



# ***Immunization Update 2020***

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# Disclosure

- ▶ I am on speaker bureaus for:
  - ▶ Sanofi Pasteur
  - ▶ Merck



# Objectives

- ▶ List 4 changes to the Immunization Recommendations for 2020
- ▶ List the vaccine recommendations for special populations and travelers
- ▶ Describe newest vaccine technology and implications for patients
- ▶ Outline the newest vaccines under development
- ▶ Name strategies for improving the vaccine rates in your office

# Vaccine Impact

## Vaccine-Preventable Diseases: Baseline 20th Century & Current Morbidity

Disease	Number of Cases		% Decrease
	Baseline	2010*	
Smallpox	48,164	0	100.00
Diphtheria	175,885	0	100.00
Measles	503,282	57	99.99
Mumps	152,209	2,528	98.34
Pertussis	147,271	21,291	85.54
Polio (par.)	16,316	0	100.00
Rubella	47,745	6	99.99
CRS	823	0	100.00
Tetanus	1,314	8	98.39
Hib	20,000	16	99.92

MMWR 1999;48:245, 2011;59:1700

# Diseases that almost went away

## ▶ 14 Diseases that *almost* went away (Thanks to vaccines):

- ▶ Polio
- ▶ Tetanus
- ▶ Influenza
- ▶ Hepatitis B
- ▶ Hepatitis A
- ▶ Rubella
- ▶ Hib
- ▶ Measles
- ▶ Pertussis
- ▶ Pneumococcal disease (*Streptococcus pneumoniae*)
- ▶ Rotavirus
- ▶ Mumps
- ▶ Varicella
- ▶ Diphtheria

# 2020 Vaccine Schedule: Making Sense of the Changes

## ➤ *Haemophilus influenzae* type b vaccination

- Catch-up vaccination is not recommended

## Hepatitis A vaccination

- All children and adolescents 2-18 years of age
  - Need 2-dose series

## ➤ Hepatitis B vaccination

- Revaccination may be recommended:
  - infants born to HBsAg-positive mothers,
  - hemodialysis patients,
  - other immunocompromised persons.

# Children and Adolescents

- ▶ **Meningococcal serogroup A,C,W,Y vaccination**
  - ▶ Children who received MenACWY prior to age 10 years has been added:
    - ▶ Follow the booster schedule for persons at increased risk.
  - ▶ *Children for whom boosters are not recommended* (eg, those who received a single dose for travel to a country where meningococcal disease is endemic):
    - ▶ Administer MenACWY according to the recommended adolescent schedule

# Children and Adolescents

## ► Meningococcal serogroup B vaccination

- For persons aged  $\geq 10$  years with complement deficiency, complement inhibitor use, asplenia, or who are microbiologists:
  - MenB booster dose 1 year following completion of a MenB primary series followed by MenB booster doses every 2-3 years thereafter, for as long as increased risk remains.
- For persons aged  $\geq 10$  years determined by public health officials to be at increased risk during an outbreak:
  - One-time booster dose if it has been  $\geq 1$  year since completion of a MenB primary series.
  - A booster dose interval of  $\geq 6$  months under certain circumstances

# Children and Adolescents

## ▶ Poliovirus vaccination

- ▶ Only trivalent OPV (tOPV) counts toward the US vaccination requirements.
  - ▶ Doses of OPV administered before April 1, 2016, should be counted (unless specifically noted as administered during a campaign).
  - ▶ Doses of OPV administered on or after April 1, 2016, should not be counted.

