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TO: Trion

FROM: Scott A. Sinder
Rhonda M. Bolton
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RE: PPACA Provisions on Group Health Plans and Health Insurance Issuers
Relating to Coverage of Preventive Services – Interim Final Rules

On July 14, the U.S. Department of Health and Human Services, U.S. Department of Labor, and the U.S. Department of the Treasury (collectively, the “Departments”) issued interim final regulations (“IFR”) that detail those preventive services new health plans must cover without charging a deductible, copayment or co-insurance. This memorandum provides an overview of the new rules and additional details on the services that must be covered and the circumstances under which they will have to be covered at no cost.

It is important to keep in mind that this new preventive services requirement does not apply to grandfathered plans. It follows that to the extent a grandfathered plan is considering changes that would cause loss of grandfathered status, it should familiarize itself with these preventive service requirements to make an informed decision about the relative costs and benefits of maintaining grandfathered status.

Overview

Public Health Service Act (“PHSA”) Section 2713, as added by the Patient Protection and Affordable Care Act (“PPACA”), requires that a group health plan and a health insurance issuer offering group or individual health insurance coverage provide benefits for and prohibit

the imposition of cost-sharing requirements with respect to the following four categories of preventive services¹ (as explained in detail in the Analysis below):

1. Items or services that have a rating of A or B in the current recommendations of the United States Preventive Services Task Force (“Task Force”) with respect to the individual involved. (See Appendix A of this memorandum for a chart listing all such items and services.)
2. Immunizations for routine use in children, adolescents, and adults that have a recommendation in effect from the Advisory Committee on Immunization Practices of the Centers for Disease Control and Prevention (“ACIP” or “Advisory Committee”) with respect to the individual involved. (See Appendix B for the four current immunization schedules.)
3. With respect to infants, children, and adolescents, preventive care and screenings provided for in the comprehensive guidelines supported by the Health Resources and Services Administration (“HRSA”). (See Appendix C for the two charts comprising these guidelines.) And,
4. With respect to women, preventive care and screening provided for in comprehensive guidelines supported by HRSA and not otherwise addressed by the recommendations of the Task Force. (HHS is in the process of developing these guidelines and expects to issue them by August 1, 2011.)

The IFR also clarifies the cost-sharing requirements when a recommended preventive service is provided during an office visit (as explained in further detail in the Analysis below). Generally, if the preventive service is one that is billed (or tracked as individual encounter data) separately from an office visit, cost-sharing requirements may be imposed with respect to the office visit but not the preventive service. If a service is not billed (or tracked as individual encounter data) separately, the ability to impose cost-sharing will depend on the primary purpose of the office visit:

- If the primary purpose of the office visit is the delivery of the preventive service, a plan or issuer may not impose cost-sharing requirements with respect to the office visit;
- If the primary purpose of the office visit is not the delivery of the preventive service, a plan or issuer may impose cost-sharing requirements with respect to the office visit.

The IFR also makes clear that, with respect to a plan or health insurance coverage that has a network of providers, a plan or issuer is not required to provide coverage for recommended preventive services delivered by an out-of-network provider. Such a plan or

¹ The word “services” will be used in this memorandum to describe those preventive services that must be covered under all new group plans without the imposition of cost-sharing requirements, unless indicated otherwise by accompanying text.

issuer may also impose cost-sharing requirements for services delivered by an out-of-network provider.

The requirements laid out in the IFR apply to non-grandfathered plans beginning the first plan year on or after September 23, 2010.

Analysis

A. Details on the Preventive Services Covered Under the New Rules

Four categories of preventive services must be provided without cost to the participant if the services are delivered in network:

- First, items or services that have in effect a rating of A or B in the current recommendations of the United States Preventive Services Task Force with respect to the individual involved.² The Task Force's recommendations appear in a chart, which includes a description of the topic, the text of the Task Force's recommendation, the grade the recommendation received (A or B), and the date that the recommendation went into effect. These recommendations include some well-known preventive services such as routine screening of adults for high blood pressure, as well as some that may be less well-known, such as one-time screening for abdominal aortic aneurysm in older males with a history of smoking. See Appendix A for a complete list of the Task Force's Grade A and B recommendations.
- Second, immunizations for routine use in children, adolescents, and adults that have in effect a recommendation from the Advisory Committee on Immunization Practices of the Centers for Disease Control and Prevention ("CDC") with respect to the individual involved. The current recommendations of the Advisory Committee appear in four immunization schedules for 2010. The schedules contain graphics that provide information about the recommended age for vaccination, number of doses needed, interval between the doses, and (for adults) recommendations associated with particular health conditions. In addition to the graphics, the schedules contain detailed footnotes that provide further information on the immunizations in the schedule. See Appendix B for the four immunization schedules for 2010.
- Third, with respect to infants, children, and adolescents, the screenings provided for in the comprehensive guidelines supported by the Health Resources Services Administration ("HRSA"). HRSA guidelines appear in two charts: the Periodicity Schedule of the Bright Futures Recommendations for Pediatric and Preventive Health Care, and the Uniform Panel

² Under PHS Act section 2713(a)(5), the Task Force recommendations regarding breast cancer screening, mammography, and prevention issued in or around November of 2009 are not to be considered current recommendations on this subject for purposes of any law. Thus, the recommendations regarding breast cancer screening, mammography, and prevention issued by the Task Force prior to those issued in or around 2009 (*i.e.*, those issued in 2002) will be considered current until new recommendations in this area are issued by the Task Force or appear in comprehensive guidelines supported by the Health Resources and Services Administration concerning preventive care and screenings for women.

of the Secretary's Advisory Committee on Heritable Disorders in Newborns and Children. See Appendix C for these two charts.

- Fourth, with respect to women, preventive care and screening provided for in comprehensive guidelines supported by HRSA. These regulations are in the process of being developed by HHS, and are expected to be issued by August 1, 2011.

A complete list of all of the preventive services covered by the rule is also available at <http://www.HealthCare.gov/center/regulations/prevention.html>. The IFR advises that this website will be updated on an ongoing basis to capture any changes in the four categories of required preventive services.

1. Rules when Recommendations/Guidelines are Vague

The IFR provides that if a recommendation or guideline for a preventive service does not specify the frequency, method, treatment, or setting for the provision of that service, the plan can use "reasonable medical management techniques" to determine coverage parameters. Thus, the IFR advises, "a plan may rely on established techniques and the relevant evidence base to determine the frequency, method, treatment, or setting for which a recommended preventive service will be available without cost-sharing requirements to the extent not specified in a recommendation or guideline."

This provision should afford plans some leeway in establishing parameters for free preventive care where they are lacking, and fortunately, it demonstrates that the IFR does not impose an obligation to provide free preventive services with absolutely no limitation on the frequency of treatment.

2. Rules Regarding Provision of Non-Covered Preventive Services

The IFR clarifies that a plan continues to have the option to cover preventive services beyond those required to be covered. For such additional preventive services, a plan may impose cost-sharing requirements at its discretion. Moreover, a plan may impose cost-sharing requirements for a treatment that is not a recommended preventive service, even if the treatment results from a recommended preventive service.

3. Timing Regarding Implementation and Changes in the Covered Preventive Services

The current recommendations and guidelines (i.e., those issued prior to September 23, 2009) that comprise the four categories of required services must be provided for plan years beginning on or after September 23, 2010. Note, however, that the four categories of covered preventive services may change from time to time, as the guidelines and recommendations that outline the required services are updated. When a preventive service recommendation or guideline is revised, plans will have one year from the issuance of the revised guideline to implement the change. That is, the change must be implemented no later than the plan year that starts one year after the issuance of the revised recommendation or guideline.

The IFR specifies when revised guidelines and recommendations are considered to be “issued;” the date of issuance depends upon the entity issuing them:

Task Force – A recommendation or guideline of the Task Force is considered to be issued on the last day of the month on which the Task Force publishes or otherwise releases a recommendation.

Advisory Committee – A recommendation or guidelines of the Advisory Committee is considered to be issued on the date on which it is adopted by the Director of the CDC.

HRSA – A recommendation or guideline in the comprehensive guidelines supported by HRSA is considered to be issued on the date on which it is accepted by the Administrator of HRSA or, if applicable, adopted by the Secretary of HHS.

