
- Children not fully vaccinated by age 2 years can be vaccinated at subsequent visits.
- HepA also is recommended for children older than 1 year who live in areas where vaccination programs target older children or who are at increased risk of infection. See MMWR 2006;55[No. RR-7].

### 10. Meningococcal vaccine. (Minimum age: 2 years for meningococcal conjugate vaccine [MCV] and for meningococcal polysaccharide vaccine [MPSV])

- Administer MCV to children aged 2 through 10 years with terminal complement component deficiency, anatomic or functional asplenia, and certain other high-risk groups. See MMWR 2005;54[No. RR-7].
- Persons who received MPSV 3 or more years previously and who remain at increased risk for meningococcal disease should be revaccinated with MCV.

The Recommended Immunization Schedules for Persons Aged 0 Through 18 Years are approved by the Advisory Committee on Immunization Practices ([www.cdc.gov/vaccines/recs/acip/](http://www.cdc.gov/vaccines/recs/acip/)), the American Academy of Pediatrics (<http://www.aap.org>), and the American Academy of Family Physicians (<http://www.aafp.org>).

DEPARTMENT OF HEALTH AND HUMAN SERVICES • CENTERS FOR DISEASE CONTROL AND PREVENTION

5/09/09

**Recommended Immunization Schedule for Persons Aged 7 Through 18 Years—United States • 2009**  
For those who fall behind or start late, see the schedule below and the catch-up schedule

Vaccine ▼	Age ►	7–10 years	11–12 years	13–18 years
Tetanus, Diphtheria, Pertussis <sup>1</sup>		see footnote 1	<b>Tdap</b>	<b>Tdap</b>
Human Papillomavirus <sup>2</sup>		see footnote 2	<b>HPV (3 doses)</b>	<b>HPV Series</b>
Meningococcal <sup>3</sup>		<b>MCV</b>	<b>MCV</b>	<b>MCV</b>
Influenza <sup>4</sup>		<b>Influenza (Yearly)</b>		
Pneumococcal <sup>5</sup>		<b>PPSV</b>		
Hepatitis A <sup>6</sup>		<b>HepA Series</b>		
Hepatitis B <sup>7</sup>		<b>HepB Series</b>		
Inactivated Poliovirus <sup>8</sup>		<b>IPV Series</b>		
Measles, Mumps, Rubella <sup>9</sup>		<b>MMR Series</b>		
Varicella <sup>10</sup>		<b>Varicella Series</b>		

Range of recommended ages

Catch-up immunization

Certain high-risk groups

This schedule indicates the recommended ages for routine administration of currently licensed vaccines, as of December 1, 2008, for children aged 7 through 18 years. Any dose not administered at the recommended age should be administered at a subsequent visit, when indicated and feasible. Licensed combination vaccines may be used whenever any component of the combination is indicated and other components are not contraindicated and if approved by the Food and Drug Administration for that dose of

the series. Providers should consult the relevant Advisory Committee on Immunization Practices statement for detailed recommendations, including high-risk conditions: <http://www.cdc.gov/vaccines/pubs/acip-list.htm>. Clinically significant adverse events that follow immunization should be reported to the Vaccine Adverse Event Reporting System (VAERS). Guidance about how to obtain and complete a VAERS form is available at <http://www.vaers.hhs.gov> or by telephone, 800-822-7967.

**1. Tetanus and diphtheria toxoids and acellular pertussis vaccine (Tdap).** (*Minimum age: 10 years for BOOSTRIX® and 11 years for ADACEL™*)

- Administer at age 11 or 12 years for those who have completed the recommended childhood DTP/DTaP vaccination series and have not received a tetanus and diphtheria toxoid (Td) booster dose.
- Persons aged 13 through 18 years who have not received Tdap should receive a dose.
- A 5-year interval from the last Td dose is encouraged when Tdap is used as a booster dose; however, a shorter interval may be used if pertussis immunity is needed.

**2. Human papillomavirus vaccine (HPV).** (*Minimum age: 9 years*)

- Administer the first dose to females at age 11 or 12 years.
- Administer the second dose 2 months after the first dose and the third dose 6 months after the first dose (at least 24 weeks after the first dose).
- Administer the series to females at age 13 through 18 years if not previously vaccinated.

