Who Decides the Vaccine Schedule, How Did We Get Here, and Where are We Going

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Disclosures/Acknowledgments

- Sean O'Leary has no relevant financial relationships with ineligible companies to disclose.
- Sean O’Leary discloses that AI tools were utilized to generate an image included in this presentation.

Objectives

- By the end of this presentation, audience members should expect to:
  1. Explain the process by which vaccines are licensed and recommended.
  2. Describe the history of vaccine recommendation in the US.
  3. Describe common questions from families about routinely recommended vaccines and appropriate evidence-based responses.

Outline

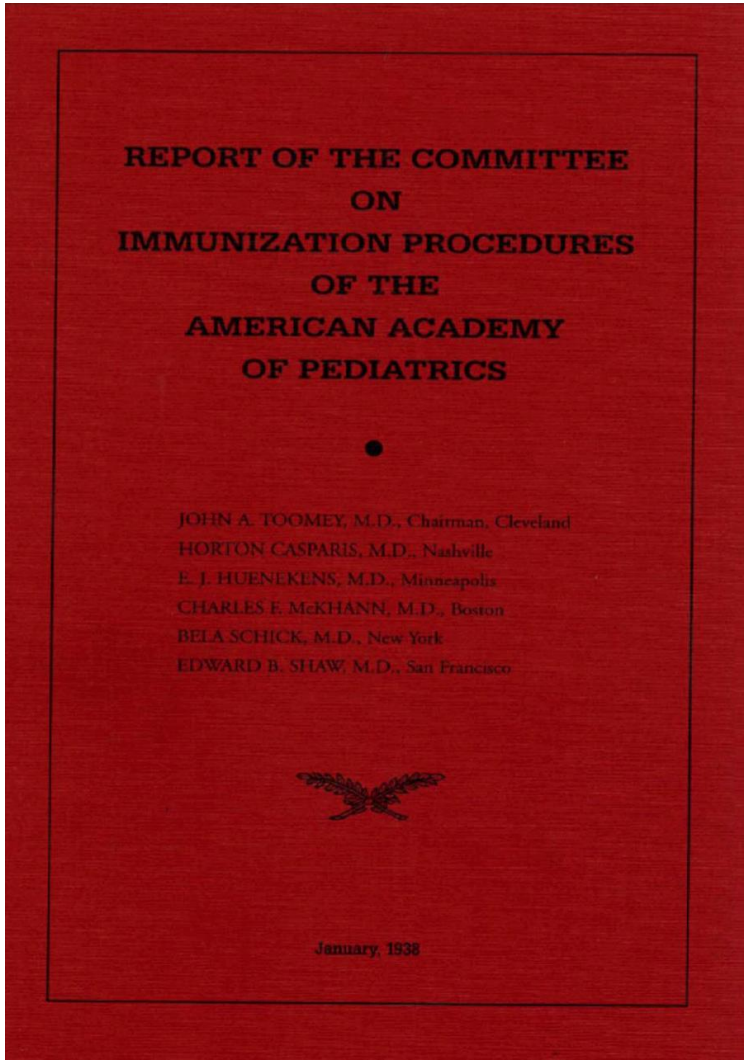
- The history of vaccine recommendations in the US: How did we get here?
- Who decides the vaccine schedule?
- Where are we going?
- How do I talk with families about all of this stuff?

History of US Vaccine Recommendations: How Did We Get Here?

Vaccine Recommendations Started with AAP

First Red Book, 1938; 8 pages, 18 diseases

- Prior to the creation of the Advisory Committee on Immunization Practices in 1964, the main body that made recommendations on vaccine use in the US was the Committee on Infectious Diseases of the AAP



Pickering, Peter, Shulman, The Red Book Through the Ages, Pediatrics, Nov 2013

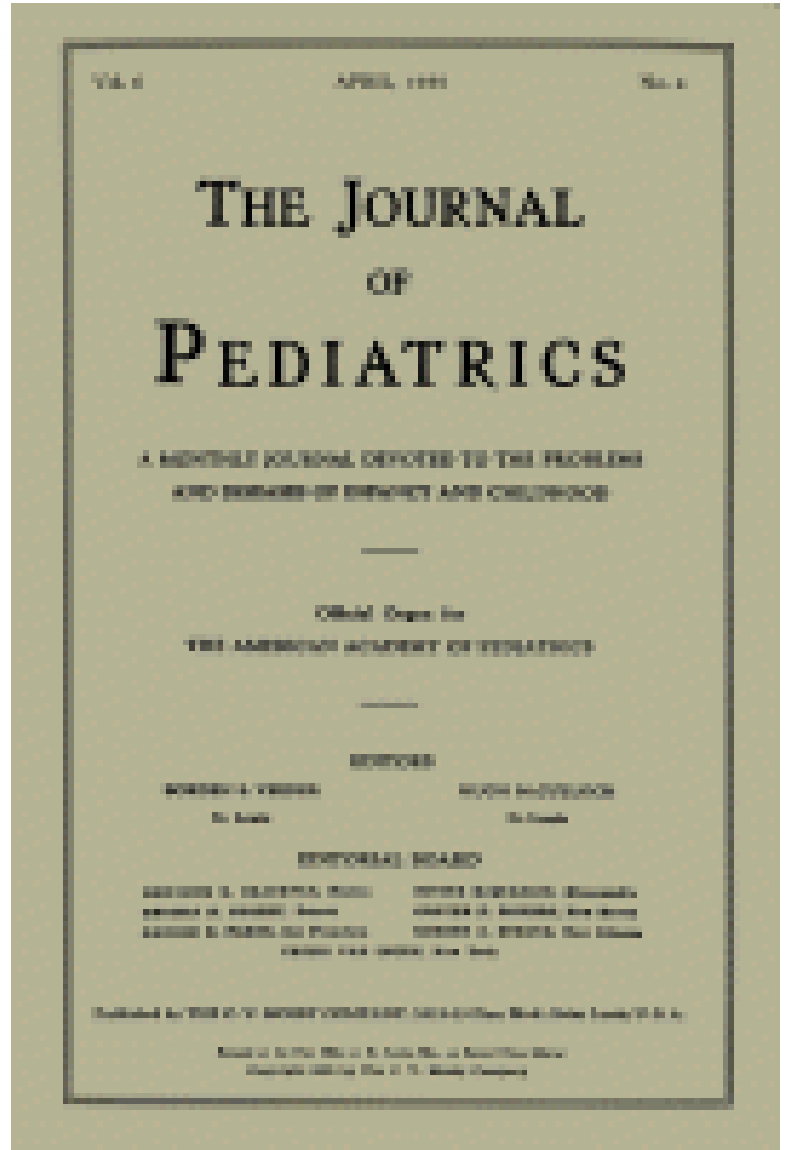
Timeline: Pre-ACIP Vaccine Recommendations

- 1930: AAP established in the library of Harber Hospital in Detroit
- 1933: AAP establishes “Special Committee on Prophylactic Procedures Against Communicable Diseases”
- 1935: Committee publishes forerunner of Red Book, the 6-page “Routine measures for the prophylaxis of communicable diseases”
  - Diphtheria, scarlet fever, typhoid fever, whooping cough, measles, smallpox, poliomyelitis, epidemic (meningococcal) meningitis, mumps, chickenpox, rabies, and tetanus

ROUTINE MEASURES FOR THE PROPHYLAXIS OF COMMUNICABLE DISEASES

Report of Special Committee on Prophylactic Procedures Against Communicable Diseases

- *"It is not unlikely that certain modifications may be necessary to suit varying conditions and modifications will of course be necessitated by advances in knowledge."*
- Diphtheria: *"Immunization should be routine at one year. It is a desirable practice for the physician to send an appropriate notice at the child's first birthday."*
  - First mention of reminder/recall in the medical literature?



Journal of Pediatrics, April 1935

Timeline: Pre-ACIP Vaccine Recommendations

- 1936: AAP Executive Board creates “Committee on Immunization Procedures” (name evolved to “Committee on Infectious Diseases” ~1969)
- 1938: First “Red Book” - 8 pages, 18 diseases
- 1939-1947: revised and published yearly reflecting the rapid pace of advances in medicine
  - “A great demand from physicians, medical students, health departments, and pharmaceutical houses ensued” (James Hughes)
- 1948-1964: Red Book is primary source for immunization recommendations