4. Rules Regarding Preventive Services That Cease to be Covered

A plan is not required to provide coverage or waive cost-sharing requirements for any item or service that ceases to be a recommended preventive service. For example, if a Task Force recommendation is downgraded from a rating of A or B to a rating of C or D, or if a recommendation or guideline no longer includes a particular item or service, the service in question need not be provided, or it may be subject to cost-sharing requirements.³

It is important to keep in mind, however, that other federal or state laws would continue to apply in connection with the service and may impose other obligations. Significantly, the IFR cites as a specific example the new requirement in PHSA § 2715(d)(4) that requires a plan to give 60 days notice to an enrollee before any material modification to the plan becomes effective. It follows that plans would have to comply with the 60 day prior notice requirement if the plan will cease covering a preventive service or if it will begin imposing cost-sharing requirements for any such item or service.

B. Rules Regarding Cost-Sharing Requirements with Respect to Office Visits

The IFR clarifies the cost-sharing requirements when a covered service is provided during an office visit. The IFR divides these situations into three categories: (1) situations where the preventive service is billed separately from an office visit; (2) situations where the preventive service is not billed separately from the office visit where the primary purpose of the visit was delivery of the service; and (3) situations where the preventive service is not billed separately from the office visit and where the primary purpose of the visit is not the delivery of the service.

³ Because there will invariably be changes in the preventive services covered by this rule, plans should visit the website that lists all covered preventive services (<http://www.HealthCare.gov/center/regulations/prevention.html>) at least once a year, preferably during the plan design process for the upcoming plan year. In this way, plans will have a one year lead time on what preventive services will need to be covered in the succeeding plan year (because plans are given one year from the change to implement it).

Where the service is billed separately (or is tracked as individual encounter data separately), the IFR states that a plan may impose cost-sharing requirements with respect to the office visit. Where the preventive service is not billed separately (or is not tracked as individual encounter data separately) from an office visit, a plan may not impose cost-sharing requirements with respect to the visit if the primary purpose of the visit is the delivery of the service, and may impose cost-sharing requirements with respect to the visit if delivery of the service is not the primary purpose of the visit.

Examples in the IFR illustrate these provisions:

Example 1: An individual receives a cholesterol screening test (a recommended preventive service) during a routine office visit with an in-network provider. The screening test and office visit are billed separately. Here, the plan may impose cost-sharing requirements for the office visit because the recommended preventive service is billed as a separate charge; no cost-sharing may be imposed for the cholesterol screening test.

Example 2: Same facts as above, but as a result of the screening the individual is diagnosed with high cholesterol and is prescribed a course of treatment that is not included in the recommendations governing covered preventive services. Here, the treatment resulting from the preventive screening can be subject to cost-sharing requirements because the treatment is not itself a recommended preventive service.

Example 3: An individual visits an in-network provider to discuss recurring abdominal pain. During the office visit the individual receives a blood pressure screening that is recommended preventive service but is not billed as a separate charge. Here, since the primary purpose for the office visit is recurring abdominal pain and not the delivery of a recommended preventive service, the plan may impose cost-sharing requirements for the office visit.

C. Rules Regarding Plans or Coverage That Has a Network of Providers

With respect to a plan that has a network of providers, the IFR makes clear that the plan is not required to provide coverage for recommended preventive services delivered by an out-of-network provider. Such a plan may also impose cost-sharing requirements for recommended preventive services delivered by an out-of-network provider.

D. Use of Value-Based Insurance Designs As Part of Preventive Service Offerings

PPACA authorizes the Departments to develop guidelines for group health plans to utilize “value-based insurance designs” as part of their offering of preventive health services. The IFR describes value-based insurance design as including the provision of information and incentives for consumers that promote access to and use of higher value providers, treatments, and services. The Departments advise that the IFR, for example, promotes value-based insurance design by permitting plans to impose cost-sharing for recommended preventive services delivered on an out-of-network basis while eliminating cost-sharing for recommended preventive health services delivered on an in-network basis.

The IFR advises that the Departments are developing additional guidelines regarding the utilization of value-based insurance designs with respect to preventive benefits, and public comment is sought on “the development of such guidelines for value-based insurance designs that promote consumer choice of providers or services that offer the best value and quality, while ensuring access to critical, evidence-based preventive services.”

E. Comment Period

It should be kept in mind that the Departments seek public comment on all aspects of the IFR. To the extent that clients view the rules as particularly uninformed or problematic, there is an opportunity to offer such views to the agencies. Comments on the IFR will be due 60 days from the date the IFR is published in the Federal Register, that is, on or about September 12, 2010.

APPENDIX A

Grade A and B Recommendations of the United States Preventive Services Task Force

Topic	Text	Grade	Date In Effect
Screening for abdominal aortic aneurysm	The USPSTF recommends one-time screening for abdominal aortic aneurysm (AAA) by ultrasonography in men aged 65 to 75 who have ever smoked.	B	Feb 28, 2005
Screening and counseling to reduce alcohol misuse	The U.S. Preventive Services Task Force (USPSTF) recommends screening and behavioral counseling interventions to reduce alcohol misuse (go to Clinical Considerations) by adults, including pregnant women, in primary care settings.	B	April 30, 2004
Aspirin to prevent CVD: men	The USPSTF recommends the use of aspirin for men age 45 to 79 years when the potential benefit due to a reduction in myocardial infarctions outweighs the potential harm due to an increase in gastrointestinal hemorrhage.	A	March 30, 2009
Aspirin to prevent CVD: women	The USPSTF recommends the use of aspirin for women age 55 to 79 years when the potential benefit of a reduction in ischemic strokes outweighs the potential harm of an increase in gastrointestinal hemorrhage.	A	March 30, 2009
Screening for bacteriuria	The USPSTF recommends screening for asymptomatic bacteriuria with urine culture for pregnant women at 12 to 16 weeks' gestation or at the first prenatal visit, if later.	A	July 31, 2008

Screening for high blood pressure	The U.S. Preventive Services Task Force (USPSTF) recommends screening for high blood pressure in adults aged 18 and older.	A	Dec 31, 2007
Counseling related to BRCA screening	The USPSTF recommends that women whose family history is associated with an increased risk for deleterious mutations in BRCA1 or BRCA2 genes be referred for genetic counseling and evaluation for BRCA testing.	B	Sept 30, 2005
Screening for breast cancer (mammography)	The USPSTF recommends screening mammography for women with or without clinical breast examination (CBE), every 1-2 years for women aged 40 and older.	B	September 30, 2002
Chemoprevention of breast cancer	The USPSTF recommends that clinicians discuss chemoprevention with women at high risk for breast cancer and at low risk for adverse effects of chemoprevention. Clinicians should inform patients of the potential benefits and harms of chemoprevention.	B	July 31, 2002
Interventions to support breast feeding	The USPSTF recommends interventions during pregnancy and after birth to promote and support breastfeeding.	B	Oct 31, 2008
Screening for cervical cancer	The USPSTF strongly recommends screening for cervical cancer in women who have been sexually active and have a cervix.	A	Jan 31, 2003
Screening for chlamydial infection:	The U.S. Preventive Services Task Force (USPSTF) recommends screening for chlamydial infection for all sexually active non-pregnant young women aged 24	A	June 30, 2007

non-pregnant women	and younger and for older non-pregnant women who are at increased risk.		
Screening for chlamydial infection: pregnant women	The USPSTF recommends screening for chlamydial infection for all pregnant women aged 24 and younger and for older pregnant women who are at increased risk.	B	June 30, 2007
Screening for cholesterol abnormalities: men 35 and older	The U.S. Preventive Services Task Force (USPSTF) strongly recommends screening men aged 35 and older for lipid disorders.	A	June 30, 2008
Screening for cholesterol abnormalities: men younger 35	The USPSTF recommends screening men aged 20 to 35 for lipid disorders if they are at increased risk for coronary heart disease.	B	June 30, 2008
Screening for cholesterol abnormalities: women 45 and older	The USPSTF strongly recommends screening women aged 45 and older for lipid disorders if they are at increased risk for coronary heart disease.	A	June 30, 2008
Screening for cholesterol abnormalities: women younger than 45	The USPSTF recommends screening women aged 20 to 45 for lipid disorders if they are at increased risk for coronary heart disease.	B	June 30, 2008
Screening for colorectal cancer	The USPSTF recommends screening for colorectal cancer (CRC) using fecal occult blood testing, sigmoidoscopy, or colonoscopy, in adults, beginning at age 50 years and continuing until age 75 years.	A	Oct 31, 2008

The risks and benefits of these screening methods vary.

