

Employee Health Spotlight: Immunizations, Screening, and Exposures

Barbara DeBaun, MSN, RN, CIC

MHA IP Bootcamp 2024

February 7, 2024

Disclosure of Conflicts of Interest

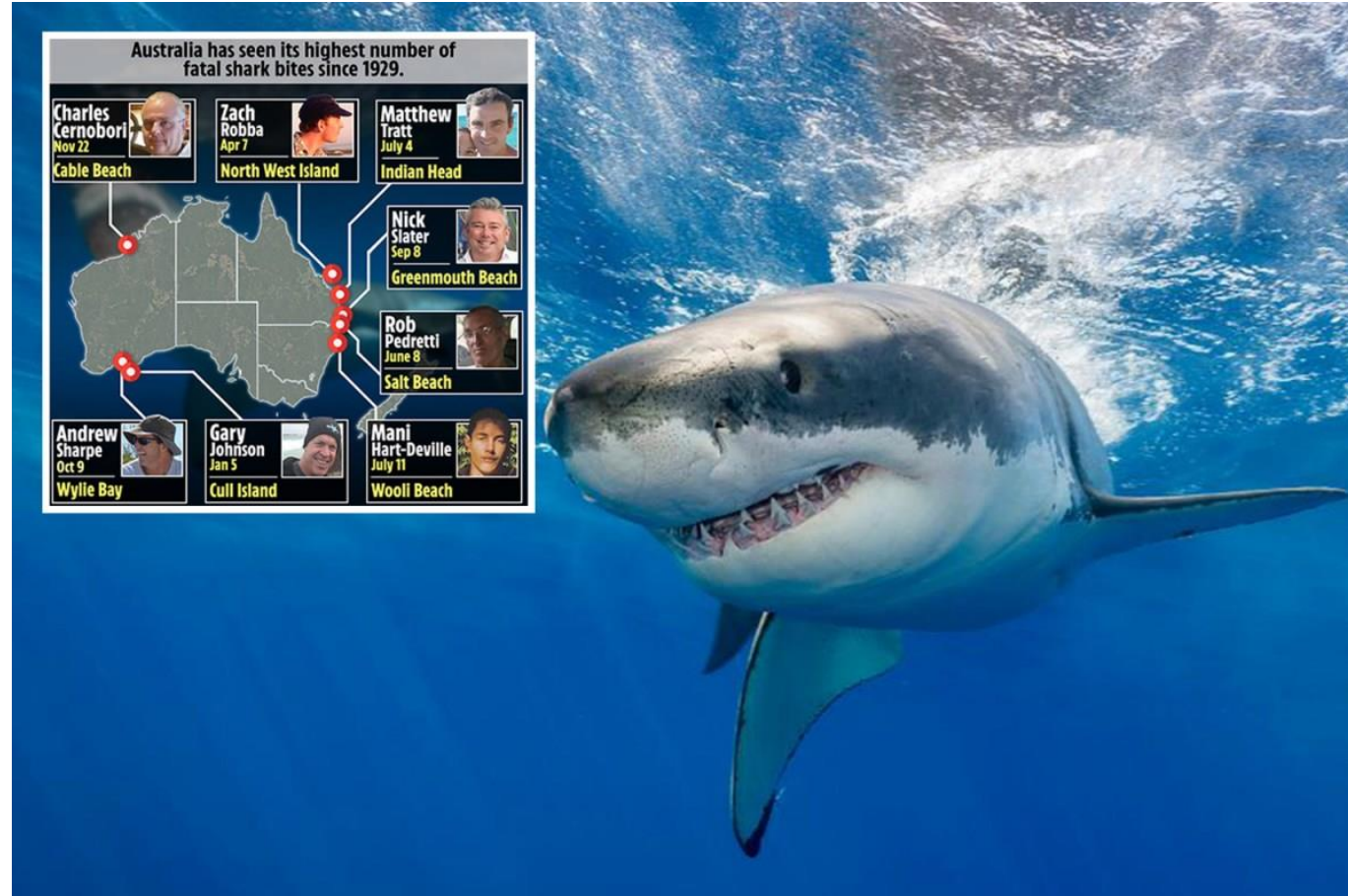
- Barbara DeBaun, MSN, RN, CIC is a clinical consultant to:
 - Magnolia Medical
 - SplashBlocker

Discussion

- What are you more afraid of?
 - 1) Sharks
 - 2) Mosquitos
 - 3) Nothing scares me



Harm due to shark attacks



Harm due to mosquitos

One million
deaths per year

Hundreds of
millions endure
pain and suffering

Mosquitos

MALARIA

DENGUE

YELLOW FEVER

ZIKA

CHIKUNGUNYA

WEST NILE

What 'bugs' our staff the most?



Is it the bugs they
can see or the bugs
they can't see?



Perceptions of Risk



We do not tend to be afraid of things that are most likely to harm us



Planes, trains, automobiles



Sedentary lifestyle



We are afraid of things that pose little danger



We fear sharks while mosquitos are a much bigger danger

Employee Health Program

Ensure	Ensure HCW have recommended evidence of immunity to vaccine-preventable diseases
Assess and manage	Assess and manage occupationally and non-occupationally-acquired conditions and illnesses that affect HCP safety in the workplace
Prevent, evaluate, and manage	Prevent, evaluate, and manage potentially infectious exposures or illnesses acquired or transmitted by HCW in healthcare settings



New hire screening and immunizations

Healthcare Worker Screening and Immunization

- Measles, Mumps, Rubella
- Pertussis
- Varicella
- Hepatitis B
- Influenza (annual)
- COVID-19



TB Exposures and Screening



Annual Screening, Testing, and Education



Annual TB testing of health care personnel is **not** recommended unless there is a known exposure or ongoing transmission at a healthcare facility. Health care personnel with untreated latent TB infection should receive an annual [TB symptom](#) screen. Symptoms for TB disease include any of the following: a cough lasting longer than three weeks, unexplained weight loss, night sweats or a fever, and loss of appetite.



Healthcare facilities might consider using annual TB screening for certain groups at increased occupational risk for TB exposure (e.g., pulmonologists or respiratory therapists) or in certain settings if transmission has occurred in the past (e.g., emergency departments). Facilities should work with their [state and local health departments](#) to help make these decisions.