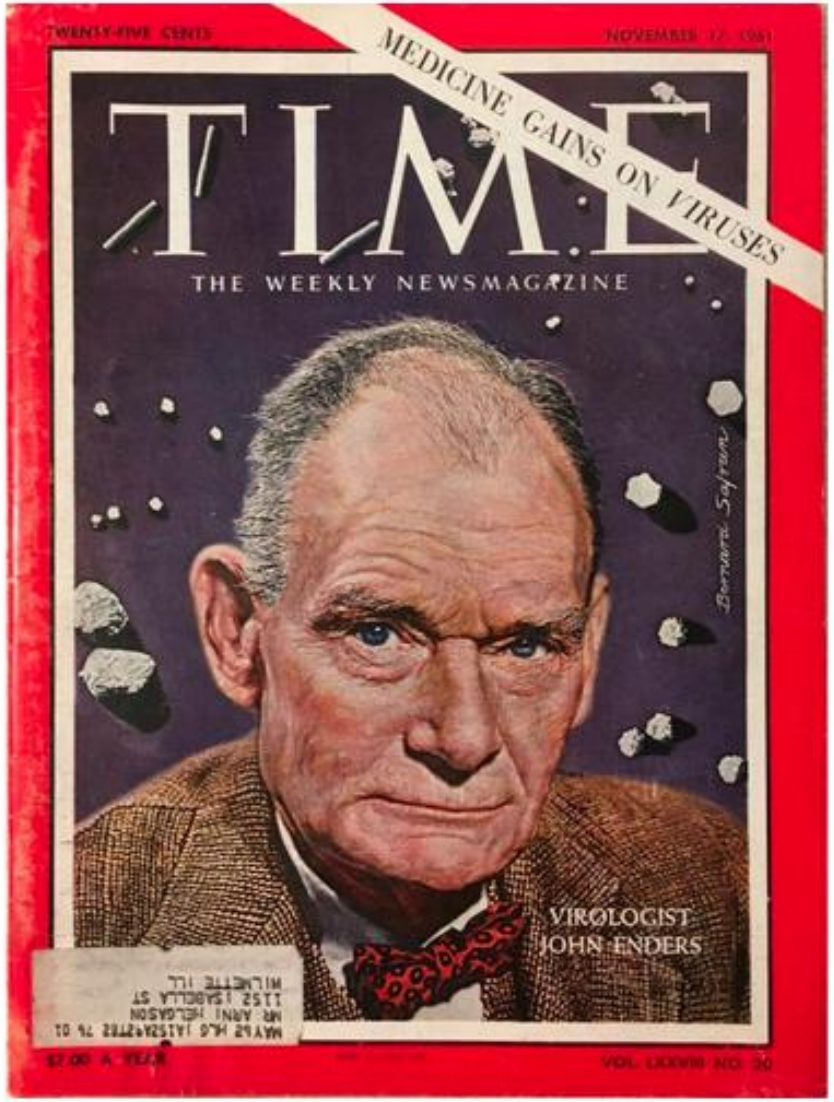
1948 Immunization Schedule

SCHEDULES OF IMMUNIZATION

	Author I	Author II	Miller	Fischer	Conventional procedure
1 mo.	Pert. Alum pptd.				
2 mo.	Pert. Alum pptd.				
3 mo.	Pert. Alum pptd.				Smallpox
4 mo.	Smallpox (1)	Smallpox		Smallpox (1)	
5 mo.	Typhoid			Pertussis	
6 mo.	Typhoid	DPT Plain or	Pertussis	DPT	Pertussis
7 mo.	Typhoid	DPT alum	Pertussis	DPT	Pertussis
8 mo.	Diph-Tet alum pptd.	DPT Precipitated	DPT	Smallpox (2)	Pertussis
9 mo.	Diph-Tet. alum pptd.	Typhoid (3 weekly)		Diph-Tet.	
10 mo.	Smallpox (2)		Smallpox		Diph-Tet.
11 mo.					Diph-Tet.
1 yr.	Tuberculin Test DPT Booster	Tuberculin Test Schick Test	Diph-Tet.	S.hick Test	Diph-Tet
15 mo.	Schick Test		Schick-Tet.		
18 mo.			Pertussis		
2 yr.	Tet. booster (annually)	DPT	Tetanus	DPT	Typhoid-Schick
	Typhoid booster annually	Typhoid booster annually			Typhoid-Pert.-Tet.
3 yr.	Pertussis booster	Tet-typhoid booster annually	Tetanus	DPT	
4 yr.					
5 yr.					
6 yr.	Schick-smallpox Pertussis booster	Schick-smallpox DPT	Smallpox-Schick Pert.Tet every 2 years		Smallpox-Schick

Timeline: Pre-ACIP Vaccine Recommendations

- 1944: Public Health Service Act allowed US Surgeon General to recommend vaccines for licensure
- 1950s: Start of the “golden age” of vaccine development as the first viruses grown in tissue culture led to rapid proliferation of new vaccines
  - John Enders, Thomas Weller and Frederick Robbins won the Nobel Prize in Physiology or Medicine in 1954 for culturing poliovirus in a lab in 1949



Schedule of Active Immunization for Infants and Children

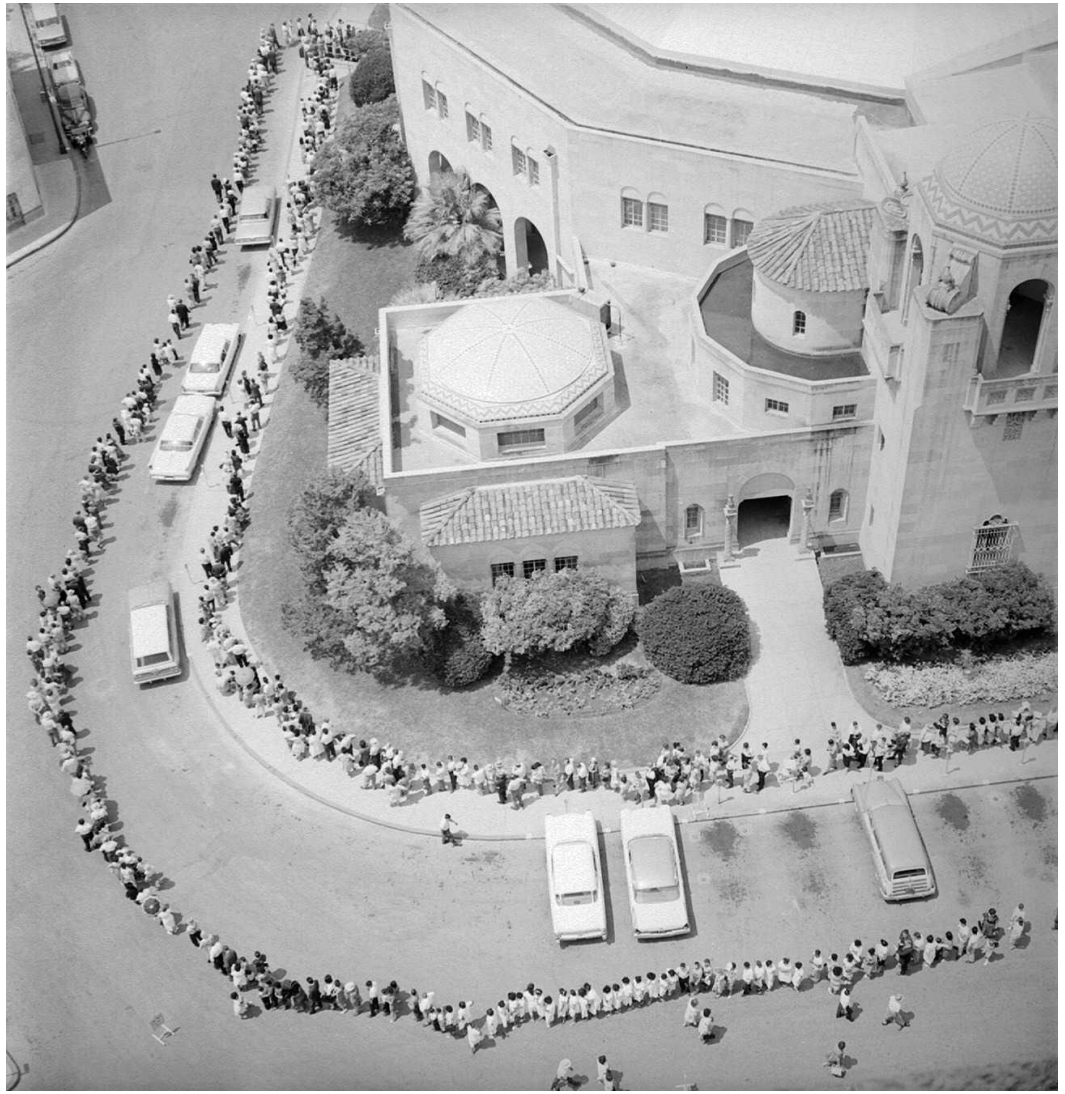
Age	*Preparation*	
1½–2 mo.	D.P.T.*	Poliomyelitis vaccine†
3 mo.	D.P.T.	Poliomyelitis vaccine
4 mo.	D.P.T.	Poliomyelitis vaccine
10–12 mo.		Smallpox vaccine
12–18 mo.	D.P.T.	Poliomyelitis vaccine
3–4 yr.	D.P.T.	Poliomyelitis vaccine
5–6 yr.		Smallpox vaccine
8 yr.	D.T. (Adult type)	Poliomyelitis vaccine
12 yr.	D.T. (Adult type)	Poliomyelitis vaccine
16 yr.	D.T. (Adult type)	Poliomyelitis vaccine

Pediatrics, 1960

Timeline: Pre-ACIP Vaccine Recommendations

- 1960: Public Health Service issued recommendations on use of oral polio vaccine and influenza vaccine
- 1962: Advisory Committee on Poliomyelitis Vaccine; Vaccination Assistance Act authorized CDC to support mass vaccination campaigns and provide vaccines directly to state and local health departments
- 1963: Advisory Committee on Measles Vaccine

Crowd waiting for 1962 oral polio vaccination



Historyofvaccines.org

Formation of ACIP: 1964

- Proliferation of new vaccines made ad hoc committee approach untenable
- ACIP charged with “the responsibility of advising the Surgeon General regarding the most effectiv application of public health practice of specific preventive agents, which may be applied in communicable disease control”
- Charter states that committee deliberations shal include consideration of “disease epidemiology and burden of disease, vaccine efficacy and effectiveness, vaccine safety, economic analyses and implementation issues”
- First meeting held at CDC May 25-26, 1964, chaired by CDC director

CDC, Clifton Road Campus, 1960

stacks.cdc.gov

Vaccine Recommendations: 1960s to 1990s

- ACIP worked closely with AAP from its inception, often deferring to AAP Red Book for childhood immunization recommendations
- In general, although two schedules for children continued to be published (ACIP and AAP), recommendations were generally similar
  - AAP more directed to physicians and ACIP focused more on public health

Immunization Schedule, 1966 Red Book

Table 1.—*Recommended Schedule for Active Immunization and Tuberculin Testing of Normal Infants and Children*[a]

Age	Immunization or Test
2-3 Months	DTP*, type 1 OPV or trivalent OPV
3-4 Months	DTP, type 3 OPV or trivalent OPV
4-5 Months	DTP, type 2 OPV or trivalent OPV
9-11 Months	Tuberculine test
12 Months	Measles vaccine
15-18 Months	DTP, trivalent OPV, smallpox
2 Years	Tuberculine test
3 Years	DTP, tuberculin test
4 Years	Tuberculin test
6 Years	TD-smallpox vaccine, tuberculin test Trivalent OPV
8 Years	Tuberculin
10 Years	Tuberculin
12 Years	TD, smallpox vaccine, tuberculin test
14 Years	Tuberculin
16 Years	Tuberculin

* DTP indicates diphtheria and tetanus toxoids and pertussis vaccine combined; OPV, oral poliovaccine—if trivalent OPV is used, interval should be six weeks or longer; TD, tetanus and diphtheria toxoids, adult type.

