# The Right Tool for the Job: Precision and Preparation in Immunization Practice

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# Disclosure

Thomas Buckley has no relationships with ineligible companies.

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## Pharmacist Learning Objectives

1. Analyze contraindications as the "measurement" step
2. Determine the correct vaccine, dose, route, and needle length
3. Document and report finishing work
4. Detect administration errors and adverse events
5. Illustrate reliable vaccine information

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## Measure twice – contraindications answer the question: Is the vaccine(s) a go or a no?

- Before screening for contraindications & precautions: review vaccination history, including any missed doses
  - Review what vaccine needed based on age & vaccine history
  - Determine if additional vaccines are indicated based on the patient's health status, occupation, or other risk factors
- When screening for contraindications & precautions, use a standardized screening tool to promote correct & consistent screening practices

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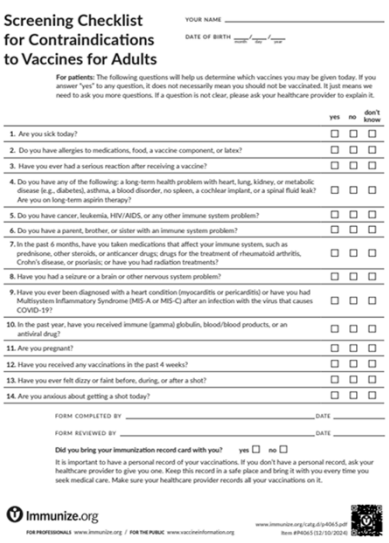
# Screening questionnaires (from state programs or immunize.org)



Screening Checklist for Contraindications to Vaccines for Adults

YOUR NAME _____

DATE OF BIRTH ___/___/___ (month / day / year)

**For patients:** The following questions will help us determine which vaccines you may be given today. If you answer "yes" to any question, it does not necessarily mean you should not be vaccinated. It just means we need to ask you more questions. If a question is not clear, please ask your healthcare provider to explain it.

| | yes | no | don't know |
|---|---|---|---|
| 1. Are you sick today? | ☐ | ☐ | ☐ |
| 2. Do you have allergies to medications, food, a vaccine component, or latex? | ☐ | ☐ | ☐ |
| 3. Have you ever had a serious reaction after receiving a vaccine? | ☐ | ☐ | ☐ |
| 4. Do you have any of the following: a long-term health problem with heart, lung, kidney, or metabolic disease (e.g., diabetes), asthma, a blood disorder, no spleen, a cochlear implant, or a spinal fluid leak? Are you on long-term aspirin therapy? | ☐ | ☐ | ☐ |
| 5. Do you have cancer, leukemia, HIV/AIDS, or any other immune system problem? | ☐ | ☐ | ☐ |
| 6. Do you have a parent, brother, or sister with an immune system problem? | ☐ | ☐ | ☐ |
| 7. In the past 6 months, have you taken medications that affect your immune system, such as prednisone, other steroids, or anticancer drugs; drugs for the treatment of rheumatoid arthritis, Crohn's disease, or psoriasis; or have you had radiation treatments? | ☐ | ☐ | ☐ |
| 8. Have you had a seizure or a brain or other nervous system problem? | ☐ | ☐ | ☐ |
| 9. Have you ever been diagnosed with a heart condition (myocarditis or pericarditis) or have you had Multisystem Inflammatory Syndrome (MIS-A or MIS-C) after an infection with the virus that causes COVID-19? | ☐ | ☐ | ☐ |
| 10. In the past year, have you received immune (gamma) globulin, blood/blood products, or an antiviral drug? | ☐ | ☐ | ☐ |
| 11. Are you pregnant? | ☐ | ☐ | ☐ |
| 12. Have you received any vaccinations in the past 4 weeks? | ☐ | ☐ | ☐ |
| 13. Have you ever felt dizzy or faint before, during, or after a shot? | ☐ | ☐ | ☐ |
| 14. Are you anxious about getting a shot today? | ☐ | ☐ | ☐ |

FORM COMPLETED BY _____ DATE _____

FORM REVIEWED BY _____ DATE _____

**Did you bring your immunization record card with you?** yes ☐ no ☐

It is important to have a personal record of your vaccinations. If you don't have a personal record, ask your healthcare provider to give you one. Keep this record in a safe place and bring it with you every time you seek medical care. Make sure your healthcare provider records all your vaccinations on it.

Immunize.org

FOR PROFESSIONALS www.immunize.org / FOR THE PUBLIC www.vaccineinformation.org

www.immunize.org/catg.d/p4065.pdf

Item #P4065 (12/10/2024)

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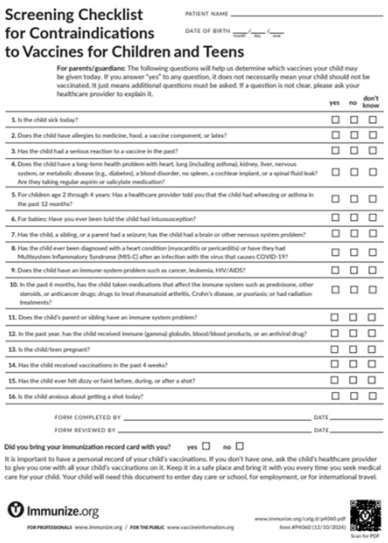

Screening Checklist for Contraindications to Vaccines for Children and Teens

PATIENT NAME _____

DATE OF BIRTH ___/___/___ (month / day / year)

**For parents/guardians:** The following questions will help us determine which vaccines your child may be given today. If you answer "yes" to any question, it does not necessarily mean your child should not be vaccinated. It just means additional questions must be asked. If a question is not clear, please ask your healthcare provider to explain it.