All health care personnel should receive TB education annually. TB education should include information on TB risk factors, the signs and symptoms of TB disease, and TB infection control policies and procedures. TB education materials can be found through [CDC](#), the [TB Centers of Excellence for Training, Education, and Medical Consultation](#), [NTCA](#), [State TB Programs](#), and the [Find TB Resources](#) website.

TB screening



Mantoux tuberculin skin test (TST)

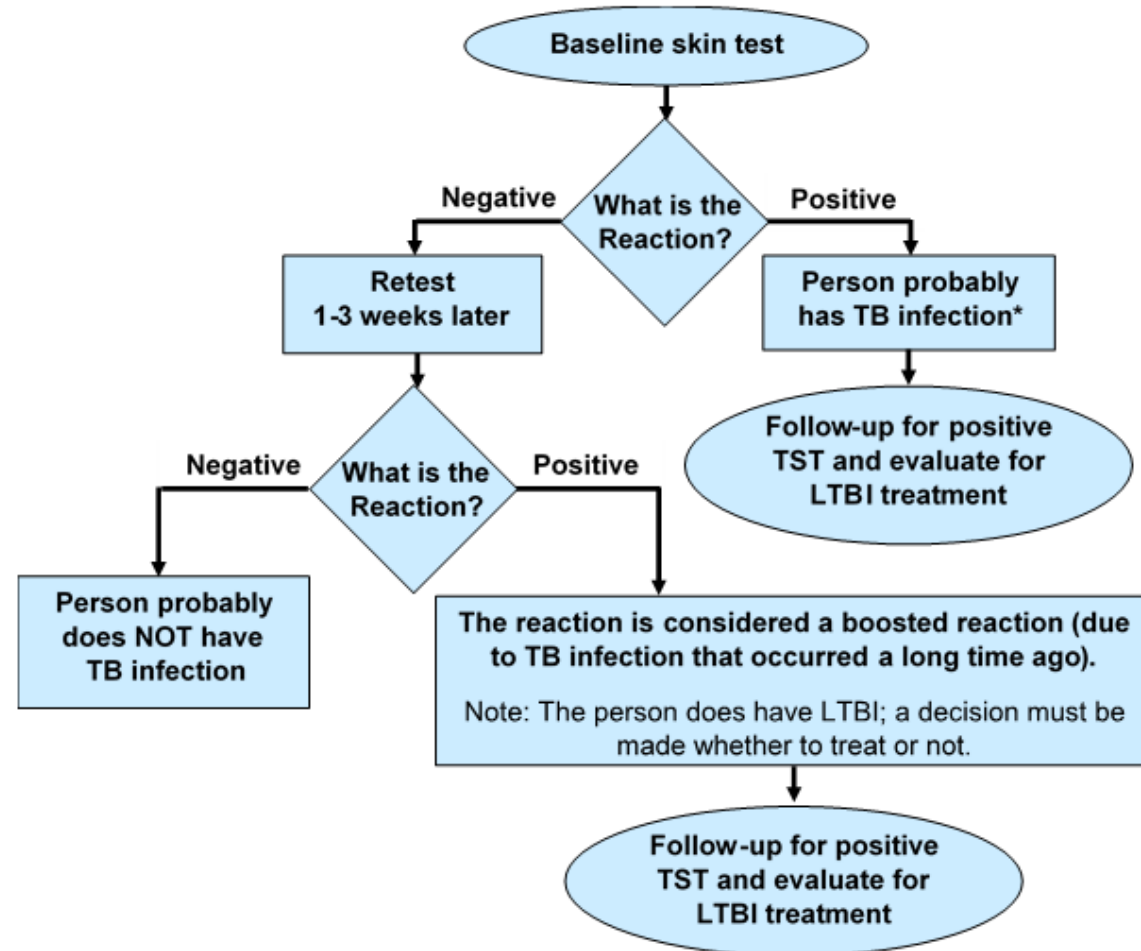
- Intradermal Injection of 0.1 ml of tuberculin purified protein derivative (PPD) into the inner surface of the forearm
- Tuberculin syringe with needle bevel facing upward
- Should produce a pale elevation of the skin (wheal) 6-10mm in diameter



Tuberculosis New Hire Screening

- Note: An individual TB risk assessment should be used to help interpret test results and determine whether health care personnel are at increased risk for TB. Low-risk health care personnel who test positive for TB infection should have a second TB test to confirm the result. For example, health care personnel who do not have any TB symptoms, are unlikely to be infected, and are at low risk for progression to TB disease should receive a second TB test if their first test is positive. If the second test is also positive, the health care personnel is considered to have TB infection and they should be evaluated with a chest x-ray and TB symptom screen.

Two-Step TST Testing



Reading TST

- Read reaction between 48 and 72 hours after placing
- Measure reaction in millimeters of induration (firm swelling)
- Do not measure redness



5, 10, or 15?

Classification of the Tuberculin Skin Test (PPD) Reaction



≥ 5 mm

- HIV positive
- Recent contact with an active TB patient
- Nodular or fibrotic changes on chest X-ray
- Organ transplant



> 10 mm

- Recent arrivals (< 5 yrs) from high-prevalence countries
- IV drug users
- Resident/employee of high-risk congregate settings
- Mycobacteriology lab personnel
- Comorbid conditions
- Children < 4 yrs old
- Infants, children, & adolescents exposed to high risk categories



≥ 15 mm

- Persons with no known risk factors for TB

False- Positive Reactions

Previous TB vaccination with the bacilli
Calmette-Guerin (BCG) vaccine

Infection with non-tuberculosis mycobacteria
(i.e., mycobacteria other than *M. tuberculosis*)

Incorrect measurement or interpretation of
reaction

Incorrect antigen used

False-negative Reactions

Anergy

Recent TB infection (within the past 8-10 weeks)

Very young age (<6 months)

Recent live-virus measles or smallpox vaccination

Incorrect method of placing the TST

Incorrect measuring or interpretation of TST reaction



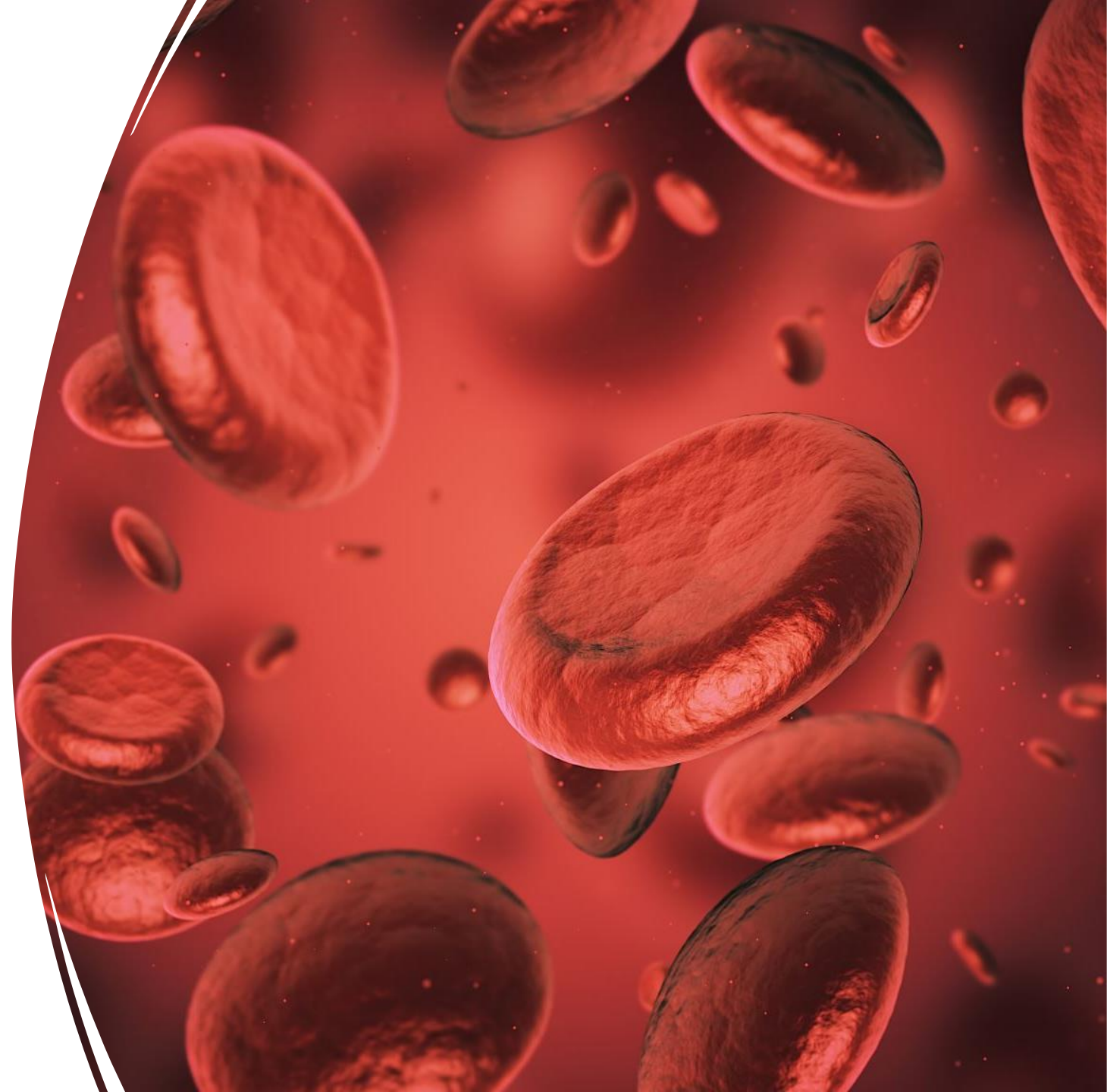
Vaccine and TST connection

Some interesting connections

- Vaccination with live viruses (e.g., MMR, oral polio, varicella, yellow fever, BCG, oral typhoid) may interfere with TST reactions
- If a TST is scheduled for a person who is also being vaccinated, it can be done:
 - Either on the same day as vaccination with live-virus OR
 - At least one month after administration of the live-virus vaccine



Blood tests for TB screening



Interferon-Gamma Release Assays (IGRAs)

- Whole-blood tests that measure a person's immune reactivity to *M. tuberculosis*
- QuantiFERON®-TB Gold In-Tube test (QFT-GIT)
- T-SPOT® TB test (T-Spot)



Advantages of IGRAS

- One single patient visit to conduct the test
- Results available in 24 hours
- Does not boost responses measured by subsequent tests



Disadvantages of IGRAS

-
- Must process blood samples within 8-30 hours after collection while WBC's are still viable
 - Errors in collecting or transporting blood specimens or in running and interpreting the assay can decrease the accuracy of IGRAS
 - Limited data on the use of IGRAS to predict who will progress to TB disease in the future
 - Tests may be expensive



Immunizations



Advisory Committee on Immunization Practices (ACIP) | CDC

[Español](#) | [Other Languages](#)



Search

Vaccines site  

Advisory Committee on Immunization Practices (ACIP)

[Print](#)

Next ACIP Meeting

October 25-26, 2023

ACIP meetings are virtual. No registration is required to watch the webcasts.

- › [Agenda](#)
- › [Presentations](#)
- › [Webcast Link](#) 
- › [Federal Register](#) 

ACIP Recommendations

The ACIP develops recommendations for U.S. immunizations, including ages when vaccines should be given, number of doses, time between doses, and precautions and contraindications.

- › [View recommendations](#)

ACIP Meeting Information



ACIP Committee Information



ACIP Committee Members



Vaccine Information for Healthcare Workers

The screenshot shows the CDC website's 'Vaccine Information for Adults' page. At the top left is the CDC logo and the text 'Centers for Disease Control and Prevention CDC 24/7: Saving Lives, Protecting People™'. To the right is a search bar and a 'Vaccines site' dropdown menu. Below the header is a green navigation bar with the text 'Vaccine Information for Adults'. Underneath is a breadcrumb trail: 'CDC > Adult Vaccination Home'. A left-hand navigation menu includes links for 'Adult Vaccination Home', 'Reasons to Vaccinate', 'Recommended Vaccines for Adults' (highlighted with a blue bar), 'Where to Find Vaccines', 'How to Pay for Vaccines', 'Adult Vaccination Records', 'Vaccine-Preventable Adult Diseases', and 'Resources'. The main content area has the title 'What Vaccines are Recommended for You' with links for 'Español (Spanish)' and 'Print'. Below this is the section 'Adults need vaccines, too' with a sub-section 'All adults need these routine' and a list of vaccines: 'COVID-19 vaccine', 'Flu vaccine (influenza)', and 'Tdap vaccine (tetanus, diphtheria, and whooping cough)'. A blue arrow points from the 'Recommended Vaccines for Adults' menu item to the 'All adults need these routine' section. Another blue arrow points from the 'All adults need these routine' section to a yellow-highlighted box on the right. At the bottom left is a graphic titled 'What Vaccines do You need?' with a checklist: 'Ask your doctor', '✓ Flu', '✓ Tdap', '✓ Hepatitis B', '✓ Meningococcal', '✓ Zoster (Shingles)', '✓ MMR', and '✓ H1N1'. A red banner at the bottom of the graphic says 'DON'T WAIT. VACCINATE!'.

Healthcare Workers

Vaccines you need

If you work directly with patients or handle material that could spread infection, you should get appropriate vaccines to reduce the chance that you will get or spread vaccine-preventable diseases. All healthcare workers should make sure they're up to date on these vaccines:

- [COVID-19 vaccine](#)
- [Chickenpox vaccine](#) (varicella)
- [Flu vaccine](#) (influenza)
- [Hepatitis B vaccine](#)
- [Meningococcal vaccine](#) – especially lab workers who work with *Neisseria Meningitidis*
- [MMR vaccine](#) (measles, mumps, and rubella)
- [Tdap](#) (tetanus, diphtheria, and whooping cough) or [Td](#) (tetanus and diphtheria)

Healthcare Personnel
Vaccination
Recommendations
(immunize.org)



VACCINES AND RECOMMENDATIONS IN BRIEF

COVID-19 – If not up to date, give COVID-19 vaccine according to current CDC recommendations (see www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/covid-19.html).

Hepatitis B – If no previous dose, give either a 2-dose series of Heplisav-B or a 3-dose series of either Engerix-B, PreHevbrio, or Recombivax HB. A 3-dose series of Twinrix vaccine, which prevents hepatitis A and B, is an option. For HCP who perform tasks that may involve exposure to blood or body fluids, obtain antibody serology 1–2 months after final dose.

Influenza – Give 1 dose of influenza vaccine annually.

MMR – For healthcare personnel (HCP) born in 1957 or later without serologic evidence of immunity or prior vaccination, give 2 doses of MMR, 4 weeks apart. For HCP born prior to 1957, see below.

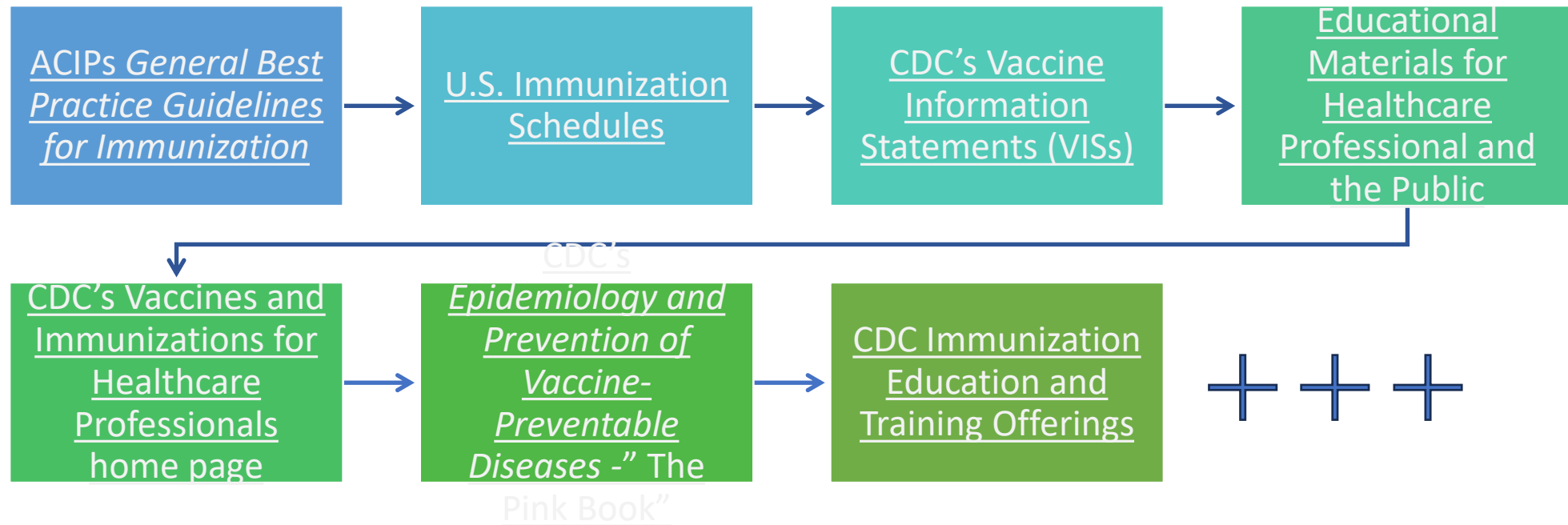
Varicella (chickenpox) – For HCP who have no serologic proof of immunity, prior vaccination, or diagnosis or verification of a history of varicella or herpes zoster (shingles) by a healthcare provider, give 2 doses of varicella vaccine, 4 weeks apart.

Tetanus, diphtheria, pertussis – Give 1 dose of Tdap as soon as feasible to all HCP who have not received Tdap previously and to pregnant HCP with each pregnancy (see below). Give Td or Tdap boosters every 10 years thereafter.

Meningococcal – Give both MenACWY and MenB to microbiologists who are routinely exposed to isolates of *Neisseria meningitidis*. As long as risk continues: boost with MenB after 1 year, then every 2–3 years thereafter; boost with MenACWY every 5 years.

Hepatitis A, typhoid, and polio vaccines are not routinely recommended for HCP who may have on-the-job exposure to fecal material.

Key Vaccination Resources for Healthcare Professionals (immunize.org)





The role of the IP dispelling myths

The two longest living myths about vaccines

They contain
mercury which
causes major
harm

They cause autism

Thimerisol



Facts

- Thimerisol is a type of mercury that is found in the earth's crust, air, soil and water
- It is added to multi-dose vials of vaccine to prevent growth of bacteria and fungi
- Thimerisol breaks down to ethylmercury and thiosalicylate which are readily eliminated
- Multiple studies show no evidence of harm from low doses of thimerisol in vaccines
- Thimerisol can cause redness and swelling at the injection site

Autism

Lancet retracts 12-year-old article linking autism to MMR vaccines

Published at www.cmaj.ca on Feb. 4

Twelve years after publishing a landmark study that turned tens of thousands of parents around the world against the measles, mumps and rubella (MMR) vaccine because of an implied link between vaccinations and autism, *The Lancet* has retracted the paper.

In a statement published on Feb. 2, the British medical journal said that it is now clear that “several elements” of a 1998 paper it published by Dr. Andrew Wakefield and his colleagues (*Lancet* 1998;351[9103]:637-41) “are incorrect, contrary to the findings of an earlier investigation.”

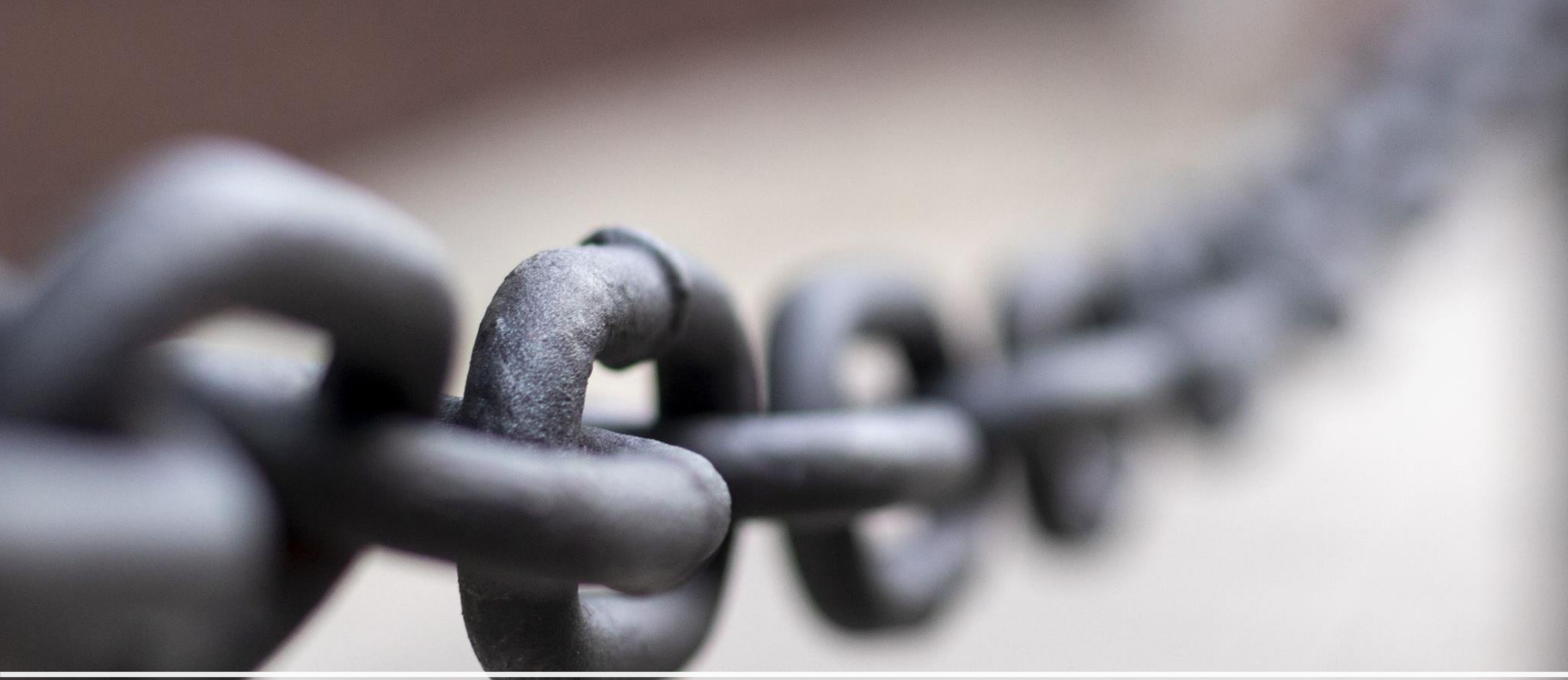
Dr. Richard Horton, editor of *The Lancet*, declined through a spokesperson to speak to *CMAJ* about this issue.

In the original paper, Wakefield and 12 coauthors claimed to have investigated “a consecutive series” of 12 children referred to the Royal Free Hospital



Reuters/Luke MacGregor

Dr. Andrew Wakefield speaks to media in London, England on Jan. 28 after the General Medical Council ruled that he acted unethically in doing his research into a link between Measles Mumps Rubella vaccinations and autism.



Is there a link?



More facts about thimerosal
*No link between thimerosal in vaccines and
autism*

Thimerosal and vaccines

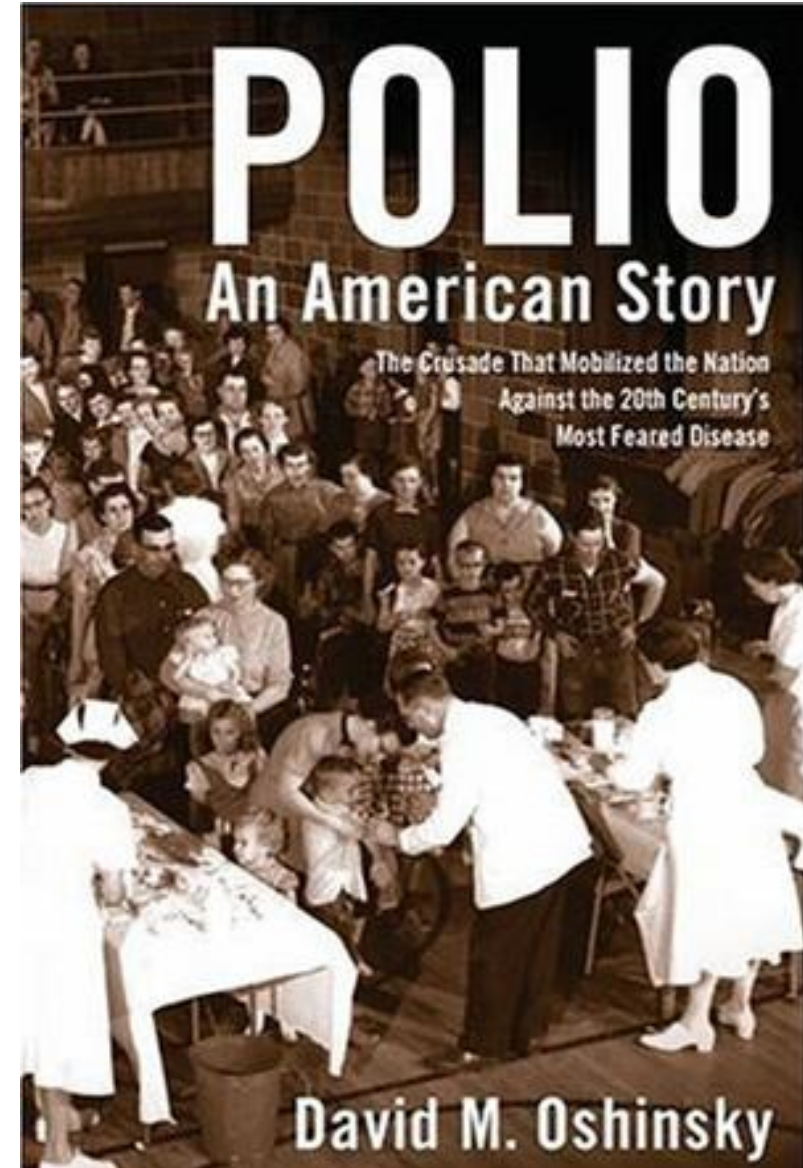
MMR vaccines do not and never did contain thimerosal

Inactivated polio (IPV) and pneumococcal conjugate vaccines have never contained thimerosal

Multi-dose vials of flu vaccines contain thimerosal

If we stopped vaccinating,
what would happen?

- 2.7 million measles deaths worldwide
- 600 children in the US would die from *Haemophilus influenzae* meningitis
- Polio would reappear resulting in 13,000 to 20,000 cases of paralytic polio in the US every year





Measles



Other vaccines that make the healthcare environment and our staff safer



Tdap vaccine



Tdap

- Single dose of Tdap
- Then a dose of Td or Tdap is recommended every 10 years
- It's about protecting our vulnerable patients and loved ones (i.e., infants)

Pertussis: Clinical Features | CDC

[español](#) | [Other Languages](#)

 Vaccines site ▾

Vaccines and Preventable Diseases

Vaccines & Preventable Diseases Home > Vaccines by Disease > Whooping Cough (Pertussis)

[Vaccines & Preventable Diseases Home](#)

Vaccines by Disease	–
Chickenpox (Varicella)	+
Dengue	+
Diphtheria	+
Flu (Influenza)	+

Evaluating Revaccination of Healthcare Personnel with Tdap: Factors to Consider

[Print](#)

Since 2005, the Advisory Committee on Immunization Practices (ACIP) has recommended that healthcare personnel receive a single dose of Tdap. In October 2014, ACIP considered Tdap revaccination of healthcare personnel. After review of available data, ACIP maintains the current recommendation for healthcare personnel to receive a single dose of Tdap. After receipt of Tdap, a dose of Td or Tdap is recommended every 10 years.

Pertussis (whooping cough)



Varicella

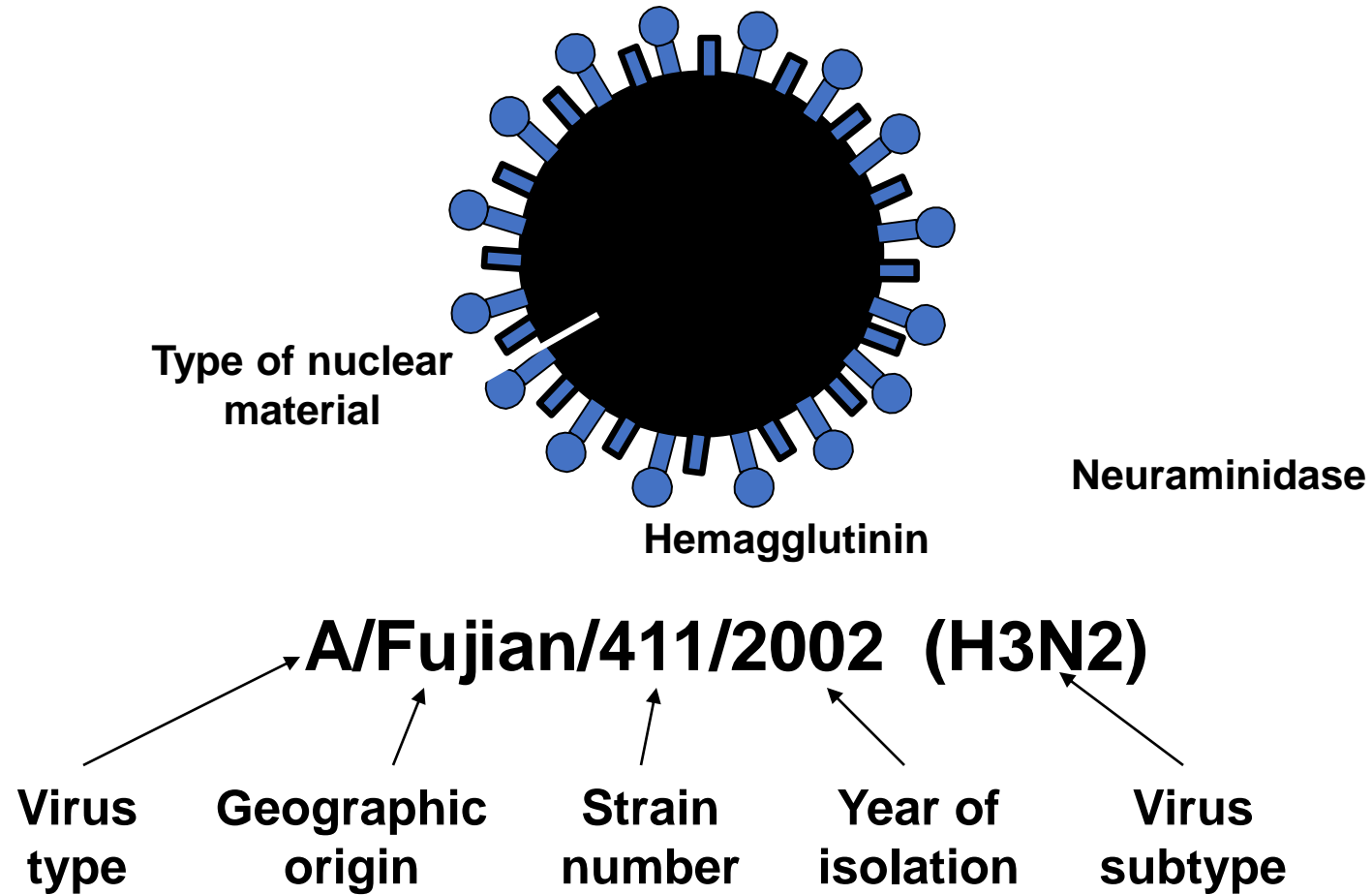


Varicella Vaccine

Healthy people who do not have evidence of immunity to varicella should get vaccinated

For adults, give 2 doses 4-8 weeks apart; if it has been >8 weeks since the first dose, the second dose may be given without restarting the schedule

Influenza Virus



Drift and Shift

- Antigenic drift (think about a gentle movement into the next lane)
 - Small changes (mutations) in the genes of viruses that can lead to changes in the surface proteins of the virus
 - Changes produce viruses that are closely related
 - Main reason why a person can get the flu more than one time and why the flu vaccine composition must be updated every year
- Antigenic shift (think about teaching your kid how to drive a stick shift)
 - Abrupt, major change in an influenza virus
 - Can happen when a virus 'jumps species' (e.g., H1N1)
 - Results in a novel virus and can cause pandemics



Condition of Employment

COVID-19 Vaccination Clinical and Professional Resources | CDC

[Español](#) | [Other Languages](#)



Search

Vaccines site ▾ 🔍

Vaccines & Immunizations

CDC

COVID-19 Vaccination Clinical & Professional Resources

[Print](#)

COVID-19 vaccine recommendations have been updated as of October 3, 2023 to add 2023-2024 updated Novavax COVID-19 vaccine. The content on this page will be updated to align with the new recommendations. [Learn more.](#)



What's New

- [Free COVID-19 Vaccines Through the Bridge Access Program](#)
- [Equity in Childhood COVID-19 Vaccination](#)
- [6 Things to Know About the COVID-19 Vaccine for Children](#)
- [Resources to Promote COVID-19 Vaccine for](#)

Respiratory Syncytial Virus (RSV)

First identified in 1956

One of the most common causes of childhood illness

Causes annual outbreaks of respiratory illness in all age groups

In US, circulates in the fall and peaks in winter but can vary

Vaccine now available

Monoclonal antibodies and antiviral Rx to protect infants, young children, pregnant women and older adults

RSV Vaccine Information Statement | CDC

[Español](#) | [Other Languages](#)



Search

Vaccines site ▾

Vaccine Information Statements (VISs)

[VIS Home](#) > [Current VISs](#)

[VIS Home](#)

[Current VISs](#)

[Respiratory Syncytial Virus Infection \(RSV\) VIS](#)

[What's New with VISs](#)

[About VISs](#)

[Dates of Current and Past VISs](#)



[VIS Barcodes](#)

Respiratory Syncytial Virus (RSV) Vaccine VIS

RSV Vaccine: What You Need to Know

[Print](#)

Current Edition Date: 10/19/2023

- [Print VIS](#)  [2 pages]
- [RTF file](#)  [3 pages]
(For use in electronic systems)
- More information about [RSV vaccination](#)

Why get vaccinated?

On This Page

[Why get vaccinated?](#)

[RSV vaccine](#)

[Talk with your health care provider](#)

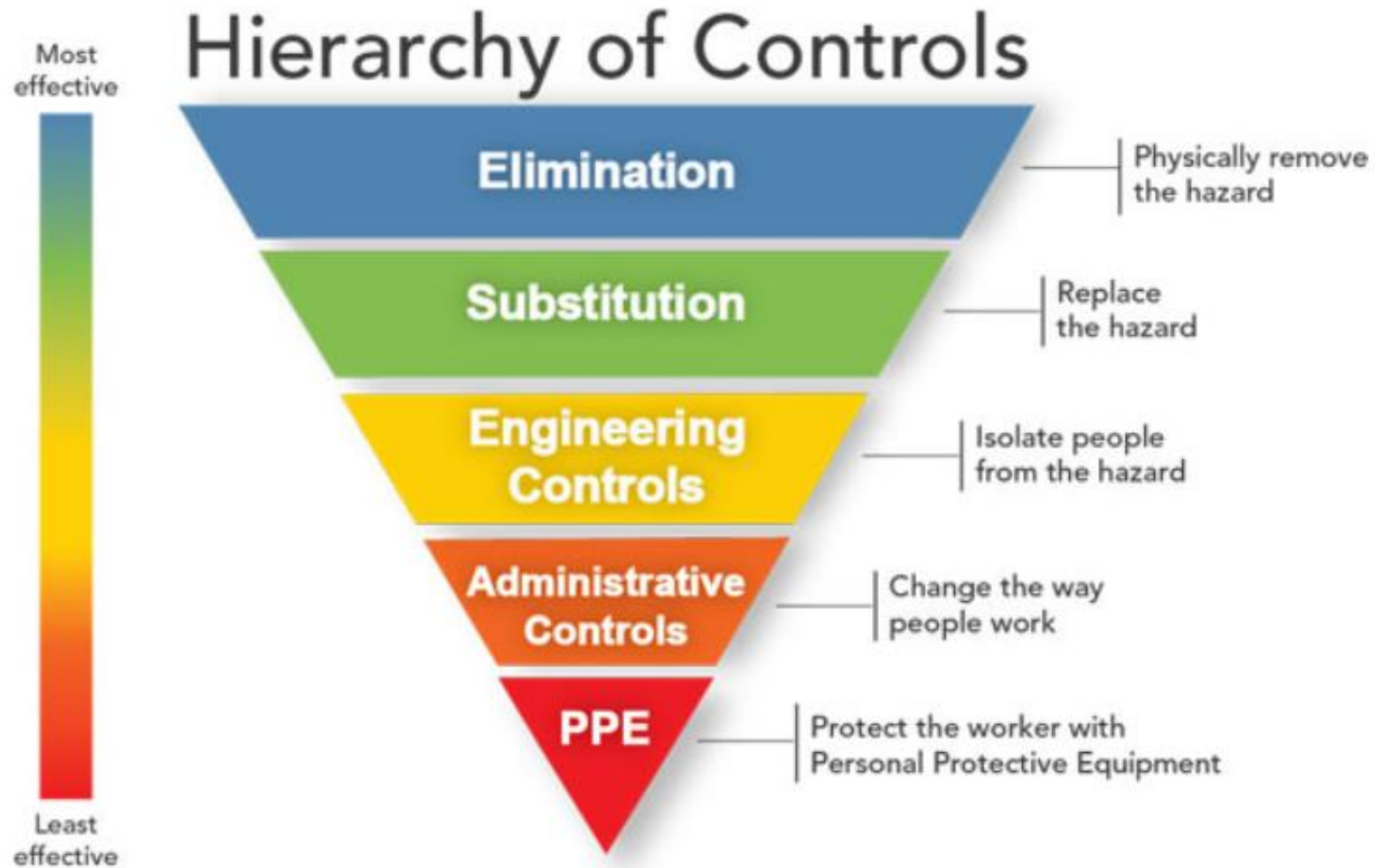
[Risk of a vaccine reaction](#)

A large field of light blue umbrellas, with one darker blue umbrella standing out in the center. The umbrellas are arranged in a grid-like pattern, receding into the distance. The text "Employee Exposures" is overlaid in the center of the image.

Employee Exposures

OSHA Bloodborne Pathogen Standard

[Bloodborne Pathogens - Standards | Occupational Safety and Health Administration \(osha.gov\)](#)





Exposures to Blood Borne Pathogens (BBP)

Group discussion

- Which of the following bloodborne pathogens is most transmissible via needlestick injury?
 - 1. Hepatitis C
 - 2. HIV
 - 3. Hepatitis B

Hepatitis B Post-exposure Prophylaxis

[Postexposure Prophylaxis treatment of Hepatitis B \(HBV\) | CDC](#)

Hepatitis C Post- exposure Prophylaxis

[2020 Guidance for Health care Personnel
exposed to HCV | CDC](#)

HIV Post-exposure Prophylaxis

[Post-Exposure Prophylaxis \(PEP\) | HIV Risk
and Prevention | HIV/AIDS | CDC](#)

Great Resource for PEP Management

**Clinicians' Post
Exposure Prophylaxis
Hotline (PEPline) at 1-
888-448-4911 available
24/7**

**Warmline 1-800-933-
3413 available M-F
6am – 5pm PST**

Meningococcal Disease | CDC



Meningococcal Disease

[Print](#)



Virginia health officials are responding to a **statewide meningococcal disease outbreak**. For the latest information about the outbreak and vaccine recommendations, visit the Virginia Department of Health's website.

[Virginia Department of Health's website](#)



Meningococcal disease refers to any illness caused by bacteria called *Neisseria meningitidis*. These illnesses are often severe, can be deadly, and include infections of the lining of the brain and spinal cord (meningitis) and bloodstream. Keeping up to date with recommended vaccines is the best protection against meningococcal disease.



[Meningococcal Disease | Epidemiology and Control of Selected Infections | Infection Control | CDC](#)

Meningococcal meningitis Post-exposure

- “persons directly exposed to the patient's oral secretions (e.g., by kissing, mouth-to-mouth resuscitation, endotracheal intubation, or endotracheal tube management)”

Lice, scabies,
and bed
bugs...oh
my!




Lice



CDC - Lice - Head Lice - Treatment

The screenshot shows the CDC website page for Head Lice Treatment. At the top left is the CDC logo and the text "Centers for Disease Control and Prevention CDC 24/7: Saving Lives, Protecting People™". At the top right is a search bar with the text "Search" and a magnifying glass icon. Below the logo is a blue navigation bar with the word "Parasites" in white. Underneath is a breadcrumb trail: "Parasites Home > Lice > Head Lice". On the left side, there is a table of contents for the "Lice" section, with "Head Lice" selected and highlighted in blue. The "Head Lice" section is expanded to show sub-sections: "General Information", "Epidemiology & Risk Factors", "Disease", "Biology", "Diagnosis", "Treatment" (highlighted in blue), and "Prevention & Control". The main content area is titled "Treatment" and includes a link for "Español (Spanish) | Print". Below the title is the "General Guidelines" section, which contains two paragraphs of text. The first paragraph discusses the recommendation for treatment of active infestation and the need to check household members and close contacts. The second paragraph discusses the use of pediculicides and the importance of retreatment. The third paragraph discusses supplemental measures that can be combined with recommended medicine.

CDC Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

Search 

Parasites

Parasites Home > Lice > Head Lice

🏠 Lice

Head Lice	—
General Information	+
Epidemiology & Risk Factors	
Disease	
Biology	
Diagnosis	
Treatment	
Prevention & Control	

Treatment

[Español \(Spanish\)](#) | [Print](#)

General Guidelines

Treatment for head lice is recommended for persons diagnosed with an active infestation. All household members and other close contacts should be checked; those persons with evidence of an active infestation should be treated. Some experts believe prophylactic treatment is prudent for persons who share the same bed with actively-infested individuals. All infested persons (household members and close contacts) and their bedmates should be treated at the same time.

Some pediculicides (medicines that kill lice) have an ovicidal effect (kill eggs). For pediculicides that are only weakly ovicidal or not ovicidal, routine retreatment is recommended. For those that are more strongly ovicidal, retreatment is recommended only if live (crawling) lice are still present several days after treatment (see recommendation for each medication). To be most effective, retreatment should occur after all eggs have hatched but before new eggs are produced.

When treating head lice, supplemental measures can be combined with recommended medicine (pharmacologic treatment); however, such additional (non-pharmacologic) measures generally are not required to eliminate a head lice infestation. For

<https://www.cdc.gov> Resources for Health Professionals

Scabies



- [CDC - Scabies - Resources for Health Professionals – Medications](#)
- 4-8 week incubation when a person is infested the first time
- Spread via direct skin-to-skin



Bed Bugs...stay in your lane

- Barbara DeBaun, MSN, RN, CIC
- bdebaun@cynosurehealth.org