Vaccine Recommendations: 1960s to 1990s

- 1972: ACIP designated as a Federal Advisory Committee by the Federal Advisory Committee Act
- Measles outbreaks in 1974 and 1977 led to President Carter's launch of the National Childhood Immunization Initiative
  - Goal of 90% measles iz coverage by 1979
- 1978-1988: great improvements in measles surveillance

Vaccine Recommendations: 1960s to 1990s

- Mid 1980's: CDC epidemiologists noted that infections were occurring primarily in 1) unvaccinated preschool children and 2) school aged children with a single dose of measles vaccine

1983 Immunization Schedule

TABLE 1. Recommended schedule for active immunization of normal infants and children (See individual ACIP recommendations for details.)

Recommended age*	Vaccine(s)†	Comments
2 mo.	DTP-1,§ OPV-1¶	Can be given earlier in areas of high endemicity
4 mo.	DTP-2, OPV-2	6-wks-2-mo. interval desired between OPV doses to avoid interference
6 mo.	DTP-3	An additional dose of OPV at this time is optional for use in areas with a high risk of polio exposure
15 mo.**	MMR††	
18 mo.**	DTP-4, OPV-3	Completion of primary series
4-6 yr.§§	DTP-5, OPV-4	Preferably at or before school entry
14-16. yr	Td¶¶	Repeat every 10 years throughout life

*These recommended ages should not be construed as absolute, i.e. 2 mos. can be 6-10 weeks, etc.

†For all products used, consult manufacturer's package enclosure for instructions for storage, handling, and administration. Immunobiologics prepared by different manufacturers may vary, and those of the same manufacturer may change from time to time. The package insert should be followed for a specific product.

§DTP—Diphtheria and tetanus toxoids and pertussis vaccine.

¶OPV—Oral, attenuated poliovirus vaccine contains poliovirus types 1, 2, and 3.

**Simultaneous administration of MMR, DTP, and OPV is appropriate for patients whose compliance with medical care recommendations cannot be assured.

††MMR—Live measles, mumps, and rubella viruses in a combined vaccine (see text for discussion of single vaccines versus combination).

§§Up to the seventh birthday.

¶¶Td—Adult tetanus toxoid and diphtheria toxoid in combination, which contains the same dose of

Iannelli, Vaxopedia, 2019

MEASLES OUTBREAK IN A FULLY IMMUNIZED SECONDARY-SCHOOL POPULATION

TRACY L. GUSTAFSON, M.D., ALAN W. LIEVENS, M.D., PHILIP A. BRUNELL, M.D.,
RONALD G. MOELLENBERG, B.S., CHRISTOPHER M.G. BUTTERY, M.D.,
AND LYNNE M. SEHULSTER, PH.D.

Published March 26, 1987 | N Engl J Med 1987;316:771-774

- Corpus Christi, Texas (my hometown!); 157 total cases
- 99% (!) of students had record of MMR vaccination
- 4.1% lacked detectable antibody
- Seronegative rates: 0-3.3% for students with 2 doses and 3.6-6.8% for students with 1 dose

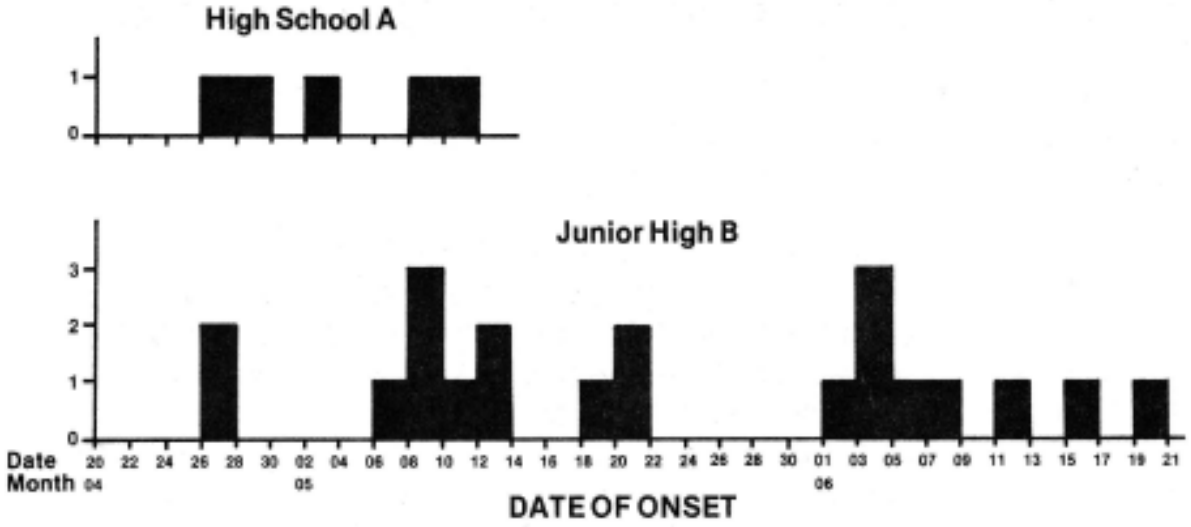


Figure 1. Measles Outbreaks at a Junior High and High School in Corpus Christi, Texas, 1985.

Vaccine Recommendations: 1960s to 1990s

- 1989: both ACIP and AAP recommend a second dose of MMR for all children
- Large measles outbreaks in late 1980's/early 1990's
  - >10K hosp, >100 deaths
- Although AAP and ACIP worked closely, differences in schedules persisted
  - Biggest difference was timing of second MMR dose - ACIP, 4-6 years; AAP, 11-12 years

Sixth grader Ginger Taylor shows proof of Immunization against the measles in 1989.

PBS News; Photo By Glen Martin/The Denver Post

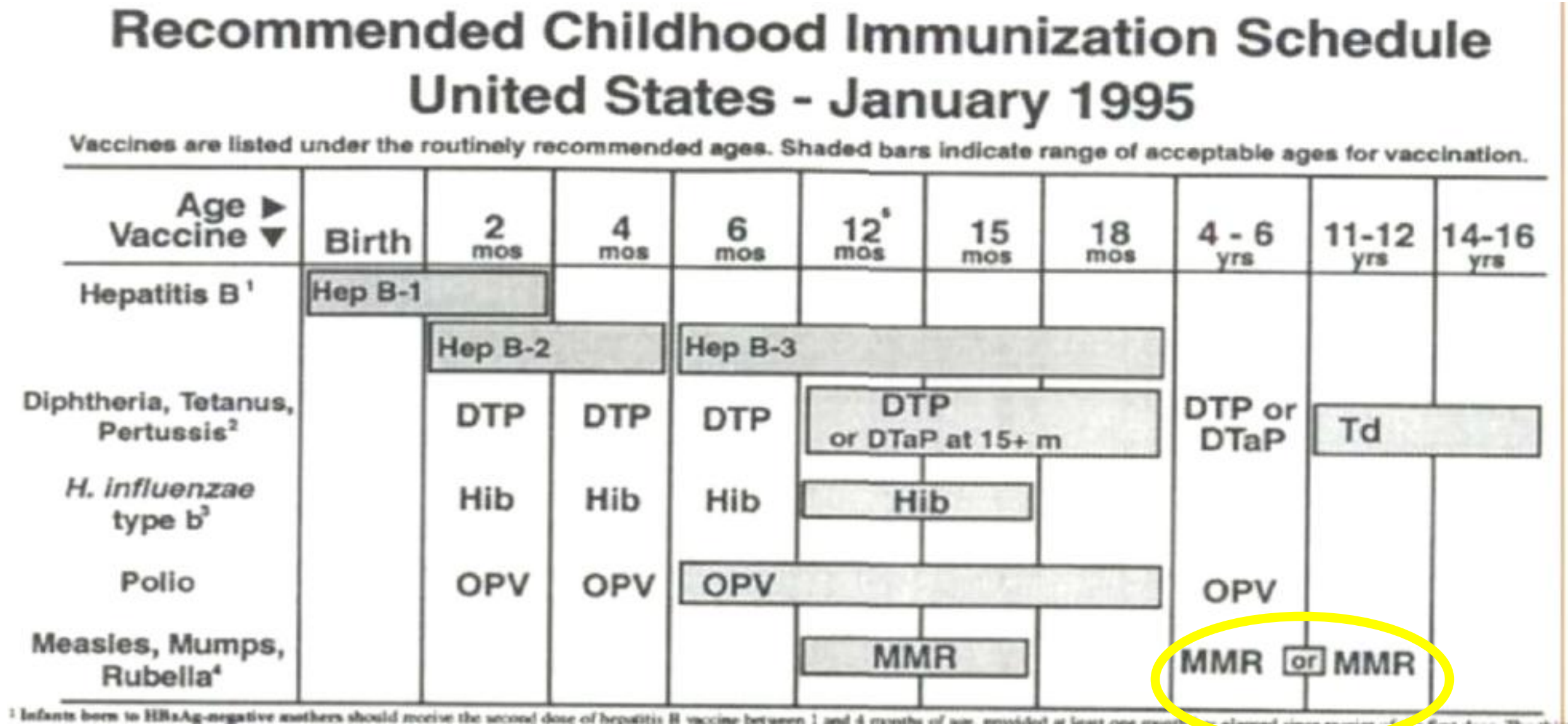
Vaccine Recommendations: 1960s to 1990s

- 1993: CDC convened summit with AAP and other professional societies to develop strategies to eliminate VPDs by vaccinating 90+% of US children by age 2
- One outcome of this summit - resolution to develop a single, easy-to-understand schedule and format for routine childhood vaccines
- Representatives from AAP, ACIP, AAFP, FDA and NIH formed core of work group dedicated to task
- First harmonized schedule published in January 1995 and approved by ACIP, AAP, and AAFP

Rosalynn Carter, Betty Bumpers and the babies celebrate the launch of Every Child By Two

Source: Vaccinate Your Family (formerly Every Child By Two)

1995: First Harmonized Immunization Schedule



Recommended Childhood Immunization Schedule
United States - January 1995

Vaccines are listed under the routinely recommended ages. Shaded bars indicate range of acceptable ages for vaccination.

