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METROPOLITAN HEALTH DISTRICT



**National Infant
Immunization Week**

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2014 ACIP Recommended Childhood and Adolescent Immunization Schedules Updates



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Figure 1. Recommended immunization schedule for persons aged 0 through 18 years – United States, 2014.

(FOR THOSE WHO FALL BEHIND OR START LATE, SEE THE CATCH-UP SCHEDULE [FIGURE 2]).

These recommendations must be read with the footnotes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars in Figure 1. To determine minimum intervals between doses, see the catch-up schedule (Figure 2). School entry and adolescent vaccine age groups are in bold.

Vaccine	Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos	18 mos	19–23 mos	2–3 yrs	4–6 yrs	7–10 yrs	11–12 yrs	13–15 yrs	16–18 yrs
Hepatitis B ¹ (HepB)	1 st dose	2 nd dose			3 rd dose											
Rotavirus ² (RV) RV1 (2-dose series); RV5 (3-dose series)			1 st dose	2 nd dose	See footnote 2											
Diphtheria, tetanus, & acellular pertussis ¹ (DTaP: <7 yrs)			1 st dose	2 nd dose	3 rd dose			4 th dose				5 th dose				
Tetanus, diphtheria, & acellular pertussis ¹ (Tdap: ≥7 yrs)													(1dap)			
<i>Haemophilus influenzae</i> type b ³ (Hib)			1 st dose	2 nd dose	See footnote 5		3 rd or 4 th dose See footnote 5									
Pneumococcal conjugate ⁶ (PCV13)			1 st dose	2 nd dose	3 rd dose		4 th dose									
Pneumococcal polysaccharide ⁶ (PPSV23)																
Inactivated poliovirus ⁷ (IPV) (<18 yrs)			1 st dose	2 nd dose	3 rd dose							4 th dose				
Influenza ⁸ (IIV; LAIV) 2 doses for some: See footnote 8							Annual vaccination (IIV only)					Annual vaccination (IIV or LAIV)				
Measles, mumps, rubella ⁹ (MMR)							1 st dose					2 nd dose				
Varicella ¹⁰ (VAR)							1 st dose					2 nd dose				
Hepatitis A ¹¹ (HepA)							2-dose series: See footnote 11									
Human papillomavirus ¹² (HPV2: females only; HPV4: males and females)														(3-dose series)		
Meningococcal ¹³ (Hib-Men-CY ≥ 6 weeks; MenACWY-D >9 mos; MenACWY-CRM ≥ 2 mos)														1 st dose		Boosters

Range of recommended ages for all children
 Range of recommended ages for catch-up immunization
 Range of recommended ages for certain high-risk groups
 Range of recommended ages during which catch-up is encouraged and for certain high-risk groups
 Not routinely recommended

This schedule includes recommendations in effect as of January 1, 2014. Any dose not administered at the recommended age should be administered at a subsequent visit, when indicated and feasible. The use of a combination vaccine generally is preferred over separate injections of its equivalent component vaccines. Vaccination providers should consult the relevant Advisory Committee on Immunization Practices (ACIP) statement for detailed recommendations, available online at <http://www.cdc.gov/vaccines/hcp/acip-recs/index.html>. Clinically significant adverse events that follow vaccination should be reported to the Vaccine Adverse Event Reporting System (VAERS) online (<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 vaccination, is available from CDC online (<http://www.cdc.gov/vaccines/recs/vac-admin/contraindications.htm>) or by telephone (800-CDC-INFO [800-232-4636]).

This schedule is approved by the Advisory Committee on Immunization Practices (<http://www.cdc.gov/vaccines/acip/>), the American Academy of Pediatrics (<http://www.aap.org/>), the American Academy of Family Physicians (<http://www.aafp.org/>), and the American College of Obstetricians and Gynecologists (<http://www.acog.org/>).

NOTE: The above recommendations must be read along with the footnotes of this schedule.