# Children and Adolescents

## Tetanus, diphtheria, and pertussis (Tdap) vaccination; Diphtheria, tetanus, acellular pertussis (DTaP) vaccination

- ▶ Either Td or Tdap, are options for decennial tetanus booster doses and catch-up series doses in persons who have previously received Tdap.
- ▶ Children who received doses of Tdap at age 7-10 years:
  - ▶ A dose of Tdap or DTaP administered at 10 years of age may now be counted as the adolescent Tdap booster.
  - ▶ A dose of Tdap or DTaP administered at 7 through 9 years of age should not be counted as the adolescent dose, and Tdap should be administered at 11-12 years of age.
- ▶ Children inadvertently administered DTaP at or after age 7 years:
  - ▶ *Children age 7-9 years:* DTaP may count as part of catch-up series. Routine Tdap dose at age 11-12 years should be administered.
  - ▶ *Children age 10-18 years:* Count dose of DTaP as the adolescent Tdap booster.
- ▶ DTaP note added under *Catch-up Vaccination* to state that dose 5 is not necessary if dose 4 was administered at age 4 years or older AND at least 6 months after dose 3.

# Adult Immunization Updates

## ➤ Hepatitis A

- Vaccination in settings of exposure (ie, healthcare settings for drug users or group homes; nonresidential day care facilities for developmentally disabled individuals).
- Removal of clotting factor disorders as an indication for vaccination.

## ➤ Hepatitis B

- Pregnancy, if at risk for infection or severe outcome from infection during pregnancy, has been added as a population at risk.
- Heplisav-B administration is not recommended during pregnancy due to a lack of safety data.

# Adult Immunization Updates

## ▶ Human Papilloma Virus Vaccination (HPV)

- ▶ HPV vaccination for all adults through age 26 years who are not adequately vaccinated.
- ▶ Shared clinical decision-making regarding HPV vaccination in adults aged 27 to 45 years who are not adequately vaccinated.

# Influenza Vaccine

## ➤ Influenza Vaccination

### ➤ Live attenuated influenza vaccine should *not* be used:

- History of severe allergic reaction to any vaccine component (excluding egg) or to a previous dose of any influenza vaccine
- Immunocompromised due to any cause (including medications and HIV infection)
- Anatomic or functional asplenia
- Cochlear implant
- Cerebrospinal fluid-oropharyngeal communication
- Close contacts or caregivers of severely immunosuppressed persons who require a protected environment
- Pregnancy
- Received influenza antiviral medications within the previous 48 hours

# Adult Immunization Update

- ▶ Measles, Mumps, and Rubella (MMR)
  - ▶ Healthcare personnel: **Born in 1957 or later with no evidence of immunity to measles, mumps, or rubella:** 2-dose series at least 4 weeks apart for measles or mumps or at least 1 dose MMR for rubella
  - ▶ **Born before 1957 with no evidence of immunity to measles, mumps, or rubella:** Consider 2-dose series at least 4 weeks apart for measles or mumps or 1 dose for rubella

# Adult Immunization Update

## ▶ Meningococcal Vaccine

- ▶ MenB vaccination based on shared clinical decision-making in patients aged 16 to 23 years (age 16 to 18 years preferred) not at increased risk for meningococcal disease,
- ▶ Under *Special Situations*, for patients with anatomical or functional asplenia (including sickle cell disease), persistent complement component deficiency, complement inhibitor (eg, eculizumab, ravulizumab) use, or microbiologists routinely exposed to *Neisseria meningitidis*, a recommendation was added to administer a booster dose of MenB 1 year after the primary series and revaccinate every 2-3 years if the risk remains.

# Adult Immunization Update

## ► Pneumococcal

- The 13-valent pneumococcal conjugate vaccine (PCV13) is no longer recommended for routine use in adults aged  $\geq 65$  years.
- ACIP recommends shared clinical decision-making with regard to PCV13 use in patients aged  $\geq 65$  years who do not have an immunocompromising condition, cerebrospinal fluid leak, or cochlear implant and who have not previously received PCV13.

# Adult Immunization Update

- ▶ **Tetanus, diphtheria, and pertussis (Tdap)**

- ▶ The use of either tetanus and diphtheria toxoid (Td) or tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccine is recommended for decennial booster, tetanus prophylaxis for wound management, and for catch-up immunization in individuals who have received at least 1 Tdap dose.

- ▶ **Varicella**

- ▶ An addition to *Special Situations*: vaccination may be considered for persons with HIV without evidence of varicella immunity who have CD4 counts  $\geq 200$  cells/ $\mu\text{L}$ .