Age ▶ / Vaccine ▼	Birth	2 mos	4 mos	6 mos	12 mos[4]	15 mos	18 mos	4 - 6 yrs	11-12 yrs	14-16 yrs
Hepatitis B[1]	Hep B-1									
		Hep B-2		Hep B-3						
Diphtheria, Tetanus, Pertussis[2]		DTP	DTP	DTP	DTP or DTaP at 15+ m			DTP or DTaP	Td	
H. influenzae type b[3]		Hib	Hib	Hib	Hib					
Polio		OPV	OPV	OPV				OPV		
Measles, Mumps, Rubella[4]					MMR			MMR	or	MMR

[1] Infants born to HBsAg-negative mothers should receive the second dose of hepatitis B vaccine between 1 and 4 months of age, provided at least one [illegible]

Iannelli, Vaxopedia, 2019

Knowledge Check

True or False:

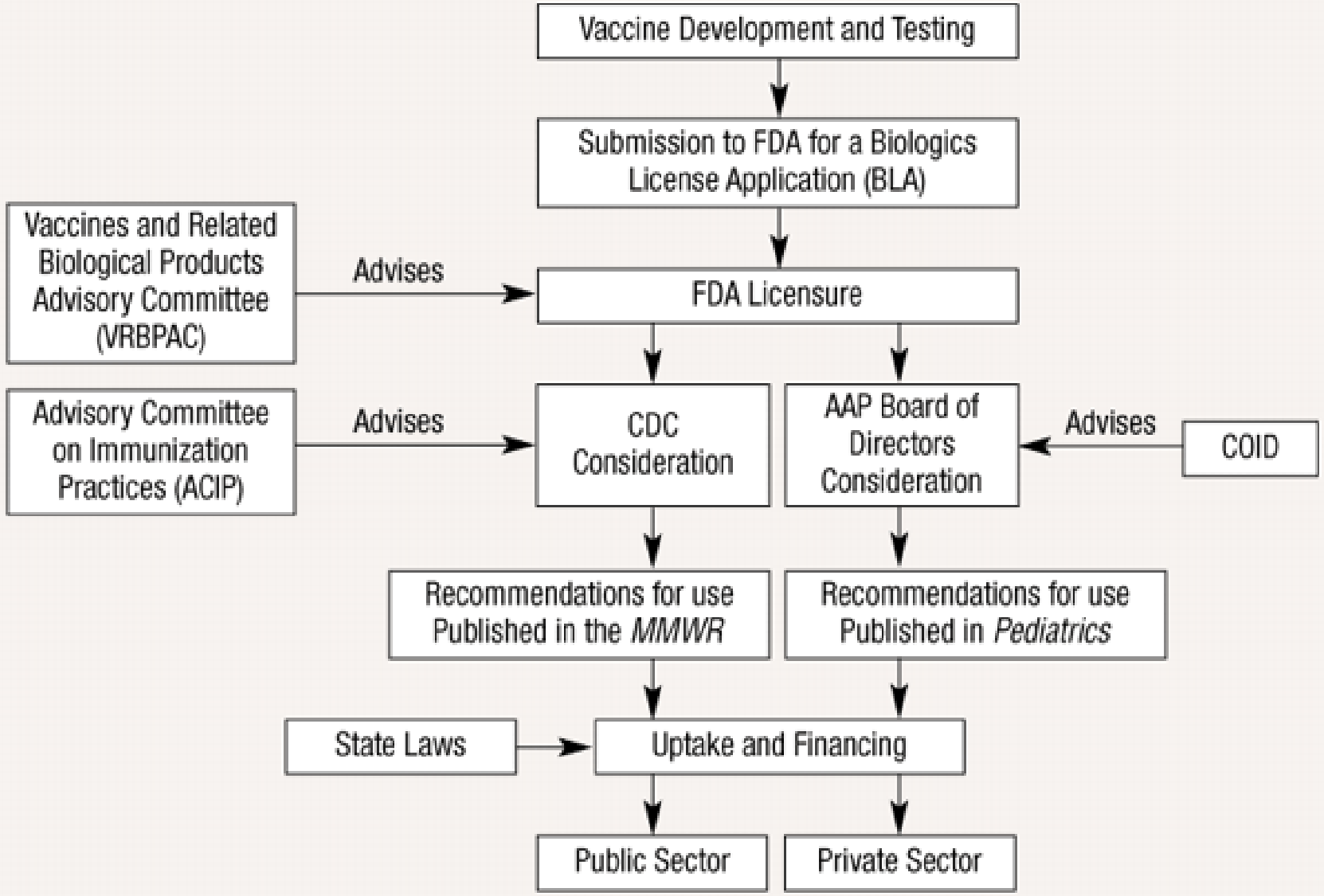
The Advisory Committee on Immunization Practices has always been the primary body responsible for vaccine recommendations.

Answer: False

Who Decides the Vaccine Schedule?

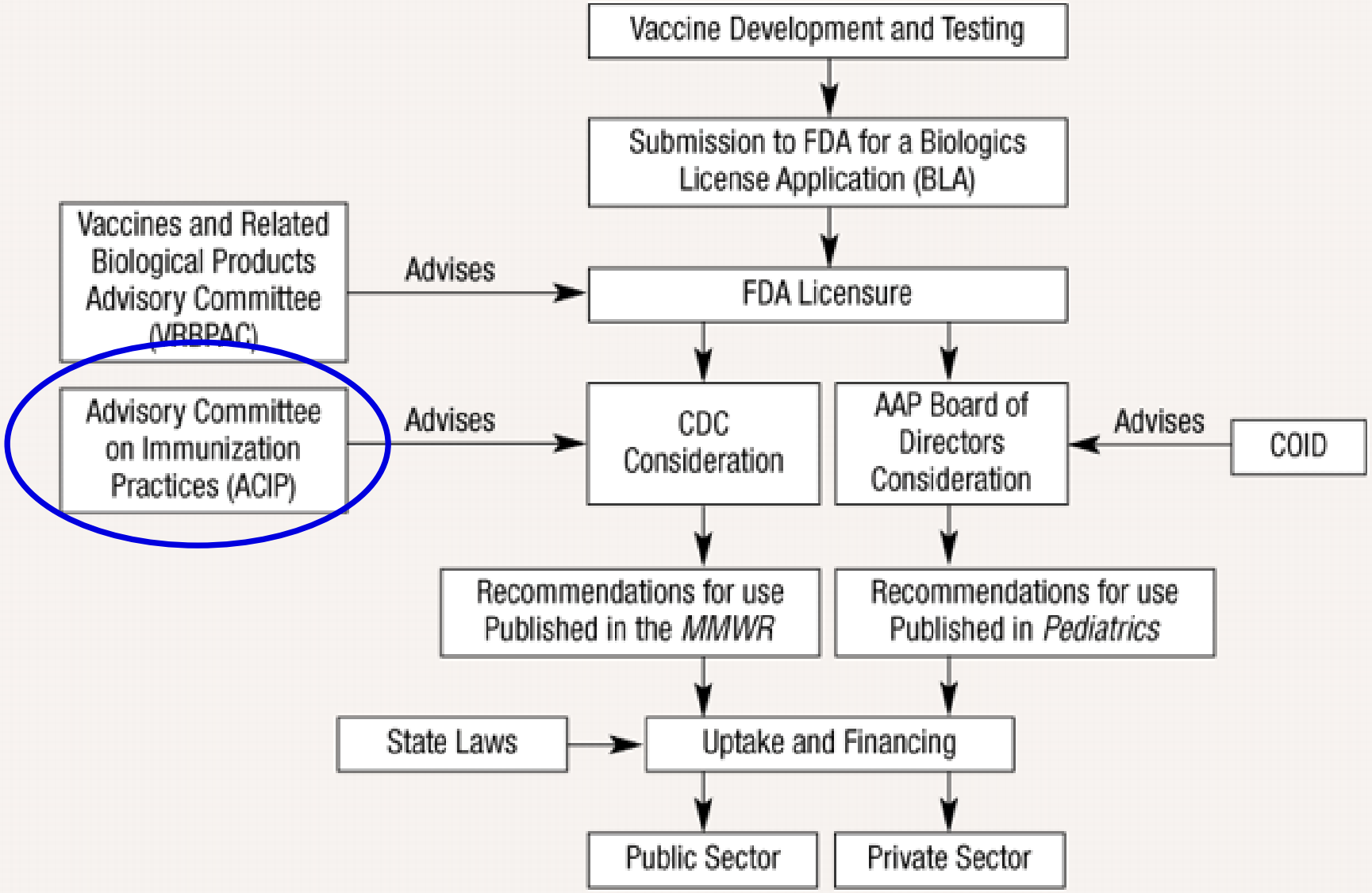
1995 to present

Development of vaccine recommendations and policies



Modified from Pickering LK, Orenstein WA. Development of pediatric vaccine recommendation and polices. *Semin Pediatr Infect Dis.* 2002;13:148-154. Reprinted with permission.

