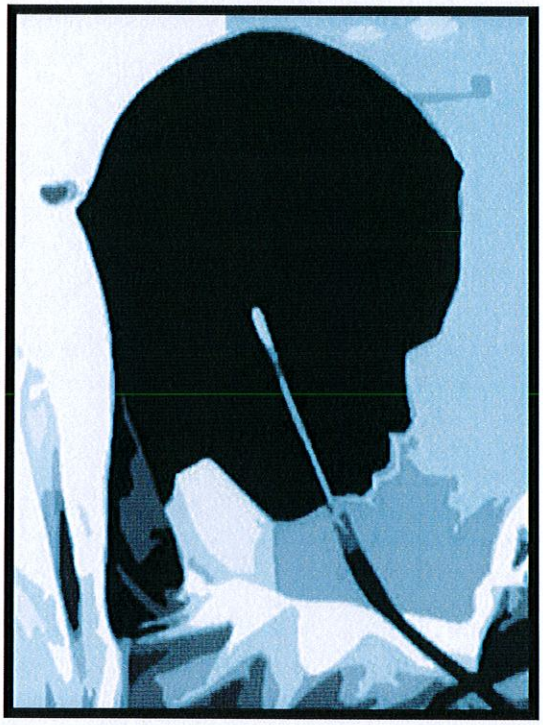

GUIDE TO CONTRAINDICATIONS TO VACCINATIONS

Department of Health & Human Services
Centers for Disease Control and Prevention
National Immunization Program

CDC
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INTRODUCTION

Guide to Contraindications to Vaccination

This guide is designed to help immunization providers determine what common symptoms and conditions should contraindicate vaccination and which ones should not. It supersedes the 2000 *Guide to Contraindications to Childhood Vaccination* and, unlike that and previous Guides, contains information on all licensed U.S. vaccines, not just pediatric vaccines:

Anthrax	Hepatitis B (HB)	Rabies
BCG	Japanese Encephalitis (JE)	Td
DTaP	MMR	Typhoid
DT	Pneumococcal Conjugate (PCV)	Vaccinia (routine, non-emergency use)*
Influenza (Flu)	Pneumococcal Polysaccharide (PPV)	Varicella
Hepatitis A (HA)	Polio (IPV)	Yellow Fever (YF)

Using this Guide

The Guide is arranged alphabetically according to symptoms and conditons that may, correctly or not, be perceived as contraindications to vaccination. The **first column** states the symptom or condition. The **second column** lists individual vaccines, when recommendations differ by vaccine. The **third column** states whether or not a person with that symptom or condition should be vaccinated. **Notes** describe exceptions and special situations, or provide additional information.

When assessing a patient with multiple symptoms, if any one of them is a contraindication, do not vaccinate.

When using a combination vaccine, if there is a contraindication to any of the components, do not vaccinate.

Vaccinia Vaccination During a Smallpox Emergency:** ***No absolute contraindications exist regarding vaccination of a person with a high-risk exposure to smallpox. Persons at greatest risk for experiencing serious vaccination complications are also at greatest risk for death from smallpox. If a relative contraindication to vaccination exists, the risk for experiencing serious vaccination complications must be weighed against the risk for experiencing a potentially fatal smallpox infection. When the level of exposure risk is undetermined, the decision to vaccinate should be made after prudent assessment by the clinician and the patient of the potential risks versus the benefits of smallpox vaccination.

The *Guide to Contraindications to Vaccinations* was developed by the National Immunization Program, Centers for Disease Control and Prevention, using information derived from the *Standards for Pediatric Immunization Practices*, recommendations of the Advisory Committee on Immunization Practices (ACIP), and those of the Committee on Infectious Diseases (Red Book Committee) of the American Academy of Pediatrics (AAP). Some of these recommendations may differ from those stated in manufacturers' package inserts. For more details, consult the published recommendations of the ACIP, the AAP, and the American Academy of Family Physicians (AAFP), and manufacturers' package inserts.

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CHECKLIST (Selected Conditions)

CHECK FOR	REASON	SEE PAGE(S)
Anaphylactic allergies	Contraindicates some vaccines	1-2
Anaphylactic reaction to previous dose of any vaccine	Contraindicates that vaccine	2
Anthrax (prior infection)	Contraindicates anthrax vaccine	2
Antimicrobial therapy (current)	Precaution for several vaccines	2
Eczema or atopic dermatitis in patient or household contact	Contraindicates vaccinia vaccine	3
Guillian-Barré Syndrome, history of	Precaution for DTaP and influenza vaccines	4
Hematopoietic stem cell transplant	Contraindicates varicella vaccine, precaution for several other vaccines	4
HIV (in recipient)	Contraindication or precaution for several vaccines	5
Immune globulin (IG) administration, recent	Precaution for MMR and varicella vaccines	5
Illness (moderate to severe acute illness, fever, otitis, diarrhea, vomiting)	Deferral of vaccination until recovery may be prudent	3, 6, 7, 11
Immunodeficiency: -Family history -In household contact -In recipient	 -Precaution for varicella vaccine -Contraindicates vaccinia and live flu vaccines -Contraindication or precaution for several vaccines	 6 6 6
Neurologic disorder	Precaution for DTaP	7
Pregnancy: -In mother or household contact of recipient -In recipient	 -Contraindicates vaccinia vaccine -Contraindication or precaution for several vaccines	 7 8
Reaction to pevious vaccine dose	May be contraindication or precaution for that vaccine	9
Skin condition (acute, chronic or exfoliative)	Contraindication for vaccinia vaccine	10
Thrombocytopenic purpura (history)	Precaution for MMR vaccine	10