Updates on Catch-up Schedule

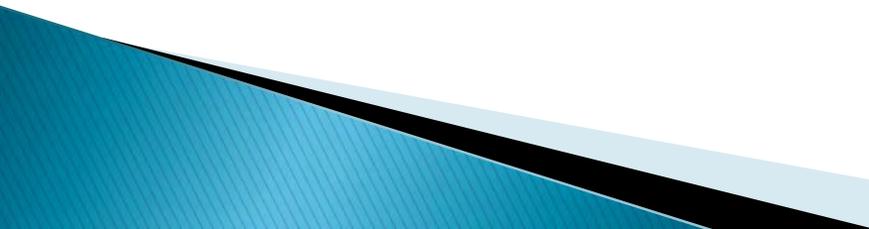
- ▶ Additions to the following vaccines footnotes:
 - Hib
 - Tdap
 - MCV4
 - ▶ To provide more guidance to providers & staff on how to catch up patients who are behind on their routinely recommended schedule.
 - ▶ Minor footnote changes to all vaccine footnotes to improve clarity and consistency
- 

FIGURE 2. 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, 2014.

The figure 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. Always use this table in conjunction with Figure 1 and the footnotes that follow.

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 ¹	Birth	4 weeks	8 weeks and at least 16 weeks after first dose; minimum age for the final dose is 24 weeks		
Rotavirus ²	6 weeks	4 weeks	4 weeks ²		
Diphtheria, tetanus, & acellular pertussis ³	6 weeks	4 weeks	4 weeks	6 months	6 months ³
<i>Haemophilus influenzae</i> type b ⁵	6 weeks	4 weeks if first dose administered at younger than age 12 months 8 weeks (as final dose) if first dose administered at age 12 through 14 months No further doses needed if first dose administered at age 15 months or older	4 weeks ⁵ if current age is younger than 12 months and first dose administered at < 7 months old 8 weeks and age 12 months through 59 months (as final dose) ⁵ if current age is younger than 12 months and first dose administered between 7 through 11 months (regardless of Hib vaccine [PRP-T or PRP-OMP] used for first dose); OR if current age is 12 through 59 months and first dose administered at younger than age 12 months; OR first 2 doses were PRP-OMP and administered at younger than 12 months. No further doses needed if previous dose administered at age 15 months or older	8 weeks (as final dose) This dose only necessary for children aged 12 through 59 months who received 3 (PRP-T) doses before age 12 months and started the primary series before age 7 months	
Pneumococcal ⁶	6 weeks	4 weeks if first dose administered at younger than age 12 months 8 weeks (as final dose for healthy children) if first dose administered at age 12 months or older No further doses needed for healthy children if first dose administered at age 24 months or older	4 weeks if current age is younger than 12 months 8 weeks (as final dose for healthy children) if current age is 12 months or older No further doses needed for healthy children if previous dose administered at age 24 months or older	8 weeks (as final dose) This dose only necessary for children aged 12 through 59 months who received 3 doses before age 12 months or for children at high risk who received 3 doses at any age	
Inactivated poliovirus ⁷	6 weeks	4 weeks ⁷	4 weeks ⁷	6 months ⁷ minimum age 4 years for final dose	
Meningococcal ¹³	6 weeks	8 weeks ¹³	See footnote 13	See footnote 13	
Measles, mumps, rubella ⁹	12 months	4 weeks			
Varicella ¹⁰	12 months	3 months			
Hepatitis A ¹¹	12 months	6 months			
Persons aged 7 through 18 years					
Tetanus, diphtheria; tetanus, diphtheria, & acellular pertussis ⁴	7 years ⁴	4 weeks	4 weeks if first dose of DTaP/DT administered at younger than age 12 months 6 months if first dose of DTaP/DT administered at age 12 months or older and then no further doses needed for catch-up	6 months if first dose of DTaP/DT administered at younger than age 12 months	
Human papillomavirus ¹²	9 years		Routine dosing intervals are recommended ¹²		
Hepatitis A ¹¹	12 months	6 months			
Hepatitis B ¹	Birth	4 weeks	8 weeks (and at least 16 weeks after first dose)		
Inactivated poliovirus ⁷	6 weeks	4 weeks	4 weeks ⁷	6 months ⁷	
Meningococcal ¹³	6 weeks	8 weeks ¹³			
Measles, mumps, rubella ⁹	12 months	4 weeks			
Varicella ¹⁰	12 months	3 months if person is younger than age 13 years 4 weeks if person is aged 13 years or older			

NOTE: The above recommendations must be read along with the footnotes of this schedule.