Development of vaccine recommendations and policies



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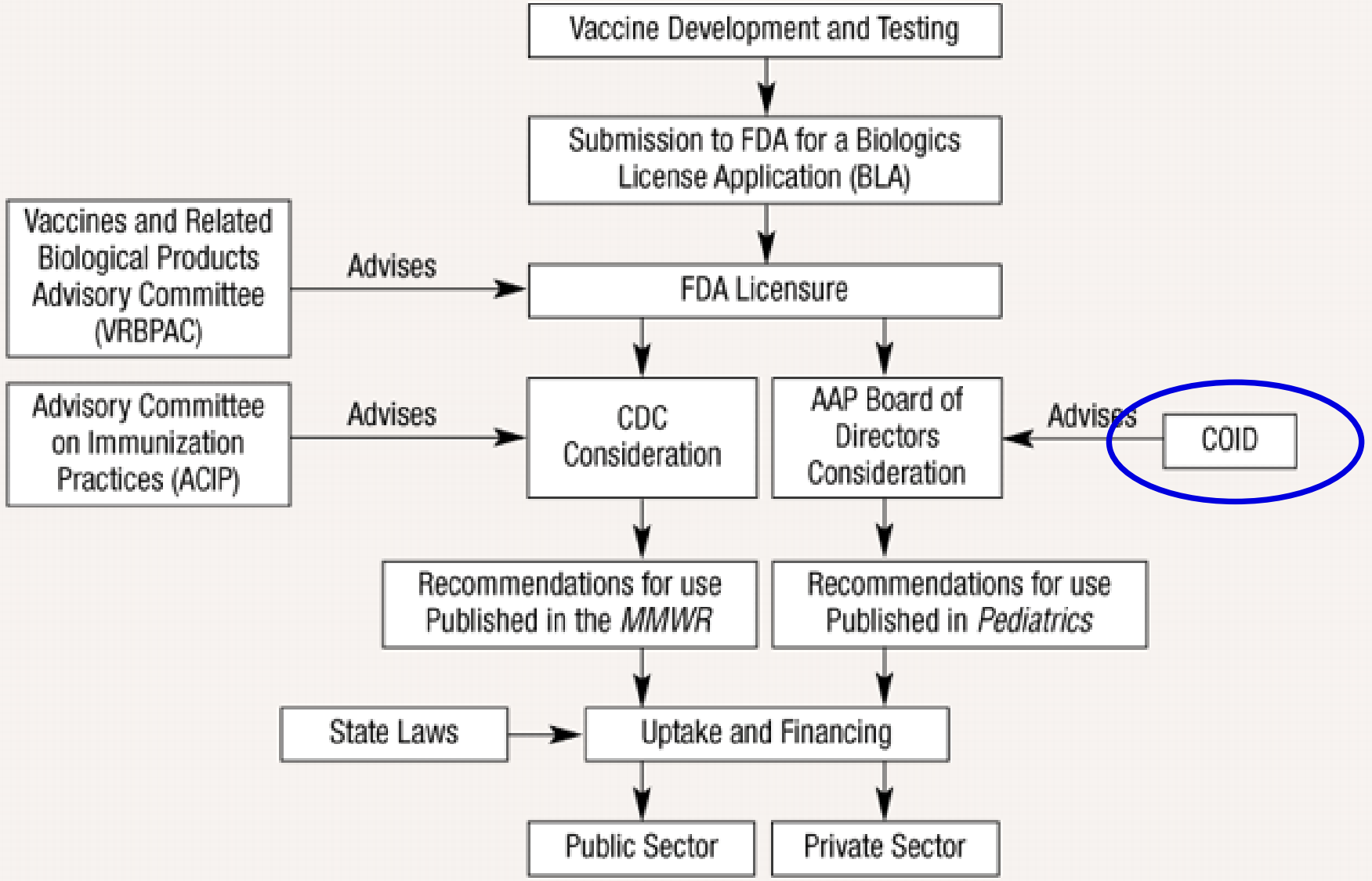
Development of vaccine recommendations and policies



Modified from Pickering LK, Orenstein WA. Development of pediatric vaccine recommendation and polices. *Semin Pediatr Infect Dis.* 2002;13:148-154. Reprinted with permission.

Knowledge Check

Which committee provides guidance to the American Academy of Pediatrics (AAP) Board of Directors on immunization policy and recommendations?

a) Vaccines and Related Biological Products Advisory Committee (VRBPAC)
b) Advisory Committee on Immunization Practices (ACIP)
c) Committee on Infectious Diseases (COID)
d) Committee on Practice and Ambulatory Medicine (COPAM)

Answer: C

…and Where Are We Going?

Medscape Internal Medicine > Medicine Matters

COMMENTARY

ACIP Meeting Rescheduled as HHS Rescinds Richardson Waiver: What's Next for Vaccine Policy?

Sandra Adamson Fryhofer, MD

DISCLOSURES | March 26, 2025

ACIP Meeting Postponed. Just a Delay or a Fortelling of Kennedy's Vaccine Agenda?

Managed Healthcare EXECUTIVE

February 21, 2025

By Peter Wehrwein, Managing Editor

NEWS: HEALTH

Colorado lawmakers are quietly trying to RFK Jr.–proof school vaccination requirements

THE COLORADO SUN

An amendment slipped into a bill by Democrats would shift reliance away from a key federal committee in determining which vaccines Colorado schoolkids are required to get

John Ingold 4:05 AM MDT on Apr 9, 2025

Share

CDC posts 'conflicts of interest' database on vaccine panel members

The list is part of Health Secretary Robert F. Kennedy Jr.'s push for "radical transparency." Experts say it could sow doubt about the agency's vaccine guidance.

March 7, 2025, 2:26 PM MST

OPINION FIRST OPINION

Former chairs of the Advisory Committee on Immunization Practices on the panel's role

This committee's work is important to all Americans

By Grace Lee, José Romero, Nancy Bennett, Jonathan Temte, Carol Baker, and Myron Levin March 5, 2025

Lee, Romero, Bennett, Temte, Baker, and Levin are all past chairs of the U.S. Advisory Committee on Immunization Practices from 2003-2005 and 2009 to 2023.

ACIP postponement, shelving of CDC vaccine campaigns stir fears

CIDRAP

Chris Dall, MA, February 21, 2025

Topics: Public Health, Adult (non-flu) Vaccines, Influenza Vaccines, COVID-19

What happened since Apr-Dec 2025

- **Legitimate ACIP members fired and replaced with mostly unqualified individuals**
- **All liaison organizations were dismissed from ACIP work groups**
- **June 25-26 ACIP Meeting**

  The AAP did not participate in the ACIP meeting in its usual role as liaisons to ACIP
- **AAP and other medical organizations file a lawsuit against HHS**
  - So far, so good… stay tuned…
- **AAP continues to reinforce the critical role of the original ACIP**
- **AAP is now developing our own evidence-based recommendations**
  - Initial focus was on respiratory season viruses
  - Maintaining current schedule and consider other potential changes
- **AAP also did not participate in September or December ACIP meetings**
  - Fact checking with media and social media in real time
  - Press conference with large media presence both meetings

What Happened on January 5

“Aligning with Peer Nations”

- In an unprecedented move, politically appointed leadership of HHS announced major changes to the US childhood vaccination schedule
- Most closely aligned with schedule of Denmark, which is an outlier among developed nations in how few vaccines they recommend
- US schedule is similar to Canada, Ireland, Germany, Australia, New Zealand, etc
- Reasoning given was to “restore trust in vaccines”

Universal Opposition from Medical and Public Health Societies

- Many analogies given for how problematic this move was
  - “…like comparing a cruise ship to a kayak”
  - “…a jet engine to a toy plane”
  - “…square peg in a round hole”
  - “…outsourcing US policy to Denmark”
  - “…like setting our thermostat based on the weather in Denmark”
  - “…like comparing traffic laws without comparing roads”

What’s Wrong with This Picture?

Source: ChatGPT

Among the many problems with the changes…

- **Process:** No disease-burden modeling, impact assessment, public comment, independent expert input
  - No transparency in decision; prioritizes perception over data
- **Health outcomes are what matter, not number of vaccines**:
  - illnesses, hospitalizations, deaths, and disabilities prevented
  - avoided financial costs, missed work and schools, costs to families and communities
- **Vaccine schedules aren’t interchangeable lists**: You can’t copy and paste public health
  - Different countries have different populations, health systems, size, cost considerations, etc

Among the many problems with the changes…

- **The US is not actually an outlier**: Many ”peer” high income countries use similar routine childhood vaccine schedules
  - Denmark is the outlier among peer countries; Denmark was chosen to make the US schedule look “bloated” compared to peer nations
  - US similar to Canada, Germany, Italy, Australia, S.Korea, Israel, etc
- **“Fewer vaccines against fewer diseases” is not a good thing**: preventing disease and suffering is a good thing
- **Clear recommendations matter**: clinicians already tailor conversations to individual needs and help patients make decisions based on the benefits and risks; having tiered recommendations creates confusion
  - Historically, SCDM vaccines have very low uptake

Let’s talk about the details…

“Too many vaccines”

- “In the US, children get [insert a scary large number, like 80 or 96] doses of vaccine by the time they are 18 years old”
- Reality: By the time a child turns 18, they’re recommended to receive vaccines that protect against 18 diseases
- If counting specific diseases, based on boosters:
  - 28 doses by 2 years (including flu)
  - 35 by 5 years (including flu)
  - 54 by 18 (one-third of these are annual flu)
- Total doses depends on combination vaccines used

The Facts: Do Multiple Vaccines Overwhelm or Weaken the Infant's Immune System?

- Infant has theoretical capacity to respond to about 100,000 vaccines at any one time!
  - (10^7 B cells per mL by 10^3 epitopes per vaccine)
  - Cohn and Langman, Immuno Rev 1990
- Most vaccines contain fewer than 100 antigens, therefore if 11 vaccines given at one time then 0.1% of the immune system would be "used up"

Children's immune systems regularly encounter thousands of antigens, and the antigens in vaccines are actually far less than they used to be

TABLE 2. Number of Immunogenic Proteins and Polysaccharides Contained in Vaccines Over the Past 100 Years

1900		1960		1980		2000	
Vaccine	Proteins	Vaccine	Proteins	Vaccine	Proteins	Vaccine	Proteins/ Polysaccharides
Smallpox*	~200	Smallpox	~200	Diphtheria	1	Diphtheria	1
Total	**~200**	Diphtheria†	1	Tetanus	1	Tetanus	1
		Tetanus‡	1	WC-Pertussis	~3000	AC-Pertussis¶¶	2–5
		WC-Pertussis§	~3000	Polio	15	Polio	15
		Polio‖	15	Measles¶	10	Measles	10
		Total	**~3217**	Mumps#	9	Mumps	9
				Rubella**	5	Rubella	5
				Total	**~3041**	Hib††	2
						Varicella‡‡	69
						Pneumococcus§§	8
						Hepatitis B‖‖	1
						Total	**123–126**

Offit PA et al, *Pediatrics (*2002) 109:124-9

Most nurses and parents prefer multiple injections at once, and pain may be worse with spreading out

- Nurses prefer to give multiple injections at once to reduce pain and distress (Horn & McCarthy, Journal of Pediatric Health Care, 1999)
- Most parents prefer simultaneous (Bogin et al, Pediatric Resident, 2004)
- Salivary cortisol levels similar with simultaneous and sequential injections ("hurts with 1, hurts with 3"), and pain scores lower in simultaneous (Hanson et al, Infant Behavior and Development, 2010)

Vaccines Moved to SCDM

AKA Which diseases do we want to see children in the US needlessly suffer from?