## Poll Question 1:



**What percentage of your patients are vaccine-hesitant?**

- A. >50%
- B. <20%
- C. Unknown
- D. I'm such an awesome vaccine advocate that NONE of my patients decline vaccines

# Shared Clinical Decision Making

- ▶ ACIP has four recommendations for vaccination based on shared clinical decision-making that appear on the tables and/or notes of the immunization schedules.
  - ▶ Meningococcal B (MenB) vaccination for adolescents and young adults aged 16–23 years
  - ▶ Hepatitis B (HepB) vaccination for adults age 60 years and older with diabetes mellitus
  - ▶ Human papillomavirus (HPV) vaccination for adults aged 27–45 years
  - ▶ Pneumococcal conjugate vaccination (PCV13) for adults aged 65 years and older who do not have an immunocompromising condition, cerebrospinal fluid leak, or cochlear implant

# Contraindications

- ▶ **Precaution vs. Contraindication**
- ▶ **Live Vaccines**
  - ▶ **Severely compromised individuals**
  - ▶ **Pregnant women**

## Poll Question 2:



**Do you expect to have a higher demand for flu vaccines this year?**

- A. Yes
  - B. No
  - C. Expect less demand
  - D. Don't know
- 

# ACIP June Meeting Updates

- **MenQuadfi**
- **Zostavax**
- **Seasonal Influenza**
- **Covid Vaccines**

# 2020-21 Influenza Vaccine Composition

## Egg-based vaccines are recommended to contain:

- ▶ A/Guangdong-Maonan/SWL1536/2019 (H1N1)pdm09-like virus (updated)
- ▶ A/Hong Kong/2671/2019 (H3N2)-like virus (updated)
- ▶ B/Washington/02/2019 (B/Victoria lineage)-like virus and;
- ▶ (for quadrivalent vaccines) a B/Phuket/3073/2013-like (Yamagata lineage) virus.



Questions?



## Poll Question 3:



**Do you plan to get the Covid-29 vaccine as soon as it is available?**

- A. Yes
  - B. No. Will wait until 2021
  - C. Undecided
  - D. Do not want to receive the vaccine
- 



# 2021 Influenza Vaccines

- ▶ **Non-egg based influenza vaccine will contain hemagglutinin derived from:**
  - ▶ **An A/Hawaii/70/2019 (H1N1) pdm09-like virus;**
  - ▶ **An A/Hong Kong/45/2019 (H3N2)-like virus;**
  - ▶ **A B/Washington/01/2019 (Victoria lineage)-like virus; and**
  - ▶ **A B/Phuket/3073/2013 (Yamagata lineage)-like virus**

# Recombinant Flu Vaccine

- ▶ **For 2020-2021, cell- or recombinant-based vaccines are recommended to contain:**
  - ▶ **A/Hawaii/70/2019 (H1N1)pdm09-like virus (updated)**
  - ▶ **A/Hong Kong/45/2019 (H3N2)-like virus (updated)**
  - ▶ **B/Washington/02/2019 (B/Victoria lineage)-like virus (updated)**
  - ▶ **B/Phuket/3073/2013-like (Yamagata lineage) virus**



# Could we see both flu & Covid circulating this year?

- Will there be changes in how we vaccinate this year?
- 

# Covid Vaccine Development



**Operation Warp Speed (OWS) aims to deliver 300 million doses of a safe, effective vaccine for COVID-19 by January 2021, as part of a broader strategy to accelerate the development, manufacturing, and distribution of COVID-19 vaccines, therapeutics, and diagnostics (collectively known as countermeasures)**

# Vaccine Platforms and Attributes

	Single Dose	Licensed Platform	Speed	Scale
DNA	No	No	Fast	Medium
RNA	No	No	Fast	Low-Medium
Nonreplicating Vector	Maybe	No	Medium	High
Replicating Viral Vector	Maybe	Yes	Medium	High
Protein-based	No	Yes	Medium	High
Inactivated	No	Yes	Medium	Medium to high
Live attenuated	Yes	Yes	Slow	High