Chemoprevention of dental caries	The USPSTF recommends that primary care clinicians prescribe oral fluoride supplementation at currently recommended doses to preschool children older than 6 months of age whose primary water source is deficient in fluoride.	B	April 30, 2004
Screening for depression: adults	The USPSTF recommends screening adults for depression when staff-assisted depression care supports are in place to assure accurate diagnosis, effective treatment, and follow-up.	B	Dec 31, 2009
Screening for depression: adolescents	The USPSTF recommends screening of adolescents (12-18 years of age) for major depressive disorder (MDD) when systems are in place to ensure accurate diagnosis, psychotherapy (cognitive-behavioral or interpersonal), and follow-up.	B	March 30, 2009
Screening for diabetes	The USPSTF recommends screening for type 2 diabetes in asymptomatic adults with sustained blood pressure (either treated or untreated) greater than 135/80 mm Hg.	B	June 30, 2008
Counseling for a healthy diet	The USPSTF recommends intensive behavioral dietary counseling for adult patients with hyperlipidemia and other known risk factors for cardiovascular and diet-related chronic disease. Intensive counseling can be delivered by primary care clinicians or by referral to other specialists, such as nutritionists or dietitians.	B	Jan 30, 2003

Supplementation with folic acid	The USPSTF recommends that all women planning or capable of pregnancy take a daily supplement containing 0.4 to 0.8 mg (400 to 800 µg) of folic acid.	A	May 31, 2009
Screening for gonorrhea: wp,em	The U.S. Preventive Services Task Force (USPSTF) recommends that clinicians screen all sexually active women, including those who are pregnant, for gonorrhea infection if they are at increased risk for infection (that is, if they are young or have other individual or population risk factors; go to Clinical Considerations for further discussion of risk factors).	B	May 31, 2005
Prophylactic medication for gonorrhea: newborns	The USPSTF strongly recommends prophylactic ocular topical medication for all newborns against gonococcal ophthalmia neonatorum.	A	May 31, 2005
Screening for hearing loss	The USPSTF recommends screening for hearing loss in all newborn infants.	B	July 31, 2008
Screening for hemoglobinopathies	The U. S. Preventive Services Task Force (USPSTF) recommends screening for sickle cell disease in newborns.	A	Sept 30, 2007
Screening for hepatitis B	The U.S. Preventive Services Task Force (USPSTF) strongly recommends screening for hepatitis B virus (HBV) infection in pregnant women at their first prenatal visit.	A	June 30, 2009
Screening for HIV	The U.S. Preventive Services Task Force (USPSTF) strongly recommends that clinicians screen for human immunodeficiency virus (HIV) all adolescents and	A	July 31, 2005

adults at increased risk for HIV infection (go to Clinical Considerations for discussion of risk factors).

Screening for congenital hypothyroidism	The USPSTF recommends screening for congenital hypothyroidism (CH) in newborns.	A	March 31, 2008
Screening for iron deficiency anemia	The USPSTF recommends routine screening for iron deficiency anemia in asymptomatic pregnant women.	B	May 31, 2006
Iron supplementation in children	The U.S. Preventive Services Task Force (USPSTF) recommends routine iron supplementation for asymptomatic children aged 6 to 12 months who are at increased risk for iron deficiency anemia (go to Clinical Considerations for a discussion of increased risk).	B	May 30, 2006
Screening and counseling for obesity: adults	The USPSTF recommends that clinicians screen all adult patients for obesity and offer intensive counseling and behavioral interventions to promote sustained weight loss for obese adults.	B	Dec 31, 2003
Screening and counseling for obesity: children	The USPSTF recommends that clinicians screen children aged 6 years and older for obesity and offer them or refer them to comprehensive, intensive behavioral interventions to promote improvement in weight status.	B	Jan 31, 2010
Screening for osteoporosis	The U.S. Preventive Services Task Force (USPSTF) recommends that women aged 65 and older be screened routinely for osteoporosis. The USPSTF recommends that routine screening begin at age 60 for women at increased risk for osteoporotic fractures.	B	Sept 30, 2002

(Go to Clinical Considerations for discussion of women at increased risk.)

Screening for PKU	The USPSTF recommends screening for phenylketonuria (PKU) in newborns.	A	March 31, 2008
Screening for Rh incompatibility: first pregnancy visit	The U.S. Preventive Services Task Force (USPSTF) strongly recommends Rh (D) blood typing and antibody testing for all pregnant women during their first visit for pregnancy-related care.	A	Feb 29, 2004
Screening for Rh incompatibility: 24-28 weeks gestation	The USPSTF recommends repeated Rh (D) antibody testing for all unsensitized Rh (D)-negative women at 24-28 weeks' gestation, unless the biological father is known to be Rh (D)-negative.	B	Feb 29, 2004
Counseling for STIs	The USPSTF recommends high-intensity behavioral counseling to prevent sexually transmitted infections (STIs) for all sexually active adolescents and for adults at increased risk for STIs.	B	Oct 31, 2008
Screening for syphilis: non-pregnant persons	The U.S. Preventive Services Task Force (USPSTF) strongly recommends that clinicians screen persons at increased risk for syphilis infection.	A	July 31, 2004
Screening for syphilis: pregnant women	The USPSTF recommends that clinicians screen all pregnant women for syphilis infection.	A	July 31, 2004
Counseling for tobacco use	The USPSTF recommends that clinicians ask all adults about tobacco use and provide tobacco cessation interventions for those who use tobacco	A	April 30, 2009

products.

Counseling for tobacco use	The USPSTF recommends that clinicians ask all pregnant women about tobacco use and provide augmented, pregnancy-tailored counseling for those who smoke.	A	April 30, 2009
Screening for visual acuity in children	The USPSTF recommends screening to detect amblyopia, strabismus, and defects in visual acuity in children younger than age 5 years.	B	May 31, 2004

APPENDIX B

Recommended Immunization Schedules

Recommended Immunization Schedule for Persons Aged 0 Through 6 Years—United States • 2010

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 ¹		HepB	HepB			HepB						
Rotavirus ²				RV	RV	RV ²						
Diphtheria, Tetanus, Pertussis ³				DTaP	DTaP	DTaP	<i>see footnote³</i>		DTaP			DTaP
<i>Haemophilus influenzae</i> type b ⁴				Hib	Hib	Hib ⁴		Hib				
Pneumococcal ⁵				PCV	PCV	PCV		PCV			PPSV	
Inactivated Poliovirus ⁶				IPV	IPV			IPV				IPV
Influenza ⁷								Influenza (Yearly)				
Measles, Mumps, Rubella ⁸							MMR		<i>see footnote⁸</i>			MMR
Varicella ⁹							Varicella		<i>see footnote⁹</i>			Varicella
Hepatitis A ¹⁰							HepA (2 doses)				HepA Series	
Meningococcal ¹¹												MCV

Range of recommended ages for all children except certain high-risk groups

Range of recommended ages for certain high-risk groups

This schedule includes recommendations in effect as of December 15, 2009. 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. Considerations should include provider assessment, patient preference, and the potential for adverse events. Providers should consult the relevant Advisory

Committee on Immunization Practices statement for detailed recommendations: <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) 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. Monovalent HepB vaccine should be used for doses administered before age 6 weeks. 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 1 to 2 months after completion of at least 3 doses of the HepB series, at age 9 through 18 months (generally at the next well-child visit).
- Administration of 4 doses of HepB to infants is permissible when a combination vaccine containing HepB is administered after the birth dose. The fourth dose should be administered no earlier than age 24 weeks.