**3. Meningococcal conjugate vaccine (MCV).**

- Administer at age 11 or 12 years, or at age 13 through 18 years if not previously vaccinated.
- Administer to previously unvaccinated college freshmen living in a dormitory.
- MCV is recommended for children aged 2 through 10 years with terminal complement component deficiency, anatomic or functional asplenia, and certain other groups at high risk. See *MMWR* 2005;54(No. RR-7).
- Persons who received MPSV 5 or more years previously and remain at increased risk for meningococcal disease should be revaccinated with MCV.

**4. Influenza vaccine.**

- Administer annually to children aged 6 months through 18 years.
- For healthy nonpregnant persons (i.e., those who do not have underlying medical conditions that predispose them to influenza complications) aged 2 through 49 years, either LAIV or TIV may be used.
- Administer 2 doses (separated by at least 4 weeks) to children aged younger than 9 years who are receiving influenza vaccine for the first time or who were vaccinated for the first time during the previous influenza season but only received 1 dose.

**5. Pneumococcal polysaccharide vaccine (PPSV).**

- Administer to children with certain underlying medical conditions (see *MMWR* 1997;46[No. RR-8]), including a cochlear implant. A single revaccination should be administered to children with functional or anatomic asplenia or other immunocompromising condition after 5 years.

**6. Hepatitis A vaccine (HepA).**

- Administer 2 doses at least 6 months apart.
- HepA is recommended for children older than 1 year who live in areas where vaccination programs target older children or who are at increased risk of infection. See *MMWR* 2006;55(No. RR-7).

**7. Hepatitis B vaccine (HepB).**

- Administer the 3-dose series to those not previously vaccinated.
- A 2-dose series (separated by at least 4 months) of adult formulation Recombivax HB\* is licensed for children aged 11 through 15 years.

**8. Inactivated poliovirus vaccine (IPV).**

- For children who received an all-IPV or all-oral poliovirus (OPV) series, a fourth dose is not necessary if the third dose was administered at age 4 years or older.
- If both OPV and IPV were administered as part of a series, a total of 4 doses should be administered, regardless of the child's current age.

**9. Measles, mumps, and rubella vaccine (MMR).**

- If not previously vaccinated, administer 2 doses or the second dose for those who have received only 1 dose, with at least 28 days between doses.

**10. Varicella vaccine.**

- For persons aged 7 through 18 years without evidence of immunity (see *MMWR* 2007;56[No. RR-4]), administer 2 doses if not previously vaccinated or the second dose if they have received only 1 dose.
- For persons aged 7 through 12 years, the minimum interval between doses is 3 months. However, if the second dose was administered at least 28 days after the first dose, it can be accepted as valid.
- For persons aged 13 years and older, the minimum interval between doses is 28 days.

The Recommended Immunization Schedules for Persons Aged 0 Through 18 Years are approved by the Advisory Committee on Immunization Practices ([www.cdc.gov/vaccines/recs/acip/](http://www.cdc.gov/vaccines/recs/acip/)), the American Academy of Pediatrics (<http://www.aap.org>), and the American Academy of Family Physicians (<http://www.aafp.org>).

DEPARTMENT OF HEALTH AND HUMAN SERVICES • CENTERS FOR DISEASE CONTROL AND PREVENTION

CS10164

## Catch-up Immunization Schedule for Persons Aged 4 Months Through 18 Years Who Start Late or Who Are More Than 1 Month Behind—United States • 2009

The table below provides catch-up schedules and minimum intervals between doses for children whose vaccinations have been delayed. A vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Use the section appropriate for the child's age.