# Vaccine recommendations for special populations and travelers





# Pregnant Women

- MMR
  - Tdap
  - Flu
  - Hep B
- 



# HIV + (CD4 Count > 200)

- Influenza vaccine
- Tdap
- Pneumococcal
- Meningococcal Conjugate
- Hep B
- HPV
- MMR
- Varicella Vaccine



# HIV CD4 Count <200

- Influenza vaccine
- Tdap
- Pneumococcal
- Meningococcal conjugate
- Hep B
- HPV

# Other chronic conditions

- ▶ **Diabetes:**
  - ▶ Hep B, Pneumococcal, Meningococcal
- ▶ **Lung Disease and Asthma:**
  - ▶ Flu, Pneumococcal, Zoster vaccine, Tdap
- ▶ **Renal Disease:**
  - ▶ Flu, Tdap, Pneumococcal, Hep B, Zoster, HPV, MMR, Varicella
- ▶ **Cardiovascular Disease:**
  - ▶ Flu, Tdap, Pneumococcal, Zoster
- ▶ **Immunosuppression:**
  - ▶ Flu, Pneumococcal, HPV, Tdap



# Considerations for Travel Vaccines

- **Destination**
  - **Type of traveler**
  - **Special Needs**
- 

# What are the current travel notices

Notice Level

Traveler Action

Risk to Traveler

**Level 1: Watch**

Reminder to follow **usual precautions** for this destination

Usual baseline risk or slightly above baseline risk for destination and limited impact to the traveler

**Level 2: Alert**

Follow **enhanced** precautions for this destination

Increased risk in defined settings or associated with specific risk factors; certain high-risk populations may wish to delay travel to these destinations

**Level 3: Warning**

Avoid all non-essential travel to this destination

High risk

Travel Health Notices Retrieved from <https://wwwnc.cdc.gov/travel/notice> to travelers



## Special vaccines

Cholera

Yellow Fever

Malaria \*

# Newest Vaccine Approvals

## ➤ Flud Quadraivalent (Seqirus)

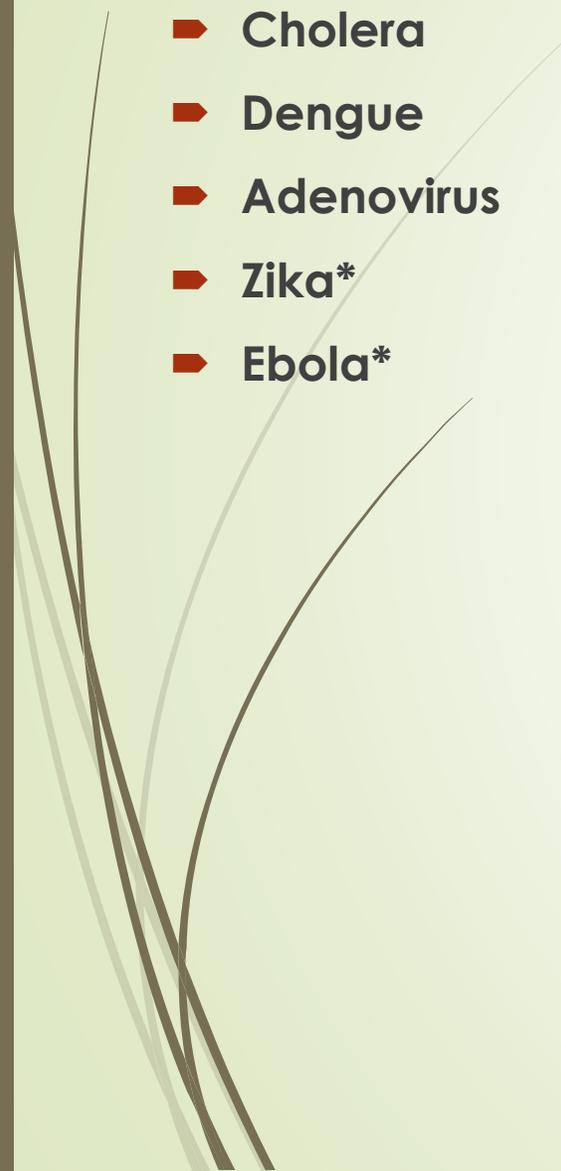
- Active immunization of persons 65 years of age and older against influenza disease caused by seasonal influenza virus subtypes A and types B.