| | yes | no | don't know |
|---|---|---|---|
| 1. Is the child sick today? | ☐ | ☐ | ☐ |
| 2. Does the child have allergies to medicine, food, a vaccine component, or latex? | ☐ | ☐ | ☐ |
| 3. Has the child had a serious reaction to a vaccine in the past? | ☐ | ☐ | ☐ |
| 4. Does the child have a long-term health problem with heart, lung (including asthma), kidney, liver, nervous system, or metabolic disease (e.g., diabetes), a blood disorder, no spleen, a cochlear implant, or a spinal fluid leak? Are they taking regular aspirin or salicylate medication? | ☐ | ☐ | ☐ |
| 5. For children age 2 through 4 years: Has a healthcare provider told you that the child had wheezing or asthma in the past 12 months? | ☐ | ☐ | ☐ |
| 6. For babies: Have you ever been told the child had intussusception? | ☐ | ☐ | ☐ |
| 7. Has the child, a sibling, or a parent had a seizure; has the child had a brain or other nervous system problem? | ☐ | ☐ | ☐ |
| 8. Has the child ever been diagnosed with a heart condition (myocarditis or pericarditis) or have they had Multisystem Inflammatory Syndrome (MIS-C) after an infection with the virus that causes COVID-19? | ☐ | ☐ | ☐ |
| 9. Does the child have an immune-system problem such as cancer, leukemia, HIV/AIDS? | ☐ | ☐ | ☐ |
| 10. In the past 6 months, has the child taken medications that affect the immune system such as prednisone, other steroids, or anticancer drugs; drugs to treat rheumatoid arthritis, Crohn's disease, or psoriasis; or had radiation treatments? | ☐ | ☐ | ☐ |
| 11. Does the child's parent or sibling have an immune system problem? | ☐ | ☐ | ☐ |
| 12. In the past year, has the child received immune (gamma) globulin, blood/blood products, or an antiviral drug? | ☐ | ☐ | ☐ |
| 13. Is the child/teen pregnant? | ☐ | ☐ | ☐ |
| 14. Has the child received vaccinations in the past 4 weeks? | ☐ | ☐ | ☐ |
| 15. Has the child ever felt dizzy or faint before, during, or after a shot? | ☐ | ☐ | ☐ |
| 16. Is the child anxious about getting a shot today? | ☐ | ☐ | ☐ |

FORM COMPLETED BY _____ DATE _____

FORM REVIEWED BY _____ DATE _____

**Did you bring your immunization record card with you?** yes ☐ no ☐

It is important to have a personal record of your child's vaccinations. If you don't have one, ask the child's healthcare provider to give you one with all your child's vaccinations on it. Keep it in a safe place and bring it with you every time you seek medical care for your child. Your child will need this document to enter day care or school, for employment, or for international travel.

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www.immunize.org/catg.d/p4060.pdf

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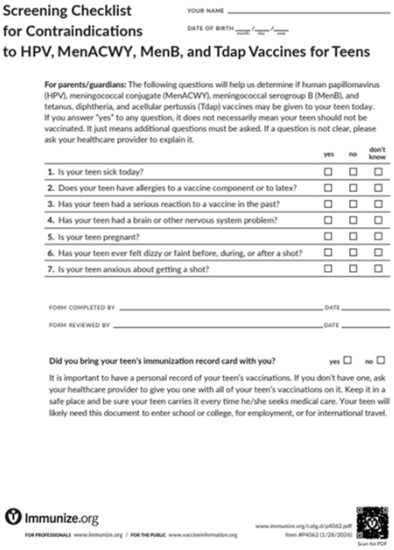
# Screening for specific vaccines



Screening Checklist for Contraindications to HPV, MenACWY, MenB, and Tdap Vaccines for Teens

YOUR NAME _____

DATE OF BIRTH ___/___/___ (month / day / year)

**For parents/guardians:** The following questions will help us determine if human papillomavirus (HPV), meningococcal conjugate (MenACWY), meningococcal serogroup B (MenB), and tetanus, diphtheria, and acellular pertussis (Tdap) vaccines may be given to your teen today. If you answer "yes" to any question, it does not necessarily mean your teen should not be vaccinated. It just means additional questions must be asked. If a question is not clear, please ask your healthcare provider to explain it.

| | yes | no | don't know |
|---|---|---|---|
| 1. Is your teen sick today? | ☐ | ☐ | ☐ |
| 2. Does your teen have allergies to a vaccine component or to latex? | ☐ | ☐ | ☐ |
| 3. Has your teen had a serious reaction to a vaccine in the past? | ☐ | ☐ | ☐ |
| 4. Has your teen had a brain or other nervous system problem? | ☐ | ☐ | ☐ |
| 5. Is your teen pregnant? | ☐ | ☐ | ☐ |
| 6. Has your teen ever felt dizzy or faint before, during, or after a shot? | ☐ | ☐ | ☐ |
| 7. Is your teen anxious about getting a shot? | ☐ | ☐ | ☐ |

FORM COMPLETED BY _____ DATE _____

FORM REVIEWED BY _____ DATE _____

**Did you bring your teen's immunization record card with you?** yes ☐ no ☐

It is important to have a personal record of your teen's vaccinations. If you don't have one, ask your healthcare provider to give you one with all of your teen's vaccinations on it. Keep it in a safe place and be sure your teen carries it every time he/she seeks medical care. Your teen will likely need this document to enter school or college, for employment, or for international travel.

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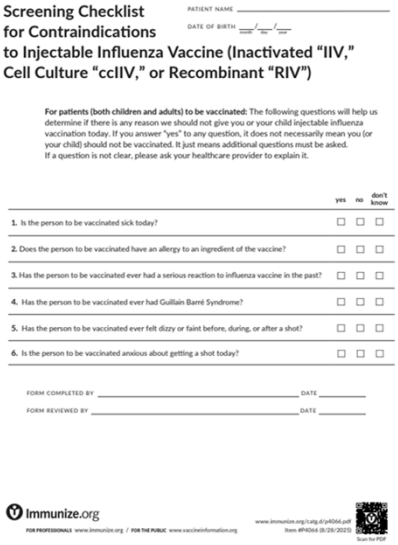

Screening Checklist for Contraindications to Injectable Influenza Vaccine (Inactivated "IIV," Cell Culture "ccIIV," or Recombinant "RIV")

PATIENT NAME _____

DATE OF BIRTH ___/___/___ (month / day / year)

**For patients (both children and adults) to be vaccinated:** The following questions will help us determine if there is any reason we should not give you or your child injectable influenza vaccination today. If you answer "yes" to any question, it does not necessarily mean you (or your child) should not be vaccinated. It just means additional questions must be asked. If a question is not clear, please ask your healthcare provider to explain it.