Hib Updates

- ▶ Updates on what is considered high risk for Hib.
 - Functional & anatomic asplenia
 - HIV infection
 - Immunoglobulin deficiency (immunoglobulin G2 subclass deficiency, or early complement deficiency)
 - Recipients of a hematopoietic stem cell transplant
 - And those receiving chemotherapy or radiation therapy for malignant neoplasms

DTaP & Tdap Footnotes Update

- ▶ Pregnant adolescent should receive a dose of Tdap during every pregnancy.
- ▶ What if a DTaP was given outside of the recommended age range? Is it considered a valid dose?

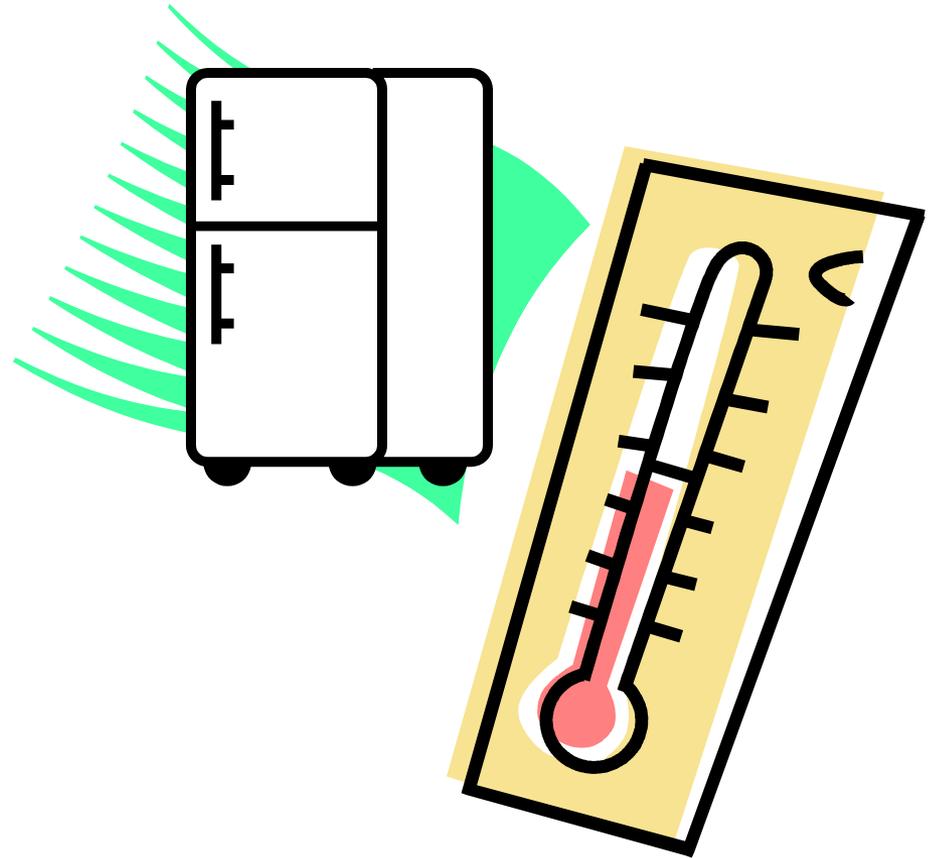


Meningococcal Footnote Update

- ▶ Footnotes were updated to reflect the age recommendations for all licensed Meningococcal vaccine for individuals with high risk conditions
 - ▶ Updates reflect the uses for Menveo for children as young as 2 months of age
- 

Storage & Handling Updates

- ▶ CDC Recommendations for Refrigerator and Freezer units
- ▶ CDC 2015 Thermometer Requirements



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What kind of refrigerator should I use?