Hepatitis A

- Prior to widespread vaccination, roughly 10.4 cases per 100K in US
  - ~20,000-30,000 cases/year
  - ~100 deaths/year
- Recent years: 0.5-0.6 cases per year (17-fold reduction)
- Community immunity achieved through widespread childhood vaccination, so circulation now is rare in children
- Low burden of disease currently in US is cited as a reason for the change, but the low burden IS BECAUSE OF VACCINATION!

Hepatitis B

- Highly transmissible pathogen
- Causes liver cancer, cirrhosis
- Prior to widespread vaccination, **~20,000 cases or hepatitis B in children every year**
- Infants can be perinatally infected if mother has hep B (50% of cases)
- Infants and children can also acquire hep B from household or other casual contacts (the other 50%)
- ~1-2.4 million persons in US living with hep B
  - **50-66% are unaware they are infected**
- **90% of children who acquire hep B develop chronic disease**
  - **Of those, roughly 25% will die from the disease**
- In 2023, there were seven perinatally acquired hep B cases in the US

Hepatitis B: Why does the birth dose matter?

- Routine vaccination is far more effective than identifying risk groups
- ~15% of pregnant women are not screened for hepatitis B
- Per CDC website (MMWR), from 2015-2017, 20,678-21,314 infant were born to women who were Hep B surface Ag+
  - Of those, **only 52.6%** were identified through prenatal screening
- Many documented cases of communication errors, transcription errors, acquisition of hep B late in pregnancy leading to infant infection
- **Vaccination in the first 24 hours can prevent hep B in the infant**
- One missed case is too many

Hepatitis B: So why do some countries not recommend a birth dose?

- Different systems, different burdens
- Denmark, for example, has nearly 100% screening for hep B in pregnancy
- Centralized medical records from birth to death
- Up to a year paid parental leave
- Very low burden of chronic hep B
- Systems with few gaps
  - The US health care system has many gaps

Rotavirus

- “Winter vomiting syndrome”
- Prior to widespread vaccination in the US, ~**50,000 hospitalizations per year**
  - 50-100 deaths per year
- Since routine vaccination, rarely see infants hospitalized for rotavirus, even in unvaccinated infants, because of high community levels of protection

Influenza

- Routine vaccination of everyone >6 months since 2010
- Per CDC website, in 2023-2024 season, influenza vaccination prevented 20,000 hospitalizations and 266 deaths in children 6 months through 17 years
- Vaccination is highly effective against severe outcomes in children, including ICU admission and death, including the present season
  - Many studies showing this now
- 280 pediatric deaths last year, 89% incompletely vaccinated (worst year in >15 years)
- Current season starting quite severe with high rates of ER visits and hospitalizations

MenACWY

- Severe disease with high morbidity and mortality
- ACIP was considering changing recommendations prior to dismissal of legitimate members because of two new pentavalent products
  - MenACWY (routine at 11 and 16) + Men B (SCDM at 16)--- MenABCWY
- ~35 states require for school

Single dose HPV and age at recommendation

- ACIP and AAP had been considering moving to this prior to dismissal of legitimate members
- WHO considers it an option, and several high-income countries have moved to single dose
- Unclear what the schedule change means for vaccinating at age 9-10 which was formerly an option with a growing evidence base
  - Recommended by ACS and AAP

What's wrong with a Shared Clinical Decision Making recommendation?

- Clinicians generally don't like this type of recommendation
- Not easily implemented
- Clinicians already do it… all day… every day…
- Almost certainly leads to lower vaccination coverage
  - Implies these vaccines are less important
- Confusing to have tiered recommendations for parents and clinicians
  - SCDM discussions take much more time than routine recs
- Documentation and consent concerns from clinicians
- Some clinicians may not stock vaccines under SCDM
- Potential for lawsuits against manufacturers

AAP Response

The AAP Schedule

AAP 2026 Childhood and Adolescent Immunization Schedules

Q: What changed?

- *A:* The **2026 AAP recommendations remain largely unchanged from prior AAP guidance in 2025;** however, they differ from the schedule recently released by the CDC.

Q: Why does this matter?

- *A:* The AAP formerly partnered with the CDC to create a unified set of vaccine recommendations, but changes to the CDC's schedule depart from medical evidence and no longer offer the optimal way to prevent illnesses in children.

  The AAP immunization schedule continues to recommend immunizations based on the specific disease risks in the United States, and at this time, recommends routine immunization for protection against 18 diseases.

AAP's Evidence-Based Process: Overview

AAP 2026 Childhood and Adolescent Immunization Schedules

- The AAP recommendations are based on a review of vaccine safety data, the epidemiology of the diseases in the United States, the impact of the diseases and how the vaccines could prevent the diseases and their complications
- AAP has led immunization recommendations for children and adolescents since 1935
- Immunization schedule published every year in *Pediatrics*
- Evidence review for immunizations is an ongoing process led by the Committee on Infectious Diseases

Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger

United States 2026

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

Vaccines and Other Immunizing Agents in the Child and Adolescent Immunization Schedule*

Monoclonal antibody	Abbreviation(s)	Trade name(s)
Respiratory syncytial virus monoclonal antibody	RSV-mAb	Beyfortus Enflonsia
Vaccine	**Abbreviation(s)**	**Trade name(s)**
COVID-19 vaccine	1vCOV-mRNA	Comirnaty mNexspike Spikevax
	1vCOV-aPS	Nuvaxovid
Dengue vaccine	DEN4CYD	Dengvaxia
Diphtheria, tetanus, and acellular pertussis vaccine	DTaP	Daptacel Infanrix
Haemophilus influenzae type b vaccine	Hib (PRP-T)	ActHIB Hiberix
	Hib (PRP-OMP)	PedvaxHIB
Hepatitis A vaccine	HepA	Havrix Vaqta
Hepatitis B vaccine	HepB	Engerix-B Recombivax HB
Human papillomavirus vaccine	HPV	Gardasil 9
Influenza vaccine (inactivated: egg-based)	IIV3	Multiple
Influenza vaccine (inactivated: cell-culture)	ccIIV3	Flucelvax
Influenza vaccine (recombinant)	RIV3	Flublok
Influenza vaccine (live, attenuated)	LAIV3	FluMist
Measles, mumps, and rubella vaccine	MMR	M-M-R II Priorix
Meningococcal serogroups A, C, W, Y vaccine	MenACWY-CRM	Menveo
	MenACWY-TT	MenQuadfi
Meningococcal serogroup B vaccine	MenB-4C	Bexsero
	MenB-FHbp	Trumenba
Meningococcal serogroup A, B, C, W, Y vaccine	MenACWY-TT/MenB-FHbp	Penbraya
	MenACWY-CRM/MenB-4C	Penmenvy
Mpox vaccine	Mpox	Jynneos
Pneumococcal conjugate vaccine	PCV15	Vaxneuvance
	PCV20	Prevnar 20
Pneumococcal polysaccharide vaccine	PPSV23	Pneumovax 23
Poliovirus vaccine (inactivated)	IPV	Ipol
Respiratory syncytial virus vaccine	RSV	Abrysvo
Rotavirus vaccine	RV1	Rotarix
	RV5	RotaTeq
Tetanus, diphtheria, and acellular pertussis vaccine	Tdap	Adacel Boostrix
Tetanus and diphtheria vaccine	Td	Tenivac Tdvax
Varicella vaccine	VAR	Varivax
Combination vaccines (use combination vaccines instead of separate injections when appropriate)		
DTaP, hepatitis B, and inactivated poliovirus vaccine	DTaP-HepB-IPV	Pediarix
DTaP, inactivated poliovirus, and *Haemophilus influenzae* type b vaccine	DTaP-IPV/Hib	Pentacel
DTaP and inactivated poliovirus vaccine	DTaP-IPV	Kinrix Quadracel
DTaP, inactivated poliovirus, *Haemophilus influenzae* type b, and hepatitis B vaccine	DTaP-IPV-Hib-HepB	Vaxelis
Measles, mumps, rubella, and varicella vaccine	MMRV	ProQuad

*Administer recommended vaccines if immunization history is incomplete or unknown. Do not restart or add doses to vaccine series for extended intervals between doses. When a vaccine is not administered at the recommended age, administer at a subsequent visit when indicated. The use of trade names is for identification purposes only and does not imply endorsement by the AAP.

Updated January 26, 2026

Endorsed by the American Academy of Family Physicians (AAFP), American College of Nurse-Midwives (ACNM), American College of Obstetricians and Gynecologists (ACOG), American Medical Association (AMA), American Pharmacists Association (APhA), Council of Medical Specialty Societies (CMSS), Infectious Diseases Society of America (IDSA), National Association of Pediatric Nurse Practitioners (NAPNAP), National Medical Association (NMA), Pediatric Infectious Diseases Society (PIDS), Pediatric Pharmacy Association (PPA), and Society for Adolescent Health and Medicine (SAHM). (**Endorsements**)

How to use the child and adolescent immunization schedule

1. Determine recommended vaccine by age (**Table 1**)
2. Determine recommended interval for catch-up vaccination (**Table 2**)
3. Assess need for additional recommended vaccines by medical condition or other indication (**Table 3**)
4. Review vaccine types, frequencies, intervals, and considerations for special situations (**Notes**)
5. Review contraindications and precautions for vaccine types (**Appendix**)
6. Review new or updated American Academy of Pediatrics (AAP) guidance (**Addendum**)

Report

- Suspected cases of reportable vaccine-preventable diseases or outbreaks to your state or local health department
- Clinically significant adverse events to the Vaccine Adverse Event Reporting System (VAERS) at www.vaers.hhs.gov (Accessed December 2, 2025) or 800-822-7967
- For RSV-mAb products, clinically significant adverse events to MedWatch Adverse Event Report Program at www.accessdata.fda.gov/scripts/medwatch/index.cfm (Accessed December 2, 2025). If co-administered with other products, then report to VAERS.