Symptom or Condition	Vaccine(s)	Vaccinate?
Allergies (anaphylactic)		
to any vaccine component (See Appendix A)	All	No
to 2-phenoxyethanol	HA (HAVRIX only) All Others	No Yes
to alum	HA All Others	No Yes
to baker's yeast	HB All Others	No Yes
to chlortetracycline hydrochloride	Vaccinia All Others	No Yes
to duck meat or duck feathers	All	Yes
to eggs	Flu YF All others	No (See Note 1) No Yes

Note 1: Protocols have been published for safely administering influenza vaccine to persons with egg allergies. See "Prevention and Control of Influenza," *MMWR* 2003;52 (No. RR-8) p. 13.

to gelatin	Varicella MMR All Others	See Note 2 See Note 2 Yes

Note 2: If vaccinating persons with a history of an anaphylactic reaction to gelatin or gelatin-containing products with MMR or its component vaccines, or with varicella vaccine, extreme caution should be exercised. Before administering these vaccines to such persons, skin testing for sensitivity to gelatin can be considered. However, no specific protocols for this purpose have been published.

to latex	All	See Note 3

Note 3: If a person reports a severe (anaphylactic) allergy to latex, vaccines supplied in vials or syringes that contain natural rubber should not be administered, unless the benefit of vaccination outweighs the risk of an allergic reaction to the vaccine. For latex allergies other than anaphylactic allergies (e.g., a history of contact allergy to latex gloves), vaccines supplied in vials or syringes that contain dry natural rubber or rubber latex can be administered.

to neomycin	MMR IPV Vaccinia Varicella All Others	No No No No Yes
to penicillin	All	Yes

Symptom or Condition	Vaccine(s)	Vaccinate?
Allergies, continued		
to polymyxin B	IPV Vaccinia All Others	No No Yes
to proteins of rodent or neural origin	JE All Others	No Yes
to streptomycin	IPV Vaccinia All Others	No No Yes
nonspecific or nonanaphylactic	All	Yes
in relatives	All	Yes
to thimerosal	JE All Others	No Yes
Anaphylactic (life-threatening) reaction to previous dose of vaccine	All	No (See Note 4)

Note 4: Contraindicates vaccination only with vaccine to which reaction occurred. (Also, see "Allergies," pp 1 - 2).

Anthrax, prior infection	Anthrax All Others	No Yes
Antimicrobial therapy (current)	Flu (LAIV only) Varicella Typhoid All Others	Yes (See Note 5) Yes (See Note 6) Yes (See Note 7) Yes

Note 5: It is not known whether administering influenza antiviral medications affects the safety or efficacy of live, attenuated influenza vaccine (LAIV); LAIV should not be administered until 48 hours following cessation of influenza antiviral therapy, and influenza antiviral medications should not be administered for two weeks following receipt of LAIV.

Note 6: Antiviral drugs active against herpesviruses (e.g., acyclovir or valacyclovir) might reduce the efficacy of live attenuated varicella vaccine. These drugs should be discontinued ≥24 hours before the administration of varicella vaccine, if possible.

Note 7: The vaccine manufacturer advises that Ty21a should not be administered to persons receiving sulfonamides or other antimicrobial agents. Ty21a should be administered ≥24 hours after an antimicrobial dose. Mefloquine can inhibit the growth of the live Ty21a strain in vitro; if this antimalarial is administered, vaccination with Ty21a should be delayed for 24 hours.

Aspirin or salicylate therapy (children or adolescents)	Flu (LAIV only) All Others	No Yes

Symptom or Condition	Vaccine(s)	Vaccinate?
Blood Disorders (Also see Thrombocytopenia, p. 10)	Flu (LAIV only) All Others	See Note 8 Yes (See Note 9)

Note 8: Persons with hemoglobinopathies should not get LAIV.

Note 9: When [any] intramuscular vaccine is indicated for a patient with a bleeding disorder or a person receiving anticoagulant therapy, the vaccine should be administered intramuscularly if, in the opinion of a physician familiar with the patient's bleeding risk, the vaccine can be administered with reasonable safety by this route. If the patient receives antihemophilia or similar therapy, intramuscular vaccinations can be scheduled shortly after such therapy is administered. A fine needle (≤23 gauge) should be used for the vaccination and firm pressure applied to the site, without rubbing, for ≥2 minutes. The patient or family should be instructed concerning the risk for hematoma from the injection.