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 0 days or older.
- The maximum age for the final dose in the series is 8 months 0 days
- If Rotarix 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 or Comvax [HepB-Hib]) is administered at ages 2 and 4 months, a dose at age 6 months is not indicated.
- TriHiBit (DTaP/Hib) and Hiberix (PRP-T) should not be used for doses at ages 2, 4, or 6 months for the primary series but can be used as the final dose in children aged 12 months through 4 years.

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 2 or more months after last dose of PCV to children aged 2 years or older with certain underlying medical conditions, including a cochlear implant. See *MMWR* 1997;46(No. RR-8).

6. Inactivated poliovirus vaccine (IPV). (Minimum age: 6 weeks)

- The final dose in the series should be administered on or after the fourth birthday and at least 6 months following the previous dose.
- If 4 doses are administered prior to age 4 years a fifth dose should be administered at age 4 through 6 years. See *MMWR* 2009;58(30):829–30.

7. Influenza vaccine (seasonal). (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 children aged 2 through 6 years (i.e., those who do not have underlying medical conditions that predispose them to influenza complications), either LAIV or TIV may be used, except LAIV should not be given to children aged 2 through 4 years who have had wheezing in the past 12 months.
- 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.
- For recommendations for use of influenza A (H1N1) 2009 monovalent vaccine see *MMWR* 2009;58(No. RR-10).

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

- Administer the second dose routinely 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.

9. Varicella vaccine. (Minimum age: 12 months)

- Administer the second dose routinely 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.

10. 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 older children who live in areas where vaccination programs target older children, who are at increased risk for infection, or for whom immunity against hepatitis A is desired.

11. Meningococcal vaccine. (Minimum age: 2 years for meningococcal conjugate vaccine [MCV4] and for meningococcal polysaccharide vaccine [MPSV4])

- Administer MCV4 to children aged 2 through 10 years with persistent complement component deficiency, anatomic or functional asplenia, and certain other conditions placing them at high risk.
- Administer MCV4 to children previously vaccinated with MCV4 or MPSV4 after 3 years if first dose administered at age 2 through 6 years. See *MMWR* 2009;58:1042–3.

Recommended Immunization Schedule for Persons Aged 7 Through 18 Years—United States • 2010

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 ¹			Tdap	Tdap	Range of recommended ages for all children except certain high-risk groups
Human Papillomavirus ²		see footnote 2	HPV (3 doses)	HPV series	
Meningococcal ³		MCV	MCV	MCV	
Influenza ⁴			Influenza (Yearly)		
Pneumococcal ⁵			PPSV		
Hepatitis A ⁶			HepA Series		
Hepatitis B ⁷			Hep B Series		
Inactivated Poliovirus ⁸			IPV Series		
Measles, Mumps, Rubella ⁹			MMR Series		
Varicella ¹⁰			Varicella Series		
					Range of recommended ages for catch-up immunization
					Range of recommended ages for certain high-risk groups

This schedule includes recommendations in effect as of December 15, 2009. 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. Considerations should include provider assessment, patient preference, and the potential for adverse events. Providers should consult the relevant Advisory

Committee on Immunization Practices statement for detailed recommendations: <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) at <http://www.vaers.hhs.gov> or by telephone, 800-822-7967.

- 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/DaP 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.
- Human papillomavirus vaccine (HPV).** (Minimum age: 9 years)
 - Two HPV vaccines are licensed: a quadrivalent vaccine (HPV4) for the prevention of cervical, vaginal and vulvar cancers (in females) and genital warts (in females and males), and a bivalent vaccine (HPV2) for the prevention of cervical cancers in females.
 - HPV vaccines are most effective for both males and females when given before exposure to HPV through sexual contact.
 - HPV4 or HPV2 is recommended for the prevention of cervical precancers and cancers in females.
 - HPV4 is recommended for the prevention of cervical, vaginal and vulvar precancers and cancers and genital warts in females.
 - Administer the first dose to females at age 11 or 12 years.
 - Administer the second dose 1 to 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.
 - HPV4 may be administered in a 3-dose series to males aged 9 through 18 years to reduce their likelihood of acquiring genital warts.
- Meningococcal conjugate vaccine (MCV4).**
 - 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.
 - Administer MCV4 to children aged 2 through 10 years with persistent complement component deficiency, anatomic or functional asplenia, or certain other conditions placing them at high risk.
 - Administer to children previously vaccinated with MCV4 or MPSV4 who remain at increased risk after 3 years (if first dose administered at age 2 through 6 years) or after 5 years (if first dose administered at age 7 years or older). Persons whose only risk factor is living in on-campus housing are not recommended to receive an additional dose. See *MMWR* 2009;58:1042–3.

- Influenza vaccine (seasonal).**
 - Administer annually to children aged 6 months through 18 years.
 - For healthy nonpregnant persons aged 7 through 18 years (i.e., those who do not have underlying medical conditions that predispose them to influenza complications), 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.
 - For recommendations for use of influenza A (H1N1) 2009 monovalent vaccine. See *MMWR* 2009;58(No. RR-10).
- Pneumococcal polysaccharide vaccine (PPSV).**
 - Administer to children with certain underlying medical conditions, including a cochlear implant. A single revaccination should be administered after 5 years to children with functional or anatomic asplenia or an immunocompromising condition. See *MMWR* 1997;46(No. RR-8).
- Hepatitis A vaccine (HepA).**
 - Administer 2 doses at least 6 months apart.
 - HepA is recommended for children aged older than 23 months who live in areas where vaccination programs target older children, who are at increased risk for infection, or for whom immunity against hepatitis A is desired.
- 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.
- Inactivated poliovirus vaccine (IPV).**
 - The final dose in the series should be administered on or after the fourth birthday and at least 6 months following the previous dose.
 - 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.
- 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.
- 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 only 1 dose has been administered.
 - 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.

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 • 2010

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.

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)		
Rotavirus ²	6 wks	4 weeks	4 weeks ³		
Diphtheria, Tetanus, Pertussis ⁴	4 wks	4 weeks	4 weeks	6 months	6 months ⁵
<i>Haemophilus influenzae</i> type b ⁶	6 wks	4 weeks if first dose administered at younger than age 12 months 8 weeks (as final dose) if first dose administered at age 12–14 months No further doses needed if first dose administered at age 15 months or older	4 weeks ⁴ if current age is younger than 12 months 8 weeks (as final dose) ⁴ if current age is 12 months or older and first dose administered at younger than age 12 months and second dose administered at younger than 15 months No further doses needed if previous dose administered at age 15 months or older	6 months	6 months ⁵
Pneumococcal ⁸	6 wks	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 or current age 24 through 59 months 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	6 months	6 months ⁵
Inactivated Poliovirus ⁴	6 wks	4 weeks	4 weeks	6 months	
Measles, Mumps, Rubella ⁷	12 mos	4 weeks			
Varicella ⁹	12 mos	3 months			
Hepatitis A ¹⁰	12 mos	6 months			

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

- 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.
- 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 0 days or older.
 - The maximum age for the final dose in the series is 8 months 0 days.
 - If Rotarix was administered for the first and second doses, a third dose is not indicated.
- 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.
- 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 who have not previously received Hib vaccine is not contraindicated.
 - If the first 2 doses were PRP-OMP (PedvaxHIB or Comvax), 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 the second dose at least 4 weeks later and a final dose at age 12 through 15 months.
- 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, including a cochlear implant, at least 8 weeks after the last dose of PCV. See *MMWR* 1997;46(No. RR-8).
- Inactivated poliovirus vaccine (IPV).**
 - The final dose in the series should be administered on or after the fourth birthday and at least 6 months following the previous dose.
 - A fourth dose is not necessary if the third dose was administered at age 4 years or older and at least 6 months following the previous dose.
 - In the first 6 months of life, minimum age and minimum intervals are only recommended if the person is at risk for imminent exposure to circulating poliovirus (i.e., travel to a polio-endemic region or during an outbreak).
- Measles, mumps, and rubella vaccine (MMR).**
 - Administer the second dose routinely 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.
- Varicella vaccine.**
 - Administer the second dose routinely 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.
- Hepatitis A vaccine (HepA).**
 - HepA is recommended for children aged older than 23 months who live in areas where vaccination programs target older children, who are at increased risk for infection, or for whom immunity against hepatitis A is desired.
- 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.
- 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 1 to 2 and 6 months after the first dose). 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 administered 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).

