

Vaccines

The risk of outbreaks due to vaccine-preventable diseases is at its highest point in the last 30 years. According to the Pan American Health Organization (PAHO), the Americas are currently second in the world with the worst vaccination coverage. PAHO director D. Jarbas Barbosa states that “failure to effectively implement vaccine coverage leaves children susceptible to diseases such as polio, tetanus, measles, and diphtheria.” (1)

According to the World Health Organization (WHO), only about 83 percent of the world's children received one dose of measles vaccine by their first birthday in 2022, a record low since 2008. In 2021, there were an estimated 128,000 measles deaths globally, mainly among younger unvaccinated children (9).

The large number of people choosing not to vaccinate has led to the re-emergence of infectious diseases in areas where cases had previously been unheard of. Vaccination leads to herd immunity, which is especially important for people who cannot be vaccinated due to medical reasons and are more susceptible to disease (2).

Vaccines are supported by decades of medical research. To prevent further emergence of infectious disease, patients need education on the benefits of vaccination for themselves and the community. Promoting conversations between healthcare professionals and patients can help to alleviate fears surrounding vaccines and lead to increased vaccination compliance.

How do vaccines work?

Vaccination is one of the most remarkable achievements in the history of medicine, playing a pivotal role in preventing and controlling infectious diseases. Understanding how vaccines work is essential for crucial conversations with patients and their families to help safeguard public health and foster immunity against a range of potentially harmful pathogens.

Vaccines prepare the immune system to recognize and defend against a specific disease. They contain weakened or inactive parts of a particular organism (antigen) that triggers an immune response within the body. Once the vaccine is administered, the immune system recognizes the foreign substance as an invader. This triggers a series of responses aimed at neutralizing the perceived threat.

The immune system mounts two essential responses: the primary response and the secondary response. The **primary response** involves the initial recognition of the pathogen, leading to the production of specific antibodies and memory cells. The **secondary response** occurs upon subsequent exposure to the same pathogen. One of the key features of vaccines is their ability to generate immunological memory. Memory cells "remember" the pathogen, enabling the immune system to mount a rapid and effective response upon re-exposure. This memory is what provides long-term protection against infectious diseases.

Recently developed vaccines contain the blueprint for producing antigens rather than just the antigen itself. Regardless of how the vaccine was developed, if the body encounters the antigen later, the immune system will already know how to defend the body, immediately protecting against disease (2).

Vaccines are often given in multiple doses, several weeks to months apart, to allow for the development of memory cells and the production of long-lived antibodies.

Herd immunity

People with underlying health conditions that weaken their immune systems (such as cancer or HIV) or who have severe allergies to vaccine components may not be able to receive certain vaccines. These people benefit from herd immunity. When most people in the community are vaccinated, or already exposed to a pathogen, it has a hard time circulating because most people in the community already have immunity.

Herd immunity works as a form of indirect protection, where a sufficient proportion of the population becomes immune to a particular disease, hindering the transmission of the pathogen. This immunity can be achieved through natural infection or, more commonly, through vaccination. The percentage of the

population that needs to be immune to establish herd immunity varies depending on the contagiousness of the disease. Herd immunity aids in helping those who are unable to be vaccinated (2).

Recommended infant and child vaccines

The Centers for Disease Control and Prevention (CDC) recommends vaccination for the following diseases for 2024: diphtheria, *Haemophilus influenzae* type b (Hib), hepatitis A and hepatitis B virus, human papillomavirus, influenza, measles, mumps, *Neisseria meningitidis*, pertussis, polio, rotavirus, rubella, *Streptococcus pneumoniae*, tetanus, and varicella (3).

Healthcare providers should determine the recommended vaccine by age and assess the need for additional recommended vaccines depending on medical conditions, travel, and location. Catch-up vaccination intervals can be found on the CDC website as well. Any contraindications and precautions should be reviewed and discussed before deciding to administer a vaccine.

Vaccines are typically spread between doses starting at about two months of age, depending on the specific vaccine. The current recommended vaccine schedule can be found on the CDC website and includes the following:

Hepatitis B

Hepatitis B vaccination is typically given at birth as part of a three-dose series at ages zero, one to two, and six to 18 months. Current recommendations include (5):

- Birth weight $\geq 2,000$ grams: 1 dose within 24 hours of birth if medically stable
- Birth weight $< 2,000$ grams: 1 dose at chronological age one month or hospital discharge

Diphtheria, tetanus, and pertussis (DTaP)

DTaP is administered as a five-dose series (three-dose primary series at ages two, four, and six months, followed by booster doses at ages 15 to 18 months and four to six years).