Breastfeeding (vaccinate nursing infant)	All	Yes
Breastfeeding (vaccinate lactating mother)	Vaccinia All Others	No Yes
Convalescing from illness	All	Yes
Convulsions (fits, seizures), family history (including epilepsy)	All	Yes (See Note 10)

Note 10: Consider giving acetaminophen before DTaP and every 4 hours thereafter for 24 hours to children who have a personal or a family history of convulsions. (If an underlying neurologic disorder is involved, also see page 7.)

Convulsions (fits, seizures) within 3 days of previous dose of DTaP	DTaP All Others	See Note 11 Yes

Note 11: Not a contraindication, but a precaution. Consider carefully the benefits and risks of this vaccine in these circumstances. If the risks are believed to outweigh the benefits, withhold the vaccination; if the benefits are believed to outweigh the risks (for example, during an outbreak or foreign travel), give the vaccine. (If convulsions are accompanied by encephalopathy, also see page 8. If an underlying neurologic disorder is involved, also see page 7.)

Diarrhea		
Mild (with or without low-grade fever)	All	Yes
Moderate to severe (with or without fever)	All	See Note 12

Note 12: Persons with moderate or severe illnesses, with or without fever, can be vaccinated as soon as they are recovering and no longer acutely ill.

Eczema or Atopic Dermatitis (presence or history of, or household contact with history of)	Vaccinia All Others	No Yes
Encephalopathy (See "Reaction after a previous dose of DTaP," p. 9)		

Symptom or Condition	Vaccine(s)	Vaccinate?
Exposure (recent) to infectious disease	All	Yes
Fever		
Low-grade fever with or without mild illness	All	Yes
Fever with moderate to severe illness	All	See Note 12 (above)
Guillain Barré Syndrome (GBS), history of	Flu (LAIV) Flu (Inactivated) DTaP All Others	No See Note 13 See Note 14 Yes

Note 13: Whether influenza vaccination specifically might increase the risk for recurrence of GBS is not known; therefore, avoiding vaccinating persons who are not at high risk for severe influenza complications and who are known to have developed GBS within 6 weeks after a previous influenza vaccination is prudent. Although data are limited, for the majority of persons who have a history of GBS and who are at high risk for severe complications from influenza, the established benefits of influenza vaccination justify yearly vaccination.

Note 14: The decision to give additional doses of DTaP to children who developed GBS within 6 weeks of a prior dose should be based on consideration of the benefits of further vaccination vs. the risk of recurrence of GBS. For example, completion of the primary series in children is justified.

Heart Conditions	Vaccinia Flu (LAIV only) All Others	No (See Note 15) (See Note 16) Yes

Note 15: As a precaution, a patient who has been diagnosed by a doctor as having a heart condition with or without symptoms should not get the smallpox vaccine at this time while experts continue their investigations. These conditions include: known coronary disease including previous myocardial infarction or angina, congestive heart failure, cardiomyopathy, stroke or transient ischemic attack, chest pain or shortness of breath with activity, or other heart conditions under the care of a doctor.
In addition, a patient should not get smallpox vaccine who has 3 or more of the following factors:
- has been diagnosed with high blood pressure
- has been diagnosed with high blood cholesterol
- has been diagnosed with diabetes or high blood sugar
- has a first degree relative who had a heart condition before the age of 50
- smokes cigarettes

Note 16: Persons with chronic disorders of the cardiovascular system should not get live, attenuated influenza vaccine.

Hematopoietic Stem Cell Transplant (HSCT)	Varicella All Others	No See Note 17

Note 17: Other vaccines are recommended, or may be given, at varying times after transplant and under certain circumstances. For some vaccines, no data exist. **Use of live vaccines is indicated only among immunocompetent pesons and is contraindicated for recipients after HSCT who are not presumed immunocompetent.** HSCT recipients are presumed immunocompetent at ≥24 months after HSCT if they are not on immunosuppressive therapy and do not have graft-versus-host disease. For more information, see "Guidelines for Preventing Opportunistic Infections Among Hematopoietic Stem Cell Transplant Recipients" (*MMWR* Vol 49 No RR-10, October 20, 2000), especially Tables 4 and 6.

Symptom or Condition	Vaccine(s)	Vaccinate?
HIV infection		
in recipient (asymptomatic)	Flu (LAIV only)	No
	Typhoid (Ty21a only)	No
	Vaccinia	No
	Varicella	See Note 18
	MMR	See Note 19
	BCG	No
	YF	No
	All Others	Yes
in recipient (symptomatic)	Flu (LAIV only)	No
	Typhoid (Ty21a only)	No
	Vaccinia	No
	Varicella	See Note 18
	MMR	See Note 20
	BCG	No
	YF	No
	All Others	Yes
in household contact	Flu (LAIV only)	No
	Vaccinia	No
	All Others	Yes

Note 18: Varicella vaccination should be considered for asymptomatic or mildly symptomatic HIV-infected children, specifically children in CDC class N1 or A1*, with age-specific T-cell percentages of 25% or higher.

Note 19: MMR vaccination is recommended for all asymptomatic HIV-infected persons who do not have evidence of severe immunosuppression** for whom measles vaccination would otherwise be indicated.