## ➤ Hexavalent vaccine was approved by the Food and Drug Administration to prevent diphtheria, tetanus, pertussis, polio, *Haemophilus influenzae* type b, and hepatitis B (DTaP-IPV-Hib-HepB).

- The vaccine is licensed for use in children aged 6 weeks through 4 years and is indicated for the primary vaccination series in infants at ages 2, 4 and 6 months

# New Vaccines



- ▶ Cholera
  - ▶ Dengue
  - ▶ Adenovirus
  - ▶ Zika\*
  - ▶ Ebola\*
- 

# Newest Vaccine Technology

## ➤ 4 Main types of Vaccine Technology

- Live Attenuated
- Inactivated vaccines
- Subunit, recombinant, polysaccharide, and conjugate vaccines.
- Toxoid vaccines

# New Technologies



- ▶ **Live recombinant vaccines**
  - ▶ **DNA vaccines**
- 

# Vaccines Under Development

- ▶ **Outbreak vaccines**
- ▶ **AIDS, Malaria, TB**
- ▶ **Universal Flu**
- ▶ **Autoimmune vaccines**
- ▶ **Alzheimer's**
- ▶ **Malaria, West Nile Virus,**

# Delivery Systems



- **Inhaled**
  - **Changes to cold chain**
  - **Injection devices**
  - **Edibles**
- 

# Future of Vaccines

- **DNA vaccines** are easy and inexpensive to make — and they produce strong, long-term immunity.
- **Recombinant vector vaccines (platform-based vaccines)** act like a natural infection, so they're especially good at teaching the immune system how to fight infection



# Improving Vaccine Rates

- **What influences rates in your community**
- **Strategies for addressing hesitancy**
  - **Motivational interviewing**
  - **Presumptive versus Participatory**
  - **A-A-A**



# Addressing Vaccine Hesitancy

➔ Corroborate

➔ About Me

➔ Science

➔ Explain/Advise



# Strategies for Improving Vaccine rates

- Engagement of religious or other influential leaders to promote vaccination in the community
- Social mobilization
- Improving convenience and access to vaccination
- Mandating vaccinations / sanctions for non-vaccination
- Employing reminder and follow-up
- Communications training for HCW
- Non-financial incentives
- Aim to increase knowledge, awareness about vaccination



# Improving Rates

- **Every visit a vaccine visit**
- **Reminder/Recall**
- **EMR**
- **Audits (AFIX)**
- **Standing orders for nurse**
- **Other strategies**

# Case Study 1

- ▶ 12 y.o. Johnny comes in for well child exam.
- ▶ He was able to catch up on required vaccines and received a Dtap at age 10.
- ▶ What vaccines does he need today?

## Case #2

- ▶ Juanita is a 68 year old patient who presents for her Medicare visit. She received a PCV 13 at age 64 from another provider.
- ▶ What vaccines does she need?

# Case #3

- ▶ The Chen family presents to your clinic. The father is 33 years old and diabetic and has not had vaccines since he was a child.
- ▶ Mom is 27 and recently had the couple's first child. Her healthcare provider recommended that she get a Tdap and flu, but mom "forgot".
- ▶ Child is 9 weeks old today and has not received vaccines.
- ▶ Who in the family needs vaccines today?
- ▶ How would you address vaccine hesitancy with the family?