Recommended Adult Immunization Schedule UNITED STATES - 2010

Note: These recommendations *must* be read with the footnotes that follow containing number of doses, intervals between doses, and other important information.

Figure 1. Recommended adult immunization schedule, by vaccine and age group

VACCINE ▼	AGE GROUP ▶	19–26 years	27–49 years	50–59 years	60–64 years	≥65 years
Tetanus, diphtheria, pertussis (Td/Tdap) ^{1,2}		Substitute 1-time dose of Tdap for Td booster; then boost with Td every 10 yrs				Td booster every 10 yrs
Human papillomavirus (HPV) ^{2,3}		3 doses (females)				
Varicella ³		2 doses				
Zoster ⁴					1 dose	
Measles, mumps, rubella (MMR) ^{5,6}		1 or 2 doses		1 dose		
Influenza ^{3,7}		1 dose annually				
Pneumococcal (polysaccharide) ^{7,8}		1 or 2 doses				1 dose
Hepatitis A ⁹		2 doses				
Hepatitis B ^{10,11}		3 doses				
Meningococcal ^{11,12}		1 or more doses				

*Covered by the Vaccine Injury Compensation Program.

For all persons in this category who meet the age requirements and who lack evidence of immunity (e.g., lack documentation of vaccination or have no evidence of prior infection)

Recommended if some other risk factor is present (e.g., on the basis of medical, occupational, lifestyle, or other indications)

No recommendation

Report all clinically significant postvaccination reactions to the Vaccine Adverse Event Reporting System (VAERS). Reporting forms and instructions on filing a VAERS report are available at www.vaers.hhs.gov or by telephone, 800-822-7967.

Information on how to file a Vaccine Injury Compensation Program claim is available at www.hrsa.gov/vaccinecompensation or by telephone, 800-338-2382. To file a claim for vaccine injury, contact the U.S. Court of Federal Claims, 717 Madison Place, N.W., Washington, D.C. 20005; telephone, 202-357-6400.

Additional information about the vaccines in this schedule, extent of available data, and contraindications for vaccination is also available at www.cdc.gov/vaccines or from the CDC-INFO Contact Center at 800-CDC-INFO (800-232-4636) in English and Spanish, 24 hours a day, 7 days a week.

Use of trade names and commercial sources is for identification only and does not imply endorsement by the U.S. Department of Health and Human Services.

Figure 2. Vaccines that might be indicated for adults based on medical and other indications

VACCINE ▼	INDICATION ▶	Pregnancy	Immuno-compromising conditions (excluding human immunodeficiency virus [HIV]) ^{1,2,3}	HIV infection ^{2,4,5,6,7}		Diabetes, heart disease, chronic lung disease, chronic alcoholism	Asplenia ² (including elective splenectomy and persistent complement component deficiencies)	Chronic liver disease	Kidney failure, end-stage renal disease, receipt of hemodialysis	Health-care personnel	
				CD4+ T lymphocyte count <200 cells/μL	≥200 cells/μL						
Tetanus, diphtheria, pertussis (Td/Tdap) ^{1,2}	Td	Substitute 1-time dose of Tdap for Td booster; then boost with Td every 10 yrs									
Human papillomavirus (HPV) ^{2,3}		3 doses for females through age 26 yrs									
Varicella ^{3,4}		Contraindicated		2 doses							
Zoster ⁴		Contraindicated		1 dose							
Measles, mumps, rubella (MMR) ^{5,6}		Contraindicated		1 or 2 doses							
Influenza ^{6,7}		1 dose TIV annually									1 dose TIV or LAIV annually
Pneumococcal (polysaccharide) ^{7,8}		1 or 2 doses									
Hepatitis A ^{9,10}		2 doses									
Hepatitis B ^{10,11}		3 doses									
Meningococcal ^{11,12}		1 or more doses									

¹Covered by the Vaccine Injury Compensation Program.

For all persons in this category who meet the age requirements and who lack evidence of immunity (e.g., lack documentation of vaccination or have no evidence of prior infection)

Recommended if some other risk factor is present (e.g., on the basis of medical, occupational, lifestyle, or other indications)

No recommendation

These schedules indicate the recommended age groups and medical indications for which administration of currently licensed vaccines is commonly indicated for adults ages 19 years and older, as of January 1, 2010. Licensed combination vaccines may be used whenever any components of the combination are indicated and when the vaccine's other components are not contraindicated. For detailed recommendations on all vaccines, including those used primarily for travelers or that are issued during the year, consult the manufacturers' package inserts and the complete statements from the Advisory Committee on Immunization Practices (www.cdc.gov/vaccines/pubs/acip-list.htm).

CS-090318-A

The recommendations in this schedule were approved by the Centers for Disease Control and Prevention's (CDC) Advisory Committee on Immunization Practices (ACIP), the American Academy of Family Physicians (AAFP), the American College of Obstetricians and Gynecologists (ACOG), and the American College of Physicians (ACP).



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



Footnotes

Recommended Adult Immunization Schedule—UNITED STATES - 2010

For complete statements by the Advisory Committee on Immunization Practices (ACIP), visit www.cdc.gov/vaccines/pubs/ACIP-list.htm.

1. Tetanus, diphtheria, and acellular pertussis (Td/Tdap) vaccination

Tdap should replace a single dose of Td for adults aged 19 through 64 years who have not received a dose of Tdap previously.

Adults with uncertain or incomplete history of primary vaccination series with tetanus and diphtheria toxoid-containing vaccines should begin or complete a primary vaccination series. A primary series for adults is 3 doses of tetanus and diphtheria toxoid-containing vaccines; administer the first 2 doses at least 4 weeks apart and the third dose 6–12 months after the second; Tdap can substitute for any one of the doses of Td in the 3-dose primary series. The booster dose of tetanus and diphtheria toxoid-containing vaccine should be administered to adults who have completed a primary series and if the last vaccination was received ≥ 10 years previously. Tdap or Td vaccine may be used, as indicated.

If a woman is pregnant and received the last Td vaccination ≥ 10 years previously, administer Td during the second or third trimester. If the woman received the last Td vaccination < 10 years previously, administer Tdap during the immediate postpartum period. A dose of Tdap is recommended for postpartum women, close contacts of infants aged < 12 months, and all health-care personnel with direct patient contact if they have not previously received Tdap. An interval as short as 2 years from the last Td is suggested; shorter intervals can be used. Td may be deferred during pregnancy and Tdap substituted in the immediate postpartum period, or Tdap can be administered instead of Td to a pregnant woman.

Consult the ACIP statement for recommendations for giving Td as prophylaxis in wound management.

2. Human papillomavirus (HPV) vaccination

HPV vaccination is recommended at age 11 or 12 years with catch-up vaccination at ages 13 through 26 years.

Ideally, vaccine should be administered before potential exposure to HPV through sexual activity; however, females who are sexually active should still be vaccinated consistent with age-based recommendations. Sexually active females who have not been infected with any of the four HPV vaccine types (types 6, 11, 16, 18 all of which HPV4 prevents) or any of the two HPV vaccine types (types 16 and 18 both of which HPV2 prevents) receive the full benefit of the vaccination. Vaccination is less beneficial for females who have already been infected with one or more of the HPV vaccine types. HPV4 or HPV2 can be administered to persons with a history of genital warts, abnormal Papanicolaou test, or positive HPV DNA test, because these conditions are not evidence of prior infection with all vaccine HPV types.

HPV4 may be administered to males aged 9 through 26 years to reduce their likelihood of acquiring genital warts. HPV4 would be most effective when administered before exposure to HPV through sexual contact.

A complete series for either HPV4 or HPV2 consists of 3 doses. The second dose should be administered 1–2 months after the first dose; the third dose should be administered 6 months after the first dose.

Although HPV vaccination is not specifically recommended for persons with the medical indications described in Figure 2, "Vaccines that might be indicated for adults based on medical and other indications," it may be administered to these persons because the HPV vaccine is not a live-virus vaccine. However, the immune response and vaccine efficacy might be less for persons with the medical indications described in Figure 2 than in persons who do not have the medical indications described or who are immunocompetent. Health-care personnel are not at increased risk because of occupational exposure, and should be vaccinated consistent with age-based recommendations.