Household, consumer-grade units

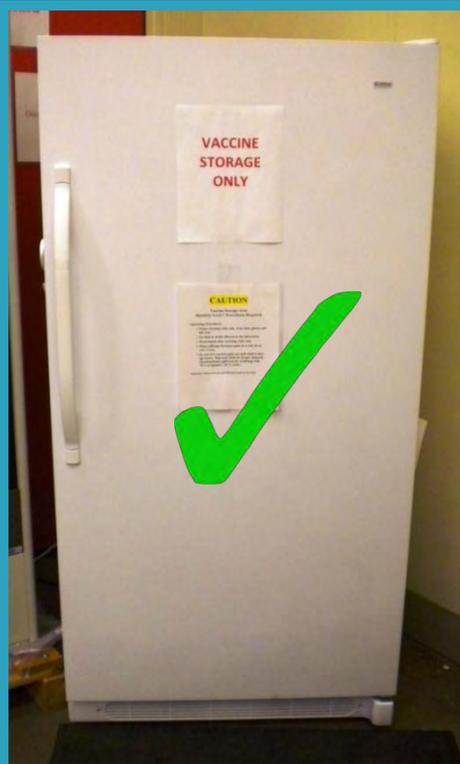
Pharmaceutical-grade units

Freezerless

Dual-zone

Under-the-counter

Full-sized



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Why this recommendation?



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Jeopardizing Vaccine Quality

- ▶ Over packed
- ▶ Vaccine out of original packaging
- ▶ Vaccine next to the wall
- ▶ Vaccine in vegetable bins
- ▶ On floor of the unit
- ▶ No water bottles
- ▶ Thermometer not centered



Jeopardizing Vaccine Quality Cont..

- ▶ Vaccine storage on door of unit
- ▶ Vaccine storage in closed containers
- ▶ Temperature excursion



Proper Storage

- ▶ Vaccine in original packaging
- ▶ Vaccine in small basket to organize unit
- ▶ Water bottles to keep temperature stable
- ▶ Thermometer in center of unit



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Thermometer Requirement

- ▶ Starting January 2015, all enrolled TVFC providers will be required to have a back-up thermometer with current certificate of calibration on hand.
- ▶ Thermometer does not need to be stored in unit alongside current thermometer



Examples of Certificate of Calibration

ICL CALIBRATION LABORATORIES, INC.



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Fax: 772 285 8737 E-mail: sales@icllabs.com
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CALIBRATION REPORT FOR THERMOMETER

Report No. U173259 Page 1 of 2 SO: 123456

THE INSTRUMENT DESCRIBED BELOW WAS EXAMINED AND TESTED IN ICL'S ISO/IEC 17025 ACCREDITED CALIBRATION LABORATORY, USING NIST TRACEABLE REFERENCE STANDARDS, IN ACCORDANCE WITH ICL'S ISO/IEC 17025 CALIBRATION PROCEDURE REFERENCED BELOW. THIS CALIBRATION MEETS THE REQUIREMENTS OF ISO/IEC 17025, ANSI/NCSL Z540-1:1994, (WHICH SUPERCEDED AND REPLACED MIL-STD 45662A), AND THE ISO-9000 AND QS-9000 SERIES OF QUALITY STANDARDS.

CUSTOMER INFORMATION

SAMPLE CUSTOMER
STREET ADDRESS
CITY, STATE ZIP

PURCHASE ORDER NUMBER: NOT AVAILABLE

SUBMITTED BY: SAMPLE COMPANY

DATES

DATE REPORT ISSUED: 05-16-2011

INSTRUMENT INFORMATION

THERMOMETER ASTM 12F INSCRIPTION: LSW

MODEL: 10012F-C RANGE: -5/215F DIVISIONS: .5 °F IMMERSION: TOTAL

ENGINEERING UNITS: degrees Fahrenheit

SERIAL NUMBER: XXXX

ACCURACY TOLERANCE (maximum scale error permitted by ASTM E 1): $\pm 0.25F$

RESULTS OF PHYSICAL EXAMINATION

THIS INSTRUMENT WAS EXAMINED UNDER A POLARIZED LENS AND STRAINS IN THE GLASS, IF ANY, WERE JUDGED TO BE MINIMAL AND OF NO DETRIMENT TO THE FUNCTION OF THE INSTRUMENT.