| | yes | no | don't know |
|---|---|---|---|
| 1. Is the person to be vaccinated sick today? | ☐ | ☐ | ☐ |
| 2. Does the person to be vaccinated have an allergy to an ingredient of the vaccine? | ☐ | ☐ | ☐ |
| 3. Has the person to be vaccinated ever had a serious reaction to influenza vaccine in the past? | ☐ | ☐ | ☐ |
| 4. Has the person to be vaccinated ever had Guillain Barré Syndrome? | ☐ | ☐ | ☐ |
| 5. Has the person to be vaccinated ever felt dizzy or faint before, during, or after a shot? | ☐ | ☐ | ☐ |
| 6. Is the person to be vaccinated anxious about getting a shot today? | ☐ | ☐ | ☐ |

FORM COMPLETED BY _____ DATE _____

FORM REVIEWED BY _____ DATE _____

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www.immunize.org/catg.d/p4066.pdf

Item #P4066 (8/28/2025)

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# Contraindications vs. Precautions

- Contraindications: conditions in a recipient that increase the risk for a serious adverse reaction
  - Because the majority of contraindications are temporary, vaccinations often can be administered later when the condition leading to a contraindication no longer exists.
  - Example: MMR should not be administered to severely immunocompromised persons
  - However, certain conditions are commonly misperceived as contraindications (i.e., are not valid reasons to defer vaccination).

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# Conditions incorrectly perceived as contraindications to vaccination

**TABLE 4-2. Conditions incorrectly perceived as contraindications to vaccination (i.e., vaccines may be given under these conditions)**

| Vaccine | Conditions commonly misperceived as contraindications |
|---|---|
| General for all vaccines, including DTaP, pediatric DT, adult Td, adolescent-adult Tdap, IPV, MMR, Hib, hepatitis A, hepatitis B, varicella, rotavirus, PCV13, IIV, LAIV, PPSV23, MenACWY, MPSV4, HPV, and herpes zoster | Mild acute illness with or without fever<br>Mild to moderate local reaction (i.e., swelling, redness, soreness); low-grade or moderate fever after previous dose<br>Lack of previous physical examination in well-appearing person<br>Current antimicrobial therapy[a]<br>Convalescent phase of illness<br>Preterm birth (hepatitis B vaccine is an exception in certain circumstances)[b]<br>Recent exposure to an infectious disease<br>History of penicillin allergy, other nonvaccine allergies, relatives with allergies, or receiving allergen extract immunotherapy<br>History of GBS[c] |
| DTaP | Fever of <105°F (<40.5°C), fussiness or mild drowsiness after a previous dose of DTP/DTaP<br>Family history of seizures<br>Family history of sudden infant death syndrome<br>Family history of an adverse event after DTP or DTaP administration<br>Stable neurologic conditions (e.g., cerebral palsy, well-controlled seizures, or developmental delay) |
| Hepatitis B | Pregnancy<br>Autoimmune disease (e.g., systemic lupus erythematosus or rheumatoid arthritis) |
| HPV | Immunosuppression<br>Previous equivocal or abnormal Papanicolaou test<br>Known HPV infection<br>Breastfeeding<br>History of genital warts |
| IIV | Nonsevere (e.g., contact) allergy to latex, thimerosal, or egg<br>Concurrent administration of Coumadin (generic: warfarin) or aminophylline |
| IPV | Previous receipt of ≥1 dose of oral polio vaccine |
| LAIV | Health-care providers that see patients with chronic diseases or altered immunocompetence (an exception is providers for severely immunocompromised patients requiring care in a protected environment)<br>Breastfeeding<br>Contacts of persons with chronic disease or altered immunocompetence (an exception is contacts of severely immunocompromised patients requiring care in a protected environment) |
| MMR[d],[e] | Positive tuberculin skin test<br>Simultaneous tuberculin skin or interferon-gamma release assay (IGRA) testing[f]<br>Breastfeeding<br>Pregnancy of recipient's mother or other close or household contact<br>Recipient is female of child-bearing age<br>Immunodeficient family member or household contact<br>Asymptomatic or mildly symptomatic HIV infection<br>Allergy to eggs |
| PPSV23 | History of invasive pneumococcal disease or pneumonia |
| Rotavirus | Prematurity<br>Immunosuppressed household contacts<br>Pregnant household contacts |
| Tdap | History of fever of ≥105°F (≥40.5°C) for <48 hours after vaccination with a previous dose of DTP or DTaP<br>History of collapse or shock-like state (i.e., hypotonic hyporesponsive episode) within 48 hours after receiving a previous dose of DTP/DTaP<br>History of seizure <3 days after receiving a previous dose of DTP/DTaP<br>History of persistent, inconsolable crying lasting >3 hours within 48 hours after receiving a previous dose of DTP/DTaP<br>History of extensive limb swelling after DTP/DTaP/Td that is not an Arthus-type reaction<br>History of stable neurologic disorder<br>History of brachial neuritis<br>Latex allergy that is not anaphylactic<br>Breastfeeding<br>Immunosuppression |
| Varicella | Pregnancy of recipient's mother or other close or household contact<br>Immunodeficient family member or household contact[g]<br>Asymptomatic or mildly symptomatic HIV infection<br>Humoral immunodeficiency (e.g., agammaglobulinemia) |

General Best Practice Guidelines for Immunization: Contraindications and Precautions, www.cdc.gov/vaccines/hcp/acip-recs/general- recs/downloads/general-recs.pdf. Accessed March 2026

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**Zoster vaccine & conditions incorrectly perceived as contraindication**

**Exceptions to conditions incorrectly perceived as contraindication**

General Best Practice Guidelines for Immunization: Contraindications and Precautions, www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf. Accessed March 2026

| | |
|---|---|
| Zoster | Therapy with low-dose methotrexate (≤0.4 mg/kg/week), azathioprine (≤3.0 mg/kg/day), or 6-mercaptopurine (≤1.5 mg/kg/day) for treatment of rheumatoid arthritis, psoriasis, polymyositis, sarcoidosis, inflammatory bowel disease, or other conditions<br>Health-care providers of patients with chronic diseases or altered immunocompetence<br>Contacts of patients with chronic diseases or altered immunocompetence<br>Unknown or uncertain history of varicella in a U.S.-born person |

**Abbreviations:** DT = diphtheria and tetanus toxoids; DTP = diphtheria toxoid, tetanus toxoid, and pertussis; DTaP = diphtheria and tetanus toxoids and acellular pertussis; GBS = Guillain-Barré syndrome; HBsAg = hepatitis B surface antigen; Hib = *Haemophilus influenzae* type b; HIV = human immunodeficiency virus; HPV = human papillomavirus; IIV = inactivated influenza vaccine; IPV = inactivated poliovirus; LAIV = live, attenuated influenza vaccine; MenACWY = quadrivalent meningococcal conjugate vaccine; MMR = measles, mumps, and rubella; $MPSV_4$ = quadrivalent meningococcal polysaccharide vaccine; PCV = pneumococcal conjugate vaccine; PPSV23= pneumococcal polysaccharide vaccine; Td = tetanus and diphtheria toxoids; Tdap = tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis.