Note 20: MMR vaccination should be considered for all symptomatic HIV-infected persons who do not have evidence of severe immunosuppression** or of measles immunity.

*See "Prevention of Varicella" (*MMWR* Vol 8 No RR-6, May 28, 1999) p. 3 footnote.
**For definition of severe immunosuppression, see 2003 AAP *Red Book*, Table 3.25, p. 364.

IG administration, recent or simultaneous (intramuscular or intravenous)	MMR	See Note 21
	Varicella	See Note 22
	All Others	Yes

Note 21: Do not give immune globulin products and MMR simultaneously. If unavoidable, give at different sites and revaccinate or test for seroconversion in 3 months. If MMR is given first, do not give IG for 2 weeks. If IG is given first, the interval between IG and measles vaccination depends on the product, the dose, and the indication. (See Appendix B.)
Because of the importance of rubella immunity among childbearing-age women, the postpartum vaccination of rubella-susceptible women with rubella or MMR vaccine should not be delayed because of receipt of anti-Rho(D) globulin or any other blood product during the last trimester of pregnancy or at delivery. These women should be vaccinated immediately after delivery and, if possible, tested ≥3 months later to ensure immunity to rubella and, if necessary, to measles.

Symptom or Condition	Vaccine(s)	Vaccinate?

Note 22: Do not give varicella vaccine for at least 5 months after administration of blood (except washed red blood cells) or after plasma tranfusions, IG, or VZIG. Do not give IG or VZIG for 3 weeks after vaccination unless the benefits exceed those of the vaccination. In such instances, either revaccinate 5 months later or test for immunity 6 months later and revaccinate if seronegative.

Illness

mild acute (with or without low-grade fever)	All	Yes
moderate or severe acute (with or without fever)	All	See Note 23
chronic	Flu (LAIV only)	See Note 24
	All Others	See Note 25

Note 23: Persons with moderate or severe illnesses, with or without fever, can be vaccinated as soon as they are recovering and no longer acutely ill.

Note 24: Persons with asthma, reactive airways disease or other chronic disorders of the pulmonary or cardiovascular systems; persons with other underlying medical conditions, including metabolic diseases such as diabetes, renal dysfunction, and hemoglobinopathies should not receive LAIV.

Note 25: The great majority of persons with chronic illnesses should be appropriately vaccinated. The decision whether or not to vaccinate these persons, and what vaccines to give, should be made on an individual basis.

Immunodeficiency

See also "HIV Infection" (page 5); recommendations differ slightly

family history	Varicella	See Note 26
	All Others	Yes
in household contact	Flu (LAIV only)	No (See Note 27)
	Vaccinia	No
	All Others	Yes
in recipient (hematologic and solid tumors, congenital immunodeficiency, long-term immunosuppressive therapy, including steroids)	Flu (LAIV only)	No
	MMR	No
	PPV	See Note 28
	Rabies	See Note 29
	Typhoid (Ty21a only)	No
	Vaccinia	No
	Varicella	See Note 30
	BCG	No
	YF	No
	All Others	Yes

Symptom or Condition	Vaccine(s)	Vaccinate?

Note 26: Varicella vaccine should not be administered to a person with a family history of congenital or hereditary immunodeficiency in parents or siblings unless that person's immune competence has been clinically substantiated or verified by a laboratory.

Note 27: There are no data assessing the risk of transmission of LAIV from vaccine recipients to immunosuppressed contacts. In the absence of such data, use of inactivated flu vaccine is preferred for vaccinating household members, healthcare workers, and others who have close contact with immunosuppressed individuals.

Note 28: When cancer chemotherapy or other immunosuppressive therapy is being considered (e.g., for patients with Hodgkins disease or those who undergo organ or bone marrow transplantation), the interval between vaccination and initiation of immunosuppressive therapy should be at least 2 weeks. Vaccination during chemotherapy or radiation therapy should be avoided.

Note 29: **Preexposure**: Patients who are immunosuppressed by disease or medications should postpone preexposure vaccinations and consider avoiding activities for which rabies preexposure prophylaxis is indicated. When this course is not possible, immunosuppressed persons who are at risk for rabies should be vaccinated by the IM route and their antibody titers checked. Failure to seroconvert after the third dose should be managed in consultation with appropriate public health officials. **Postexposure**: Immunosuppressive agents should not be administered during postexposure therapy unless essential for treatment of other conditions. When postexposure prophylaxis is administered to an immunosuppressed person, it is especially important that a serum sample be tested for rabies antibody to ensure that an acceptable antibody response has developed.

Note 30: Varicella vaccine should not be administered to persons who have cellular immunodeficiencies, but persons with impaired humoral immunity may be vaccinated. A protocol exists for use of varicella vaccine in patients with acute lymphoblastic leukemia (ALL). See "Prevention of Varicella: Recommendations of the Advisory Committee on Immunization Practices" *MMWR* 1996;45 (No. RR-11).