Questions or comments

Submit a question or comment to www.aap.org/en/forms/immunization-schedule-questions.

Helpful information

- **Best practices for immunization (including contraindications and precautions):** www.aap.org/immunization and www.immunize.org
- ***Red Book*: 2024–2027 Report of the Committee on Infectious Diseases (33rd Edition):** www.aapRedBook.org
- **Vaccine information statements:** www.immunize.org/vaccines/vis/about-vis
- **Shared decision making:** https://www.aap.org/en/practice-management/providing-patient--and-family-centered-care/shared-decision-making

For the most up-to-date version, visit AAP.org/ImmunizationSchedule

Endorsements

Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2026

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

The 2026 AAP immunization schedule has been formally endorsed by these medical and health organizations:

AAFP

AMERICAN COLLEGE of NURSE-MIDWIVES

ACOG
American College of Obstetricians & Gynecologists

AMA
AMERICAN MEDICAL ASSOCIATION

APhA
American Pharmacists Association

CMSS
COUNCIL OF MEDICAL SPECIALTY SOCIETIES

IDSA

National Association of Pediatric Nurse Practitioners™

National Medical Association
Service. Excellence. Accountability.

PEDIATRIC INFECTIOUS DISEASES SOCIETY

PPA
the pediatric pharmacy association
collaboration, advocacy, research, and education

SAHM
SOCIETY FOR ADOLESCENT HEALTH AND MEDICINE

What’s Likely Coming Next…

Sowing Fear About Aluminum

- Al+ used as vaccine adjuvant 80+ years;
  - Remarkable safety record
- Adverse reactions: sterile abscesses, granulomatous inflammation, contact hypersensitivity
- Vaccines that include Al+ adjuvant:
  - DTP, DTaP, some HIB, Hepatitis A & B, HPV, anthrax, rabies
- No aluminum: IPV, influenza

So what about aluminum?

- Found in numerous foods and beverages, baby formulas, honey
  - Typical adults ingest 7-9 milligrams of aluminum per day
- Aluminum contained in vaccines is similar to that found in a liter of infant formula
- We ingest orders of magnitude more aluminum than the amount contained in vaccines

“But it’s injected into my baby!”

- About 1% of ingested aluminum reaches the bloodstream (all injected aluminum does)
- Once in bloodstream, though, processed exactly the same whether injected or ingested
  - Most eliminated by the kidney quickly
  - Small amounts retained in tissues
  - By adulthood, 50-100 milligrams have accumulated, almost all of which comes from food
- Levels of aluminum in tissues no different when comparing vaccinated and unvaccinated subjects (Goulle et al, 2020)
- Blood and hair aluminum levels have no association with vaccine history or development (Karwowski et al, Acad Peds, 2018)
- Burden of aluminum from diet and vaccines well within levels considered safe (Mitkus et al, Vaccine, 2011)

Sowing Fear of the HPV vaccine

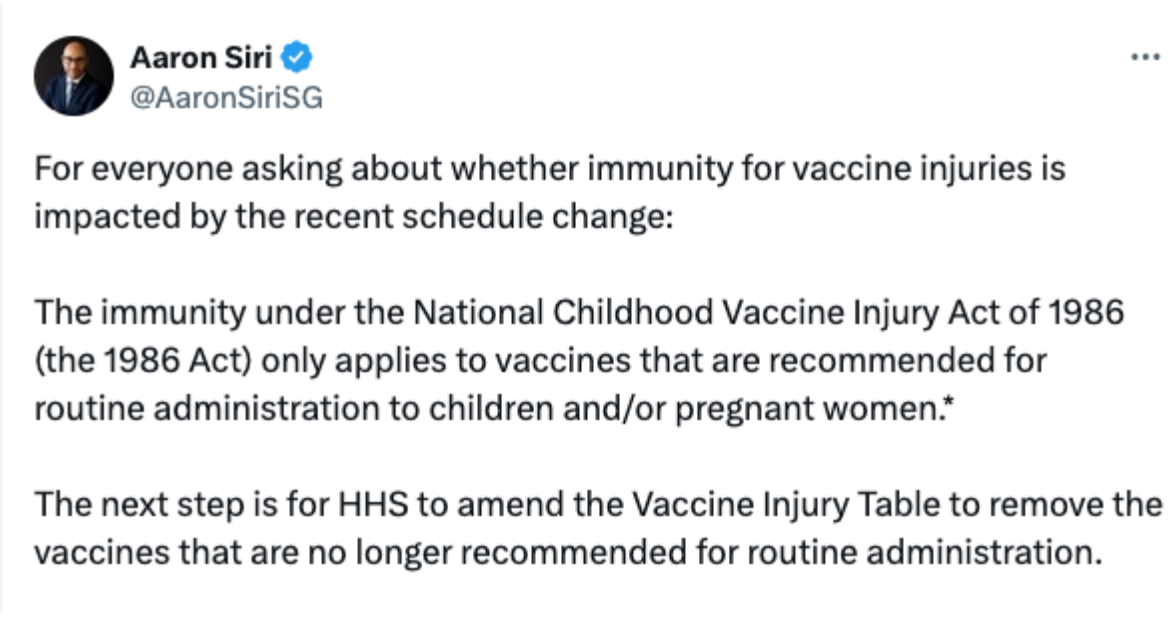
- Some ACIP members and HHS secretary have been involved in lawsuits against HPV vaccine manufacturer
- HPV work group planned with a chair whose public comments are deeply antivaccine

Sowing Fear about Maternal Vaccines

- Another 2 OB/GYNs added to ACIP roster
- Both have made public statements criticizing vaccines during pregnancy
  - “I was not antivaccine. I am now.”
  - “My grandchildren will not get any shots if I can help it.”

Reworking the Vaccine Injury Compensation Program

- Goal: Rig it to make manufacturers liable
- Goal: Add autism to the injury table
- Antivaccine “researchers” have been hired by HHS to “study” this
  - Bogus studies likely coming
- Three members of ACCV recently fired
  - Committee that advises HHS on VICP
- Potentially the biggest threat because manufacturers could leave US market



Aaron Siri ✓
@AaronSiriSG

For everyone asking about whether immunity for vaccine injuries is impacted by the recent schedule change:

The immunity under the National Childhood Vaccine Injury Act of 1986 (the 1986 Act) only applies to vaccines that are recommended for routine administration to children and/or pregnant women.*

The next step is for HHS to amend the Vaccine Injury Table to remove the vaccines that are no longer recommended for routine administration.

How to handle questions in the office

What Families Need

What they're asking us:

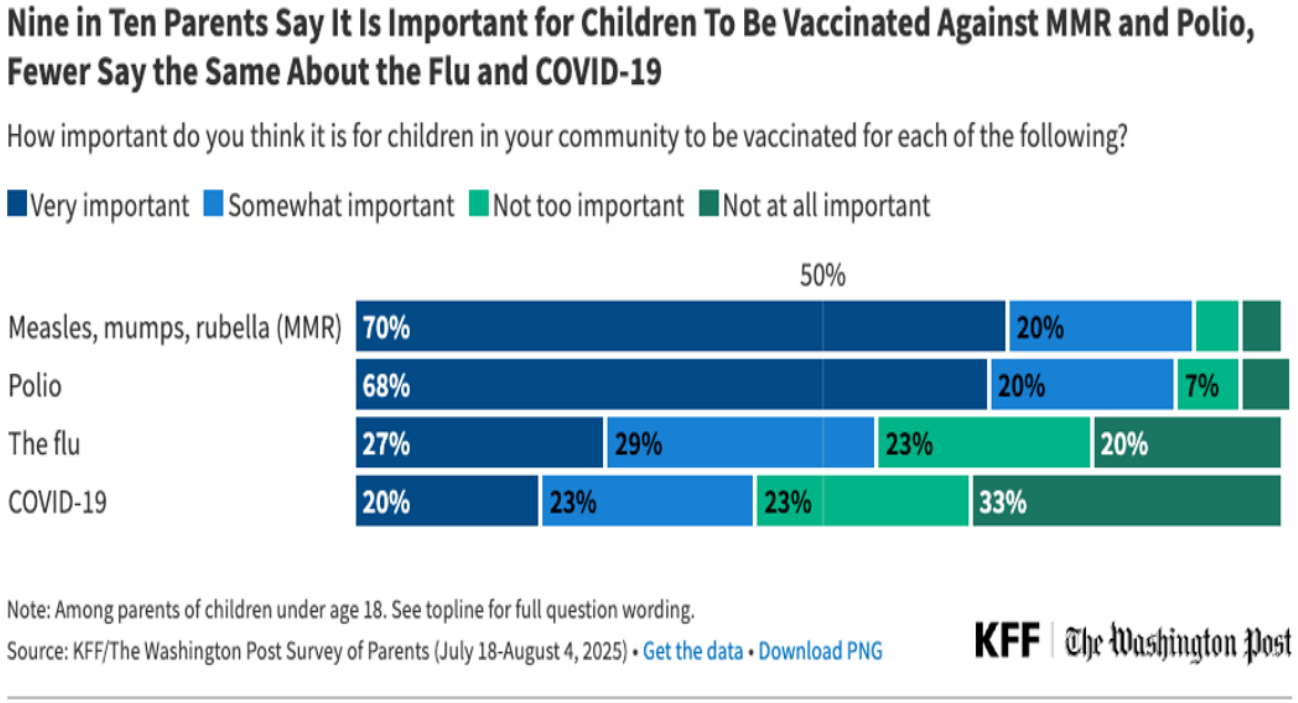
- **What is recommended now?**
- **Why are there different recommendations?**
- **I'm just confused.**

What they want from us:

- **Their child's pediatrician**
- **Someone with expertise who is consistent and honest**
- **A clear recommendation**
- **Reassurance that *they can trust you***

What has NOT changed

- Most parents choose to vaccinate.
- Vaccines remain one of the most effective ways to keep children healthy and thriving.
- A strong recommendation still matters.
- Trust still lives in the exam room.
- Counseling, questions, and shared decisions have always been part of vaccine care.



https://www.kff.org/public-opinion/kff-the-washington-post-survey-of-parents/#c1001c76-8dd1-4230-8b89-58d04f9f1cba--h-parents-views-of-vaccine-safety-and-importance

Start the Visit the Same Way You Always Have

- **Announce what the child is due for + give a strong recommendation**
- **Example language: “Today, your child is due for three vaccines. I strongly recommend these vaccines to keep them protected.”**
- **Do *not* preemptively explain controversy.**
- **A strong recommendation is compatible with shared clinical decision-making**

Shared decision-making language does NOT weaken your role

You have always:

- **Respected parent autonomy**
- **Answered questions**
- **Discussed risks and benefits**

You can respect autonomy and strongly recommend vaccines.