CATCH-UP SCHEDULE FOR PERSONS AGED 4 MONTHS THROUGH 6 YEARS					
Vaccine	Minimum Age for Dose 1	Minimum Interval Between Doses			
		Dose 1 to Dose 2	Dose 2 to Dose 3	Dose 3 to Dose 4	Dose 4 to Dose 5
Hepatitis B <sup>1</sup>	<b>Birth</b>	<b>4 weeks</b>	<b>8 weeks</b> (and at least 16 weeks after first dose)		
Rotavirus <sup>2</sup>	<b>6 wks</b>	<b>4 weeks</b>	<b>4 weeks</b> <sup>2</sup>		
Diphtheria, Tetanus, Pertussis <sup>3</sup>	<b>6 wks</b>	<b>4 weeks</b>	<b>4 weeks</b>	<b>6 months</b>	<b>6 months</b> <sup>3</sup>
<i>Haemophilus influenzae</i> type b <sup>4</sup>	<b>6 wks</b>	<b>4 weeks</b> if first dose administered at younger than age 12 months <b>8 weeks (as final dose)</b> if first dose administered at age 12-14 months <b>No further doses needed</b> if first dose administered at age 15 months or older	<b>4 weeks</b> <sup>4</sup> if current age is younger than 12 months <b>8 weeks (as final dose)</b> <sup>4</sup> if current age is 12 months or older and second dose administered at younger than age 15 months <b>No further doses needed</b> if previous dose administered at age 15 months or older	<b>8 weeks (as final dose)</b> This dose only necessary for children aged 12 months through 59 months who received 3 doses before age 12 months	
Pneumococcal <sup>5</sup>	<b>6 wks</b>	<b>4 weeks</b> if first dose administered at younger than age 12 months <b>8 weeks (as final dose for healthy children)</b> if first dose administered at age 12 months or older or current age 24 through 59 months <b>No further doses needed</b> for healthy children if first dose administered at age 24 months or older	<b>4 weeks</b> if current age is younger than 12 months <b>8 weeks (as final dose for healthy children)</b> if current age is 12 months or older <b>No further doses needed</b> for healthy children if previous dose administered at age 24 months or older	<b>8 weeks (as final dose)</b> This dose only necessary for children aged 12 months through 59 months who received 3 doses before age 12 months or for high-risk children who received 3 doses at any age	
Inactivated Poliovirus <sup>6</sup>	<b>6 wks</b>	<b>4 weeks</b>	<b>4 weeks</b>	<b>4 weeks</b> <sup>6</sup>	
Measles, Mumps, Rubella <sup>7</sup>	<b>12 mos</b>	<b>4 weeks</b>			
Varicella <sup>8</sup>	<b>12 mos</b>	<b>3 months</b>			
Hepatitis A <sup>9</sup>	<b>12 mos</b>	<b>6 months</b>			

CATCH-UP SCHEDULE FOR PERSONS AGED 7 THROUGH 18 YEARS					
Tetanus, Diphtheria/ Tetanus, Diphtheria, Pertussis <sup>10</sup>	<b>7 yrs</b> <sup>10</sup>	<b>4 weeks</b>	<b>4 weeks</b> if first dose administered at younger than age 12 months <b>6 months</b> if first dose administered at age 12 months or older	<b>6 months</b> if first dose administered at younger than age 12 months	
Human Papillomavirus <sup>11</sup>	<b>9 yrs</b>	<b>Routine dosing intervals are recommended</b> <sup>11</sup>			
Hepatitis A <sup>9</sup>	<b>12 mos</b>	<b>6 months</b>			
Hepatitis B <sup>1</sup>	<b>Birth</b>	<b>4 weeks</b>	<b>8 weeks</b> (and at least 16 weeks after first dose)		
Inactivated Poliovirus <sup>6</sup>	<b>6 wks</b>	<b>4 weeks</b>	<b>4 weeks</b>	<b>4 weeks</b> <sup>6</sup>	
Measles, Mumps, Rubella <sup>7</sup>	<b>12 mos</b>	<b>4 weeks</b>			
Varicella <sup>8</sup>	<b>12 mos</b>	<b>3 months</b> if the person is younger than age 13 years <b>4 weeks</b> if the person is aged 13 years or older			

### 1. Hepatitis B vaccine (HepB).

- Administer the 3-dose series to those not previously vaccinated.
- A 2-dose series (separated by at least 4 months) of adult formulation Recombivax HB<sup>®</sup> is licensed for children aged 11 through 15 years.

### 2. Rotavirus vaccine (RV).

- The maximum age for the first dose is 14 weeks 6 days. Vaccination should not be initiated for infants aged 15 weeks or older (i.e., 15 weeks 0 days or older).
- Administer the final dose in the series by age 8 months 0 days.
- If Rotarix<sup>®</sup> was administered for the first and second doses, a third dose is not indicated.

### 3. Diphtheria and tetanus toxoids and acellular pertussis vaccine (DTaP).

- The fifth dose is not necessary if the fourth dose was administered at age 4 years or older.