(a) Antibacterial drugs might interfere with Ty21a oral typhoid vaccine, and certain antiviral drugs might interfere with varicella-containing vaccines and $LAIV_4$.

(b) Hepatitis B vaccination should be deferred for infants weighing <2,000 g if the mother is documented to be HBsAg negative. Vaccination should commence at chronological age 1 month or at hospital discharge. For infants born to HBsAg-positive women, hepatitis B immune globulin and hepatitis B vaccine should be administered within 12 hours after birth, regardless of weight.

(c) An exception is Guillain-Barré syndrome within 6 weeks of a dose of influenza vaccine or tetanus-toxoid–containing vaccine, which are precautions for influenza vaccines and tetanus-toxoid containing vaccines, respectively.

(d) MMR and varicella vaccines can be administered on the same day. If not administered on the same day, these vaccines should be separated by at least 28 days.

(e) HIV-infected children should receive immune globulin after exposure to measles. HIV-infected children can receive varicella and measles vaccine if $CD_4$+ T-lymphocyte count is >15%. (55).

(f) Measles vaccination might suppress tuberculin reactivity temporarily. Measles-containing vaccine can be administered on the same day as tuberculin skin or IGRA testing. If testing cannot be performed until after the day of MMR vaccination, the test should be postponed for at least 4 weeks after the vaccination. If an urgent need exists to skin test or IGRA, do so with the understanding that reactivity might be reduced by the vaccine.

(g) If a vaccinee experiences a presumed vaccine-related rash 7-25 days after vaccination, the person should avoid direct contact with immunocompromised persons for the duration of the rash.

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# Contraindications vs. Precautions

- A precaution is a condition in a recipient that might increase the risk for a serious adverse reaction, might cause diagnostic confusion, or might compromise the ability of the vaccine to produce immunity
  - Ex: administering measles vaccine to a person with passive immunity to measles from a blood transfusion administered up to 7 months prior
- The precaution risk of a severe reaction is less than the risk from a contraindication
- In general, vaccinations should be deferred when a precaution is present
  - However, a vaccination might be indicated if the benefit of vaccine outweighs the risk for an adverse reaction

General Best Practice Guidelines for Immunization: Contraindications and Precautions, www.cdc.gov/vaccines/hcp/acip-recs/general- recs/downloads/general-recs.pdf. Accessed March 2026

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## When to defer vaccine due to precaution

- The presence of a moderate or severe acute illness with or without a fever is a ***precaution*** to administration of all vaccines:
  - Depends on the severity of symptoms and etiology of the condition
  - The safety and efficacy of vaccinating persons who have ***mild*** illnesses is well documented
  - Vaccination should be deferred for persons with a ***moderate or severe*** acute illness to avoid diagnostic confusion between illness & vaccine adverse effect
  - Studies indicate that failure to vaccinate children with ***minor*** illnesses can impede vaccination efforts

General Best Practice Guidelines for Immunization: Contraindications and Precautions, www.cdc.gov/vaccines/hcp/acip-recs/general- recs/downloads/general-recs.pdf. Accessed March 2026

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## Learning Question #1: Which statement is TRUE concerning contraindications & precautions?

1. A person should not receive a vaccine if a contraindication or precaution exists.
2. If a precaution is present, the decision to vaccinate can be based on a risk/benefit analysis.
3. Recent exposure to an infectious disease and a current mild illness with a fever is a contraindication to receiving any vaccine.

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## Answer to Question #1: Which statement is TRUE concerning contraindications & precautions?

1. A person should not receive a vaccine if a contraindication or precaution exists.
2. **If a precaution is present, the decision to vaccinate can be based on a risk/benefit analysis.**
3. Recent exposure to an infectious disease and a current mild illness with a fever is a contraindication to receiving any vaccine.

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## Vaccine preparation

- Ensure your site has the supplies needed to administer vaccines
- Perform hand hygiene before preparing vaccines
  - Know: when to clean hands, when sanitizer vs soap (sanitizer preferred unless visibly soiled), how to use soap or sanitizer, when to wear (and change) gloves
    - Gloves needed if anticipate contact with blood, mucous membrane, non-intact skin, contaminated skin/equipment
- Before using vaccine, inspect for damage, particulate matter, or contamination, storage temp

https://www.cdc.gov/vaccines/hcp/imz-best-practices/vaccine-administration.html

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# Vaccine preparation

- Prepare vaccines in a clean, designated area
- Follow manufacturer directions, check expiration date on vaccine, diluent, syringes/needles
- Use separate needle & syringe for each injection
  - If possible, give multiple vaccines at same visit but not in same syringe
- Discard all used syringe/needle in a puncture-proof sharps container in immediate area where vaccine is administered
- Avoid pre-filling syringes unless in mass vaccination scenario

https://www.cdc.gov/vaccines/hcp/imz-best-practices/vaccine-administration.html

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# Vaccine preparation

- Needle selection based on:
  - Route, age, gender, weight, site, injection technique
- Site & route selection:
  - Giving wrong recommended route or diluent may reduce effectiveness or increase local adverse reactions
  - Some vaccine doses not valid if administered using the wrong route/diluent, revaccination is required
  - **Oral**: Rotavirus only; **Intranasal**: LAIV (FluMist) only; **SC**: DEN4CYD (Dengvaxia), IPV, MMR, PPSV23, varicella (into triceps behind upper arm); **Intradermal**: monkeypox (Jynneos), inner forearm; **IM**: typically in deltoid, 2" below acromion process

https://www.cdc.gov/vaccines/hcp/imz-best-practices/vaccine-administration.html

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# Preventable errors in vaccine administration – what to do?