Shared decision-making does not require neutrality

If Parents Have Questions: Lead With Empathy

Parents are understandably confused

- News headlines
- Social media
- Conflicting messages

Your first move = empathy and partnership

Example language: “I can see why this feels confusing. There are a lot of conflicting messages. Ultimately, this is your decision to make. Would it be okay if I shared why I recommend these vaccines?”

Use Digestible, Credible Explanations

- Ask open ended questions to understand parents' concerns
- Answer their questions and stay focused
- You don't need to teach the whole schedule
- Short, digestible explanations, and clear rationale

Example language: "This vaccine works best when we give it now, before kids are exposed. That's why I recommend it to all my patients, gave it to my own kids, and the AAP still recommends it."

Listening and responding to questions is shared decision-making

Only Address Changes If Parents Bring Them Up

If they don’t ask → don’t introduce new concerns

If they do ask:

- **Re-center on their child’s health, not policy changes**
- **Reaffirm your recommendation**
- **Keep it focused on the parents’ concerns**

Example: “It sounds like you have heard about some recent changes and have questions. I’d love to hear about your specific concerns so we can talk about what’s best for your child.”

Why Your Recommendation Still Carries Weight

Families trust YOU

Evidence shows:

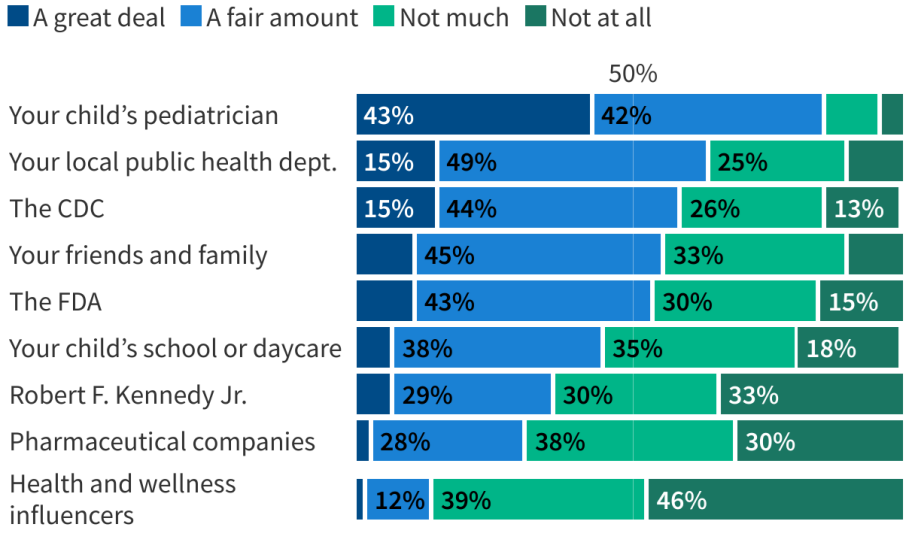
- **Pediatricians and other clinicians remain the most trusted source of vaccine information**
- **Trust is relational, not institutional**
- **Strong clinician recommendations matter**
- **Consistency and credibility reduce hesitancy**

Your voice still matters more than headlines!

Figure 30

Pediatricians are the Most Trusted Source of Vaccine Information Among Parents, Far Fewer Trust Secretary Kennedy, Pharmaceutical Companies, Influencers

In general, how much do you trust each of the following to provide reliable information about vaccines?



Note: Among parents of children under age 18. See topline for full question wording.

Source: KFF/The Washington Post Survey of Parents (July 18-August 4, 2025)

KFF | The Washington Post

Practical Take-Home Framework

A simple mental checklist

- **Internally name the emotion (yours and theirs)**
- **Announce what's due**
- **Make a clear, strong recommendation**
- **Empathize and partner if concerns arise**
- **Answer what's asked, clearly and simply**
- **Anchor to AAP guidance**
- **Re-center on the child's health**

What Families Need Most From You Right Now

- **A trusted navigator in a confusing moment**
- **Someone who knows their child and family**
- **Expert clinical recommendations they can’t get anywhere else**
- **Clear, evidence-based guidance**
- **Reassurance rooted in relationship**

You’ve been with families through many hard decisions. That’s why they trust you.

You’re already doing these things. Stay the course!

Knowledge Check

True or False:

Shared clinical decision-making requires neutrality when discussing vaccines.

Answer: False

Conclusions

- Vaccine recommendations have evolved over the last 90 years guided by burden of disease, vaccine development, and scientific consensus among experts across many disciplines
  - Vaccine safety is always a top consideration in any recommendation
- AAP, AAFP, ACOG, ACP will be leading evidence-based vaccine recommendations for the foreseeable future, with support from the Vaccine Integrity Project and similar groups
- We must unfortunately ignore vaccine guidance from the federal government at this time
- Vaccine recommendations must continue to follow the science

And Finally…

- Don’t forget about tried-and-true evidence-based techniques to increase vaccination uptake, like standing orders for vaccination, reminder/recall, provider assessment and feedback, etc
  - https://www.thecommunityguide.org/
- The combination of multiple evidence-based techniques, including communication techniques, will lead to the highest vaccination uptake
- Make sure your entire staff, including the front desk, administrative staff, medical assistants, nurses, and clinicians are all on the same page about vaccination

Resources

Fact Checked: U.S. Vaccine Recommendations are Appropriate for Children in the United States

There is robust evidence to support the safety, effectiveness and necessity of U.S. vaccine recommendations.

View

What's New at the AAP

Policy

Patient Care

Pediatric COVID-19 Vaccine Dosing Quick Reference Guide

News

AAP Immunization Schedule > | Systems-Based Treatment Table > | Interactive Algorithms > | Antibacterial Drug Dosages >

Red Book® Online

The Authority on Pediatric Infectious Diseases from the American Academy of Pediatrics.

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Red Book 2024–2027

Report of the Committee on Infectious Diseases

For more than 85 years, health care professionals have "referred to the Red Book" for trustworthy guidance on pediatric infectious disease prevention, management, and control. The new 33rd edition continues this tradition with the latest clinical guidance on the manifestations, etiology, epidemiology, diagnosis, and treatment of more than 200 childhood infectious diseases.

- Summary of Major Changes in Red Book 2024
- Updates and Errata

The AAP *Red Book* is published every three years, but the

Quick Links

- AAP Immunization Schedule
- COVID-19 Vaccine Recommendations
- AAP Recommendations for Prevention of RSV
- RSV Immunization FAQs
- Measles chapter
- Measles and Pertussis Resources
- Diagnosis Detective: January 2026
- Group A Strep chapter
- Herpes Simplex chapter

Red Book Online® DIAGNOSIS DETECTIVE
CAN YOU SOLVE IT? TRY NOW!

News & Updates

See the latest IZ News: Immunization News Digest

1/6/26: New RBO Outbreak: *Salmonella* Outbreak Linked to Raw Oysters

1/1/26: January 2026 Diagnosis Detective—Can You Solve It?

12/22/25: *AAP News:* Year in review: Vaccine news dominates Top 10 AAP News stories of 2025

12/8/25: *AAP News:* Changes to Hepatitis B Recommendations 'Irresponsible and Purposely

Safety & Prevention

All Around

At Home

At Play

Immunizations

RSV Quiz

HPV Q&A

Childhood Immunizations Quiz

Measles Facts: Test Your Knowledge

On The Go

Immunizations

Today, most children in the United States lead much healthier lives and parents live with much less anxiety and worry over infections during childhood. Immunizations are one of the success stories of modern medicine.

Click here to view the most up-to-date immunization schedules.

Featured Article

All About the AAP Recommended Immunization Schedule

Here's what to know about the recommended immunization schedule for children and teens. The schedule is approved by the American Academy of Pediatrics and based on ongoing review of the most recent scientific data for each of the recommended vaccines and other immunizations. The schedule also recommends the age when kids should receive each vaccine or immunization.

View

Articles

Question

What is the difference between the AAP immunization recommendations and other vaccine schedules?

Sean O'Leary, MD, MPH, FAAP

Answer

You may have heard that federal health officials recently cut the number of recommended childhood vaccines. In January 2026, the U.S. Centers for Disease Control and Prevention (CDC) removed several life-saving vaccines from its routine immunization schedule for kids. Many of the vaccines have been recommended by doctors for years.

The decision was not based on any new scientific evidence. This breaks from the careful review process that has helped keep kids in the United States healthy for decades. Here's what changed, why it matters and what families should do.

The American Academy of Pediatrics (AAP) continues to **strongly recommend** the full set of immunizations to keep your child healthy and will keep publishing its own evidence-based vaccine guidance. Other doctors and health specialists across U.S. agree with **AAP evidence-based vaccine recommendations**.

“Vaccines don’t save lives; Vaccination saves lives”