### 4. *Haemophilus influenzae* type b conjugate vaccine (Hib).

- Hib vaccine is not generally recommended for persons aged 5 years or older. No efficacy data are available on which to base a recommendation concerning use of Hib vaccine for older children and adults. However, studies suggest good immunogenicity in persons who have sickle cell disease, leukemia, or HIV infection, or who have had a splenectomy; administering 1 dose of Hib vaccine to these persons is not contraindicated.
- If the first 2 doses were PRP-OMP (PedvaxHIB<sup>®</sup> or Convaq<sup>®</sup>), and administered at age 11 months or younger, the third (and final) dose should be administered at age 12 through 15 months and at least 8 weeks after the second dose.
- If the first dose was administered at age 7 through 11 months, administer 2 doses separated by 4 weeks and a final dose at age 12 through 15 months.

### 5. Pneumococcal vaccine.

- Administer 1 dose of pneumococcal conjugate vaccine (PCV) to all healthy children aged 24 through 59 months who have not received at least 1 dose of PCV on or after age 12 months.
- For children aged 24 through 59 months with underlying medical conditions, administer 1 dose of PCV if 3 doses were received previously or administer 2 doses of PCV at least 8 weeks apart if fewer than 3 doses were received previously.
- Administer pneumococcal polysaccharide vaccine (PPSV) to children aged 2 years or older with certain underlying medical conditions (see *MMWR* 2000;49[No. RR-9]), including a cochlear implant, at least 8 weeks after the last dose of PCV.

### 6. Inactivated poliovirus vaccine (IPV).

- For children who received an all-IPV or all-oral poliovirus (OPV) series, a fourth dose is not necessary if the third dose was administered at age 4 years or older.
- If both OPV and IPV were administered as part of a series, a total of 4 doses should be administered, regardless of the child's current age.

### 7. Measles, mumps, and rubella vaccine (MMR).

- Administer the second dose at age 4 through 6 years. However, the second dose may be administered before age 4, provided at least 28 days have elapsed since the first dose.
- If not previously vaccinated, administer 2 doses with at least 28 days between doses.

### 8. Varicella vaccine.

- Administer the second dose at age 4 through 6 years. However, the second dose may be administered before age 4, provided at least 3 months have elapsed since the first dose.
- For persons aged 12 months through 12 years, the minimum interval between doses is 3 months. However, if the second dose was administered at least 28 days after the first dose, it can be accepted as valid.
- For persons aged 13 years and older, the minimum interval between doses is 28 days.

### 9. Hepatitis A vaccine (HepA).

- HepA is recommended for children older than 1 year who live in areas where vaccination programs target older children or who are at increased risk of infection. See *MMWR* 2006;55(No. RR-7).

### 10. Tetanus and diphtheria toxoids vaccine (Td) and tetanus and diphtheria toxoids and acellular pertussis vaccine (Tdap).

- Doses of DTaP are counted as part of the Td/Tdap series
- Tdap should be substituted for a single dose of Td in the catch-up series or as a booster for children aged 10 through 18 years; use Td for other doses.

### 11. Human papillomavirus vaccine (HPV).

- Administer the series to females at age 13 through 18 years if not previously vaccinated.
- Use recommended routine dosing intervals for series catch-up (i.e., the second and third doses should be administered at 2 and 6 months after the first dose). However, the minimum interval between the first and second doses is 4 weeks. The minimum interval between the second and third doses is 12 weeks, and the third dose should be given at least 24 weeks after the first dose.

Information about reporting reactions after immunization is available online at <http://www.vaers.hhs.gov> or by telephone, 800-822-7967. Suspected cases of vaccine-preventable diseases should be reported to the state or local health department. Additional information, including precautions and contraindications for immunization, is available from the National Center for Immunization and Respiratory Diseases at <http://www.cdc.gov/vaccines> or telephone, 800-CDC-INFO (800-232-4636).