Neurologic disorders, underlying (including seizure disorders, cerebral palsy, and developmental delay)	DTaP All Others	See Note 31 Yes

Note 31: Whether and when to administer DTaP to children with proven or suspected underlying neurologic disorders should be decided individually. Generally, infants and children with stable neurologic conditions, including well-controlled seizures, may be vaccinated.

Otitis media		
mild (with or without low-grade fever)	All	Yes
moderate or severe (with or without fever)	All	See Note 32
resolving	All	Yes

Note 32: Children with moderate or severe illnesses, with or without fever, can be vaccinated as soon as they are recovering and no longer acutely ill.

Pregnancy		
in mother or household contact of recipient	Vaccinia All Others	No Yes

Continued

Symptom or Condition	Vaccine(s)	Vaccinate?
Pregnancy (continued)		
in recipient	MMR	No (See Note 33)
	Varicella	No (See Note 33)
	Flu (LAIV only)	No
	BCG	No
	Vaccinia	No
	IPV	See Note 34
	HA	See Note 35
	JE	See Note 36
	YF	See Note 37
	PPV	See Note 38
	Typhoid	See Note 38
	All Others	Yes

Note 33: Women should avoid becoming pregnant for 4 weeks following vaccination.

Note 34: If a pregnant woman is at increased risk for infection and requires immediate protection against polio, IPV can be administered in accordance with the recommended schedules for adults.

Note 35: The theoretical risk to the developing fetus is expected to be low. The risk associated with vaccination should be weighed against the risk for hepatitis A in women who may be at high risk for exposure to hepatitis A virus.

Note 36: Pregnant women who must travel to an area where risk of JE is high should be vaccinated when the theoretical risks of immunization are outweighed by the risk of infection to the mother and developing fetus.

Note 37: Pregnant women should not be routinely vaccinated on theoretical grounds, and travel to areas where yellow fever is present should be postponed until after delivery. If international travel requirements constitute the only reason to vaccinate a pregnant woman, rather than an increased risk of infection, efforts should be made to obtain a waiver letter from the traveler's physician. Pregnant women who must travel to areas where the risk of yellow fever is high should be vaccinated.

Note 38: Vaccine is not contraindicated, but no data exist on its use among pregnant women.

Prematurity	HB	Yes (See Note 39)
	All Others	Yes (See Note 40)

Note 39: If an infant weighs less than 2 kg at birth, and the mother is antigen-negative, this infant can receive the first dose of hepatitis B vaccine at chronological age 1 month. Premature infants discharged from the hospital before chronological age 1 month can also be administered hepatitis B vaccine at discharge, if they are medically stable and have gained weight consistently. If the mother is antigen-positive or if her antigen status is not known, use the vaccine schedule in which the first dose, plus HBIG, is given within 12 hours of birth, regardless of the infant's birth weight. If these infants weigh less than 2 kg at birth, this initial dose should not be counted toward completion of the hepatitis B vaccine series, and three additional doses should be administered beginning when the infant is 1 month of age.

Note 40: The appropriate age for initiating vaccinations in the prematurely born infant is the usual chronological age (same dosage and indications as for normal, full-term infants).

Symptom or Condition	Vaccine(s)	Vaccinate?
Reaction to a previous dose of any vaccine		
anaphylactic (life-threatening)	All	No (See Note 41)
local (mild-to-moderate soreness, redness, swelling)	All	Yes

Note 41: Contraindicates vaccination only with vaccine to which reaction occurred. If tetanus toxoid is contraindicated for someone who has not completed a primary tetanus series and that person has a wound that is neither clean nor minor, give only passive vaccination, using tetanus immune globulin (TIG).

Reaction after a previous dose of DTaP		
collapse or shock-like state within 48 hours of dose	DTaP	See Note 42
persistent, inconsolable crying lasting for 3 or more hours, occurring within 48 hours of dose	DTaP	See Note 42
encephalopathy within 7 days after dose	DTaP	No
family history of any adverse event after a dose	DTaP	Yes (See Note 43)
fever of <40.5°C (105°F) within 48 hours after a dose	DTaP	Yes (See Note 43)
fever of ≥40.5°C (105°F) within 48 hours after a dose	DTaP	See Notes 42 & 43
Guillain-Barré syndrome (GBS) within 6 weeks after a dose	DTaP	See Note 44
seizures within 3 days after a dose	DTaP	See Notes 42 & 43

Note 42: Not a contraindication, but consider carefully the benefits and risks of this vaccine under these circumstances. If the risks are believed to outweigh the benefits, withhold the vaccination; if the benefits are believed to outweigh the risks (for example, during an outbreak or foreign travel), give the vaccine.

Note 43: Consider giving acetaminophen before DTaP and every 4 hours thereafter for 24 hours.

Note 44: The decision to give additional doses of DTaP should be based on consideration of the benefits of further vaccination vs. the risk of recurrence of GBS. For example, completion of the primary series in children is justified.