3. Varicella vaccination

All adults without evidence of immunity to varicella should receive 2 doses of single-antigen varicella vaccine if not previously vaccinated or the second dose if they have received only 1 dose, unless they have a medical contraindication. Special consideration should be given to those who 1) have close contact with persons at high risk for severe disease (e.g., health-care personnel and family contacts of persons with immunocompromising conditions) or 2) are at high risk for exposure or transmission (e.g., teachers, child-care employees; residents and staff members of institutional settings, including correctional institutions; college students; military personnel; adolescents and adults living in households with children; nonpregnant women of childbearing age; and international travelers).

Evidence of immunity to varicella in adults includes any of the following: 1) documentation of 2 doses of varicella vaccine at least 4 weeks apart; 2) U.S.-born before 1980 (although for health-care personnel and pregnant women, birth before 1980 should not be considered evidence of immunity); 3) history of varicella based on diagnosis or verification of varicella by a health-care provider (for a patient reporting a history of or presenting with an atypical case, a mild case, or both, health-care providers should seek either an epidemiologic link with a typical varicella case or to a laboratory-confirmed case or evidence of laboratory confirmation, if it was performed at the time of acute disease); 4) history of herpes zoster based on diagnosis or verification of herpes zoster by a health-care provider; or 5) laboratory evidence of immunity or laboratory confirmation of disease.

Pregnant women should be assessed for evidence of varicella immunity. Women who do not have evidence of immunity should receive the first dose of varicella vaccine upon completion or termination of pregnancy and before discharge from the health-care facility. The second dose should be administered 4–8 weeks after the first dose.

4. Herpes zoster vaccination

A single dose of zoster vaccine is recommended for adults aged ≥ 60 years regardless of whether they report a prior episode of herpes zoster. Persons with chronic medical conditions may be vaccinated unless their condition constitutes a contraindication.

5. Measles, mumps, rubella (MMR) vaccination

Adults born before 1957 generally are considered immune to measles and mumps.

Measles component: Adults born during or after 1957 should receive 1 or more doses of MMR vaccine unless they have 1) a medical contraindication; 2) documentation of vaccination with 1 or more doses of MMR vaccine; 3) laboratory evidence of immunity; or 4) documentation of physician-diagnosed measles.

A second dose of MMR vaccine, administered 4 weeks after the first dose, is recommended for adults who 1) have been recently exposed to measles or are in an outbreak setting; 2) have been vaccinated previously with killed measles vaccine; 3) have been vaccinated with an unknown type of measles vaccine during 1963–1967; 4) are students in postsecondary educational institutions; 5) work in a health-care facility; or 6) plan to travel internationally.

Mumps component: Adults born during or after 1957 should receive 1 dose of MMR vaccine unless they have 1) a medical contraindication; 2) documentation of vaccination with 1 or more doses of MMR vaccine; 3) laboratory evidence of immunity; or 4) documentation of physician-diagnosed mumps.

A second dose of MMR vaccine, administered 4 weeks after the first dose, is recommended for adults who 1) live in a community experiencing a mumps outbreak and are in an affected age group; 2) are students in postsecondary educational institutions; 3) work in a health-care facility; or 4) plan to travel internationally.

Rubella component: 1 dose of MMR vaccine is recommended for women who do not have documentation of rubella vaccination, or who lack laboratory evidence of immunity. For women of childbearing age, regardless of birth year, rubella immunity should be determined and women should be counseled regarding congenital rubella syndrome. Women who do not have evidence of immunity should receive MMR vaccine upon completion or termination of pregnancy and before discharge from the health-care facility.

Health-care personnel born before 1957: For unvaccinated health-care personnel born before 1957 who lack laboratory evidence of measles, mumps, and/or rubella immunity or laboratory confirmation of disease, health-care facilities should consider vaccinating personnel with 2 doses of MMR vaccine at the appropriate interval (for measles and mumps) and 1 dose of MMR vaccine (for rubella), respectively.

During outbreaks, health-care facilities should recommend that unvaccinated health-care personnel born before 1957, who lack laboratory evidence of measles, mumps, and/or rubella immunity or laboratory confirmation of disease, receive 2 doses of MMR vaccine during an outbreak of measles or mumps, and 1 dose during an outbreak of rubella.

Complete information about evidence of immunity is available at www.cdc.gov/vaccines/recs/provisional/default.htm.

6. Seasonal Influenza vaccination

Vaccinate all persons aged ≥50 years and any younger persons who would like to decrease their risk of getting influenza. Vaccinate persons aged 19 through 49 years with any of the following indications.

Medical: Chronic disorders of the cardiovascular or pulmonary systems, including asthma; chronic metabolic diseases, including diabetes mellitus; renal or hepatic dysfunction, hemoglobinopathies, or immunocompromising conditions (including immunocompromising conditions caused by medications or HIV); cognitive, neurologic or neuromuscular disorders; and pregnancy during the influenza season. No data exist on the risk for severe or complicated influenza disease among persons with asplenia; however, influenza is a risk factor for secondary bacterial infections that can cause severe disease among persons with asplenia.

Occupational: All health-care personnel, including those employed by long-term care and assisted-living facilities, and caregivers of children aged <5 years.

Other: Residents of nursing homes and other long-term care and assisted-living facilities; persons likely to transmit influenza to persons at high risk (e.g., in-home household contacts and caregivers of children aged <5 years, persons aged ≥50 years, and persons of all ages with high-risk conditions).

Healthy, nonpregnant adults aged <50 years without high-risk medical conditions who are not contacts of severely immunocompromised persons in special-care units may receive either intranasally administered live, attenuated influenza vaccine (FluMist) or inactivated vaccine. Other persons should receive the inactivated vaccine.

7. Pneumococcal polysaccharide (PPSV) vaccination

Vaccinate all persons with the following indications.

Medical: Chronic lung disease (including asthma); chronic cardiovascular diseases; diabetes mellitus; chronic liver diseases, cirrhosis; chronic alcoholism; functional or anatomic asplenia (e.g., sickle cell disease or splenectomy [if elective splenectomy is planned, vaccinate at least 2 weeks before surgery]); immunocompromising conditions including chronic renal failure or nephrotic syndrome; and cochlear implants and cerebrospinal fluid leaks. Vaccinate as close to HIV diagnosis as possible.

Other: Residents of nursing homes or long-term care facilities and persons who smoke cigarettes. Routine use of PPSV is not recommended for American Indians/Alaska Natives or persons aged <65 years unless they have underlying medical conditions that are PPSV indications. However, public health authorities may consider recommending PPSV for American Indians/Alaska Natives and persons aged 50 through 64 years who are living in areas where the risk for invasive pneumococcal disease is increased.

8. Revaccination with PPSV

One-time revaccination after 5 years is recommended for persons with chronic renal failure or nephrotic syndrome; functional or anatomic asplenia (e.g., sickle cell disease or splenectomy); and for persons with immunocompromising conditions. For persons aged ≥65 years, one-time revaccination is recommended if they were vaccinated ≥5 years previously and were younger than aged <65 years at the time of primary vaccination.

9. Hepatitis A vaccination

Vaccinate persons with any of the following indications and any person seeking protection from hepatitis A virus (HAV) infection.

Behavioral: Men who have sex with men and persons who use injection drugs.

Occupational: Persons working with HAV-infected primates or with HAV in a research laboratory setting.

Medical: Persons with chronic liver disease and persons who receive clotting factor concentrates.

Other: Persons traveling to or working in countries that have high or intermediate endemicity of hepatitis A (a list of countries is available at www.cdc.gov/travel/content/diseases.aspx).

Unvaccinated persons who anticipate close personal contact (e.g., household contact or regular babysitting) with an international adoptee from a country of high or intermediate endemicity during the first 60 days after arrival of the adoptee in the United States should consider vaccination. The first dose of the 2-dose hepatitis A vaccine series should be administered as soon as adoption is planned, ideally ≥2 weeks before the arrival of the adoptee.