DEPARTMENT OF HEALTH AND HUMAN SERVICES • CENTERS FOR DISEASE CONTROL AND PREVENTION

CS 113897

## Appendix F

### VFC Ordering & Inventory Form

<b>Facility:</b>			<b>VFC Pin#:</b>			<b>Days and Hours of Operation</b>						
<b>Delivery Address:</b>			<b>Prepared by:</b>			<b>AM</b>			<b>PM</b>			
						<b>M</b>		to		<b>M</b>		to
<b>City:</b>			<b>Phone#:</b>			<b>Tu</b>		to		<b>Tu</b>		to
						<b>W</b>		to		<b>W</b>		to
<b>Zip Code:</b>			<b>Date Submitted:</b>			<b>Th</b>		to		<b>Th</b>		to
						<b>F</b>		to		<b>F</b>		to
<input type="checkbox"/> Check here if this is a new address			<b>EMAIL:</b>			<input type="checkbox"/> Check here if these days/hours represent a special closure						
<b>FAX:</b>												
<b>VACCINE LIST</b>	<b>Brand Name</b>	<b>Doses Requested</b>	<b>Presentation</b>			<b>Doses on Hand</b>	<b>Lots #s</b>	<b>Expiration Date</b>				
<b>DTaP</b>	DAPTACEL		Single dose vials-10 per box									
	Infanrix		Single dose vials-10 per box									
			Single dose syringes-5 per box									
<b>DTaP-Hep B-IPV</b>	Pediarix		Single dose vials-10 per box									
			Single dose syringes-5 per box									
<b>DTaP-IPV-Hib</b>	Pentacel		Single dose vials-5 per box									
<b>DTaP-IPV</b>	Kinrix		Single dose vials-10 per box									
			Single dose syringes-5 per box									
<b>Hep A (Ped)</b>	Havrix		Single dose vials-10 per box									
			Single dose syringes-5 per box									
<b>Hep A (Ped)</b>	VAQTA		Single dose vials-10 per box									
			Single dose syringes-5 per box									
<b>Hep B/3d (Ped/Adol)</b>	Engerix		Single dose vials-10 per box									
			Single dose syringes-5 per box									
<b>Hep B/3d (Ped/Adol)</b>	Recombivax		Single dose vials-10 per box									
<b>Hep B/2d (11-15 years)</b>	Recombivax		Single dose vials-10 per box									
<b>Hep B/Hib</b>	Comvax	Currently not available										
<b>Hib/4d</b>	ActHIB		Single dose vials-5 per box									
<b>Hib/3d (American Indian children only)</b>	PedvaxHIB		Single dose vials-10 per box									
<b>HPV</b>	Gardasil		Single dose vials-10 per box									
<b>MCV4</b>	Menactra		Single dose vials-5 per box									
<b>MMR</b>	MMR-II		Single dose vials-10 per box									
<b>MMRV</b>	ProQuad	Currently not available										
<b>PCV7 (Pneumococcal conjugate)</b>	Prevnar		Single dose syringes-10 per box									
<b>Polio e-IPV</b>	IPOL		10 dose vial									
<b>PPV23 (Pneumococcal polysaccharide)</b>	Pneumovax		5 dose vial									
<b>Rotavirus RV1/2d</b>	Rotarix		Single dose vials-10 per box									
<b>Rotavirus RV5/3d</b>	RotaTeq		Single dose tubes-10 per box									
<b>Td (7-10 years only)</b>	DECAVAC		Single dose syringes-10 per box									
<b>Tdap (10-18 years)</b>	Boostrix		Single dose vials-10 per box									
			Single dose syringes-5 per box									
<b>Varicella</b>	VARIVAX		Single dose vials-10 per box									
Email completed form to: <a href="mailto:vaccine.orders@state.nm.us">vaccine.orders@state.nm.us</a> FAX completed order to: 505-827-1741 or 505-827-1064 Download this form at: <a href="http://www.health.state.nm.us/immunize/forms">www.health.state.nm.us/immunize/forms</a>												
											12/08	

## Appendix G



# Adult Vaccine Order Form

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

Facility: \_\_\_\_\_ Days/Hours Open: \_\_\_\_\_

Pin # \_\_\_\_\_

Delivery Address: \_\_\_\_\_

Prepared by: \_\_\_\_\_

Telephone #: \_\_\_\_\_

Vaccine*	# Doses on Hand	Lots & Exp Dates	# Doses Requested
Tdap <input type="checkbox"/> Adacel			
MMR			
PPV23 (Pneumococcal)			

\*Please refer to NM DOH protocols for use of these vaccines.

Fax completed order c/o Rudy Balquin at: 505-827-1064