Symptom or Condition	Vaccine(s)	Vaccinate?
Simultaneous administration of vaccines	All	Yes (See Note 45)

Note 45: There is a theoretical risk that the administration of multiple live virus vaccines within 4 weeks of one another, if not given on the same day, will result in a suboptimal immune response. Parenterally administered live vaccines, and live attenuated influenza vaccine, when not administered on the same day should be administered ≥4 weeks apart whenever possible. If these live vaccines are separated by <4 weeks, the vaccine administered second should not be counted as a valid dose and should be repeated ≥4 weeks after the last, invalid, dose.

Skin condition (acute, chronic or exfoliative) in recipient or household contact	Vaccinia All Others	No (See Note 46) Yes

Note 46: Vaccination may be administered after condition resolves. (Recommendations differ for Eczema and Atopic Dermatitis. See p. 9)

Sudden infant death syndrome (SIDS), family history	All	Yes
Steroids (See "Immunodeficiency," p. 6)		
Steroid Eye Drops	Vaccinia All Others	No Yes
Thrombocytopenia, or history of thrombocytopenic purpura	MMR All Others	See Note 47 Yes

Note 47: Consider the benefits of immunity to measles, mumps, and rubella vs. the risk of recurrence or exacerbation of thrombocytopenia after vaccination, or risk from natural infections of measles or rubella. In most instances, the benefits of vaccination will be much greater than the potential risks and will justify giving MMR, particularly in view of the even greater risk of thrombocytopenia following measles or rubella disease. However, if a prior episode of thrombocytopenia occurred near the time of vaccination, it might be prudent to avoid a subsequent dose.

Tuberculin skin testing, performed simultaneously with vaccination	MMR Varicella Vaccinia YF All Others	Yes (See Note 48) Yes (See Note 49) Yes (See Note 49) Yes (See Note 49) Yes

Note 48: Measles vaccination may temporarily suppress tuberculin reactivity. MMR vaccine may be given after, or on the same day as, TB testing. If MMR has been given recently, postpone the TB test until 4-6 weeks after administration of MMR. If giving MMR simultaneously with tuberculin skin test, use the Mantoux test, not multiple puncture tests, because the latter, if results are positive, require confirmation (and confirmation would then have to be postponed 4-6 weeks).

Note 49: No data exist for the potential degree of PPD suppression that might be associated with other parenteral live attenuated virus vaccines. Nevertheless, in the absence of data, following guidelines for measles-containing vaccine when scheduling PPD screening and administering other parenteral live attenuated virus vaccines is prudent.

Symptom or Condition	Vaccine(s)	Vaccinate?
Tuberculosis (TB) or positive PPD	MMR Varicella All Others	See Note 50 See Note 51 Yes

Note 50: A theoretical basis exists for concern that measles vaccine might exacerbate tuberculosis. Consequently, before administering MMR to persons with untreated active tuberculosis, initiating antituberculosis therapy is advisable.

Note 51: Although no data exist regarding whether either varicella or live varicella virus vaccine exacerbates tuberculosis, vaccination is not recommended for persons who have untreated, active tuberculosis.

Unvaccinated household contact	All	Yes
Vomiting		
mild (with or without low-grade fever)	All	Yes
moderate or severe (with or without fever)	All	See Note 52

Note 52: Persons with moderate or severe illnesses, with or without fever, can be vaccinated as soon as they are recovering and no longer acutely ill.

Appendix A
Summary of Contents of Vaccines Licensed in the U.S.

In addition to identifying specific substances that contraindicate certain vaccines (shown under the category "Allergies" on pages 1 and 2 of this Guide), the ACIP also makes the more general statement that a "serious allergic reaction [e.g., anaphylaxis] to a vaccine component" is a contraindication.

The following table summarizes excipients (i.e., inert substances added as a vehicle) contained in vaccines licensed in the United States While these substances, except as noted above, are not specified by the ACIP as contraindications to vaccination, providers should be aware of substances contained in vaccines should they encounter a patient with a known anaphylactic allergy.

Vaccine	Contains
Anthrax (BioThrax)	Aluminum hydroxide, Benzethonium chloride, Formaldehyde or formalin, Sodium chloride
BCG (Tice)	Lactose, Sodium chloride
DTaP (Daptacel)	Aluminum phosphate, Formaldehyde or formalin, Sodium chloride, 2-phenoxyethanol
DTaP (Infanrix)	Formaldehyde or formalin, 2-phenoxyethanol, Phosphate buffers (e.g., disodium, monosodium, potassium, sodium dihydrogen phosphate), Polysorbate 80, Sodium chloride
DTaP (Tripedia)	Aluminum potassium sulfate, Formaldehyde or formalin, Gelatin, Phosphate buffers (e.g., disodium, monosodium, potassium, sodium dihydrogen phosphate), Polysorbate 80, Sodium chloride, Thimerosal*
DTaP (Most brands)	Hydrochloric acid
DTaP/Hib (TriHIBit)	Aluminum potassium sulfate, Formaldehyde or formalin, Gelatin, Phosphate buffers (e.g., disodium, monosodium, potassium, sodium dihydrogen phosphate), Polysorbate 80, Sodium chloride, Thimerosal*, Ammonium sulfate, Sucrose