THE CAPILLARY OF THIS THERMOMETER WAS EXAMINED UNDER MAGNIFICATION WITH RESULTS AS FOLLOWS: NO FOREIGN MATERIAL, MOISTURE, OR OTHER EVIDENCE OF CONTAMINATION WERE DISCOVERED. NO DISCERNABLE CAPILLARY IRREGULARITIES WERE NOTED.

IT WAS DETERMINED THAT THIS INSTRUMENT IS IN GOOD WORKING ORDER AND IS THEREFORE SUITABLE FOR CALIBRATION.

CALIBRATION PROCEDURE USED: ICL Procedure 01, which is based upon ASTM E 77, NBS Monograph 150 & NIST SP 250-23

RESULTS OF CALIBRATION

NOTE: The indications of this instrument cannot be adjusted or modified by ordinary means; accordingly, the readings given in the table below should be considered, in effect, to be both "As Found" and "As Left" readings.

TEST TEMP	READING	CORRECTION	ACCEPT LIMIT* (+ or -)	P/M/F	UNCERTAINTY
-4.00°F	-4.00°F	0.00°F	0.246°F	PASS	0.12°F
15.00°F	14.95°F	+0.05°F	0.246°F	PASS	0.12°F
32.00°F	31.95°F	+0.05°F	0.246°F	PASS	0.12°F
60.00°F	59.95°F	+0.05°F	0.246°F	PASS	0.12°F
80.00°F	79.95°F	+0.05°F	0.246°F	PASS	0.12°F
110.00°F	109.95°F	+0.05°F	0.246°F	PASS	0.12°F
135.00°F	134.95°F	+0.05°F	0.246°F	PASS	0.12°F
160.00°F	159.95°F	+0.05°F	0.246°F	PASS	0.12°F
185.00°F	184.95°F	+0.05°F	0.246°F	PASS	0.12°F
210.00°F	209.95°F	+0.10°F	0.246°F	PASS	0.12°F

*ACCEPT LIMITS: The acceptance limits shown above represent a statistical evaluation of the instrument's tolerance relative to the

- ▶ All certificates must contain:
 - Module number
 - Serial number
 - Date of calibration
 - Measurement results that indicate unit passed the test & documented uncertainty is within suitable limits.



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Thermometer Types

- ▶ Probe in a glycol-filled bottle
- ▶ Single probe or double probe



Why have a back up thermometer?

- ▶ In the event that your primary thermometer malfunctions
- ▶ Or primary thermometer has to be sent out to be recalibrated



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What to look for when purchasing thermometers?

- ▶ Provide continuous monitoring information with an active display.
- ▶ Digital thermometer with a probe in glycol- filled bottle.
- ▶ Include an alarm for out of range temperatures.
- ▶ Have a reset button, if data logger as min/max display.
- ▶ Have a low battery indicator.



Taking it one step further...

- ▶ CDC recommends using data loggers for continuous temperature monitoring
- ▶ Data logger provided programming, frequency reading by user, capability of recording multiple readings, alarmed
- ▶ Capability of data being monitored on PC



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What to look for on a data logger?

- ▶ Detachable probe (glycol-filled bottle)
- ▶ Alarm for out-of-range temperatures
- ▶ Current temperature along with min/max
- ▶ Reset button
- ▶ Low battery indicator
- ▶ Accuracy of $\pm 1\text{ F}$ (0.5 C)
- ▶ Memory storage of at least 4000 readings
- ▶ User-programmable logging interval



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Different types of data loggers



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Resources

- ▶ Vaccine for Storage and Handling Toolkit 2012
- ▶ VFC in Action 2013 – Principles of Vaccine Storage and Handling



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