Single-antigen vaccine formulations should be administered in a 2-dose schedule at either 0 and 6–12 months (Havrix), or 0 and 6–18 months (Vaqta). If the combined hepatitis A and hepatitis B vaccine (Twinrix) is used, administer 3 doses at 0, 1, and 6 months; alternatively, a 4-dose schedule, administered on days 0, 7, and 21–30 followed by a booster dose at month 12 may be used.

10. Hepatitis B vaccination

Vaccinate persons with any of the following indications and any person seeking protection from hepatitis B virus (HBV) infection.

Behavioral: Sexually active persons who are not in a long-term, mutually monogamous relationship (e.g., persons with more than one sex partner during the previous 6 months); persons seeking evaluation or treatment for a sexually transmitted disease (STD); current or recent injection-drug users; and men who have sex with men.

Occupational: Health-care personnel and public-safety workers who are exposed to blood or other potentially infectious body fluids.

Medical: Persons with end-stage renal disease, including patients receiving hemodialysis; persons with HIV infection; and persons with chronic liver disease.

Other: Household contacts and sex partners of persons with chronic HBV infection; clients and staff members of institutions for persons with developmental disabilities; and international travelers to countries with high or intermediate prevalence of chronic HBV infection (a list of countries is available at www.cdc.gov/travel/content/diseases.aspx).

Hepatitis B vaccination is recommended for all adults in the following settings: STD treatment facilities; HIV testing and treatment facilities; facilities providing drug-abuse treatment and prevention services; health-care settings targeting services to injection-drug users or men who have sex with men; correctional facilities; end-stage renal disease programs and facilities for chronic hemodialysis patients; and institutions and nonresidential daycare facilities for persons with developmental disabilities.

Administer or complete a 3-dose series of HepB to those persons not previously vaccinated. The second dose should be administered 1 month after the first dose; the third dose should be administered at least 2 months after the second dose (and at least 4 months after the first dose). If the combined hepatitis A and hepatitis B vaccine (Twinrix) is used, administer 3 doses at 0, 1, and 6 months; alternatively, a 4-dose schedule, administered on days 0, 7, and 21–30 followed by a booster dose at month 12 may be used.

Adult patients receiving hemodialysis or with other immunocompromising conditions should receive 1 dose of 40 µg/mL (Recombivax HB) administered on a 3-dose schedule or 2 doses of 20 µg/mL (Engerix-B) administered simultaneously on a 4-dose schedule at 0, 1, 2 and 6 months.

11. Meningococcal vaccination

Meningococcal vaccine should be administered to persons with the following indications.

Medical: Adults with anatomic or functional asplenia, or persistent complement component deficiencies.

Other: First-year college students living in dormitories; microbiologists routinely exposed to isolates of *Neisseria meningitidis*; military recruits; and persons who travel to or live in countries in which meningococcal disease is hyperendemic or epidemic (e.g., the "meningitis belt" of sub-Saharan Africa during the dry season [December through June]), particularly if their contact with local populations will be prolonged. Vaccination is required by the government of Saudi Arabia for all travelers to Mecca during the annual Hajj.

Meningococcal conjugate vaccine (MCV4) is preferred for adults with any of the preceding indications who are aged ≤ 55 years; meningococcal polysaccharide vaccine (MPSV4) is preferred for adults aged ≥ 56 years. Revaccination with MCV4 after 5 years is recommended for adults previously vaccinated with MCV4 or MPSV4 who remain at increased risk for infection (e.g., adults with anatomic or functional asplenia). Persons whose only risk factor is living in on-campus housing are not recommended to receive an additional dose.

12. Selected conditions for which *Haemophilus influenzae* type b (Hib) vaccine may be used

Hib vaccine generally is not recommended for persons aged ≥ 5 years. 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 patients who have sickle cell disease, leukemia, or HIV infection or who have had a splenectomy. Administering 1 dose of Hib vaccine to these high-risk persons who have not previously received Hib vaccine is not contraindicated.

13. Immunocompromising conditions

Inactivated vaccines generally are acceptable (e.g., pneumococcal, meningococcal, influenza [inactivated influenza vaccine]) and live vaccines generally are avoided in persons with immune deficiencies or immunocompromising conditions. Information on specific conditions is available at www.cdc.gov/vaccines/pubs/acip-list.htm.

APPENDIX C

Guidelines for Infants, Children, and Adolescents

Recommendations for Preventive Pediatric Health Care

Bright Futures/American Academy of Pediatrics

Each child and family is unique; therefore, these **Recommendations for Preventive Pediatric Health Care** are designed for the care of children who are receiving competent parenting, have no manifestations of any important health problems, and are growing and developing in satisfactory fashion. **Additional visits may become necessary** if circumstances suggest variations from normal.

Developmental, psychosocial, and chronic disease issues for children and adolescents may require frequent counseling and treatment visits separate from preventive care visits.

These guidelines represent a consensus by the American Academy of Pediatrics (AAP) and Bright Futures. The AAP continues to emphasize the great importance of **continuity of care** in comprehensive health supervision and the need to avoid **fragmentation of care**.

The recommendations in this statement do not indicate an exclusive course of treatment or standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

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AGE	INFANCY									EARLY CHILDHOOD					MIDDLE CHILDHOOD					ADOLESCENCE													
	PRENATAL ¹	NEWBORN ²	3-6 d ³	By 1 mo	2 mo	4 mo	6 mo	9 mo	12 mo	15 mo	18 mo	24 mo	30 mo	3 y	4 y	5 y	6 y	7 y	8 y	9 y	10 y	11 y	12 y	13 y	14 y	15 y	16 y	17 y	18 y	19 y	20 y	21 y	
HISTORY Initial/Interval	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
MEASUREMENTS Length/Height and Weight Head Circumference Weight for Length Body Mass Index Blood Pressure ⁴		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
SENSORY SCREENING Vision Hearing		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
DEVELOPMENTAL/BEHAVIORAL ASSESSMENT Developmental Screening ⁵ Autism Screening ⁶ Developmental Surveillance ⁶ Psychosocial/Behavioral Assessment Alcohol and Drug Use Assessment																																	
PHYSICAL EXAMINATION⁸	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
PROCEDURES¹¹ Newborn Metabolic/Hemoglobin Screening ¹² Immunization ¹³ Hematocrit or Hemoglobin ¹⁴ Lead Screening ¹⁵ Tuberculin Test ¹⁶ Dyslipidemia Screening ¹⁷ STI Screening ¹⁸ Cervical Dysplasia Screening ¹⁹		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
ORAL HEALTH²⁰							•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
ANTICIPATORY GUIDANCE²¹	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