- Using the ***wrong diluent or administering the diluent only*** (store vaccine/diluent together)
  - Diluent errors could affect vaccine potency, reduce benefit to patient
  - Use the wrong diluent? Repeat the vaccine (except in mixing up the MMR, MMRV, and varicella vaccine diluents; they use identical sterile water diluent)
  - If an INACTIVATED vaccine is reconstituted with the wrong diluent and then administered, the dose is invalid & be repeated ASAP.
  - If LIVE vaccine is reconstituted with the wrong diluent and given, dose is invalid. Repeat same day, or no earlier than 4 weeks after the invalid dose. The 4-week interval avoids interference between the wrong dose and the later valid dose.
  - If only diluent is administered for recombinant zoster vaccine (Shingrix), dose is invalid. Administer correct dose 4 weeks later.

https://www.immunize.org/wp-content/uploads/catg.d/p3033.pdf

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# Preventable errors in vaccine administration – what to do?

- Administering a vaccine ***after expiration date***
  - If expired vaccine mistakenly given, should be repeated
  - If expired dose is LIVE virus vaccine, must wait at least 4 weeks before repeating it
    - If the error is detected the same day, a repeat dose can be administered that day
    - The repeat dose of an expired INACTIVATED vaccine can be given on the same day or any other time
- Administering vaccine by ***wrong route***
  - If given IM instead of SC or SC instead of IM, it doesn't need to be repeated with the following exceptions:
    - Hepatitis B, rabies, and HPV vaccine that is labeled for IM administration given by any route other than IM should not be counted as valid and should be repeated.

https://www.immunize.org/wp-content/uploads/catg.d/p3033.pdf

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## Learning Question #2:
## Which statement is TRUE concerning preventable errors giving vaccines?

1. Giving a vaccine IM instead of the recommended SC always counts as a valid dose.
2. Despite being more efficient & reducing pain, never give compatible vaccines in the same injection.
3. Giving an expired vaccine dose by mistake can always be repeated the same day.

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## Answer to Question #2:
## Which statement is TRUE concerning preventable errors giving vaccines?

1. Giving a vaccine IM instead of the recommended SC always counts as a valid dose.
2. **Despite being more efficient & reducing pain, never give compatible vaccines in the same injection.**
3. Giving an expired vaccine dose by mistake can always be repeated the same day.

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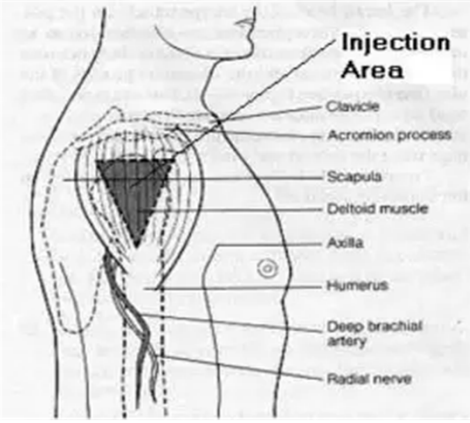
# Administration error with IM

- For deltoid injections, avoid injection too high on the upper arm where injury to the shoulder could result (Shoulder Injury Related to Vaccine Administration, or SIRVA)
  - **#1 reason for malpractice cases is improper administration resulting in SIRVA**
  - **Avoid the upper 1/3 of the deltoid, give 2" (or 2 finger widths) below acromion process**

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# Vaccine preparation and sites

SC Injection

| Age | Needle Length and Gauge | Injection Site |
|---|---|---|
| All ages | 5/8-inch (16 mm): 23- to 25-gauge | Thigh for infants younger than age 12 months*; upper outer triceps area for people age 12 months and older |

IM injection for age birth-18 years old

| Age | Needle Length and Gauge | Injection Site |
|---|---|---|
| Neonate, 28 days or younger | 5/8-inch (16 mm)*: 22- to 25-gauge | Vastus lateralis muscle of anterolateral thigh |
| Infants, 1–12 months | 1-inch (25 mm): 22- to 25-gauge | Vastus lateralis muscle of anterolateral thigh |
| Toddlers, 1–2 years | 1- to 1.25-inch (25–32 mm): 22- to 25-gauge | Vastus lateralis muscle of anterolateral thigh (preferred site) |
| | 5/8*- to 1-inch (16–25 mm): 22- to 25-gauge | Deltoid muscle of arm |
| Children, 3–10 years | 5/8*- to 1-inch (16–25 mm): 22- to 25-gauge | Deltoid muscle of arm (preferred site) |
| | 1- to 1.25-inch (25–32 mm): 22- to 25-gauge | Vastus lateralis muscle of anterolateral thigh |
| Children, 11–18 years | 5/8*- to 1-inch (16–25mm): 22- to 25-gauge | Deltoid muscle of arm (preferred site)† |

https://www.cdc.gov/vaccines/hcp/imz-best-practices/vaccine-administration.html

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# Vaccine preparation and sites

## IM Injection for Adults (age 19 years or older)

| Weight and Sex | Needle Length and Gauge | Injection Site |
|---|---|---|
| Less than 130 lbs (60 kg), both sexes | 1-inch (25 mm)*: 22- to 25-gauge | Deltoid muscle of arm (preferred site)† |
| 130–152 lbs (60–70 kg), both sexes | 1-inch (25 mm): 22- to 25-gauge | |
| Men, 153–260 lbs (70–118 kg) | 1- to 1.5-inch (25–38 mm): 22- to 25-gauge | |
| Women, 153–200 lbs (70–90 kg) | 1- to 1.5-inch (25–38 mm): 22- to 25-gauge | |
| Men, greater than 260 lbs (118 kg) | 1.5-inch (38 mm): 22- to 25-gauge | |
| Women, greater than 200 lbs (90 kg) | 1.5-inch (38 mm): 22- to 25-gauge | |

https://www.cdc.gov/vaccines/hcp/imz-best-practices/vaccine-administration.html

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# Educating the patient or parent

- Provide clear, consistent answers to your patients' questions
- Use patient-focused vaccine information (CDC's VIS), web links, and **trusted resources:**
  - **Immunization Action Coalition** (Immunize.org)
  - **Children's Hospital of Philadelphia** Vaccine Education Center (*Parents PACK* is a monthly e-newsletter)
  - **HealthyChildren.org** (American Academy of Pediatricians)
  - **LetsGetRealAboutVaccines.org** (Immunize.org)
  - **National Foundation for Infectious Disease** (https://www.nfid.org/),
  - **ShotByShot.org** (stories of vaccine preventable diseases)
  - **Vaccinate Your Family**
  - **Vaxopedia** (gives excellent information on anti-vaccine influencers, myths, propaganda)
  - **Voices for Vaccines, WHO**

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# After giving the vaccine

- After-care instructions include when to seek medical attention, & strategies to decrease side effects such as injection site pain, fever
- Syncope: 80% within first 15 minutes
  - Be aware of syncope history, if a history have patient seated or laying down for vaccination
  - Most observation is 15 min, COVID is 30 min
- Allergic reactions: uncommon; anaphylaxis risk for all vaccines = 1/million doses
  - Preventing allergic reaction: check history of allergy reaction to vaccine and components
- Vaccine/supply disposal: biohazard container is closable, puncture-resistant, leakproof, labeled or color-coded
- DO NOT recap, cut, or detach needles from the syringes before disposal

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## Learning Question #3:
## What is the most important factor when administering an IM vaccine injection?

1. To minimize SIRVA, avoid the upper 1/3 of the deltoid muscle.
2. Any needle length and gauge size can be used for adults and children.
3. Having the patient standing avoids a syncope reaction.

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## Answer to Question #3: What is the most important factor when administering an IM vaccine injection?

1. **To minimize SIRVA, avoid the upper 1/3 of the deltoid muscle.**
2. Any needle length and gauge size can be used for adults and children.
3. Having the patient standing avoids a syncope reaction.

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## Documentation & record-keeping

- All vaccines administered should be fully documented in the patient's permanent medical record, include any adverse effect
- National Vaccine Injury Compensation Program requires this documentation:
  - Date of administration
  - Vaccine manufacturer
  - Vaccine lot number
  - Name and title of the person who administered the vaccine and the address of the facility where the permanent record will reside
  - The edition date of the VIS given and the date it was provided to the patient, parent, or legal representative

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# Immunization information systems (IISs)

**(formerly referred to as immunization registries)**

- Confidential databases that record and consolidate information about all vaccine doses administered by participating providers

- In CT, called **CT-WiZ** – records began in 1998 for children, in 2022 for all residents of all ages
  - CT WiZ Public Portal allows individuals who were vaccinated in CT to access own immunization records
  - Parents and guardians can also access their minor child's records
  - Contacts: 860.509.7929, CT immunization website: https://portal.ct.gov/dph/individuals-and-families/immunizations?language=en_US
  - CT vaccine portal (CT-WiZ) website: https://portal.ct.gov/dph/individuals-and-families/immunizations/public-landing-page/ct-wiz?language=en_US

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Resource page for healthcare providers

Includes patient and inventory management, training resources


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**CT Full Vaccine Record**

**There is an Online Form to add or edit Missing Vaccines**

BUCKLEY, THOMAS DATE OF BIRTH: 09/02/1959 AGE: 66 Years 6 Months 3 Days GENDER: Male

! = Invalid Dose ⃠ = Dose determined invalid by provider

| Dose Number | Vaccine | Date Given MM/DD/YYYY | Age at Time of Vaccination |
|---|---|---|---|
| | **DTaP / TD / Tdap** | | |
| 1 | Tdap, Adsorbed | 01/05/2024 | 64 years 4 months 3 days |
| | **Pneumococcal** | | |
| 1 | PCV20 | 10/07/2024 | 65 years 1 months 5 days |
| | **Influenza** | | |
| 1 | Influenza, P-Free | 11/11/2014 | 55 years 2 months 9 days |
| 2 | Influenza Quad Inj P | 11/14/2016 | 57 years 2 months 12 days |
| 3 | Flu MDCK Quad P-Free Inj | 11/13/2017 | 58 years 2 months 11 days |
| 4 | Influenza Quad Inj P | 11/12/2018 | 59 years 2 months 10 days |
| 5 | Influenza Tri W/Pres | 10/28/2021 | 62 years 1 months 26 days |
| 6 | Flu MDCK Quad P-Free Inj | 10/31/2023 | 64 years 1 months 29 days |
| 7 | Influenza, High Dose | 10/07/2024 | 65 years 1 months 5 days |
| 8 | Influenza, High Dose | 10/30/2025 | 66 years 1 months 28 days |
| | **Zoster** | | |
| 1 | Recombinant Zoster | 02/06/2020 | 60 years 5 months 4 days |
| | **COVID-19** | | |
| 1 | COVID-19 mRNA (MOD) | 01/06/2021 | 61 years 4 months 4 days |
| 2 | COVID-19 mRNA (MOD) | 02/05/2021 | 61 years 5 months 3 days |
| 3 | COVID-19 mRNA (MOD) | 11/18/2021 | 62 years 2 months 16 days |
| 4 | COVID-19 mRNA (MOD) | 04/15/2022 | 62 years 7 months 13 days |
| 5 | COVID Bivalent (PFR 12+) | 10/27/2022 | 63 years 1 months 25 days |
| 6 | COVID-19 (MOD) 12+yrs | 09/25/2023 | 64 years 0 months 23 days |
| 7 | COVID-19 (MOD) 12+yrs | 10/07/2024 | 65 years 1 months 5 days |
| 8 | COVID-19 (MOD) 12+yrs | 04/30/2025 | 65 years 7 months 28 days |
| 9 | COVID (MOD) 12+yrs 0.2mL | 09/08/2025 | 66 years 0 months 6 days |
| | **RSV** | | |
| 1 | RSV, bivalent subunit | 09/25/2023 | 64 years 0 months 23 days |

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**CT SMART Health Card**

## COVID-19 Vaccination Record

CONNECTICUT Public Health

Please keep this record card, which includes medical information about the vaccines you have received.