Haemophilus influenzae type b

ActHIB[®], Hiberix[®], Pentacel[®]: four-dose series (three-dose primary series at ages two, four, and six months, followed by a booster dose at age 12 to 15 months) (3).

PedvaxHIB®: three-dose series (two-dose primary series at ages two and four months, followed by a booster dose at age 12 to 15 months).

Pneumococcal

PCV15 or PCV 20 is given as a four-dose series at two, four, six, and 12 to 15 months (3).

Poliovirus

Four-dose series at ages two, four, six to 18 months, and four to six years. The final dose should be administered on or after age four years and at least six months after the previous dose.

Rotavirus

Vaccination for rotavirus is administered orally at two months of age (3).

Rotarix®: two-dose series at ages two and four months

RotaTeq®: three-dose series at ages two, four, and six months

Measles, mumps, and rubella

MMR vaccination is given as a two-dose series at ages 12 to 15 months and between four and six years old. MMR or MMRV may be administered (3).

COVID-19

The CDC's vaccination recommendations for COVID-19 are updated regularly. The most current recommendations are as follows (4):

- *Children aged six months to four years* should receive two or three doses of updated COVID-19 vaccine, depending on which vaccine they receive.
- *Children aged five years to 11 years* who are unvaccinated or have previously received a COVID-19 vaccine before September 12, 2023, should get one updated Pfizer-BioNTech or Moderna COVID-19 vaccine.
- *Children aged 12 years and older* who got COVID-19 vaccines before September 12, 2023, should get one updated Pfizer-BioNTech, Moderna, or Novavax COVID-19 vaccine.
- *Children aged 12 years and older* who are unvaccinated should get either:
 - One updated Pfizer-BioNTech or updated Moderna COVID-19 vaccine, OR
 - Two doses of updated Novavax COVID-19 vaccine

COVID-19 vaccines can be administered simultaneously with all other vaccines in the United States (4).

Reflection/analysis

How could your department do more to educate patients on the necessity of vaccinations to prevent illnesses such as COVID-19?

Hepatitis A

Hepatitis A infection is generally mild or asymptomatic in infants and children under five years old. However, those infected can transmit it to older children and adults who are at greater risk for severe disease. The hepatitis A vaccine is given in a two-dose series (six months apart) at 12 to 23 months of age (5).

If traveling to a country with a high or intermediate endemic of hepatitis A, consider the following:

- *Infants aged six to 11 months* should receive one dose before departure; revaccinate with two doses (separated by at least six months) between ages 12 to 23 months.
- *Unvaccinated children aged 12 months or older* should be administered dose one as soon as travel is considered.

Doses administered at less than 12 months of age are not considered to provide long-term protection because they can result in a suboptimal immune response, especially in infants with passively acquired maternal antibodies (5).

Varicella

Varicella immunization is given as a two-dose series at ages 12 to 15 months and four to six years. VAR or MMRV may be administered (3).

Human papillomavirus (HPV)

HPV vaccination is routinely recommended at age 11 to 12 but can start as early as nine. Catch-up HPV vaccination is recommended for all persons until 18 years of age if they aren't adequately vaccinated.

Recommended dosing is as follows (3):

- Two- or three-dose series, depending on age at initial vaccination:

- *Aged nine to 14 years* at initial vaccination: two-dose series at zero, six to 12 months
- *Aged 15 years or older* at initial vaccination: three-dose series at zero, one to two months, six months

Influenza

Influenza viruses predominantly occur in the winter months (November through April) in the Northern Hemisphere and (April through September) in the Southern Hemisphere. Influenza can occur year-round in tropical climates (3).

The influenza vaccine is offered yearly, and components are modified depending on the current variants based on recommendations from the World Health Organization (WHO).

Recommended dosing is as follows:

- *Age six months to eight years* who have received fewer than two influenza vaccine doses before July 1, 2023: two doses, separated by at least four weeks
- *Age six months to eight years* who have received at least two influenza vaccine doses before July 1, 2023: one dose
- *Age nine years or older*: one dose

Respiratory syncytial virus (RSV)

Respiratory syncytial virus (RSV) vaccine may be administered to the pregnant mother or infant, depending on the situation. RSV vaccination prevents respiratory syncytial virus, a lower respiratory tract infection in infants.

Pregnant women should be vaccinated with Abrysvo at 32 weeks through 36 weeks and six days gestation from September through January. The vaccine should be given regardless of previous RSV infection (6).