Appendix A: Vaccine Contents

Vaccine	Contains
DTaP/HepB/IPV (Pediarix)	2-phenoxyethanol, Sodium chloride, Aluminum, Formaldehyde, Polysorbate 80, Thimerosal*, Neomycin, Polymyxin B, Yeast protein
DT (Aventis)	Aluminum potassium sulfate, Formaldehyde or formalin, Sodium chloride, Thimerosal
DT (Massachusetts)	Aluminum hydroxide, Formaldehyde or formalin, Sodium chloride, Thimerosal
DT (Some brands)	Glycine, Hydrochloric acid, Phosphate buffers (e.g., disodium, monosodium, potassium, sodium dihydrogen phosphate), Sodium acetate, Sodium hydroxide
Hib (ACTHib)	Ammonium sulfate, Formaldehyde or formalin, Phosphate buffers (e.g., disodium, monosodium, potassium, sodium dihydrogen phosphate), Sodium chloride, Sucrose
Hib (PedvaxHib)	Aluminum hydroxide, Sodium chloride
Hib (HibTITER)	Yeast protein, Thimerosal (multi-dose)
Hib (Some packages)	Lactose
Hib/HepB (Comvax)	Aluminum hydroxide, Sodium borate, Sodium chloride, Yeast protein
Hep A (Havrix)	Aluminum hydroxide, Amino acids, Bovine albumin or serum, Formaldehyde or formalin, MRC-5 cellular protein, 2-phenoxyethanol, Phosphate buffers (e.g., disodium, monosodium, potassium, sodium dihydrogen phosphate), Polysorbate 20, Sodium chloride
Hep A (Vaqta)	Aluminum hydroxide, Bovine albumin or serum, DNA, Formaldehyde or formalin, MRC-5 cellular protein, Sodium borate, Sodium chloride
Hep B (Engerix-B)	Aluminum hydroxide, Phosphate buffers (e.g., disodium, monosodium, potassium, sodium dihydrogen phosphate) , Sodium chloride, Yeast protein, Thimerosal*
Hep B (Recombivax)	Aluminum hydroxide, Sodium chloride, Yeast protein

Vaccine	Contains
HepA/HepB (Twinrix)	Phosphate-buffer sodium chloride, Alunimum phosphate, Aluminum hydroxide, 2-phenoxyethanol, Amino acids, Polysorbate 20, Formalin, Thimerosal*, Yeast protein, Neomycin sulfate
Influenza (Fluvirin)	Beta-propiolactone, Egg protein, Neomycin, Polymyxin B, Polyoxyethylene 9-10 nonyl phenol (Triton N-101, octoxynol 9), Sodium chloride, Thimerosal
Influenza (Fluzone)	Egg protein, Formaldehyde or formalin, Gelatin, Polyethylene glycol p-isooctylphenyl ether (Triton X-100), Sodium chloride, Thimerosal
Influenza (FluMist)	Egg protein, Gentamicin, Monosodium glutamate, Sucrose, Potassium phosphate
Influenza (varies)	Bactopeptone
IPV (Ipol)	Formaldehyde or formalin, Neomycin, 2-phenoxyethanol, Phosphate buffers (e.g., disodium, monosodium, potassium, sodium dihydrogen phosphate) , Polymyxin B, Sodium chloride, Streptomycin
Japanese Encephalitis (JE-Vax)	Formaldehyde or formalin, Gelatin, Mouse serum protein
Measles (Attenuvax)	Gelatin, Neomycin, Sorbitol
Meningococcal (Menomune)	Lactose, Thimerosal*
Mumps (Mumpsvax)	Gelatin, Neomycin, Sorbitol
MMR (MMR-II)	Gelatin, Neomycin, Sorbitol
Pneumococcal (Pneumovax)	Phenol, Sodium chloride
Pneumococcal (Prevnar)	Aluminum phosphate, Sodium chloride
Rabies (BioRab)	Aluminum phosphate, Phosphate buffers (e.g., disodium, monosodium, potassium, sodium dihydrogen phosphate), Thimerosal

Vaccine	Contains
Rabies (Imovax)	Beta-propiolactone, Bovine albumin or serum, Human serum albumin, MRC-5 cellular protein, Neomycin, Phenol red (phenolsulfonphthalein), Sodium chloride, Vitamins (unspecified)
Rabies (RabAvert)	Amphotericin B, Beta-propiolactone, Bovine albumin or serum, Chlortetracycline, Ethylenediamine-tetraacetic acid sodium (EDTA), Gelatin, MRC-5 cellular protein, Neomycin, Ovalbumin, Potassium glutamate, Sodium chloride
Rubella (Meruvax II)	Gelatin, Neomycin, Sorbitol
Td (Aventis)	Aluminum potassium sulfate, Formaldehyde or formalin, Sodium chloride, Thimerosal, (may contain Glycine, Sodium acetate, Sodium hydroxide)
Td (Massachusetts)	Aluminum hydroxide, Aluminum Phosphate, Formaldehyde or formalin, Sodium chloride, Thimerosal, (may contain Glycine, Sodium acetate, Sodium hydroxide)
Typhoid (inactivated - Typhim Vi)	Phenol, Phosphate buffers (e.g., disodium, monosodium, potassium, sodium dihydrogen phosphate), Polydimethylsilozone, Sodium chloride
Typhoid (oral - TY21a)	Amino acids, Ascorbic acid, Gelatin, Lactose, Magnesium stearate, Sucrose
Vaccinia (DryVax)	Bovine albumin or serum, Brilliant green, Chlortetracycline, Glycerin, Neomycin, Phenol, Polymyxin B, Streptomycin
Varicella (Varivax)	Bovine albumin or serum, Ethylenediamine-tetraacetic acid sodium (EDTA), Gelatin, Monosodium glutamate, MRC-5 cellular protein, Neomycin, Phosphate buffers (e.g., disodium, monosodium, potassium, sodium dihydrogen phosphate), Sodium chloride, Sucrose
Yellow Fever (YF-Vax)	Egg protein, Gelatin, Sodium chloride, Sorbitol

*Whenever "thimerosal" is marked with an asterisk (*) it indicates that the product should be considered equivalent to thimerosal-free products. This vaccine may contain trace amounts (<3 mcg) of mercury left after post-production thimerosal removal, but these amounts have no biological effect. *JAMA* 1999;282(18) and *JAMA* 2000;283(16).

All reasonable efforts have been made to assure the accuracy of this information, but manufacturers may change product contents. If in doubt, check the appropriate package insert.

Information in this appendix was adapted primarily from:
Grabenstein JD. ImmunoFacts: Vaccines & Immunologic Drugs. St. Louis: Facts and Comparisons, August 2002

Appendix B

Suggested Intervals Between Administration of Antibody-Containing Products for Different Indications and Measles-Containing Vaccine and Varicella Vaccine*

Product/Indication	Dose (Including mg immunoglobulin G (IgG)/kg body weight*	Suggested Interval before Measles or Varicella Vaccination
Respiratory syncytial virus immune globulin (IG) monoclonal antibody (Synagis™)**	15 mg/kg intramuscularly (IM)	None
Tetanus IG	250 units (10 mg IgG/kg) IM	3 months
Hepatitis A IG		
Contact prophylaxis	0.02 mL/kg (3.3 mg IgG/kg) IM	3 months
International travel	0.06 mL/kg (10 mg IgG/kg) IM	3 months
Hepatitis B IG	0.06 mL/kg (10 mg IgG/kg) IM	3 months
Rabies IG	20 IU/kg (22 mg IgG/kg) IM	4 months
Varicella IG	125 units/10kg (20-40 mg IgG/kg) IM (maximum 625 units)	5 months
Measles prophylaxis IG		
Standard (i.e., nonimmuno-compromised) contact	0.25 mL/kg (40 mg IgG/kg) IM	5 months
Immunocompromised contact	0.50 mL/kg (80 mg IgG/kg) IM	6 months
Blood transfusion		
Red blood cells (RBCs), washed	10 mL/kg negligible IgG/kg intravenously (IV)	None
RBCs, adenine-saline added	10 mL/kg (10 mg IgG/kg) IV	3 months
Packed RBCs (Hct 65%)***	10 mL/kg (60 mg IgG/kg) IV	6 months
Whole blood (Hct 35-50%)***	10 mL/kg (80-100 mg IgG/kg) IV	6 months
Plasma/platelet products	10 mL/kg (160 mg IgG/kg) IV	7 months
Cytomegalovirus (IGIV)	150 mg/kg maximum	6 months
RSV prophylaxis (IGIV)	750 mg/kg	9 months
IGIV		
Replacement therapy for immune deficiencies****	300-400 mg/kg IV****	8 months
Immune thrombocytopenic purpura	400 mg/kg IV	8 months
Immune thrombocytopenic purpura	1000 mg/kg IV	10 months
Kawasaki disease	2 grams/kg IV	11 months

*This table is not intended for determining the correct indications and dosage for using antibody-containing products. Unvaccinated persons might not be fully protected against measles during the entire recommended interval, and additional doses of immune globulin or measles vaccine might be indicated after measles exposure. Concentrations of measles antibody in an immune globulin preparation can vary by manufacturer's lot. Rates of antibody clearance after receipt of an immune globulin preparation might vary also. Recommended intervals are extrapolated from an estimated half-life of 30 days for passively acquired antibody and an observed interference with the immune response to measles vaccine for 5 months after a dose of 80 mg IgG/kg. (Source: Mason W, Takahashi M, Schneider T. Persisting passively acquired measles antibody following gamma globulin therapy for Kawasaki disease and response to live virus vaccination [Abstract 311]. Presented at the 32nd meeting of the Interscience Conference on Antimicrobial Agents and Chemotherapy, Los Angeles, California, October, 1992.)

**Contains antibody only to respiratory syncytial virus (RSV)

***Assumes a serum IgG concentration of 16 mg/mL

****Measles and varicella vaccination is recommended for children with asymptomatic or mildly symptomatic human immunodeficiency virus (HIV) infection but is contraindicated for persons with severe immunosuppression from HIV or any other immunosuppressive disorder.

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