# Immunization Apps

	<b>ACOG App</b> American College of Obstetricians and Gynecologists (ACOG) Download: <a href="#">iTunes</a>   <a href="#">Google</a>
	<b>CDC Health Information for International Travel - The Yellow Book</b> Centers for Disease Control and Prevention (CDC) Download: <a href="#">iTunes</a>   <a href="#">Google</a>
	<b>CDC Mobile App</b> Centers for Disease Control and Prevention (CDC) Download: <a href="#">iTunes</a>   <a href="#">Google</a>
	<b>CDC Vaccine Schedules</b> Centers for Disease Control and Prevention Download: <a href="#">iTunes</a>   <a href="#">Google</a>
	<b>Healthy Children</b> American Academy of Pediatrics (AAP) Download: <a href="#">iTunes</a>
	<b>HPV Vaccine: Same Way Same Day</b> Academic Pediatric Association and American Academy of Pediatrics Download: <a href="#">iTunes</a>   <a href="#">Google</a>
	<b>Medscape</b> WebMed Download: <a href="#">iTunes</a>   <a href="#">Google</a>
	<b>MMWR Express</b> Centers for Disease Control and Prevention Download: <a href="#">iTunes</a>   <a href="#">Google</a>

	<b>PneumoRecs VaxAdvisor</b> Centers for Disease Control and Prevention Download: <a href="#">iTunes</a>   <a href="#">Google</a>
	<b>ReadyVax</b> Emory University Download: <a href="#">iTunes</a>
	<b>Red Book App</b> American Academy of Pediatrics Download: <a href="#">iTunes</a>   <a href="#">Google</a>
	<b>Shots Immunizations</b> American Academy of Family Physicians and the Society of Teachers of Family Medicine Download: <a href="#">iTunes</a>   <a href="#">Google</a>
	<b>TravWell</b> Centers for Disease Control and Prevention Download: <a href="#">iTunes</a>   <a href="#">Google</a>
	<b>The Vaccine Handbook: A Practical Guide for Clinicians</b> Professional Communications, Inc. Download: <a href="#">iTunes</a>

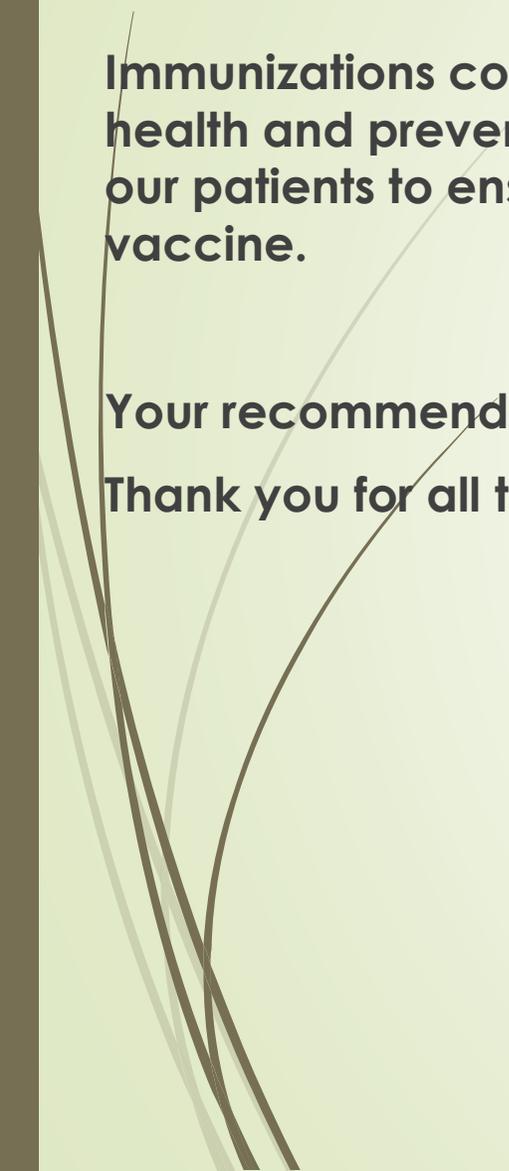
# In Summary



Immunizations continue to be one of the most effective preventive measures that we have to protect health and prevent vaccine-preventable diseases. This year, more than ever, we need to encourage our patients to ensure that they have received all of their recommended vaccines, including the Flu vaccine.

Your recommendation is vitally important in a patient's decision to vaccinate.

Thank you for all that you do to protect the lives and health of your patients and the community.



Thank you for your attention!

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