Because the RSV vaccine is relatively new, there is no data available to support whether additional doses are needed in subsequent pregnancies yet.

Nirsevimab, RSV-mAb (Beyfortus) is a monoclonal antibody developed to prevent severe RSV disease in infants and children. It provides direct protection against RSV to the recipient through passive immunity.

Recommendations from the CDC for nirsevimab (Beyfortus) for infants born October through March include (6):

- Mother did not receive RSV vaccine OR mother's RSV vaccination status is unknown: administer one dose nirsevimab within one week of birth in the hospital or outpatient setting
- Mother received RSV vaccine less than 14 days before delivery: administer one dose nirsevimab within one week of birth in hospital or outpatient setting

If the mother received the RSV vaccine at least 14 days before delivery, nirsevimab is not needed.

Recommendations for infants born in the months of April through September include:

- Mother did not receive RSV vaccine OR mother's RSV vaccination status is unknown: administer one dose nirsevimab shortly before the start of RSV season
- Mother received RSV vaccine less than 14 days before delivery: administer one dose nirsevimab shortly before start of RSV season

According to the CDC, children aged eight through 19 months who are at increased risk for severe RSV disease and entering their second RSV season regardless of maternal RSV vaccination are eligible for revaccination. Eligible children include the following (6):

- Chronic lung disease of prematurity who required medical support such as long-term corticosteroid therapy, diuretic therapy, or supplemental oxygen at any time during the six months before the start of the second RSV season.
- Children with severe immunocompromise.
- Children with cystic fibrosis who have severe lung disease including previous hospitalization for pulmonary exacerbation in the first year of life, abnormalities on chest imaging that persist when stable, or weight-for-length ratio less than 10th percentile.
- American Indian or Alaska Native children.

Infants with prolonged birth hospitalization, such as premature infants or those with chronic lung disease, and infants discharged from the hospital in October through March should be immunized shortly before or right after discharge.

Two RSV vaccines are approved for people ages 60 years and older, Arexvy and Abrysvo, and are recommended based on individual health characteristics and informed by discussions between the patient and their healthcare provider.

Common symptoms of re-emerging illness

Certain infectious diseases are re-emerging due to a decrease in vaccination rates. In addition to educating parents on the benefits of vaccinations, common symptoms associated with re-emerging diseases should be discussed.

Mumps

Mumps symptoms typically begin 12 to 24 days after infection and include chills, headache, poor appetite, a low to moderate fever, and a general feeling of malaise. The main symptom of mumps is swelling of the salivary glands (parotitis), which is most prominent on the second day and lasts five to seven days (7).

Complications of mumps lead to inflammation of other organs. In rare cases, it can lead to meningitis, encephalitis, myocarditis, facial palsy, transverse myelitis, Guillain Barre syndrome, aqueductal stenosis, hydrocephalus, orchitis, epididymitis, oophoritis, pancreatitis, thyroiditis, sterility, and hearing loss, and inflammation in the body, the central nervous system, urinary tract, pancreas, testes, and ovaries.

Mumps infection during pregnancy is associated with an increased risk of spontaneous abortion during the first trimester (13).

Chickenpox

The rash caused by chickenpox appears 10 to 21 days after exposure to the varicella-zoster virus. It often lasts about five to 10 days and other symptoms that may appear one to two days before the rash include:

- Fever

- Loss of appetite
- Headache
- Fatigue
- Malaise

Once the rash appears, it goes through three phases:

1. Raised bumps called papules, which last a few days
2. Vesicles, which are small fluid-filled blisters that form in about one day and then break and leak
3. Crusts and scabs, which cover the broken blisters and take a few additional days to heal

Complications of chickenpox are viral or secondary bacterial infections that manifest in the form of pneumonia, toxic shock syndrome, necrotizing fasciitis, invasive Group A streptococcal infections, osteomyelitis, and septic arthritis. The most common causes of chickenpox-related death include encephalitis, pneumonia, and septic complications (14).

Measles

Measles is a highly contagious, serious airborne virus that can lead to severe complications and death (9). It is one of the world's most contagious diseases and unvaccinated young children and pregnant persons are at the highest risk of severe complications.

The measles virus remains active and contagious in the air or on infected surfaces for up to two hours, making it extremely infectious. Measles can be transmitted by an infected person four days before the onset of the rash and four days after the rash erupts. One person infected by measles can infect nine out of 10 of their unvaccinated close contacts.

It is spread by contact with infected nasal or throat secretions through coughing or sneezing or breathing air close to someone infected with measles.