1. If a child comes under care for the first time at any point on the schedule or if any items are not accomplished at the suggested age, the schedule should be brought up to date at the earliest possible time.
2. A prenatal visit is recommended for parents who are at high risk, for first-time parents, and for those who request a conference. The prenatal visit should include antenatal guidance, pertinent medical history, and a discussion of benefits of breastfeeding and planned method of feeding per AAP statement "The Prenatal Visit" (2001) [URL: <http://aapolicy.aappublications.org/cgi/content/full/pediatrics.107.6/1456>].
3. Every infant should have a newborn evaluation after birth, breastfeeding encouraged, and instruction and support offered. To include evaluation for feeding and jaundice. Breastfeeding infants should receive formal breastfeeding evaluation, encouragement, and instruction as recommended in AAP statement "Breastfeeding and the Use of Human Milk" (2005) [URL: <http://aapolicy.aappublications.org/cgi/content/full/pediatrics.115/2/489>]. For newborns discharged in less than 48 hours after delivery, the infant must be examined within 48 hours of discharge per AAP statement "Hospital Stay for Healthy Term Newborns" (2004) [URL: <http://aapolicy.aappublications.org/cgi/content/full/pediatrics.113/5/1433>].
4. Blood pressure measurement in infants and children with specific risk conditions should be performed at visits before age 3 years.
5. If the patient is uncooperative, re-examine within 6 months per the AAP statement "Eye Examination in Infants, Children, and Young Adults by Pediatricians" (2007) [URL: <http://aapolicy.aappublications.org/cgi/content/full/pediatrics.111/4/902>].
6. All newborns should be screened per AAP statement "Year 2000 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs" (2000) [URL: <http://aapolicy.aappublications.org/cgi/content/full/pediatrics.106/4/798>]. Joint Committee on Infant Hearing. Year 2007 position statement: principles and guidelines for early hearing detection and intervention programs. Pediatrics. 2007;120:898-921.
7. AAP Council on Children With Disabilities, AAP Section on Developmental Behavioral Pediatrics, AAP Bright Futures Steering Committee, AAP Medical Home Initiatives for Children With Special Needs Project Advisory Committee. Identifying infants and young children with developmental disorders in the medical home: an algorithm for developmental surveillance and screening. Pediatrics. 2006;118:405-420 [URL: <http://aapolicy.aappublications.org/cgi/content/full/pediatrics.118/4/405>].
8. Gupta VB, Hyman SL, Johnson CP, et al. Identifying children with autism early? Pediatrics. 2007;119:152-153 [URL: <http://pediatrics.aappublications.org/cgi/content/full/119/1/152>].
9. At each visit, age-appropriate physical examination is essential, with infant totally unclothed, older child unclothed and suitably draped.
10. These may be modified, depending on entry point into schedule and individual need.
11. Newborn metabolic and hemoglobinopathy screening should be done according to state law. Results should be reviewed at visits and appropriate testing or referral done as needed.
12. Schedules per the Committee on Infectious Diseases, published annually in the January issue of Pediatrics. Every visit should be an opportunity to update and complete a child's immunizations.
13. See AAP Pediatric Nutrition Handbook, 5th Edition (2003) for a discussion of universal and selective screening options. See also Recommendations to prevent and control iron deficiency in the United States. MMWR. 1998;47(RR-3):1-36.
14. For children at risk of lead exposure, consult the AAP statement "Lead Exposure in Children: Prevention, Detection, and Management" (2000) [URL: <http://aapolicy.aappublications.org/cgi/content/full/pediatrics.116/4/1038>]. Additionally, screening should be done in accordance with state law where applicable.
15. Perform risk assessments or screens as appropriate, based on universal screening requirements for patients with Medicaid or high prevalence areas.
16. Tuberculosis testing per recommendations of the Committee on Infectious Diseases, published in the current edition of Red Book: Report of the Committee on Infectious Diseases. Testing should be done on recognition of high-risk factors.
17. Third Report of the National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III) Final Report" (2002) [URL: <http://www.nhlbi.nih.gov/contntent/108/25/3143>] and "The Expert Committee Recommendations on the Assessment, Prevention, and Treatment of Child and Adolescent Overweight and Obesity" Supplement to Pediatrics. In press.
18. All sexually active patients should be screened for sexually transmitted infections (STIs).
19. All sexually active girls should have screening for cervical dysplasia as part of a pelvic examination beginning within 3 years of onset of sexual activity or age 21, whichever comes first.
20. Referral to dental home, if available. Otherwise, administer oral health risk assessment. If the primary water source is deficient in fluoride, consider oral fluoride supplementation.
21. At the visits for 3 years and 5 years of age, it should be determined whether the patient has a dental home. If the patient does not have a dental home, a referral should be made to one. If the primary water source is deficient in fluoride, consider oral fluoride supplementation.
22. Refer to the specific guidance by age as listed in Bright Futures Guidelines (Magan JJ, Shaw JS, Duncan PM, eds. Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents. 3rd ed. Elk Grove Village, IL: American Academy of Pediatrics; 2003).

KEY
• = to be performed
★ = risk assessment to be performed, with appropriate action to follow
← → = range during which a service may be provided, with the symbol indicating the preferred age

SACHDNC Recommended Uniform Screening Panel¹
CORE² CONDITIONS³
(as of February 2010)

ACMG Code	Core Condition	Metabolic Disorder			Endocrine Disorder	Hemoglobin Disorder	Other Disorder
		Organic acid condition	Fatty acid oxidation disorders	Amino acid disorders			
PROP	Propionic academia						
MUT	Methylmalonic acidemia (methylmalonyl-CoA mutase)						
Cbl A,B	Methylmalonic acidemia (cobalamin disorders)						
IVA	Isovaleric acidemia						
3-MCC	3-Methylcrotonyl-CoA carboxylase deficiency						
HMG	3-Hydroxy-3-methylglutaric aciduria						
MCD	Holocarboxylase synthase deficiency						
BKT	β-Ketothiolase deficiency						
GA1	Glutaric acidemia type I						
CUD	Carnitine uptake defect/carnitine transport defect						
MCAD	Medium-chain acyl-CoA dehydrogenase deficiency						
VLCAD	Very long-chain acyl-CoA dehydrogenase deficiency						
LCHAD	Long-chain L-3 hydroxyacyl-CoA dehydrogenase deficiency						
TFP	Trifunctional protein deficiency						
ASA	Argininosuccinic aciduria						
CIT	Citrullinemia, type I						
MSUD	Maple syrup urine disease						
HCY	Homocystinuria						
PKU	Classic phenylketonuria						
TYR I	Tyrosinemia, type I						
CH	Primary congenital hypothyroidism						
CAH	Congenital adrenal hyperplasia						
Hb SS	S,S disease (Sickle cell anemia)						
Hb S/BTh	S, β-thalassemia						
Hb S/C	S,C disease						
BIOT	Biotinidase deficiency						
GALT	Classic galactosemia						
SCID	Severe Combined Immunodeficiencies						
CF	Cystic fibrosis						
HEAR	Hearing loss						

1. The selection of these conditions is based on the report "Newborn Screening: Towards a Uniform Screening Panel and System. Genet Med. 2006; 8(5) Suppl: S12-S252" as authored by the American College of Medical Genetics (ACMG) and commissioned by the Health Resources and Services Administration (HRSA).
2. Disorders that should be included in every Newborn Screening Program
3. The Nomenclature for Conditions is based on the report "Naming and Counting Disorders (Conditions) Included in Newborn Screening Panels" Pediatrics 2006; 117 (5) Suppl: S308-S314

SACHDNC Recommended Uniform Screening Panel¹
SECONDARY² CONDITIONS³
(as of February 2010)

ACMG Code	Secondary Condition	Metabolic Disorder			Hemoglobin Disorder	Other Disorder
		Organic acid condition	Fatty acid oxidation disorders	Amino acid disorders		
Cbl C,D	Methylmalonic acidemia with homocystinuria					
MAL	Malonic acidemia					
IBG	Isobutyrylglycinuria					
2MBG	2-Methylbutyrylglycinuria					
3MGA	3-Methylglutaconic aciduria					
2M3HBA	2-Methyl-3-hydroxybutyric aciduria					
SCAD	Short-chain acyl-CoA dehydrogenase deficiency					
M/SCHAD	Medium/short-chain L-3-hydroxyacyl-CoA dehydrogenase deficiency					
GA2	Glutaric acidemia type II					
MCAT	Medium-chain ketoacyl-CoA thiolase deficiency					
DE RED	2,4 Dienoyl-CoA reductase deficiency					
CPT IA	Carnitine palmitoyltransferase type I deficiency					
CPT II	Carnitine palmitoyltransferase type II deficiency					
CACT	Carnitine acylcarnitine translocase deficiency					
ARG	Argininemia					
CIT II	Citrullinemia, type II					
MET	Hypermethioninemia					
H-PHE	Benign hyperphenylalaninemia					
BIOPT (BS)	Biopterin defect in cofactor biosynthesis					
BIOPT (REG)	Biopterin defect in cofactor regeneration					
TYR II	Tyrosinemia, type II					
TRY III	Tyrosinemia, type III					
Var Hb	Various other hemoglobinopathies					
GALE	Galactosepimerase deficiency					
GALK	Galactokinase deficiency					
	T-cell related lymphocyte deficiencies					

1. The selection of these conditions is based on the report "Newborn Screening: Towards a Uniform Screening Panel and System. Genet Med. 2006; 8(5) Suppl: S12-S252" as authored by the American College of Medical Genetics (ACMG) and commissioned by the Health Resources and Services Administration (HRSA).
2. Disorders that can be detected in the differential diagnosis of a core disorder
3. The Nomenclature for Conditions is based on the report "Naming and Counting Disorders (Conditions) Included in Newborn Screening Panels" Pediatrics 2006; 117 (5) Suppl: S308-S314