Por favor, guarde esta tarjeta de registro, que incluye información médica sobre las vacunas que ha recibido.

| BUCKLEY | THOMAS | E | |
|---|---|---|---|
| Last Name | First Name | Middle Name | Generation |
| 09/02/1959 | 1616739 | | |
| Date of birth | Patient number (medical record or IIS record number) | | |

| Vaccine | Product Name / Manufacturer<br>Lot Number | Date | Administering Clinic |
|---|---|---|---|
| 1st Dose COVID-19 | COVID-19 mRNA (MOD) / Moderna<br>039K20A | 01/06/2021 | UCHC/MAIN HOSPITAL (C1461P8028) |
| 2nd Dose COVID-19 | COVID-19 mRNA (MOD) / Moderna<br>031L20A | 02/05/2021 | UCHC/MAIN HOSPITAL (C1461P8028) |
| Other | COVID-19 mRNA (MOD) / Moderna<br>065F21A | 11/18/2021 | UCONN UNIVERSITY MEDICAL GROUP (C1521P8070) |
| Other | COVID-19 mRNA (MOD) / Moderna<br>005M21A | 04/15/2022 | CVS PHARMACY/CANTON #2253 (PH7050) |
| Other | COVID Bivalent (PFR 12+) / Pfizer, Inc. (includes Wyeth, Lederle, and Praxis)<br>GH9697 | 10/27/2022 | WALGREENS PHARMACY/CANTON #11604 (PH7221) |
| Other | COVID-19 (MOD) 12+yrs / Moderna<br>205E23A | 09/25/2023 | WALGREENS PHARMACY/BRISTOL #11825 (PH7219) |
| Other | COVID-19 (MOD) 12+yrs / Moderna<br>3043030 | 10/07/2024 | CVS PHARMACY/CANTON #2253 (PH7050) |
| Other | COVID-19 (MOD) 12+yrs / Moderna<br>3046731 | 04/30/2025 | CVS PHARMACY/CANTON #2253 (PH7050) |
| Other | COVID (MOD) 12+yrs 0.2mL / Moderna<br>3052154 | 09/08/2025 | CVS PHARMACY/CANTON #2253 (PH7050) |

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## Reporting an adverse event

- In addition to informing the recipient of the vaccine administration error, health care providers are required by law to report certain errors and adverse events following vaccination to the Vaccine Adverse Event Reporting System (VAERS)
- Reporting is encouraged for any clinically significant adverse event even if it is uncertain whether the vaccine caused the event.
- Information on how to submit a report to VAERS is available at https://vaers.hhs.gov/index.html
  - Or by telephone at 1-800-822-7967

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## Learning Question #4:
### Which statement is TRUE concerning documentation & error reporting of vaccines?

1. Reporting an error to VAERS is done only for serious errors attributable to the vaccine.
2. CT-WiZ is an online portal for the secure protection of pediatric vaccine inventories.
3. CT-WiZ is an online portal of immunization records for all CT residents of all ages.

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## Answer to Question #4:
### Which statement is TRUE concerning documentation & error reporting of vaccines?

1. Reporting an error to VAERS is done only for serious errors attributable to the vaccine.

2. CT-WiZ is an online portal for the secure protection of pediatric vaccine inventories.

3. **CT-WiZ is an online portal of immunization records for all CT residents of all ages**

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## Importance of assessing reliable vaccine information

- Background: The Centers for Disease Control and Prevention's (CDC) Advisory Committee on Immunization Practices (ACIP) was overhauled in the summer/fall of 2025, removing all 17 members.
  - Moved away from established workgroups using specific evaluation tools to assess studies on clinical evidence, implementation, and impact
  - Created uncertainty in whether their recommendations are the high-quality evidence-based recommendations clinicians have relied on
  - CDC's ACIP recommendations have also been tied to insurance coverage & pharmacist vaccine authority in many states
    - Pharmacist authority from PREP Act (provide children 3 -12 years old the COVID-19 and influenza vaccines), requires pharmacists follow the CDC recommendations – will it limit pharmacists' ability to provide certain vaccines or restrict patient access?

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# Impact of CDC ACIP changes

- Immunization recommendations from the CDC do not align with the American Academy of Pediatrics (AAP), American of American Family Physicians (AAFP), American College of Obstetrics and Gynecologists (ACOG), and Infectious Diseases Society of America
- AAP and AAFP provided their own immunization schedules and the ACOG and IDSA provided their own position on immunizations that are important for pregnant persons and immunocompromised, respectively.

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# CDC ACIP changes made 2025-26

- Reduced the number of immunizations routinely recommended for all children from 17 to 11. Made by CDC Acting Director, bypassing ACIP
  - rotavirus, hepatitis A and B, meningitis and seasonal flu are now more restricted (for high-risk or after “shared decision-making”)
- Narrowed Hepatitis B for newborns (overturning a 30+ year practice)
  - Hepatitis B at birth only for infants born to women who test positive for the virus or whose status is unknown. Women whose hepatitis B status is negative should talk with their doctors about vaccination (shared decision-making)
  - Strong objection in medical community as universal birth dose has dramatically decreased Hep B in U.S. children
  - The decision further sows distrust in pediatric vaccinations with the potential to cause irreparable harm.
  - The Pediatric Pharmacy Association recommends continuation of the universal hepatitis B birth dose vaccine strategy to provide an optimal protection strategy for all infants.

J Pediatr Pharmacol Ther 2026;00(0):1–4. DOI: 10.5863/JPPT-26-00107

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# ACIP changes to COVID vaccines

- Recommended that vaccination of persons ≥6 months old against COVID-19 during the 2025-2026 season be based on "shared clinical decision-making"
- For persons <65 years old, the benefits of vaccination *must greatly outweigh the risks* in those who are at increased risk for severe COVID-19

**Push-back from medical organizations:**

- **American Academy of Family Physicians** recommends that **all adults**, including pregnant and lactating women, and all children 6-23 months old receive a COVID-19 vaccine this season
  - recommend vaccination of persons 2-18 years old who are at increased risk for severe COVID-19
- **American Academy of Pediatrics and American College of Obstetricians and Gynecologists** released similar recommendations, going *against* the CDC ACIP recommendations

The Medical Letter on Drugs and Therapeutics, Issue 1739, October 13, 2025

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# Use of "shared clinical decision making" for vaccines

- This phrase now appears on ACIP recommendations and frequently used in confirmation hearings and justifications
- Rather than a clear recommendation CDC is stating every person needs a conversation with their provider
- "Shared clinical decision making" misrepresents public health policy, which is fundamentally different than the dynamic driving personal health decisions involving a patient and a provider
- Vaccination is different than an individual medication decision - *we vaccinate to protect the individual AND the health and wellbeing of the larger community.*

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## Use of "shared clinical decision making" for vaccines

- Herd immunity is not achieved through individualized consultations – it requires collective action through clear and authoritative public health guidance. "Shared clinical decision making" being misused in vaccine policy
- Shared clinical decision recommendations may provide individual benefit, but it is unlikely to make a population-level impact.
- When equivocating on whether vaccines cause autism or work, damage is not limited to one family or individual, it reverberates across communities, putting vulnerable children and adults at risk.

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## How are states, provider organizations responding to new ACIP actions?

- Organizations with adult and pediatric scientists and providers (e.g., AAP, AAFP, ACOG, IDSA) have created a new organization: **Vaccine Integrity Project**, within the Center for Infectious Disease Research & Policy at the University of Minnesota.
- 
- Publish evidence-based reviews (Hep B, Covid, flu, RSV, etc), counters inaccurate or misleading information, synthesizing evidence, and translating research for decision-making :
  https://www.cidrap.umn.edu/vaccine-integrity-project
- Convenes a wide variety of organizations to improve coordination and communication, and address emerging issues
- Translates research into accessible formats for broad dissemination to a range of audiences; monitoring the information environment with the goal of providing rapid-response communication

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## How are states, provider organizations responding to new ACIP actions?

- States have the ultimate authority to decide whether and where to follow federal guidance
- State health alliances have formed (West Coast Health Alliance, Northeast Public Health Collaborative, Governors Public Health Alliance)
  - Goal: share communication and data
- States have de-linked their policies from federal policy
  - Example: 26 states have implemented policies to ensure pharmacists can administer Covid-19 vaccines broadly and without a prescription
- Some states have mandated that state-regulated insurers cover, at no cost, vaccines recommended by the state (even if no longer recommended by ACIP)
- Potential consequence of state alliances: growing partisan divide in public health – can lead to wider disparity to access and outcomes (already seeing this with measles and other outbreaks)

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## Anyone remember the 10th Amendment (1791)?

- Gave primary public health authority (police powers) to the states
- This means the president can't force a person to receive a vaccine and can't deny a state the right to require vaccines
- Many historical examples of conflicts between the federal and state governments in public health:
  - 1796 yellow fever quarantine debate
  - 1905 Supreme Court decision giving states the authority to impose smallpox vaccination requirements
  - Covid-19 pandemic (when the federal government left key decisions to the states) which highlighted the fragmentation of public health resulting in vastly different policies and outcomes across the country

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# What is Connecticut doing?

- Connecticut is among 15 states suing to stop a HHS decision to remove universal recommendations for 7 vaccines. The suit argues these changes are unlawful and endanger public health.

- HB 5044 - An Act Establishing Connecticut Vaccine Standards
- SB 405 - An Act Concerning The Standard Of Care For Immunization
  - Solidifies DPH Commissioner's authority to establish, update, and publish immunization standards for children and adults (using recommendations from AAP, AAFP, IDSA, etc), not solely relying on CDC
  - Both bills seek to **codify the status quo of 2021**
  - All state-regulated individual and group health insurance plans would be **required to cover** those vaccines
  - Expands types of vaccines available through state programs & **increases the authority of pharmacists** to administer a broader range of vaccines
  - Continues to enforce strict school immunization requirements without religious or philosophical exemptions

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# Key Resources

- Although variation among federal & state policies and medical organizations can create uncertainty, it's important for you to review the literature and most reliable evidence so you can best guide your patients on vaccine recommendations.

- Two of the most long standing and reliable resources to answer questions about vaccine history, safety, or excipients are:
  - Institute for Vaccine Safety (www.vaccinesafety.edu)
  - Children's Hospital of Philadelphia's Vaccine Education Center (https://www.chop.edu/vaccine-education-center )

- Most recent collaboration: Vaccine Integrity Project (https://www.cidrap.umn.edu/vaccine-integrity-project)

- For global monitoring of misinformation: Vaccine Confidence Project (https://www.vaccineconfidence.org/). Vaxopedia also excellent source for this type of information (U.S. – focused)

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## Credible sources and what they do

- The Immunization Action Coalition: questions you should ask
- The National Network for Immunization Information (NNii) suggests questions to ask when evaluating information
- The University of California San Francisco's Evaluating Health Information page: "Red Flags" every consumer needs to know
- The Medical Library Association translates medical jargon (Medspeak) into language everyone can understand
  - Uses analogies and metaphors

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## Be aware of misinformation influencers

- Many are paid distributors of misinformation, and have official-sounding names:
  - Children's Health Defense
  - Informed Consent Action Network
  - Front Line COVID-19 Critical Care Alliance (FLCCC)
  - America's Frontline Doctors (AFLDS)
  - National Vaccine Information Center

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## *Judge Strikes Down Kennedy's Vaccine Policies*

**NY Times - March 16, 2026**

- Massachusetts federal judge blocked the government from implementing a series of decisions on vaccines made over the last year by the HHS Secretary
- Ruling reversed all decisions made by CDC Director and ACIP since new committee formed
- Lawsuit brought by six medical organizations, supported by 100+ amicus briefs from public health experts and organizations
- ***Temporary***: The federal government is expected to appeal

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**Learning Question #5:**
**What changes have occurred to ensure reliable vaccine access and information for providers and consumers?**

1. Some states, such as CT, are using medical organization recommendations rather than ACIP for their vaccine standards and reimbursement.
2. All states are using CDC's ACIP recommendations for their vaccine standards and reimbursement.
3. Medical organizations have supported and concurred with ACIP recommendations to ensure consistent vaccine access.

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**Answer to Learning Question #5:**
**What changes have occurred to ensure reliable vaccine access and information for providers and consumers?**

1. **Some states, such as CT, are using medical organization recommendations rather than ACIP for their vaccine standards and reimbursement.**
2. All states are using CDC's ACIP recommendations for their vaccine standards and reimbursement.
3. Medical organizations have supported and concurred with ACIP recommendations to ensure consistent vaccine access.

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# Summary:
# What have we learned today?

1. Use standardized screening questionnaires (i.e. immunize.org) for contraindications and precautions
2. Certain conditions are commonly misperceived as contraindications and are not valid reasons to defer vaccination (analyze and discuss risk/benefit)
3. Be sure preventable errors are prevented, and know what to do if one occurs
4. Using a vaccine registry (CT-WiZ) is valuable for the provider and the patient
5. Organizations and states are modifying their guidelines and laws to ensure vaccine access and credible information
6. However, it's still up to you review the literature for the most reliable evidence so you can best guide your patients on vaccine recommendations.

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# *Thank you!*


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