A prominent rash is the most visible symptom of measles and typically occurs about seven to 18 days after exposure. The rash begins on the face and upper neck and spreads to the hands and feet over three days. It typically lasts about five to six days before fading.

Early symptoms usually last four to seven days and may include:

- Runny nose
- Cough
- Red and watery eyes
- Small white spots inside the cheeks

Severe complications include pneumonia, protein-losing enteropathy (severe loss of serum proteins in the intestine) and encephalitis. Death usually occurs among children under five years of age, especially those who are immunocompromised or malnourished and pregnant women (15).

Rubella

Rubella results in a fine, pink rash on the face, trunk, arms, and legs (10). The rash spreads quickly and disappears in the same order it appears. Symptoms generally appear between two and three weeks after exposure to the virus. They usually last about one to five days and may include:

- Mild fever
- Headache
- Stuffy or runny nose
- Red, itchy eyes
- Enlarged, tender lymph nodes at the base of the skull, the back of the neck, and behind the ears
- Aching joints, especially in young women

The major complication of rubella is congenital rubella syndrome (CRS), where the virus is transmitted to the fetus in utero causing congenital defects, spontaneous abortions, and stillbirths. Infants born with CRS may have deafness, cataracts, encephalitis, heart abnormalities, mental retardation, and/or autism. They continue to develop complications through their first year of life including vascular, endocrine, and neurological complications.

Elderly adults with rubella can develop thrombocytopenia; gastrointestinal, cerebral, or intrarenal hemorrhages; encephalitis; and up to 70 percent develop arthritis of the fingers, wrists, and knees (16).

Vaccine laws

The CDC works with public health agencies and private partners to improve immunization coverage. They also monitor the safety and efficacy of vaccines. All states require children to be vaccinated against specific communicable diseases when attending school. State vaccination laws standardize requirements for children in public and private schools, daycare settings, college/university students, healthcare workers, and patients in certain facilities.

Exemption provisions are typically regulated by the state as well. Exemptions may include medical, religious, and philosophical reasons and are reviewed on a case-by-case basis. Laws for students who are exempt from vaccination include parental acknowledgment of exclusion during an outbreak.

The Public Health Law Program provides resources for public health practitioners and legal counsel on state vaccination laws. Healthcare facilities require healthcare workers to be vaccinated in an attempt to reduce outbreaks of vaccine-preventable diseases. These requirements also reflect mandates in state statutes and regulations.

Vaccine case study part one

Mrs. Santiago, a 32-year-old first-time mother, presented in the pediatrician's office with her two-month-old infant for a routine checkup. When Dr. Seeney talked about recommended vaccinations she was surprised when Mrs. Santiago expressed hesitation about vaccinating her daughter.

Mrs. Santiago said she had read online articles and saw social media posts that said vaccination can cause autism in children. She expressed that she was afraid to vaccinate her infant which could cause her to have autism or experience other side effects. She said that many of her friends have opted to forgo vaccinations and their children have been healthy and happy.

Understanding the reasons behind parental vaccine hesitancy

It is essential to explore the various reasons behind vaccine hesitancy to better address concerns and promote informed decision-making. Common oppositions to vaccination include religious beliefs, mistrust of pharmaceutical companies and the government, and the belief that the risks of vaccines outweigh the benefits. Others claim that vaccines make them sick or that certain diseases have been eradicated, and it is no longer necessary to vaccinate against them.

Other reasons behind parental vaccine hesitancy may include:

Mistrust in the healthcare system

A significant factor contributing to parental vaccine hesitancy is mistrust in the healthcare system. Common opposition to vaccination includes mistrust of pharmaceutical companies and healthcare providers.

Concerns about vaccine safety

Safety concerns regarding vaccine ingredients, potential side effects, and long-term consequences are prevalent among parents who choose not to vaccinate. Acknowledge and address these concerns through clear and accurate information. Emphasize the extensive research and monitoring that ensure the safety of vaccines.

Misinformation

Parents may encounter misinformation that raises doubts about vaccine efficacy and safety. Although several large studies have proven that vaccination doesn't cause autism, many parents still refuse to vaccinate based on what they have heard in the media. Combating misinformation requires public health campaigns to promote accurate information.

Fear of adverse reactions

Fear of adverse reactions such as allergic responses or severe side effects can contribute to vaccine hesitancy. Healthcare providers can help to dispel fears by discussing the rarity of adverse reactions. Providing detailed information on the greater risks associated with vaccine-preventable diseases can help parents make informed decisions.

Belief in natural immunity

Some parents believe that exposure to infectious disease can strengthen the immune system without the need for vaccination. Educate parents on the potential risks of relying on natural immunity and emphasize the benefits of vaccines in preventing severe illness.

Personal freedom and autonomy

Some parents don't agree with state vaccine mandates and assert their right to make decisions about their children's healthcare. Balancing individual rights versus scientific evidence and the collective responsibility for public health requires thoughtful dialogue, mutual respect, and education on individual and societal benefits of vaccination.

Educating parents about vaccines

The volume of information and misinformation about vaccinations can be overwhelming for parents, patients, and their advocates. It is important to begin discussing vaccines during pregnancy and after birth so parents can make educated and informed decisions.

Educate parents on the risks versus benefits of vaccination and help alleviate any fears or myths they may have heard. Inform parents that infants and children who have not received all recommended vaccines or incomplete doses might not be fully protected and are at risk for disease.

Vaccines can be a sensitive topic between providers, patients, and their advocates. Use these tools to help guide the conversation.

1. Listen with empathy

Listen to any questions or fears that the patient or family member may have about vaccines. Never be dismissive, and always acknowledge how they're feeling. After listening, use the opportunity to educate without trying to force your opinion. Patients may have a fear of needles and may need encouragement and reassurance before getting vaccinated. A little empathy goes a long way between a provider and their patient.

2. Ask open-ended questions

The WHO suggests asking open-ended questions, such as "What have you heard about the COVID vaccines?" or "Why do you feel that way about vaccination?" These questions elicit a response and can help you understand their concerns. You can use this opportunity to dispel misconceptions while validating the patient's feelings or fears.

3. Share trusted information

Offer information backed by science that the patient can read on their own. Provide information from the CDC, WHO, or local health department websites or pamphlets. Providing information that the patient can see or touch and read on their own might make them more receptive instead of feeling like you're pushing unwanted information on them. Don't overwhelm them with information, but use the opportunity to answer any questions the patient or family member may have.

4. Get personal

Share your own experiences or fears about getting vaccinated. Discuss how you came to the decision to vaccinate and what reassured you. Talk about the benefits of protection for the individual and the community. Lead by example by openly sharing your experiences.

5. Build Trust

Be supportive of anyone who has questions or asks for your advice. Listening to concerns and communicating respectfully builds trust, especially if you will be the provider giving the vaccination. Remember that concerns about vaccination can be emotional for people and may touch on issues outside of science, such as their personal experiences or perceptions. Transparency and effective communication about the rigorous safety testing and monitoring processes of vaccines can help build trust.

6. Make vaccines accessible

To help make vaccination easy, break down any barriers, such as financial, work commitments, or transportation issues. Healthcare facilities can help patients with insurance coverage and arrange community medical transport. Clinics and healthcare offices should consider providing vaccine clinics on evenings or weekends for those with work commitments.

Vaccine case study part 2

Dr. Seeney recognized Mrs. Santiago's fear and hesitation based on misinformation. She took a positive and empathic approach, providing Mrs. Santiago with evidence-based information on the safety and efficacy of vaccines. She shared several large studies proving that vaccination does not cause autism and told her that she understands how making these decisions for her children is such a big responsibility and it's hard to know if you are doing the right thing. She explained the rigorous testing processes and monitoring systems in place to ensure vaccine safety.

Dr. Seeney emphasized the significant benefits of vaccination for her daughter's health and the community. She discussed the potential severity and symptoms if her daughter were to contract viruses such as measles, chickenpox, or polio.

Dr. Seeney recognized the importance of open communication and encouraged Mrs. Santiago to express her concerns. The pediatrician provided a safe space and answered questions in a non-judgmental manner. This allows Mrs. Santiago to make an informed decision about vaccinating her daughter.

Dr. Seeney provided three choices:

1. The infant could receive all of her two-month vaccinations during this appointment.
2. They could delay two-month vaccinations and split them over several appointments.
3. Mrs. Santiago could choose not to vaccinate but would be sent home with information to make an informed decision with the understanding that her infant may not be able to be seen in the office going forward to comply with the office's policy.

Mrs. Santiago chose to vaccinate for Hepatitis B, and returned to the office for the remaining vaccinations over several weeks.

Conclusion

Vaccination has been a sensitive topic among the public for many years and can be a source of frustration for healthcare providers. By fostering open conversations and addressing concerns, providers contribute to building and sustaining vaccine confidence. Understanding the reasons behind parental vaccine hesitancy is crucial for public health efforts to address concerns, dispel myths, and promote evidence-based decision-making. Public health campaigns, transparent communication, and collaboration with healthcare professionals can play a pivotal role in encouraging vaccination and ensuring the well-being of communities.

References

1. Pan American Health Organization (PAHO). (2023). Risk of vaccine-preventable disease outbreaks at 30-year high, PAHO Director says. World Health Organization (WHO). <https://www.paho.org/en/news/20-4-2023-risk-vaccine-preventable-disease-outbreaks-30-year-high-paho-director-says>
2. World Health Organization (WHO). (2020). How do vaccines work? <https://www.who.int/news-room/feature-stories/detail/how-do-vaccines-work>
3. Centers for Disease Control and Prevention (CDC). (2024). Child and Adolescent Immunization Schedule by Age (Addendum updated June 27, 2024). U.S. Department of Health and Human Services. <https://www.cdc.gov/vaccines/schedules/hcp/imz/child-adolescent.html#note-rsv-nirsevimab>
4. Centers for Disease Control and Prevention (CDC). (2024). Stay Up to Date with COVID-19 Vaccines. U.S. Department of Health and Human Services. <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/stay-up-to-date.html>
5. Centers for Disease Control and Prevention (CDC). (2024). Vaccine Recommendations for Infants & Children: CDC Yellow Book 2024. U.S. Department of Health and Human Services. <https://wwwnc.cdc.gov/travel/yellowbook/2024/family/vaccine-recommendations-for-infants-and-children>
6. Centers for Disease Control and Prevention (CDC). (2024). Frequently Asked Questions About RSV Immunization with Monoclonal Antibody for Children 19 Months and Younger. U.S. Department of Health and Human Services. <https://www.cdc.gov/vaccines/vpd/rsv/hcp/child-faqs.html>
7. Tesini, B. L. (2023). Mumps (Epidemic Parotitis). Merck Manual Consumer Version. <https://www.merckmanuals.com/en-pr/home/children-s-health-issues/common-viral-infections-in-infants-and-children/mumps>

8. Mayo Clinic. (2023). Chickenpox. <https://www.mayoclinic.org/diseases-conditions/chickenpox/symptoms-causes/syc-20351282>
9. World Health Organization (WHO). (2024). Measles. <https://www.who.int/news-room/fact-sheets/detail/measles>
10. Mayo Clinic. (2022). Rubella. <https://www.mayoclinic.org/diseases-conditions/rubella/symptoms-causes/syc-20377310>
11. Centers for Disease Control and Prevention (CDC). (2024). Vaccination Laws. U.S. Department of Health and Human Services. https://www.cdc.gov/phlp/php/publications/vaccination-laws.html?CDC_AAref_Val=https://www.cdc.gov/phlp/publications/topic/vaccinationlaws.html
12. World Health Organization (WHO). (2021). How to talk about vaccines. <https://www.who.int/news-room/feature-stories/detail/how-to-talk-about-vaccines>
13. Matteucci, R., Cabrera, G. (2018). Mumps: An Overview. CINAHL Nursing Guide. EBSCO Publishing: Ipswich, Massachusetts
14. Lawrence, P., Smith, N. (2018). Chickenpox (Varicella). CINAHL Nursing Guide. EBSCO Publishing: Ipswich, Massachusetts
15. Balderrama, D., Hanson, D. (2021). Measles in Children. CINAHL Nursing Guide. EBSCO Publishing: Ipswich, Massachusetts
16. Capriotti, T., & Nocero, M. (2014). Don't overlook the resurgence of rubella. *Clinical Advisor*, 17(11), 36-39. <https://www.clinicaladvisor.com/features/dont-overlook-the-resurgence-of-rubella/8/>

The following slides address the California BON regulation that, beginning January 2023, all continuing education providers shall ensure compliance with the requirement that continuing education courses contain curriculum that includes the understanding of implicit bias.



Implicit Bias

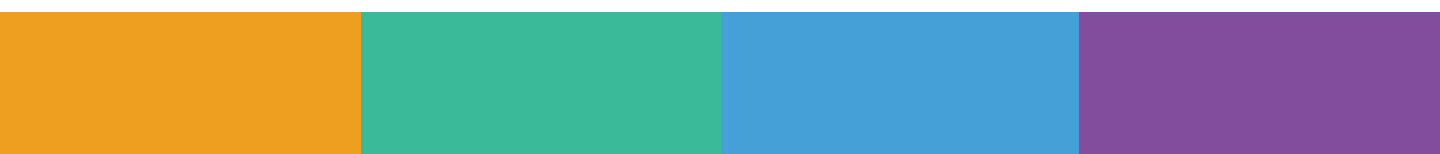
How does it affect
healthcare?



Why does implicit bias matter?

Implicit attitudes are thoughts and feelings that often exist outside of conscious awareness, and thus are difficult to consciously acknowledge and control. (Hall et al., 2015)

Implicit (subconscious) bias refers to the attitudes or stereotypes that affect our understanding, actions and decisions in an unconscious manner. These biases, which encompass both favorable and unfavorable assessments, are activated involuntarily and without an individual's awareness or intentional control. (The Joint Commission, 2016)



Why does implicit bias matter?

Implicit biases affect behavior through a two-phase process: biases are activated in the presence of a member of a social group and then are applied so that they affect the individual's behavior related to that group member. In the healthcare context, for instance, implicit biases may be activated when a provider is interacting with an African American patient, particularly under conditions that tax her cognitive capacity (e.g., stress, time-pressure, fatigue, competing demands), and can then influence how she communicates with and makes decisions about her patient. (Burgess et al, 2017)



Why does implicit bias matter?

Implicit (unconscious) biases can create gaps between good intentions and good outcomes in the health care field. (The Ohio State University, 2020)

Based on the available evidence, physicians and nurses manifest implicit biases to a similar degree as the general population. The following characteristics are at issue: race/ethnicity, gender, socio-economic status (SES), age, mental illness, weight, having AIDS, brain injured patients perceived to have contributed to their injury, intravenous drug users, disability, and social circumstances. (FitzGerald & Hurst, 2017)



Why does implicit bias matter?

The implicit biases of concern to health care professionals are those that operate to the disadvantage of those who are already vulnerable. Examples include minority ethnic populations, immigrants, the poor, low health-literacy individuals, sexual minorities, children, women, the elderly, the mentally ill, the overweight, and the disabled. However, anyone may be rendered vulnerable given a certain context. (FitzGerald & Hurst, 2017)



Why does implicit bias matter?

Implicit biases among health care providers are associated with the following negative effects on patient care:

- inadequate patient assessments
- inappropriate diagnoses and treatment decisions
- less time involved in patient care
- patient discharges with insufficient follow-up

Why does implicit bias matter?

The terms "health care disparities" and "health care inequities" refer to the poorer health outcomes observed in minority and other vulnerable patient groups compared with those observed in majority or dominant patient populations. Disparate patient outcomes are associated with age, sex, religion, socioeconomic status, sexual orientation, gender identification, disability, and stigmatized diagnoses (for example, HIV, obesity, mental illness, and substance abuse). (Narayan, 2019)



Why does implicit bias matter?

Implicit bias isn't limited to race. The Implicit Association Test (IAT) measures attitudes and beliefs that people may be unwilling or unable to report.

For example, when the IAT was administered at an obesity conference, participants implicitly associated obese people with negative cultural stereotypes, such as "bad, stupid, lazy and worthless."

Implicit gender bias among physicians also may unknowingly sway treatment decisions.



Why does implicit bias matter?

Women are three times less likely than men to receive knee arthroplasty when clinically appropriate. One of the stereotypical reasons for this inequity and underuse problem is that men are viewed as being more stoic and more inclined to participate in strenuous or rigorous activity.

(The Joint Commission, 2016)



Why does implicit bias matter?

People of color face disparities in terms of morbidity, mortality, and health status. Black, Hispanic, and Indigenous Americans have higher infant mortality rates than White and Asian Americans. The premature death rate from heart disease and stroke is highest among Black Americans. Race and ethnicity are not the only demographic factors associated with disparity in health outcomes. Women are more likely to experience delayed diagnosis of heart disease compared to men, as well as inferior heart attack treatment. Sometimes, these disparities intersect, as in the case of childbirth, where the United States is one of the few countries experiencing a rise in the maternal mortality rate, and Black women are nearly four times as likely to die during childbirth as are White women. (Whitmer, 2020)



Why does implicit bias matter?

Healthcare providers in a certain geographic area may equate certain races and ethnicities with specific health beliefs and behaviors (e.g., “these patients” engage in risky behaviors, or “those patients” tend to be noncompliant) that are more associated with the social environment (like poverty) than a patient’s racial/ethnic background or cultural traditions.
(Stanford University, 2020)



How does implicit bias develop?

The ability to distinguish friend from foe helped early humans survive, and the ability to quickly and automatically categorize people is a fundamental quality of the human mind. Categories give order to life, and every day, we group other people into categories based on social and other characteristics.

This is the foundation of stereotypes, prejudice and, ultimately, discrimination.

Social scientists believe children begin to acquire prejudices and stereotypes as toddlers.



How does implicit bias develop?

Once learned, stereotypes and prejudices resist change, even when evidence fails to support them or points to the contrary.

People will embrace anecdotes that reinforce their biases, but disregard experience that contradicts them. The statement "Some of my best friends are ____" captures this tendency to allow some exceptions without changing our bias. (Learning for Justice, 2022)



How does implicit bias develop?

Scientific research has demonstrated that biases thought to be absent or extinguished remain as "mental residue" in most of us. Studies show people can be consciously committed to egalitarianism, and deliberately work to behave without prejudice, yet still possess hidden negative prejudices or stereotypes.

A growing number of studies show a link between hidden biases and actual behavior. In other words, hidden biases can reveal themselves in action, especially when a person's efforts to control behavior consciously flags under stress, distraction, relaxation or competition. (Learning for Justice, 2022)



How does implicit bias develop?

Research has frequently focused on the amygdala, a structure in the medial temporal lobes. The amygdala receives direct input from all sensory organs, enabling it to respond rapidly to immediate threats in advance of more elaborative cognitive processing. It plays a central role in arousal, attentiveness and triggering the flight-or-fight response, reacting to social threats in exactly the same way it reacts to physical ones. Unconscious bias, then, is the immediate, reflexive, defensive reaction to the "other." (Korn Ferry Institute, 2022)



How do I recognize implicit biases?

One way to discover implicit biases is to pay attention to gut feelings.

Nurses can ask themselves if they anticipate unpleasant experiences when caring for any particular group of patients, or if any particular group of patients makes them feel uncomfortable, anxious, or fearful.

Such feelings may indicate implicit bias and prompt self-reflection.

Thoughtfully reflecting on the meaning and origin of such feelings and whether they influence the quality of relationships with patients can help nurses acknowledge and control previously unrecognized biases. (Narayan, 2019)



How do I recognize implicit biases?

Take one or more of the free Implicit Association Tests (IATs) available at Project Implicit (<https://implicit.harvard.edu/implicit/education.html>). Developed by Harvard, there are 14 instruments for measuring some of the most prevalent biases—those related to race, ethnicity, skin color, religion, age, gender, overweight or obesity, sexual orientation, or disability.

Learning about potential biases can enable people to employ strategies to reduce them or mitigate their effects on future interactions. The IATs are reliable and valid research instruments, and should not be used to diagnose bias but rather as educational tools.



How do I recognize implicit biases?

Implicit bias is different from prejudice. Implicit bias means we have the instinctive tendency to evaluate other groups against the norms of our own groups. Prejudice, on the other hand, means that one feels consciously and overtly that some groups are inferior, an attitude that can be used to justify discriminatory actions. (Narayan, 2019)



But I really don't think I'm biased

There's a reason it's called unconscious bias.

It's because hard-wired biases operate at a level that is beneath our conscious awareness. Even if we sincerely believe we're being fair and objective, stereotypes may still be influencing our opinions -without us being aware of it. (Stanford University, 2020)

We may consciously reject negative images and ideas associated with disadvantaged groups (and may belong to these groups ourselves), but we have all been immersed in cultures where these groups are constantly depicted in stereotyped and pejorative [derogatory] ways. (FitzGerald & Hurst, 2017)



Challenges in reducing implicit biases

Some types of interventions focus more on declarative knowledge – what you know – than on procedural knowledge – knowing how to do something.

Understanding implicit bias as a score on the IAT also may engender the view of implicit bias as a fixed trait that one can do little about.

Issues of race and racism are emotionally fraught and politically charged. The idea that healthcare providers may contribute to racial disparities may contradict their core beliefs and values, including beliefs that they treat everyone equally and that racial inequality is a thing of the past. (Burgess, 2017)



How to reduce implicit bias

- 1. Stereotype replacement** — Recognizing that a response is based on stereotype and consciously adjusting the response
- 2. Counter-stereotypic imaging** — Imagining the individual as the opposite of the stereotype.
- 3. Individuation** — Seeing the person as an individual rather than a stereotype (e.g., learning about their personal history and the context that brought them to the doctor's office or health center)
- 4. Perspective taking** — "Putting yourself in the other person's shoes"



How to reduce implicit bias

- 5. