Immunization: Mountebanks, Grifters, and Frauds (Oh My!): An Update on the Management of Vaccine-Preventable Illnesses in 2025

SOURCE: "The Miserable Mountebank," Early Broadside and Ballads Archive, EBBA ID 33197. Reproduced by permission of the National Library of Scotland.

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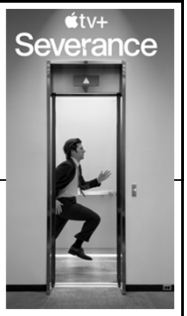
Adjunct Associate Professor, UConn School of Medicine

https://blog.richmond.edu/writing/files/2020/07/Mountebank.jpg
https://pulterproject.northwestern.edu/curations/c72-what-is-a-mountebank.html

1

Umm…Mountebanks ???



"I wouldn't trust a word out of that Mountebank's mouth. Not even televisually."

- Irving B. (Severance s02e04 [Woe's Hollow])

2

Mountebanks…

- **Old Oxford Dictionary:**
  - *A **charlatan**, a person who falsely claims knowledge of or skill in some matter, esp. for personal gain; a person who pretends to be something he or she is not, in order to gain prestige, fame, etc.*
  - *An **itinerant quack** who from an elevated platform appealed to his audience by means of stories, tricks, juggling, and the like, in which he was **often assisted by a professional clown or fool**.*
- **Italian**: *monta inbanco*
  - ***Montare*** = to ascend or go up to a place,
  - ***Banco*** = a bench [“To mount on a bench”]

https://www.oed.com/dictionary/mountebank_n (accessed 12/4/25) https://hillcantons.blogspot.com/2010/10/mountebank-class-take-two.html (accessed 12/4/25) https://pulterproject.northwestern.edu/curations/c72-what-is-a-mountebank.html (accessed 12/4/25)

3

Toady / Toadies…

- **Old Oxford Dictionary**:
  - *One who eats toads; **originally the attendant of a charlatan**, employed to **eat or pretend to eat toads (held to be poisonous) to enable the charlatan to exhibit skill in expelling poison***
  - *figurative. A fawning flatterer, **parasite, sycophant***

https://www.oed.com/dictionary/toad-eater_n (accessed 12/4/25)
https://pulterproject.northwestern.edu/curations/c72-what-is-a-mountebank.html (accessed 12/4/25)
https://www.amazon.com/Posterazzi-Mountebank-Engraving-English-Century/dp/B07C3DZMHM (accessed 12/4/25)

4

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- This activity may contain discussion of unlabeled/unapproved use of drugs.
  - The content and views presented in this educational program are those of the faculty and do not necessarily represent those of the University of Connecticut School of Pharmacy.
  - Please refer to the official prescribing information for each product for discussion of approved indications, contraindications, and warnings

5

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Learning Objectives

- **At the conclusion of this CPE activity, participants should be able to:**

  1) Describe at least one important change (or proposed change) in childhood and adult vaccination recommendations put forth by the CDC and/or ACIP

  2) Given a patient who inquires about receiving respiratory virus or bacteria vaccinations (e.g., Influenza, COVID-19, Respiratory Syncytial Virus (RSV), Pneumococcal), outline important differences between multiple products when they exist

  3) Identify evidence-based pharmacotherapeutic treatments for common vaccine-preventable illnesses

7

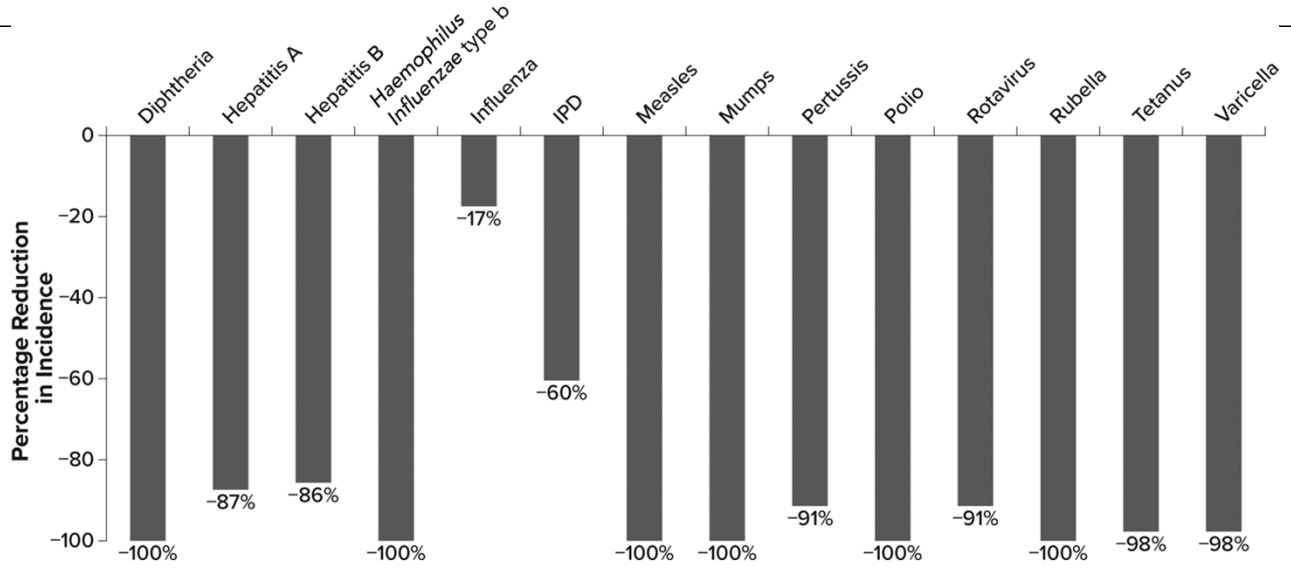
Pre-Test Time!

- The U.S. Dept. of HHS, the CDC, the FDA, and the Advisory Committee on Immunization Practices (ACIP) has been infiltrated by Mountebanks, Grifters, Frauds, Antivax Cranks, and Charlatans…
- Which **ONE** of the following is **NOT** a recommendation that has been **APPROVED** by ACIP in 2025?

  a) All adults receive seasonal influenza vaccines only in single dose formulations that are free of thimerosal as a preservative
  b) State and local jurisdictions should require a prescription for the administration of a COVID-19 vaccination
  c) COVID-19 Vaccination should be based on individual-based decision-making (Shared Clinical Decision Making) for Adults 65 and older
  d) Universal Hepatitis B Vaccination at birth is no longer recommended for all newborns
  e) For Hepatitis B vaccination, post-vaccine serology results should determine need for subsequent doses (in the 3-dose series)

8

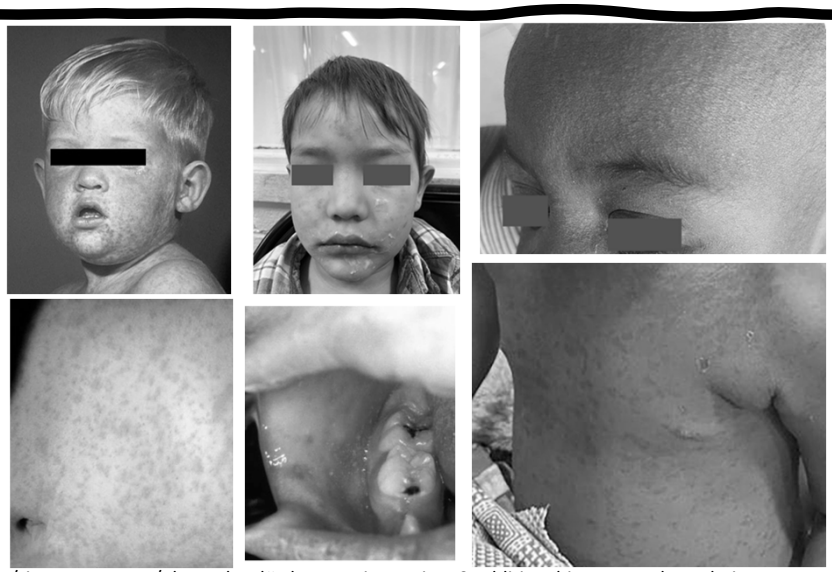
Vaccines used in the U.S. are VERY SAFE and VERY EFFECTIVE



https://publications.aap.org/pediatrics/article/150/3/e2021056013/188495/Impact-of-Routine-Childhood-Immunization-in (accessed 12/5/25)

9

Measles (Rubeola): Overview and Treatment



https://www.cdc.gov/measles/signs-symptoms/photos.html#cdc_generic_section_3-additional-images-and-regulations

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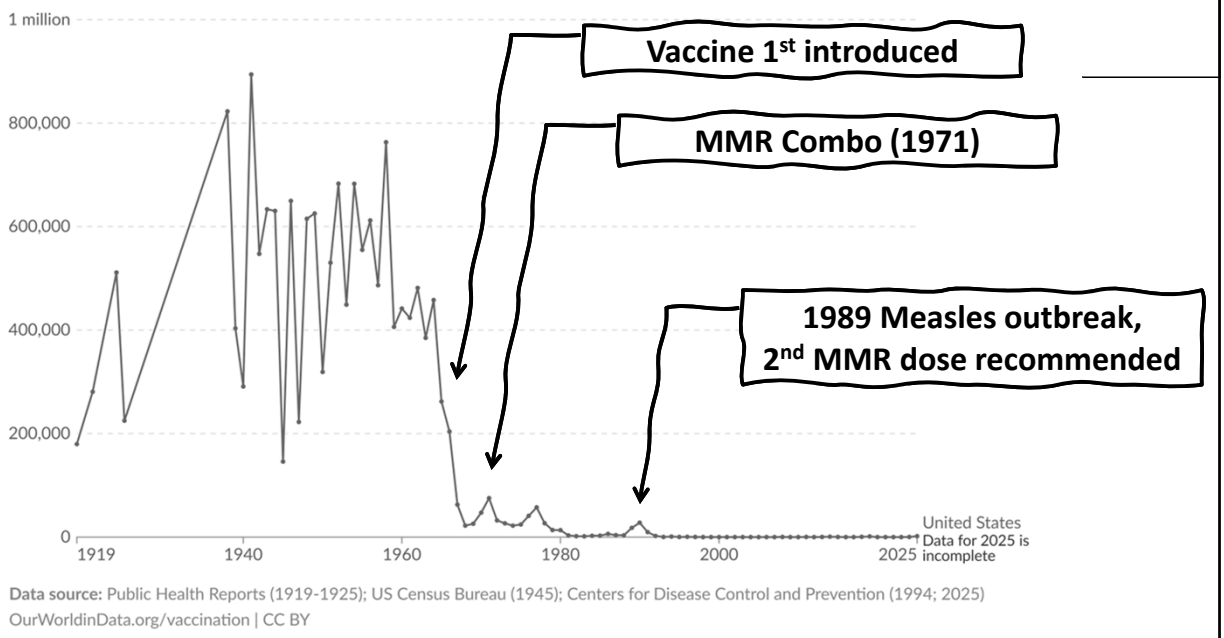
U.S. Measles Cases, 1919-2025



Data source: Public Health Reports (1919-1925); US Census Bureau (1945); Centers for Disease Control and Prevention (1994; 2025)
OurWorldinData.org/vaccination | CC BY

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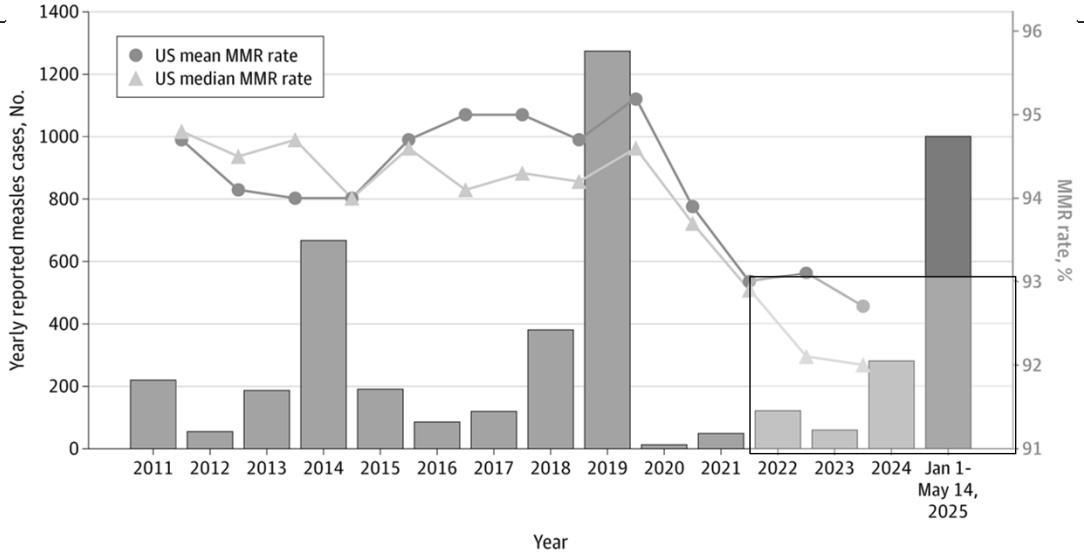
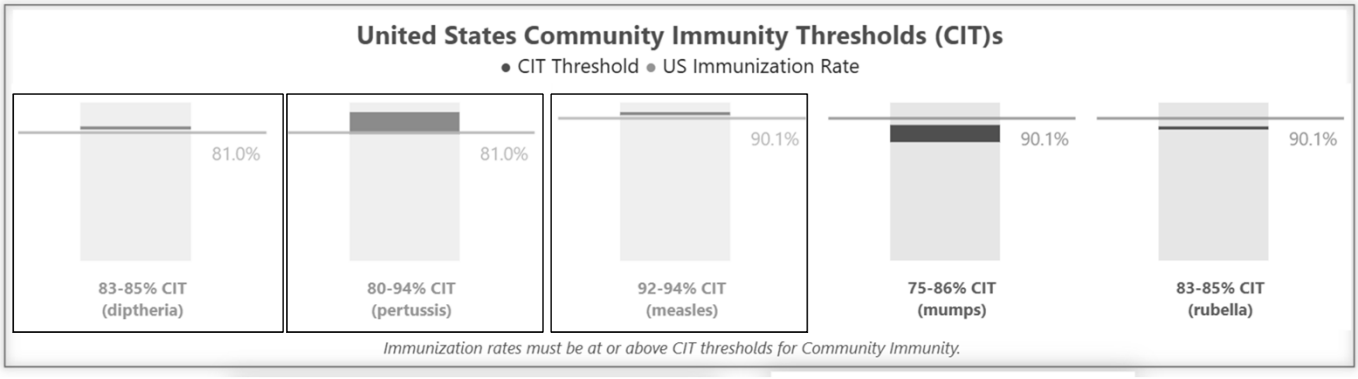
Reported U.S. MMR Vaccine Rates, 2011-2025



https://jamanetwork.com/journals/jama/fullarticle/2834892 (Accessed 12/4/25)

12

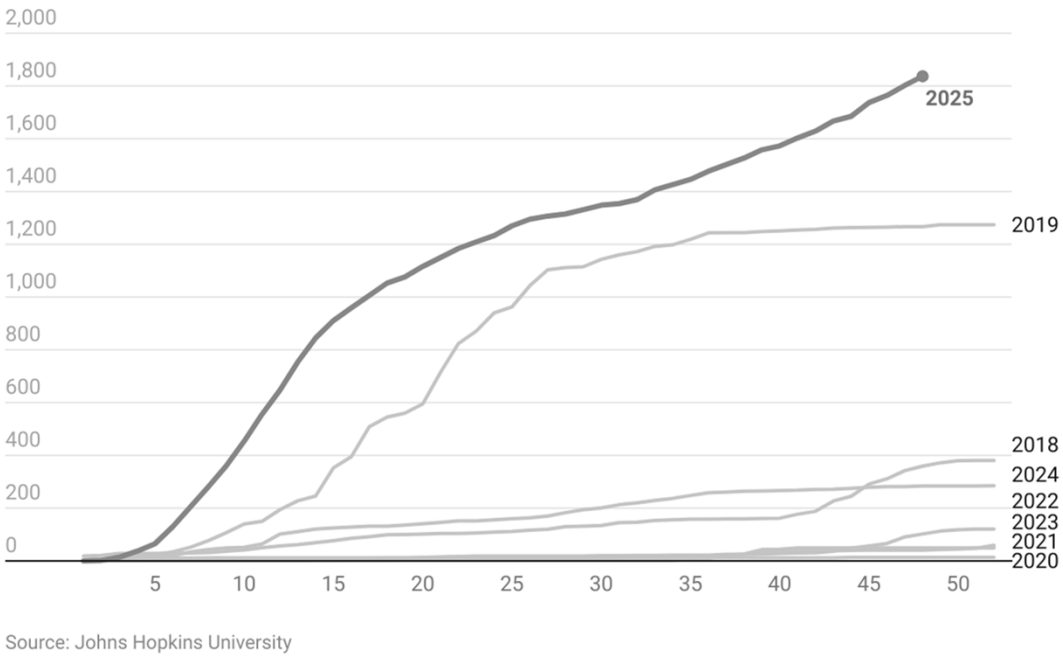
U.S. Community Immunization Thresholds for Common Vaccine-Preventable Illnesses



https://www.aap.org/en/patient-care/immunizations/immunizations-across-america/ (Accessed 12/4/25)

13

Cumulative Yearly U.S. Measles Cases, 2018-2025



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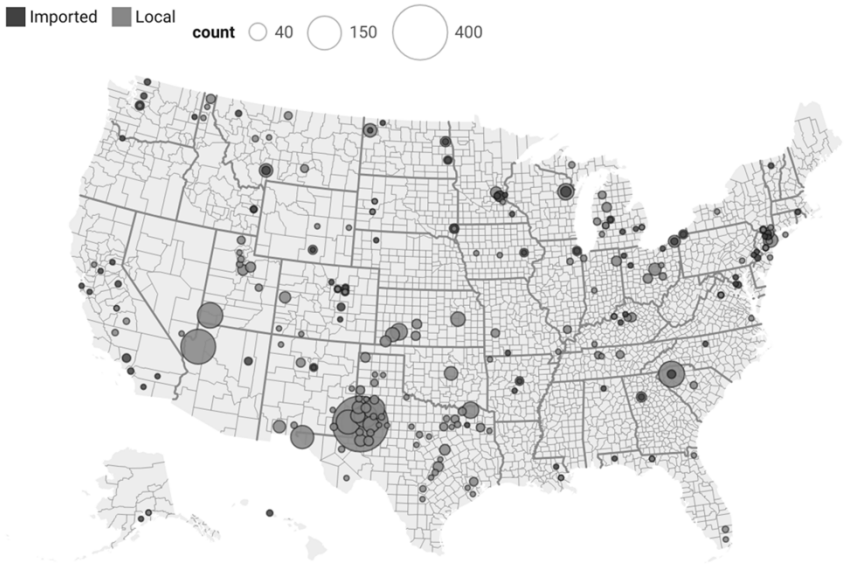
Cumulative Yearly U.S. Measles Cases in 2025



- **1,912 confirmed cases** & counting…
  - **92%** unvaccinated
- 218 (11%) hospitalizations
  - 21% of children <5 y.o.
- 3 confirmed deaths
  - **1st pediatric death since 2003**

https://www.cdc.gov/measles/data-research/index.html (accessed 12/10/25)

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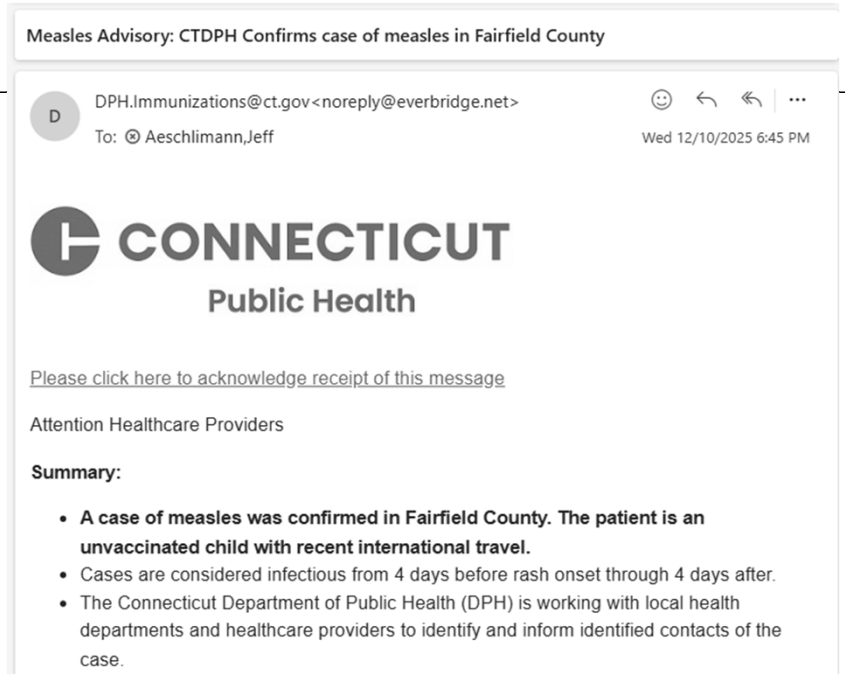
The Measles Outbreak Continues…

- **12/9/25:**
  - **114 reported cases** (Spartanburg county)

https://www.cidrap.umn.edu/measles/us-exceeds-1900-measles-cases-outbreaks-expand (accessed 12/11/25)
https://www.nbcnews.com/health/health-news/measles-south-carolina-quarantine-utah-arizona-us-rcna248435 (accessed 12/11/25)

16

The Measles Outbreak Continues…



Measles Advisory: CTDPH Confirms case of measles in Fairfield County

D DPH.Immunizations@ct.gov<noreply@everbridge.net>

To: Aeschlimann,Jeff

Wed 12/10/2025 6:45 PM

CONNECTICUT Public Health

Please click here to acknowledge receipt of this message

Attention Healthcare Providers

Summary:

- **A case of measles was confirmed in Fairfield County. The patient is an unvaccinated child with recent international travel.**
- Cases are considered infectious from 4 days before rash onset through 4 days after.
- The Connecticut Department of Public Health (DPH) is working with local health departments and healthcare providers to identify and inform identified contacts of the case.

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Measles: Key Facts

- **HIGHLY CONTAGIOUS** (**~90% infection** following exposure if susceptible)
  - Airborne, person-to-person contact
- Infection course: Prodrome phase → Exanthem phase → Recovery/Immunity
- Contagious ± 5 days relative to rash appearance
- **Complications (30% of cases):**
  - Immunosuppression / Secondary infections
  - Diarrhea
  - Pneumonia
  - Encephalitis, Acute disseminated encephalomyelitis (ADEM)

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Treatment of Measles

- **No approved antiviral therapies**
  - *Ribavirin ???*
- **Supportive care:**
  - Antipyretics
  - Fluids/Nutrition
  - Monitoring, diagnosis, & treatment of 2^{o} infections
- **Vitamin A therapy ???**

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Measles Treatment: Vitamin A?

- Serum Vitamin A levels ↓ during measles infection
- **Pre-existing deficiency ± malnutrition w/ acute measles infection:**
  - Possible delayed recovery, ↑ pneumonia mortality
  - Xerophthalmia → Corneal dryness, conjunctival keratinization
- **Barclay, et al. (BMJ 1987;294(6567):294.)**
  - 180 hospitalized children in rural Tanzania
  - 90% with low serum Vit. A
  - Vit. A (200,000 IU) orally x 2 doses
  - ↓ mortality in < 2 y.o. (1/46 vs. 7/42)

https://pubmed.ncbi.nlm.nih.gov/3101849/

TABLE I—*Mortality of children admitted with measles*

Age (months)	No of children admitted: Given vitamin A	No of children admitted: Controls	No (%) who died: Given vitamin A	No (%) who died: Controls
<9	14	9		2 (22)
9-11	12	10		2 (20)
12-23	20	23	1 (5)	3 (13)
24-35	11	16	3 (27)	2 (13)
36-47	11	13	1 (9)	1 (8)
48-59	8	6	1 (13)	
≥60	12	15		2 (13)
Total	88	92	6 (7)	12 (13)

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Measles Treatment: Vitamin A?

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

A Randomized, Controlled Trial of Vitamin A in Children with Severe Measles

Authors: Gregory D. Hussey, M.B., M.Sc.(Lond.), and Max Klein, M.B., F.C.P.(S.A.) Author Info & Affiliations

Published July 19, 1990 | N Engl J Med 1990;323:160-164 | DOI: 10.1056/NEJM199007193230304

VOL. 323 NO. 3

- Randomized, double-blind trial in South Africa
- 189 children < 13 y.o. hospitalized with acute measles complicated by pneumonia, diarrhea, or croup
- Vit. A (200,000 I.U.) orally x 2 doses

- **Results:**
  - ~80% were < 2 y.o, ~66% < 1 y.o.
  - Serum Vit. A ↓ lower limit of normal in 92%

Table 3. Mortality and Morbidity in 189 Children with Measles, According to Treatment Group.*

Characteristic	Placebo (N = 97)	Vitamin A (N = 92)	Relative Risk (95% CI)†	P Value
Death	10	2	0.21 (0.05–0.94)	0.046
Age at death (mo)				
<6	1	0		
6–12	7	1		
13–23	1	1		
≥24	1	0		
Pneumonia (days)				
Duration	*12.37 (5, 8, 17)*	*6.53 (3, 5, 8.5)*		<0.001
≥10	29	12	0.44 (0.24–0.80)	0.008
Diarrhea (days)				
Duration	*8.45 (5, 7, 10)*	*5.61 (3, 5, 7)*		<0.001
≥10	21	8	0.40 (0.19–0.86)	0.023
Postmeasles croup	27	13	0.51 (0.28–0.92)	0.033
With airway intervention	9	3	0.35 (0.10–1.26)	0.16
Herpes stomatitis	9	2	0.23 (0.05–1.06)	0.08
Intensive care	11	4	0.38 (0.13–1.16)	0.13
Adverse outcome‡	52	25	0.51 (0.35–0.74)	<0.001
Hospital stay (days)§	*15.24 (8, 11, 19)*	*10.52 (7, 9, 13)*		0.004

*In the columns representing the treatment groups, the values in italics are means, followed in parentheses by 25th percentiles, medians, and 75th percentiles. All other values are numbers of patients.

†Relative risk denotes the ratio of the incidence of an event in the vitamin A group to the incidence of the event in the placebo group. CI denotes confidence interval.

‡Defined as death, pneumonia ≥10 days in duration, diarrhea ≥10 days in duration, postmeasles croup, or transfer for intensive care.

§Refers to children who survived.

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Measles Treatment: Vitamin A?

- **Cochrane Systematic Review (2005):**
  - "*To determine whether vitamin A, commenced after measles has been diagnosed, prevents mortality, pneumonia or other complications in children*."

- **8 studies (2574 participants) from 1932-1999, 6 blinded**
  - Africa (n=6), Japan (n=1), England (n=1)
  - Generally heterogeneous studies

https://pmc.ncbi.nlm.nih.gov/articles/PMC7076287/

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Measles Treatment: Vitamin A?

- **Cochrane Systematic Review (2005):**
  - **Pooled results from 7 high-quality studies:**
    - **No significant effect on mortality (RR 0.83, CI 0.51-1.34)**
  - Results from **3 high-quality studies** in **hospitalized children** in **high case-fatality areas**:
    - **Significant 64% ↓ in mortality (RR 0.40, CI 0.19-0.87)**
    - Driven by **83% ↓ mortality in children < 2 y.o (RR 0.21, CI 0.07-0.66)**

https://pmc.ncbi.nlm.nih.gov/articles/PMC7076287/

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Measles Treatment: CDC Recommendations

- **Vitamin A:**
  - "…does not prevent measles and is not a substitute for vaccination."
  - "…may be administered to infants and children in the United States with measles under the supervision of a healthcare provider as part of supportive management."
  - "…it should be administered immediately upon diagnosis and repeated the next day for a total of 2 doses."
    - 50,000 IU for infants younger than 6 months of age
    - 100,000 IU for infants 6–11 months of age
    - 200,000 IU for children 12 months of age and older

https://www.cdc.gov/measles/media/pdfs/2025/05/hcp-caring-for-patients-measles-fact-sheet.pdf

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Measles Treatment: CDC Recommendations

- **Ribavirin:**
  - "…demonstrates in vitro activity against measles virus."
  - "While ribavirin has been used to treat patients with severe measles disease or severely immunocompromising conditions, clinical data are lacking regarding its efficacy."
  - "…is not approved by the U.S. Food and Drug Administration (FDA) to treat measles."

https://www.cdc.gov/measles/media/pdfs/2025/05/hcp-caring-for-patients-measles-fact-sheet.pdf

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Measles Treatment: CDC Recommendations

- **Antibiotics:**
  - "There is no evidence to support routine use of antibiotics for measles treatment."
  - "Measles may be complicated by secondary bacterial infections for which antibiotic treatment is indicated."

https://www.cdc.gov/measles/media/pdfs/2025/05/hcp-caring-for-patients-measles-fact-sheet.pdf

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Measles Treatment: CDC Recommendations

- **Isolation:**
  - "Infected people should be isolated for 4 days after they develop a rash; airborne precautions should be followed in healthcare settings."
- **Vaccination:**
  - "MMR vaccination is the best way to prevent measles and its complications."
  - "People exposed to measles may be eligible for post-exposure prophylaxis with MMR vaccine within 72 hours (or immunoglobulin within 6 days)"

https://www.cdc.gov/measles/media/pdfs/2025/05/hcp-caring-for-patients-measles-fact-sheet.pdf

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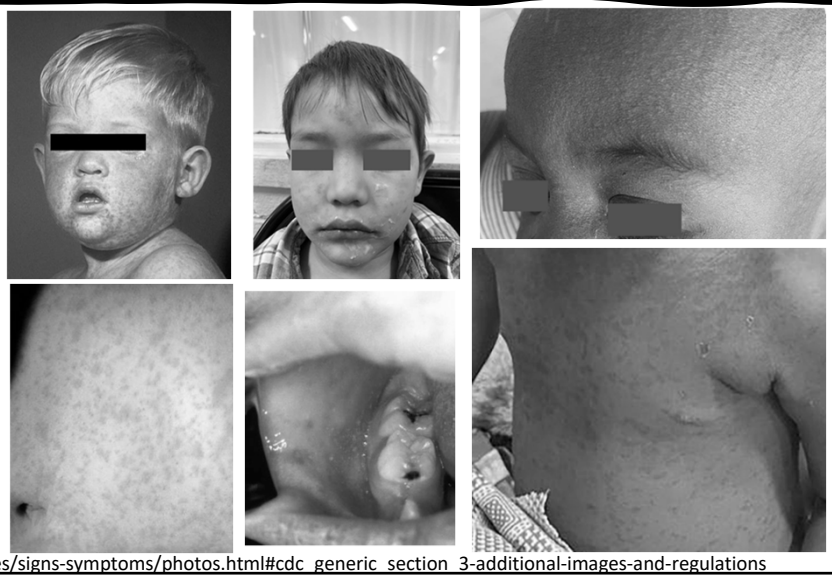
Measles (Rubeola): Prevention / Vaccination



https://www.cdc.gov/measles/signs-symptoms/photos.html#cdc_generic_section_3-additional-images-and-regulations

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Measles Prevention: Routine Vaccination Schedule

Table 1 Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2025

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN®

These recommendations must be read with the Notes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the outlined purple bars. To determine minimum intervals between doses, see the catch-up schedule (Table 2).

Vaccine and other immunizing agents	Birth	1 mos	2 mos	4 mos	6 mos	8 mos	9 mos	12 mos	15 mos	18 mos	19–23 mos	2–3 yrs	4–6 yrs	7–10 yrs	11–12 yrs	13–15 yrs	16 yrs	17–18 yrs
Respiratory syncytial virus (RSV-mAb [nirsevimab, clesrovimab])	1 dose during RSV season depending on maternal RSV vaccination status (See Notes)					1 dose nirsevimab during RSV season (See Notes)												
Hepatitis B (HepB)	1st dose	2nd dose			3rd dose													
Rotavirus (RV): RV1 (2-dose series), RV5 (3-dose series)			1st dose	2nd dose	See Notes													
Diphtheria, tetanus, and acellular pertussis (DTaP <7 yrs)			1st dose	2nd dose	3rd dose				4th dose				5th dose					
Haemophilus influenzae type b (Hib)			1st dose	2nd dose	See Notes			3rd or 4th dose (See Notes)										
Pneumococcal conjugate (PCV15, PCV20)			1st dose	2nd dose	3rd dose			4th dose										
Inactivated poliovirus (IPV)			1st dose	2nd dose	3rd dose								4th dose					See Notes
COVID-19 (1vCOV-mRNA, 1vCOV-aPS)					1 or more doses of 2025–2026 vaccine (See Notes)							1 dose of 2025–2026 vaccine (See Notes)	1 dose of 2025–2026 vaccine (See Notes)					
Influenza					1 or 2 doses annually (See Notes)										1 dose annually (See Notes)			
Measles, mumps, and rubella (MMR)					See Notes			1st dose					2nd dose					
Varicella (VAR)								1st dose					2nd dose					

https://publications.aap.org/redbook/resources/15585 (accessed 12/4/25)

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Measles Prevention: Vaccine Products

- **MMR [Measles-Mumps-Rubella]:**
  - M-M-R II®
  - PRIORIX®
- **MMRV [Measles-Mumps-Rubella-Varicella]:**
  - ProQuad®
- **ALL are FDA-approved for use in children 12 months – 12 years of age**

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Measles Prevention: CDC Recommendations (before Oct. 2025)

Routine Vaccination Recommendations to Protect against Measles

Children

CDC recommends two doses of measles-containing vaccine routinely for children, starting with the first dose at age 12 through 15 months and the second dose at age 4 through 6 years before school entry. This can be administered as MMR or MMRV vaccine. Children can receive the second dose of MMR vaccine earlier than 4 through 6 years, as long as it is at least 28 days after the first dose. A second dose of MMRV vaccine can be given 3 months after the first dose up to 12 years of age.

CDC recommends that separate MMR and varicella vaccines be given for the first dose in children aged 12–47 months; however, MMRV may be used if parents or caregivers express a preference.

https://www.cdc.gov/vaccines/vpd/mmr/hcp/recommendations.html (accessed 12/4/25)

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Measles Prevention – ACIP Changes its Recommendations to CDC for Routine Vaccination

- **9/18/2025 ACIP Meeting:**
  - Voted (8-for, 3-against, 1-abstain) to **REMOVE** the option to use MMRV in children 12-47 months old

Hillary Blackburn, PharmD, M.B.A.

Director of Medication Access and Affordability, AscensionRx, Term: 9/11/2025-6/30/2029

Hillary Blackburn, PharmD, M.B.A., leads initiatives to optimize medication access for underserved populations and improve affordability in value-based care. She previously served as Chief Pharmacy Officer at the Dispensary of Hope, overseeing formulary and research strategy. She is also a leader in professional pharmacy organizations, host of the *Talk to Your Pharmacist* podcast, and author of *How Pharmacists Lead.*

Hilary Blackburn, a pharmacist based in St. Louis, Missouri. She is the daughter-in-law of Republican Tennessee Senator Marsha Blackburn.

Vote: MMRV Vaccines Vote

Dr. Martin Kulldorff (ACIP Chair) read the following proposed ACIP voting language for MMRV vaccines into the record:

The pediatric vaccine schedule should be updated to reflect the following change:
-For measles, mumps, rubella and varicella vaccines given before age 4 years, the combined MMRV vaccine is not recommended.
-Children in this age group should receive separate measles, mumps, and rubella vaccine and varicella vaccine (MMR+V).

Motion/Vote: MMRV Vaccines

Dr. Levi motioned to approve the recommended voting language, stating,
"The pediatric vaccine schedule should be updated to reflect the following change:
-For measles, mumps, rubella and varicella vaccines given before age 4 years, the combined MMRV vaccine is not recommended.
-Children in this age group should receive separate measles, mumps, and rubella vaccine and varicella vaccine (MMR+V)."
Dr. Pagano seconded the motion. No COIs were declared. The motion carried with 8 votes in favor, 3 votes opposed, and 1 abstention. The disposition of the vote was as follows:

8 Favored: Pagano, Milhoan, Stein, Griffin, Pollak, Pebsworth, Levi, Kulldorff
3 Opposed: Blackburn, Hibbeln, Meissner
1 Abstained: Malone

https://www.cdc.gov/acip/downloads/minutes/summary-2025-9-18-19-508.pdf (Accessed 12/5/25)

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Measles Prevention – ACIP Changes its Recommendations to CDC for Routine Vaccination

- **9/18/2025 ACIP Meeting:**
  - Voted (8-for, 3-against, 1-abstain) to **REMOVE** the option to use MMRV in children 12-47 months old
- **Why?????**
  - Original CDC recommendations (from **2009 ACIP**) based off slightly higher risks of fevers/febrile seizures for MMRV vs. separately-administered doses of MMR & VARIVAX [evaluated at 5 & 12 days]…
  - ~1 extra febrile seizure for every 2,300-2,600 administered MMRV doses
  - **No significant new scientific data presented at Sept. 2025 ACIP meeting…**

https://www.cidrap.umn.edu/childhood-vaccines/new-cdc-advisers-scale-back-recommendations-mmrv-vaccine-young-kids (accessed 12/5/25)
https://www.cdc.gov/vaccines/vpd/mmr/hcp/vacopt-faqs-hcp.html (accessed 12/5/25)

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ProQuad® Fever & Febrile Seizures

- **Pre-Marketing Comparative Data:**
  - Two children (of ~2,700) had febrile seizures after ProQuad dose #2
  - These children appeared to have concurrent viral illness during vaccination

Table 1: Vaccine-Related Injection-Site and Systemic Adverse Reactions Reported in ≥1% of Children Who Received ProQuad Dose 1 or M-M-R II and VARIVAX at 12 to 23 Months of Age (0 to 42 Days Postvaccination)

Adverse Reactions	ProQuad (N=4497) (n=4424) %	M-M-R II and VARIVAX (N=2038) (n=1997) %
*Injection Site**		
Pain/tenderness/soreness†	22.0	26.7
Erythema†	14.4	15.8
Swelling†	8.4	9.8
Ecchymosis	1.5	2.3
Rash	2.3	1.5
Systemic		
Fever†,‡	21.5	14.9
Irritability	6.7	6.7
Measles-like rash†	3.0	2.1
Varicella-like rash†	2.1	2.2
Rash (not otherwise specified)	1.6	1.4
Upper respiratory infection	1.3	1.1
Viral exanthema	1.2	1.1
Diarrhea	1.2	1.3

* Injection-site adverse reactions for M-M-R II and VARIVAX are based on occurrence with either of the vaccines administered.
† Designates a solicited adverse reaction. Injection-site adverse reactions were solicited only from Days 0 to 4 postvaccination.
‡ Temperature reported as elevated (≥102°F, oral equivalent) or abnormal.
N = number of subjects vaccinated.
n = number of subjects with safety follow-up.

https://www.merck.com/product/usa/pi_circulars/p/proquad/proquad_pi.pdf

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ProQuad® Fever & Febrile Seizures

- **Post-Marketing Observational Safety Surveillance Study:**
  - Age-, gender-, and date-of-vaccination- (day and month) matched subjects
  - Given M-M-R II and VARIVAX concomitantly
  - Differences only observed following **Dose #1 within the 5-12d evaluation range**:

Table 11: Confirmed Febrile Seizures Days 5 to 12 and 0 to 30 After Vaccination with ProQuad (dose 1) Compared to Concomitant Vaccination with M-M-R II and VARIVAX (dose 1) in Children 12 to 60 Months of Age

Time Period	ProQuad cohort (N=31,298)		MMR+V cohort (N=31,298)		Relative risk (95% CI)
	n	Incidence per 1000	n	Incidence per 1000	
5 to 12 Days	22	0.70	10	0.32	2.20 (1.04, 4.65)
0 to 30 Days	44	1.41	40	1.28	1.10 (0.72, 1.69)

https://www.merck.com/product/usa/pi_circulars/p/proquad/proquad_pi.pdf

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Measles Prevention – ACIP Changes its Recommendations to CDC for Routine Vaccination

- ***What does this mean practically???***
  - CDC adopted the ACIP recommendations on **10/6/25**
  - **Two separate injections now required** for the first MMR / Varicella vaccinations…
  - MMRV ***may not be covered*** for children under 4 y.o. in the **Vaccines for Children** program…
    - But…only ~15% of parents opt to use MMRV for the 12-15 month dose
    - State Medicaid programs & Private Insurers may still choose to cover MMRV

https://www.cidrap.umn.edu/childhood-vaccines/new-cdc-advisers-scale-back-recommendations-mmrv-vaccine-young-kids (accessed 12/5/25)
https://www.astho.org/communications/blog/2025/downstream-effects-of-cdc-adopting-acip-recommendations/ (accessed 12/5/25)

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Measles Prevention: Outbreak Situations

- **2022 ACIP Recommendations:**
  - **General recommendation:**
    - Infants aged **6-11 months** should receive a **single dose** of MMR
  - **Post-Exposure prophylaxis ("PEP"):**
    - Unvaccinated persons should receive 1 dose of MMR within 72 hours of exposure to a person with infectious measles
    - Complete the 2-dose MMR series ≥ 28 days later
  - **Product labelling "Fascinoma":**
    - M-M-R II use in measles PEP is "ON-label"
    - PRIORIX® use in measles PEP is "OFF-label"

https://www.cdc.gov/mmwr/volumes/71/wr/mm7146a1.htm

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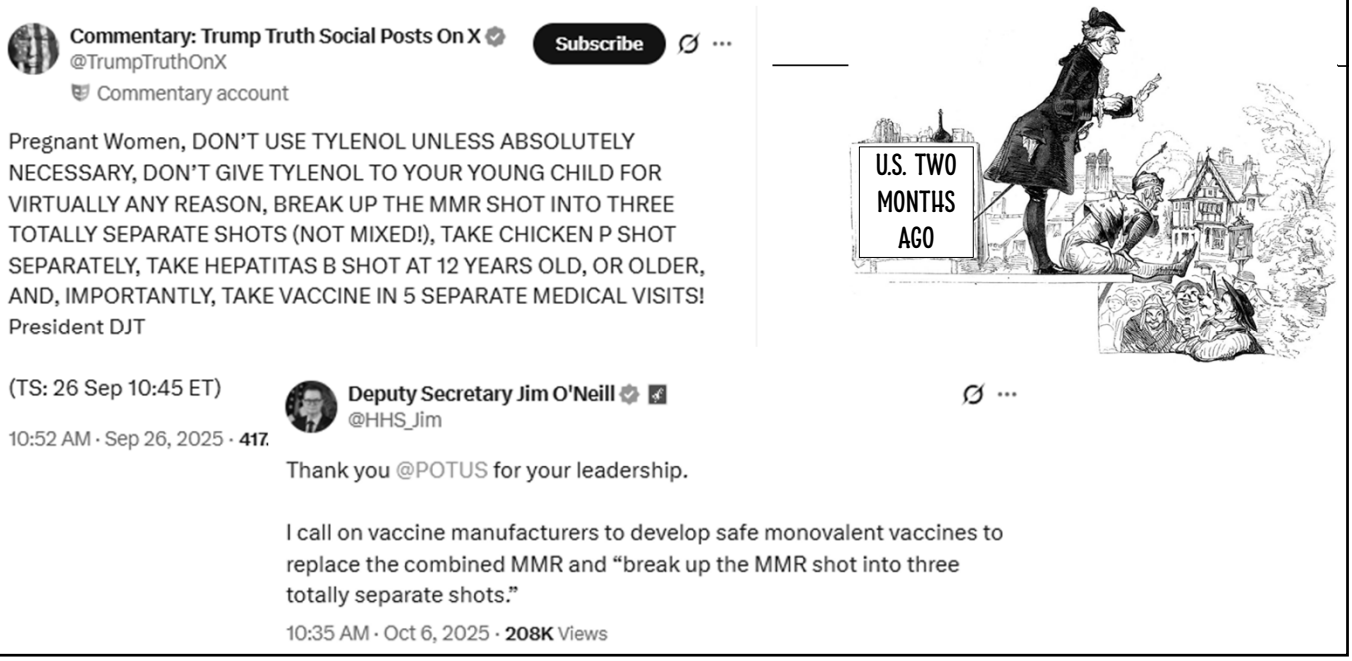
What could be next for MMR Vaccines???



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What could be next for MMR Vaccines???

Acting CDC director calls to 'break up' the measles, mumps and rubella vaccine into three shots

Individual vaccines for each virus aren't available in the U.S., and no published scientific evidence shows a benefit to separating the combined vaccine.

Deputy Health Secretary Jim O'Neill during a Make America Healthy Again Commission meeting in Washington, D.C., on Sept. 9.

By Aria Bendix

Acting CDC Director Jim O'Neill on Monday called on vaccine manufacturers to develop separate shots for measles, mumps and rubella instead of the current vaccine, which combines the three.

O'Neill wrote in a post on X that manufacturers should replace the MMR vaccine with "safe monovalent vaccines," which only target one virus. His statement referenced a recent comment from President Donald Trump, who advised people last month on Truth Social to "break up the MMR shot into three totally separate shots."

Andrew Nixon, a spokesperson for the Department of Health and Human Services, said "standalone vaccinations can potentially reduce the risk of side effects and can maximize parental choice in childhood immunizations." He did not offer evidence for his statement about side effects.

The measles, mumps and rubella vaccine has been available as a combination shot since 1971, in part to reduce the number of injections that children receive, given that the three are administered at the same ages.

Breaking up the MMR vaccine, a two-dose regimen in which the first shot is recommended at 12 to 15 months and the second at 4 to 6 years, would mean that children would receive six injections instead of two.

https://www.nbcnews.com/health/health-news/separate-measles-mumps-rubella-vaccine-acting-cdc-director-rcna235971 (accessed 12/5/25)

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December 5, 2025: Changes in ACIP Hepatitis B Vaccination Recommendations

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12/5/25 ACIP Meeting Addressing Universal Hepatitis B Vaccine Birth-Dose for Infants

- **Vote #1:**
  - For infants born to HBsAg-negative women:
    - ACIP recommends individual-based decision-making, in consultation with a health care provider, for parents deciding when or if to give the HBV vaccine, including the birth dose. (1) For those not receiving the HBV birth dose, it is suggested that the initial dose is administered no earlier than 2 months of age. Y/N
      - (1) Parents and health care providers should consider vaccine benefits, vaccine risks, and infection risks. Parents and health care providers should also consider whether there are risks, for example, such as a household member is HBsAg-positive or when there is frequent contact with persons who have emigrated from areas where Hepatitis B is common.

https://www.cnn.com/health/live-news/cdc-vaccine-meeting-hepatitis-b-12-05-25 (accessed 12/5/25)

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Results of the 12/5/25 ACIP Meeting & Vote Details

- **Vote #2:**
  - When evaluating the need for a subsequent HBV vaccine dose in children, parents should consult with health care providers to determine if a post-vaccination anti-HBs serology testing should be offered. Serology results should determine whether the established protective anti-HBs titer threshold of ≥10 mIU/mL has been achieved. The cost of this testing should be covered by insurance. Y/N

https://www.cnn.com/health/live-news/cdc-vaccine-meeting-hepatitis-b-12-05-25 (accessed 12/5/25)

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Hepatitis B Infection: Key Facts

- **Incurable** viral infection
- Transmitted through **blood** & **various body fluids**
- **High risk** for perinatal transmission (up to 90%)
- Can survive on surfaces for weeks
- **~90% of infants infected with HepB will develop chronic infection**
- **Chronic infection** leads to:
  - Liver cirrhosis, hepatocellular carcinoma, death

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Hepatitis B Prevention: Routine Vaccination Schedule

Table 1 Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2025

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN®

These recommendations must be read with the Notes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the outlined purple bars. To determine minimum intervals between doses, see the catch-up schedule (Table 2).

Vaccine and other immunizing agents	Birth	1 mos	2 mos	4 mos	6 mos	8 mos	9 mos	12 mos	15 mos	18 mos	19–23 mos	2–3 yrs	4–6 yrs	7–10 yrs	11–12 yrs	13–15 yrs	16 yrs	17–18 yrs
Respiratory syncytial virus (RSV-mAb [nirsevimab, clesrovimab])	1 dose during RSV season depending on maternal RSV vaccination status (See Notes)					1 dose nirsevimab during RSV season (See Notes)												
Hepatitis B (HepB)	1st dose	2nd dose			3rd dose													
Rotavirus (RV): RV1 (2-dose series), RV5 (3-dose series)			1st dose	2nd dose	See Notes													
Diphtheria, tetanus, and acellular pertussis (DTaP <7 yrs)			1st dose	2nd dose	3rd dose				4th dose				5th dose					
Haemophilus influenzae type b (Hib)			1st dose	2nd dose	See Notes			3rd or 4th dose (See Notes)										
Pneumococcal conjugate (PCV15, PCV20)			1st dose	2nd dose	3rd dose			4th dose										
Inactivated poliovirus (IPV)			1st dose	2nd dose	3rd dose								4th dose					See Notes
COVID-19 (1vCOV-mRNA, 1vCOV-aPS)					1 or more doses of 2025–2026 vaccine (See Notes)							1 dose of 2025–2026 vaccine (See Notes)	1 dose of 2025–2026 vaccine (See Notes)					
Influenza					1 or 2 doses annually (See Notes)										1 dose annually (See Notes)			
Measles, mumps, and rubella (MMR)					See Notes			1st dose					2nd dose					
Varicella (VAR)								1st dose					2nd dose					

https://publications.aap.org/redbook/resources/15585

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Hepatitis B Prevention: Vaccine Products

- Recombivax HB (1986)
- Engerix-B (1989)

- Protective antibody responses [anti-Hbs > 10 mIU/mL]:
  - **~25%** after 1st dose
  - **~63%** after 2nd dose
  - **~95%** after 3rd (final) dose

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Perinatal Hepatitis B Prevention: History and Progress

ACIP hepatitis B screening recommendations for pregnant women and perinatal postexposure recommendations for infants, United States

Recommendation	Current?	Date of Initial Recommendation	Date Recommendation Superseded or Modified
Perinatal strategies			
Screening and testing for pregnant women			
Universal HBsAg screening in first trimester	Yes	1988[1]	
Test for HBsAg later in pregnancy for risk behaviors or acute hepatitis	Yes	1988[1]	
Test for HBsAg at delivery if status is unknown	Yes	1988[1]	

- *[HBsAg = Hepatitis B Surface Antigen]*

https://journals.sagepub.com/doi/10.1177/00333549231175548 (accessed 12/5/25)
https://www.cdc.gov/acip/downloads/slides-2025-09-18-19/02-langer-hep-b-508.pdf (accessed 12/5/25)

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Perinatal Hepatitis B Prevention: History and Progress

Recommendation	Current?	Date of Initial Recommendation	Date Recommendation Superseded or Modified
Perinatal strategies			
Post-exposure prophylaxis for infants born to HBsAg (+) pregnant women			
Administer HBIG within 12 hours of birth and HepB vaccine simultaneously or within 7 days of birth	No	1984[2]	1987[3]
Administer HBIG and HepB vaccine at birth*	No	1987[3]	1988[1]
Administer HBIG and HepB vaccine within 12 hours of birth*	Yes	1988[1]	

https://journals.sagepub.com/doi/10.1177/00333549231175548 (accessed 12/5/25)
https://www.cdc.gov/acip/downloads/slides-2025-09-18-19/02-langer-hep-b-508.pdf (accessed 12/5/25)

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Perinatal Hepatitis B Prevention: History and Progress

Recommendation	Current?	Date of Initial Recommendation	Date Recommendation Superseded or Modified
Perinatal strategies			
Infants born to HBsAg status unknown pregnant women			
In populations where screening is not feasible, administer HepB vaccine within 12 hours of birth*	No	1991[4]	2018[5]
Administer HepB vaccine and HBIG within 12 hours of birth*	Yes	2018[5]	

https://journals.sagepub.com/doi/10.1177/00333549231175548 (accessed 12/5/25)
https://www.cdc.gov/acip/downloads/slides-2025-09-18-19/02-langer-hep-b-508.pdf (accessed 12/5/25)

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Perinatal Hepatitis B Prevention: History and Progress

- For **2 decades**, ACIP has recommended that the first dose of universal infant hepatitis B vaccination among infants born to HBsAg(-) women occur close to birth:

ACIP hepatitis B infant vaccination recommendations, United States

Recommendation	Current?	Date of Initial Recommendation	Date Recommendation Superseded or Modified
Infant vaccination strategies			
Universal HepB vaccine before leaving the birth hospital* or within 2 months of age	No	1991[4]	2005[6]
Universal HepB vaccine at the birth hospital*	No	2005[6]	2018[5]
Universal HepB vaccine within 24 hours of birth*	Yes	2018[5]	

https://journals.sagepub.com/doi/10.1177/00333549231175548 (accessed 12/5/25)
https://www.cdc.gov/acip/downloads/slides-2025-09-18-19/02-langer-hep-b-508.pdf (accessed 12/5/25)

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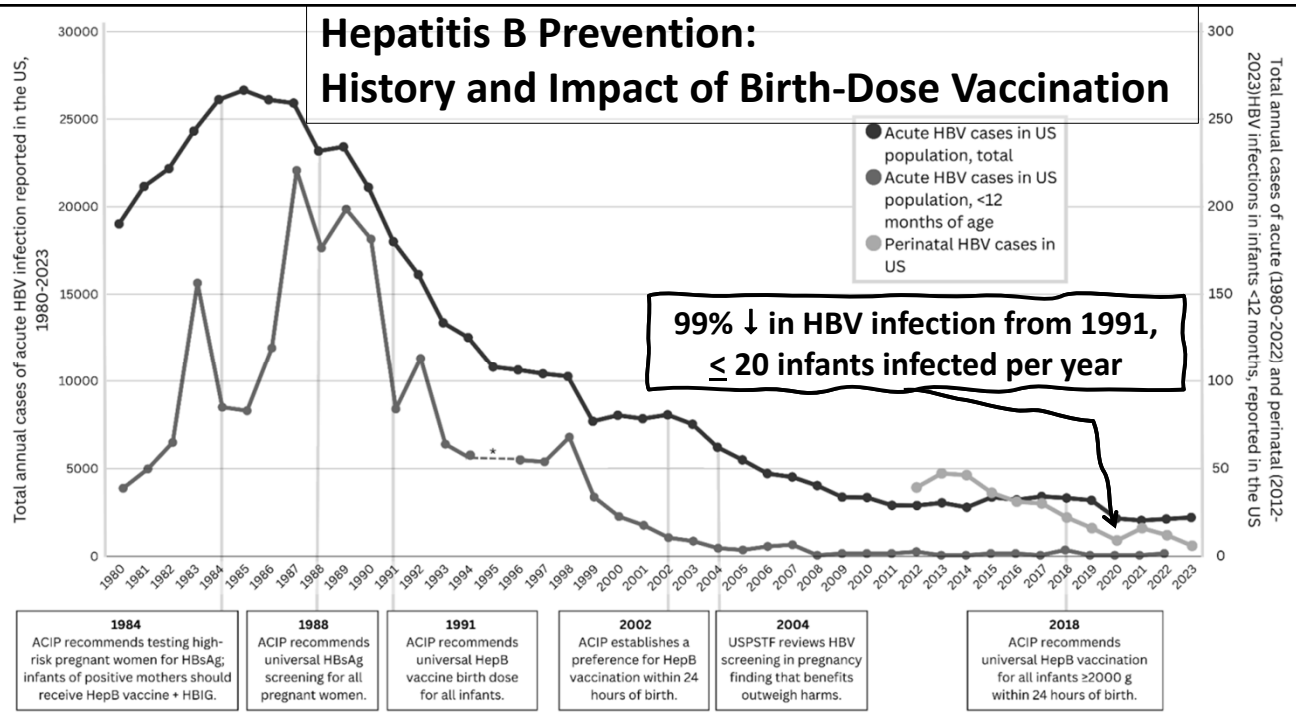
Hepatitis B Prevention: History and Impact of Birth-Dose Vaccination



https://www.cidrap.umn.edu/sites/default/files/searchable-download/Universal%20Hepatitis%20B%20Vaccination%20at%20Birth%202Dec2025.pdf (accessed 12/5/25)

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Why is it important to continue Universal Birth Dose HepB Vaccination?

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HBV infections are missed among some pregnant women and can result in catastrophic outcomes.

Reasons for Gaps In Post-Exposure Prophylaxis

- No prenatal care
- Gaps in prenatal HBV screening
- Incorrect screening tests performed
- Errors in interpreting or transcribing test results
- Lapses in providing standard of care PEP
- Acute seroconversion

Michigan, 1999

"On December 14, 1999, a previously healthy 3-month-old infant was admitted to a hospital with diarrhea and jaundice, and acute hepatic failure attributed to HBV infection was diagnosed. The infant died on December 17, 1999. The infant had not received her first dose of hepatitis B vaccine until age 2.5 months.

The infant's mother was found to be HBsAg-positive at the first of 10 prenatal visits. However, the prenatal-care record provided to the birth hospital indicated that the mother was hepatitis-negative. Neither the provider nor the laboratory reported the mother's test results to MDCH as required by law."

The Immunization Action Coalition documented *more than 500 transmissions of HBV in these types of situations* from 1999 to 2002

HBV = hepatitis B virus; PEP = post-exposure prophylaxis.
Schillie et al. MMWR Recomm Rep. 2018 Jan 12;67(1):1-31.
Willis, B.C., et al., Pediatrics, 2010. 125(4): p. 704-11.
CDC. MMWR Morb Mortal Wkly Rep. 2001 Feb 16;50(6):94-7.
Nolt D, et al. Pediatrics. 2022 Feb 1;149(2)

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https://journals.sagepub.com/doi/10.1177/00333549231175548 (accessed 12/5/25)
https://www.cdc.gov/acip/downloads/slides-2025-09-18-19/02-langer-hep-b-508.pdf (accessed 12/5/25)

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Unvaccinated infants remain at risk of non-perinatal HBV acquisition.

- HBV transmission occurs through percutaneous or mucosal exposure to infectious blood or body fluids
- **HBV can remain viable for over 7 days on environmental surfaces** at room temperature.[1]
- **Household and Community Transmission:** Unvaccinated children living with a person with chronic HBV infection in a household or community setting are at risk for becoming infected.
  - Prior to HepB BD, some U.S.-born children born to immigrant mothers without HBV infection had hepatitis B prevalences of 7–11%[2,3] attributable to community or household exposures.
- In the United States, up to 2.4 M people are estimated to have hepatitis B[4], and about **50% of people with hepatitis B are unaware of their infection**[5].
- Children who receive HepB BD have higher rates of hepatitis B childhood vaccine series completion and had a positive impact on rates of being up to date for other age-appropriate vaccines [6,7,8]

https://journals.sagepub.com/doi/10.1177/00333549231175548 (accessed 12/5/25)
https://www.cdc.gov/acip/downloads/slides-2025-09-18-19/02-langer-hep-b-508.pdf (accessed 12/5/25)

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Rescinding Universal HepB BD vaccination recommendations among infants born to HBsAg (-) women may result in more cases of perinatal HBV infection.

Potential Risks of Rescinding Universal HepB BD Recommendations	Potential Benefits of Rescinding Universal HepB BD Recommendations
Increased cases of perinatal HBV transmission	Reductions in rare cases of hepatitis B birth dose vaccination adverse events
Increased administrative complexity and failure points for providers and health systems	
Lack of safety net given gaps in access to prenatal care, HBV screening, and HBIG access	
Disproportionate harm to patients without insurance or low healthcare engagement	
Lower rates of hepatitis B childhood vaccine series completion	
Higher lifetime healthcare costs from missed opportunities to prevent and eliminate hepatitis B	

https://journals.sagepub.com/doi/10.1177/00333549231175548 (accessed 12/5/25)
https://www.cdc.gov/acip/downloads/slides-2025-09-18-19/02-langer-hep-b-508.pdf (accessed 12/5/25)

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Adverse Effect Assessment for HepB Vaccination…

An independent evidence review of the safety, effectiveness, and public health impact of universal hepatitis B vaccination at birth to compare current recommendations with a delayed first hepatitis vaccine dose at one month or more after birth.

VACCINE INTEGRITY PROJECT

CIDRAP
Center for Infectious Disease Research and Policy
University of Minnesota

The Vaccine Integrity Project is supported by an unrestricted gift from Alumbra Innovations Foundation to the Center for Infectious Disease Research and Policy (CIDRAP) at the University of Minnesota; no funds from pharmaceutical companies or any other public or private sources were used to support this project. Each member of the research team completed a declaration of interest form, which was reviewed and confirmed by an independent source not related to the project. No members reported a personal or financial interest or relationship related to the content of the report.

https://www.cidrap.umn.edu/sites/default/files/searchable-download/Universal%20Hepatitis%20B%20Vaccination%20at%20Birth%202Dec2025.pdf (accessed 12/5/25)

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Adverse Effect Assessment for HepB Vaccination…

Safety of the hepatitis B birth dose

Results of randomized trials, large national safety monitoring programs, and long-term follow-up studies consistently demonstrate that the hepatitis B vaccine is safe regardless of vaccine timing. No safety benefits were identified for a delayed first dose versus vaccination at birth.

- **Key Summary Findings:**
  - Mild-to-moderate short-term reactions:
    - tenderness, redness and swelling at the injection site, fussiness, transient low-grade fever
  - No increased incidence of long-term AEs, SAEs, deaths:
    - "*…rare deaths following hepatitis B vaccination at birth have been extensively studied and found not to be causally associated with vaccination*."
  - 4 studies directly compared safety for **birth dose** and **delayed dose**:
    - "*…no increased risk of any short- or long-term AE or SAE in infants administered the vaccine at birth compared with delayed administration*."

https://www.cidrap.umn.edu/sites/default/files/searchable-download/Universal%20Hepatitis%20B%20Vaccination%20at%20Birth%202Dec2025.pdf (accessed 12/5/25)

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Adverse Effect Assessment for HepB Vaccination…

- **Key Findings:**

Safety of the hepatitis B birth dose

Results of randomized trials, large national safety monitoring programs, and long-term follow-up studies consistently demonstrate that the hepatitis B vaccine is safe regardless of vaccine timing. No safety benefits were identified for a delayed first dose versus vaccination at birth.

Conclusion

This review found no benefit related to vaccine safety or protection of a delayed first dose compared with vaccination at birth, but identified critical risks of changing current US recommendations.

https://www.cidrap.umn.edu/sites/default/files/searchable-download/Universal%20Hepatitis%20B%20Vaccination%20at%20Birth%202Dec2025.pdf (accessed 12/5/25)

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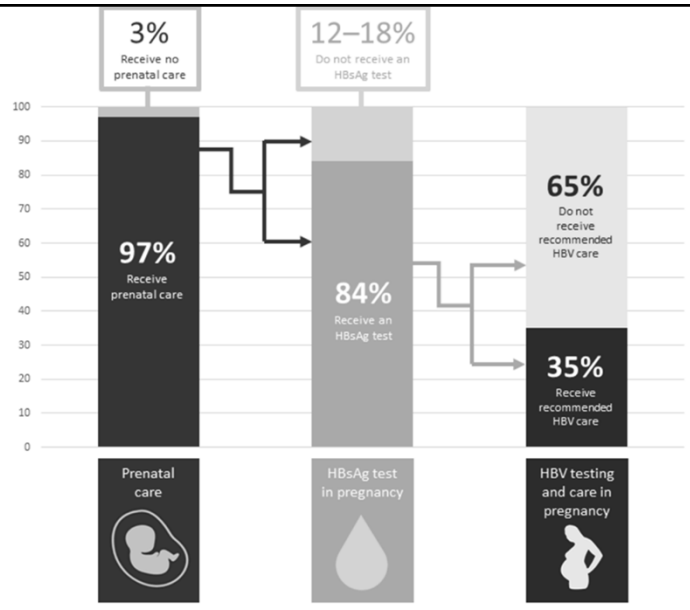

Figure 2: Continuum of care for prenatal HBV screening and care of pregnant women before and after delivery.
Approximately 35% of those who test positive for HBsAg in pregnancy receive recommended follow-up HBV testing and care; 65% do not receive recommended follow-up and care.

https://www.cidrap.umn.edu/sites/default/files/searchable-download/Universal%20Hepatitis%20B%20Vaccination%20at%20Birth%202Dec2025.pdf (accessed 12/5/25)

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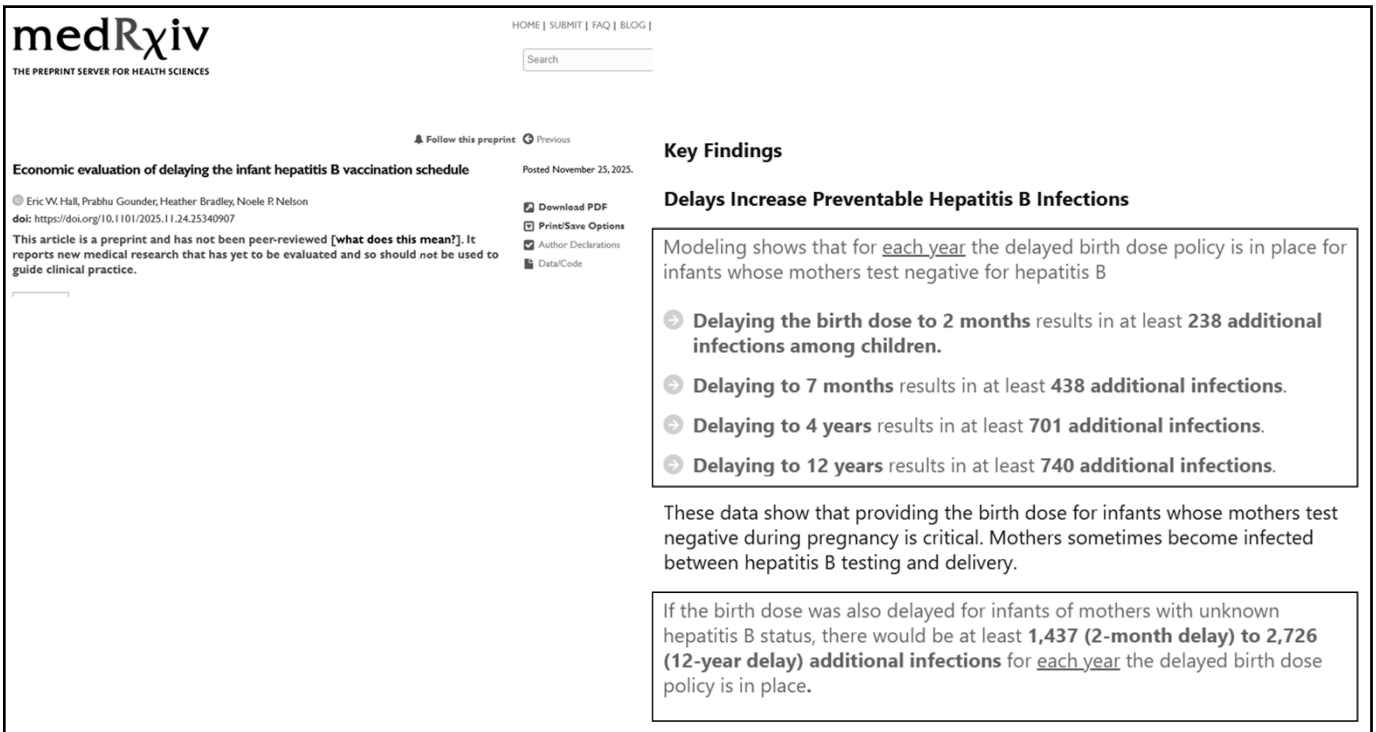

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Economic evaluation of delaying the infant hepatitis B vaccination schedule

Posted November 25, 2025.

Eric W. Hall, Prabhu Gounder, Heather Bradley, Noele P. Nelson

doi: https://doi.org/10.1101/2025.11.24.25340907

This article is a preprint and has not been peer-reviewed [what does this mean?]. It reports new medical research that has yet to be evaluated and so should *not* be used to guide clinical practice.

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Key Findings

Delays Increase Preventable Hepatitis B Infections

Modeling shows that for each year the delayed birth dose policy is in place for infants whose mothers test negative for hepatitis B

- **Delaying the birth dose to 2 months** results in at least **238 additional infections among children.**
- **Delaying to 7 months** results in at least **438 additional infections**.
- **Delaying to 4 years** results in at least **701 additional infections**.
- **Delaying to 12 years** results in at least **740 additional infections**.

These data show that providing the birth dose for infants whose mothers test negative during pregnancy is critical. Mothers sometimes become infected between hepatitis B testing and delivery.

If the birth dose was also delayed for infants of mothers with unknown hepatitis B status, there would be at least **1,437 (2-month delay) to 2,726 (12-year delay) additional infections** for each year the delayed birth dose policy is in place.

https://hepvu.org/news-updates/new-analysis-shows-delaying-the-hepatitis-b-birth-dose-may-lead-to-thousands-of-preventable-infections-and-hundreds-of-millions-in-avoidable-healthcare-costs/ https://www.medrxiv.org/content/10.1101/2025.11.24.25340907v1 (accessed 12/5/25)

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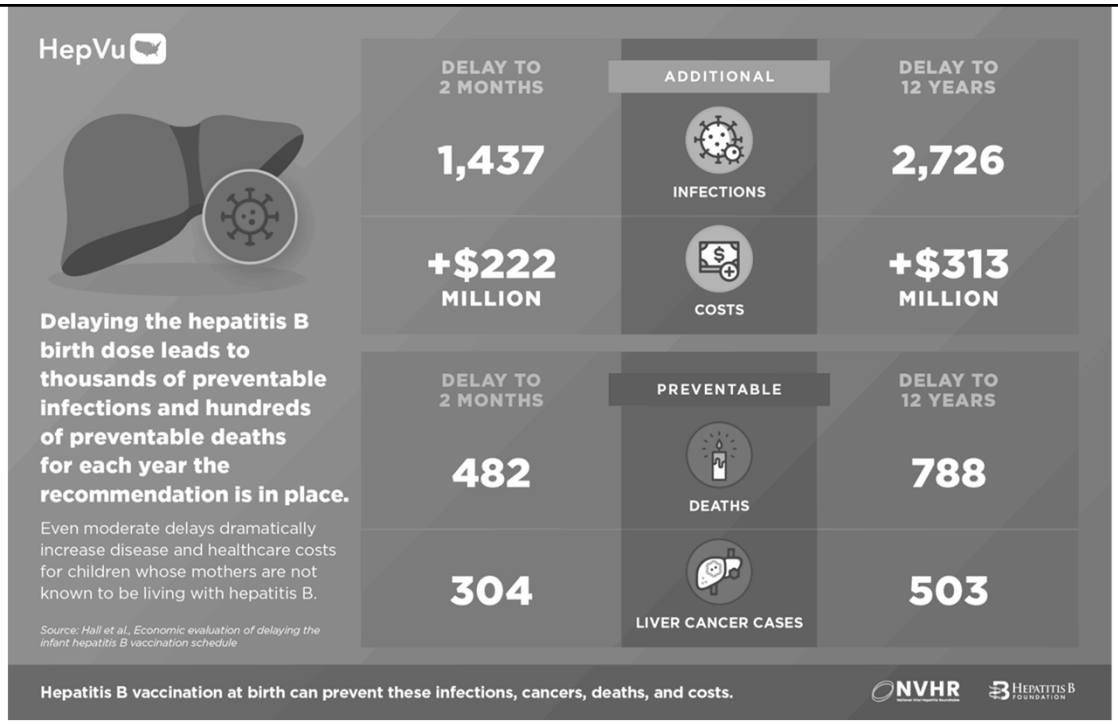

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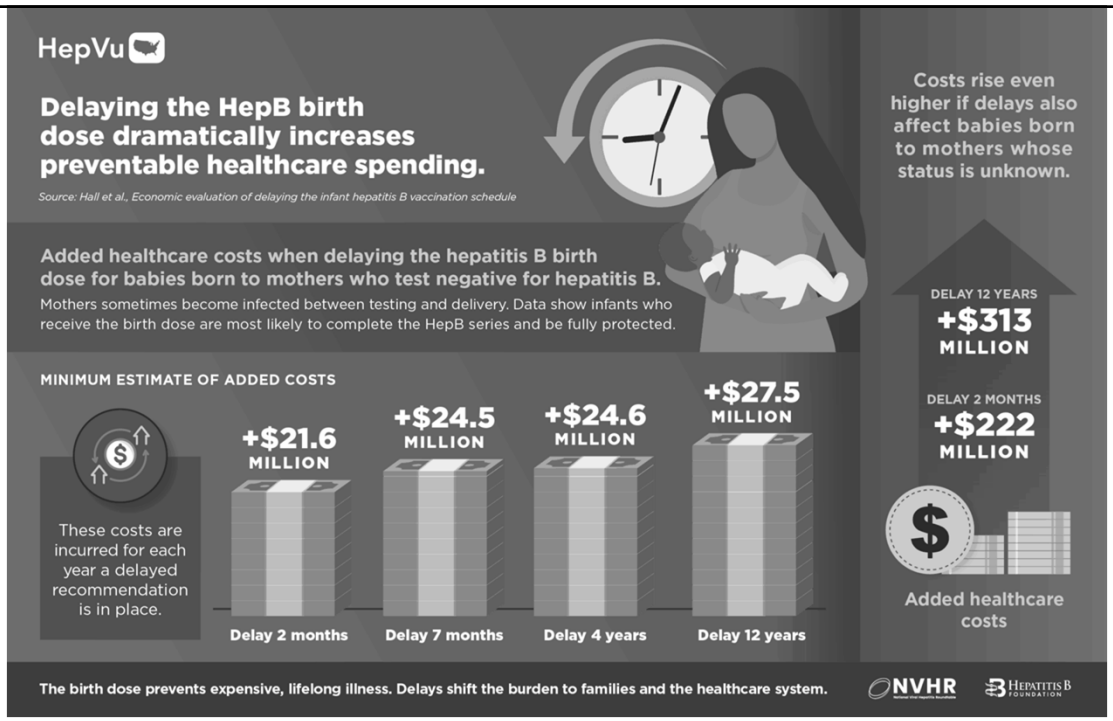

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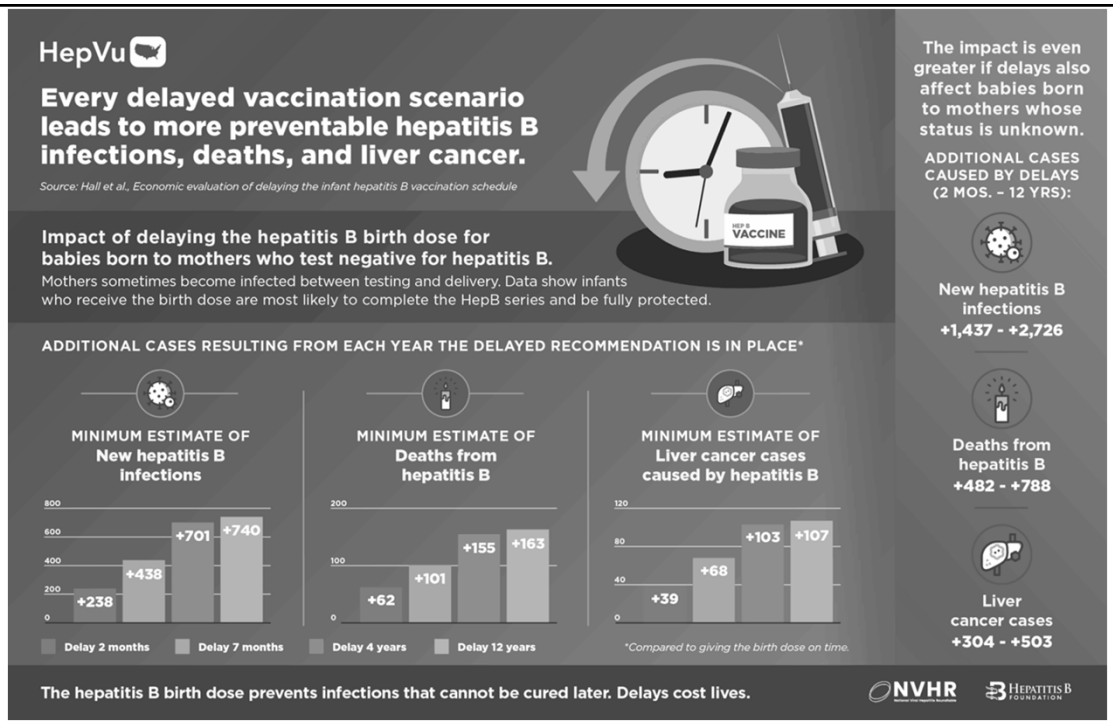

https://hepvu.org/news-updates/new-analysis-shows-delaying-the-hepatitis-b-birth-dose-may-lead-to-thousands-of-preventable-infections-and-hundreds-of-millions-in-avoidable-healthcare-costs/ https://www.medrxiv.org/content/10.1101/2025.11.24.25340907v1 (accessed 12/5/25)

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Results of the 12/5/25 ACIP Meeting & Vote Details

- **Vote #1:**
  - For infants born to HBsAg-negative women:
    - ACIP recommends individual-based decision-making, in consultation with a health care provider, for parents deciding when or if to give the HBV vaccine, including the birth dose. (1) For those not receiving the HBV birth dose, it is suggested that the initial dose is administered no earlier than 2 months of age. Y/N

      - (1) Parents and health care providers should consider vaccine benefits, vaccine risks, and infection risks. Parents and health care providers should also consider whether there are risks, for example, such as a household member is HBsAg-positive or when there is frequent contact with persons who have emigrated from areas where Hepatitis B is common.

  - **Vote Results:**
    - 8-Yes (Dr. Catherine Stein, Dr. Retsef Levi, Dr. Vicky Pebsworth, Dr. Robert Malone, **Dr. Hillary Blackburn**, Dr. James Pagano, Dr. Evelyn Griffin and Dr. Kirk Milhoan)
    - 3-No (Dr. Cody Meissner, Dr. Joseph Hibbeln and Dr. Raymond Pollak)

https://www.cnn.com/health/live-news/cdc-vaccine-meeting-hepatitis-b-12-05-25 (accessed 12/5/25)

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Results of the 12/5/25 ACIP Meeting & Vote Details

- **Vote #2:**
  - When evaluating the need for a subsequent HBV vaccine dose in children, parents should consult with health care providers to determine if a post-vaccination anti-HBs serology testing should be offered. Serology results should determine whether the established protective anti-HBs titer threshold of ≥10 mIU/mL has been achieved. The cost of this testing should be covered by insurance. Y/N

  - **Vote Results:**
    - 6-Yes (Dr. Retsef Levi, Dr. Vicky Pebsworth, Dr. Robert Malone, Dr. James Pagano, Dr. Evelyn Griffin and Dr. Kirk Milhoan)
    - 4-No (Dr. Cody Meissner, Dr. Joseph Hibbeln, Dr. Raymond Pollak and **Dr. Hillary Blackburn**)
    - 1-Abstained (Dr. Catherine Stein)

https://www.cnn.com/health/live-news/cdc-vaccine-meeting-hepatitis-b-12-05-25 (accessed 12/5/25)

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Post ACIP-Meeting Responses from Healthcare Organizations, Policy-Makers, & State/Local Health Departments

- [Add CT DPH Meeting 12/9/25 Statements]

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Selection of Vaccines against Respiratory Viruses (Influenza & COVID-19)

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Case Example: Seasonal Influenza Vaccine

- A 70-year-old male (he/him) comes to the consultation window of your pharmacy
  - He would like to receive a vaccination for the Flu
  - His only chronic health issues are hypertension and hypercholesterolemia (both effectively managed)

- Which of the following products would be **PREFERRED** to administer to this patient?

  a) Inactivated influenza vaccine (IIV3, Afluria)
  b) High-dose inactivated influenza vaccine (HD-IIV3, Fluzone High-Dose)
  c) Adjuvanted inactivated influenza vaccine (aIIV3, Fluad)
  d) Live Attenuated Influenza Vaccine (LAIV3, FluMist)

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Selection of Influenza Vaccines

- **Main patient considerations for selection of product [*not* exhaustive list]:**
  - Age (above/below 65 y.o.)
  - Immunosuppression / Receipt of Immunosuppressive medications
  - Pregnancy status
  - Allergic reaction to previous Influenza vaccinations

https://www.cdc.gov/flu/hcp/acip/index.html

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Selection of Influenza Vaccines

Influenza Vaccine Selection

- Available vaccines, approved ages, and dose volumes are listed in **Table 1**.
- ACIP recommends all recipients receive seasonal influenza vaccines only in single dose formulations that are free of thimerosal as a preservative (**Table 1**).
- All persons should receive an age-appropriate vaccine, with the exception that solid organ transplant recipients aged 18 through 64 years who are receiving immunosuppressive medication regimens may receive HD-IIV3 or aIIV3 as acceptable options (see **Immunocompromised Persons**).
- With the exception of Adults Aged ≥65 Years, for whom HD-IIV3, RIV3, and aIIV3 are preferred (see below), there are no preferences for any specific vaccine when more than one age-appropriate product is available.

https://www.cdc.gov/flu/hcp/acip/index.html

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Selection of Influenza Vaccines

Adults Aged ≥65 Years

- ACIP recommends that adults aged ≥65 years preferentially receive any one of the following:
  - High-dose inactivated influenza vaccine (HD-IIV3, Fluzone High-Dose),
  - Recombinant influenza vaccine (RIV3, Flublok), or
  - Adjuvanted inactivated influenza vaccine (aIIV3, Fluad).
- If none of these three vaccines is available at a vaccination opportunity, then any other age-appropriate influenza vaccine should be used.
- Data support greater potential benefit of high-dose inactivated, adjuvanted inactivated, or recombinant vaccines relative to standard-dose unadjuvanted IIVs in this age group, with the most data available for HD-IIV3; but comparisons of these vaccines with one another are limited.

https://www.cdc.gov/flu/hcp/acip/index.html

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Selection of Influenza Vaccines

Updates for the 2025–2026 Flu Season

- 2025-2026 influenza vaccine recommendations have been published. A summary of those recommendations also is available.
- For the 2025-2026 flu season, CDC recommends seasonal flu vaccination for children, pregnant women, and adults with only single-dose formulations of flu vaccine that are free of thimerosal as a preservative.
- In September 2024, the FDA approved FluMist, the live attenuated influenza vaccine, for self- or caregiver administration.
- On March 13, 2025, the U.S. Food and Drug Administration (FDA) made recommendations to update the composition of 2025-2026 U.S. influenza vaccines.
- In March 2025, the FDA approved FluBlok, the recombinant influenza vaccine for use in people ages 9 and older. Previously this vaccine was approved for ages 18 years and older.
- Health care providers can support patients in making informed decisions about vaccinations.

https://www.cdc.gov/flu/hcp/acip/index.html

New ACIP recommendation (6/26/25)

- ***NOTES***:
  - In the U.S., < 5% of all administered flu vaccine doses in recent flu seasons were from multi-dose vials containing thimerosal
  - There are **NO DATA / NO NEW DATA** indicating that thimerosal as used in contemporary vaccines presents any significant harm…

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Case Example: Seasonal Influenza Vaccine

- A 70-year-old male (he/him) comes to the consultation window of your pharmacy
  - He would like to receive a vaccination for the Flu
  - His only chronic health issues are hypertension and hypercholesterolemia (both effectively managed)
- Which of the following products would be **PREFERRED** to administer to this patient?

a) Inactivated influenza vaccine (IIV3, Afluria)
b) High-dose inactivated influenza vaccine (HD-IIV3, Fluzone High-Dose)
c) Adjuvanted inactivated influenza vaccine (aIIV3, Fluad)
d) Live Attenuated Influenza Vaccine (LAIV3, FluMist)

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Case Example: Seasonal COVID-19 Vaccine

- A 10-year-old girl (she/her) is brought to your pharmacy by her mother; they come to the consultation window of your pharmacy
  - Mom indicates that her daughter is on **chronic immunosuppressive medications**.
  - She would like her daughter to receive her yearly vaccination for COVID-19
  - You note that she has received a "complete" 3-dose initial COVID-19 vaccine series last year
- **Which of the following vaccine products could be administered to this patient?**

  a) Moderna Spikevax
  b) Moderna mNexspike
  c) Pfizer-BioNTech Comirnaty
  d) Novavax Nuvaxovid

- **What should the administration schedule be?**

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Selection of COVID-19 Vaccines

- Main patient considerations for selection of product and administration schedule [***not*** an exhaustive list]:
  - Age
  - Immunosuppression / Receipt of Immunosuppressive medications
  - Risk of Severe COIVD-19 infection
  - Pregnancy

https://www.cdc.gov/covid/hcp/vaccine-considerations/index.html#toc

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Selection of COVID-19 Vaccines

Who needs a COVID-19 vaccine

Reminder

CDC recommends the 2025-2026 COVID-19 vaccine for people ages 6 months and older based on individual-based decision making. This includes people who have received a COVID-19 vaccine, people who have had COVID-19, and people with long COVID.

- Getting the 2025–2026 COVID-19 vaccine is especially important if you:
  - Never received a COVID-19 vaccine
  - Are ages 65 years and older
  - Are at high risk for severe COVID-19
  - Are living in a long-term care facility
  - Are pregnant, breastfeeding, trying to get pregnant, or might become pregnant in the future.
  - Want to lower your risk of getting Long COVID

https://www.cdc.gov/covid/vaccines/stay-up-to-date.html

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Selection of COVID-19 Vaccines

Vaccine	Can be given to:
2025–2026 Moderna COVID-19 Vaccine: Spikevax	Anyone ages 6 months and older
2025–2026 Moderna COVID-19 Vaccine: mNexspike	Anyone ages 12 years and older
2025–2026 Pfizer-BioNTech COVID-19 Vaccine: Comirnaty	Anyone ages 5 years and older
2025–2026 Novavax COVID-19 Vaccine: Nuvaxovid	Anyone ages 12 years and older

https://www.cdc.gov/covid/vaccines/stay-up-to-date.html

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A quick and important side-note before continuing with the case…


PHARMACY PRACTICE NEWS

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OCTOBER 19, 2025

ACIP Pharmacist Helps Defeat COVID Vaccine Rx Plan

By Gina Shaw

Hillary F. Blackburn, PharmD, the first pharmacist voting member of the CDC's Advisory Committee on Immunization Practices (ACIP)—a position that pharmacy leaders had advocated for—wasted no time in making her mark on the committee.

Participating in her first ACIP meeting on Sept. 19, just days after being named to the committee by Health and Human Services Secretary Robert F. Kennedy Jr., Dr. Blackburn was a leading voice in opposition to a proposal that would have required prescriptions for COVID-19 vaccines. The measure ultimately failed by the narrowest of margins, in a 6-6 tie.

https://www.idse.net/Policy-Public-Health/Article/08-25/Pharmacist-Blackburn-CDC-Role-ACIP/78338 (accessed 12/10/25)
https://www.pharmacypracticenews.com/Clinical/Article/10-25/Pharmacist-Advocacy-COVID-19-Vaccinations/78600 (accessed 12/10/25)

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A quick and important side-note before continuing with the case…


PHARMACY PRACTICE NEWS

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"Pharmacists are licensed healthcare professionals, … one of the only clinician types to complete a stand-alone national immunization delivery certificate," said Dr. Blackburn, the director of medication access and affordability at Ascension, in Nashville, Tenn. "According to claims data for the 2024-2025 season, 90% of COVID-19 vaccines were given at pharmacies: 27,569,515 doses out of 30,775,189. Requiring a prescription would create barriers for patients and risk deterring people who seek vaccination."

https://www.idse.net/Policy-Public-Health/Article/08-25/Pharmacist-Blackburn-CDC-Role-ACIP/78338 (accessed 12/10/25)
https://www.pharmacypracticenews.com/Clinical/Article/10-25/Pharmacist-Advocacy-COVID-19-Vaccinations/78600 (accessed 12/10/25)

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Case Example: Seasonal COVID-19 Vaccine

- A 10-year-old girl (she/her) is brought to your pharmacy by her mother; they come to the consultation window of your pharmacy
  - Mom indicates that her daughter is on **chronic immunosuppressive medications**.
  - She would like her to receive her yearly vaccination for COVID-19
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b) Moderna mNexspike
c) Pfizer-BioNTech Comirnaty
d) Novavax Nuvaxovid

- **What should the administration schedule be?**

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Case Example: Seasonal COVID-19 Vaccine

- A 10-year-old girl (she/her) is brought to your pharmacy by her mother; they come to the consultation window of your pharmacy
  - Mom indicates that her daughter is on **chronic immunosuppressive medications**.
  - She would like her to receive her yearly vaccination for COVID-19
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c) Pfizer-BioNTech Comirnaty
d) Novavax Nuvaxovid

- **What should the administration schedule be?**

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Selection of COVID-19 Vaccines

COVID-19 Vaccination Guidance for People Who Are Immunocompromised

AT A GLANCE

- COVID-19 vaccination is recommended for people ages 6 months and older who are moderately or severely immunocompromised based on individual-based decision-making (also known as shared clinical decision making).
- There is a modified COVID-19 vaccination schedule for people who are moderately or severely immunocompromised.
- People can self-attest to being moderately or severely immunocompromised and receive COVID-19 vaccination.
- Administering COVID-19 vaccines should not be delayed in patients taking immunosuppressive therapies.

https://www.cdc.gov/covid/hcp/vaccine-considerations/immunocompromised.html

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Selection of COVID-19 Vaccines

Table 2: 2025–2026 COVID-19 vaccination schedule for people who are moderately or severely immunocompromised, November 4, 2025

2b: Ages 5–11 years

NOTE

Moderna (Spikevax) and Pfizer-BioNTech vaccines are approved for this age group. In Table 2b, Moderna refers to Spikevax.

See footnote* for guidance on children who transition from age 4 years to age 5 years during the initial vaccination series.

https://www.cdc.gov/covid/hcp/vaccine-considerations/immunocompromised.html

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Selection of COVID-19 Vaccines

COVID-19 vaccination history before 2025–2026 vaccine†	Number of 2025–2026 doses indicated	Recommended 2025–2026 vaccine‡ and interval between doses
Completed the 3-dose initial series before 2025–2026 vaccine: • Administer 2 doses of 2025–2026 vaccine spaced 6 months apart		
3 or more doses Moderna or 3 or more doses Pfizer-BioNTech	2	**2025–2026 Dose 1** (Moderna or Pfizer-BioNTech): At least 8 weeks after last dose **2025–2026 Dose 2** (Moderna or Pfizer-BioNTech): 6 months (minimum interval 2 months) after 2025–2026 Dose 1

*Children who transition from age 4 years to age 5 years during the initial vaccination series should complete the 3-dose series using the dosage for children ages 5–11 years for all doses received on or after turning age 5 years:

- Moderna series: 2025–2026 Moderna, 0.25 mL/25 ug; there is no dosage change
- Pfizer-BioNTech series: 2025–2026 Pfizer-BioNTech, 0.3 mL/10 ug

†COVID-19 vaccination history refers to all doses of COVID-19 vaccine from any manufacturer received before the availability of the 2025–2026 COVID-19 vaccines.

‡Dosage for Moderna (Spikevax): 0.25 mL/25 ug; dosage for Pfizer-BioNTech: 0.3 mL/10 ug.

https://www.cdc.gov/covid/hcp/vaccine-considerations/immunocompromised.html

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Case Example: Seasonal COVID-19 Vaccine

- A 10-year-old girl (she/her) is brought to your pharmacy by her mother; they come to the consultation window of your pharmacy
- Mom indicates that her daughter is on chronic immunosuppressive medications. She would like her to receive her yearly vaccination for COVID-19
- You note that she has received a “complete” initial COVID-19 vaccine series in the past year

- **Which of the following vaccine products could be administered to this patient?**

a) Moderna Spikevax
b) Moderna mNexspike
c) Pfizer-BioNTech Comirnaty
d) Novavax Nuvaxovid

- **What should the administration schedule be?**

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Post-Test Time!

- The U.S. Dept. of HHS, the CDC, the FDA, and the Advisory Committee on Immunization Practices (ACIP) has been infiltrated by Mountebanks, Antivax Cranks, Grifters, and Charlatans…
- Which **ONE** of the following is **NOT** a recommendation that has been **APPROVED** by ACIP in 2025?

a) All adults receive seasonal influenza vaccines only in single dose formulations that are free of thimerosal as a preservative

b) State and local jurisdictions should require a prescription for the administration of a COVID-19 vaccination

c) COVID-19 Vaccination should be based on individual-based decision-making (Shared Clinical Decision Making) for Adults 65 and older

d) Universal Hepatitis B Vaccination at birth is no longer recommended for all newborns

e) For Hepatitis B vaccination, post-vaccine serology results should determine need for subsequent doses (in the 3-dose series)

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Conclusions, Final Thoughts, and Personal Expert Opinions…

- Based on what appear to be “vibes”, the current group of Mountebanks at HHS, FDA, CDC, ACIP have initiated a dangerous erosion of logical U.S. public health policies that was based on decades of high-quality scientific evidence
- In the near future, it is very likely that we will have to start suboptimally treating various vaccine-preventable infectious diseases that were once considered “eradicated” or “rare” in the U.S.
- **We as Pharmacists can play an important and significant role in:**
  - The “Shared Decision Making” for Influenza and COVID-19 vaccination for patients
  - Countering medical misinformation currently emanating from once-respected and trusted U.S. Government Health Agencies

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Thank you!!!

- Questions???

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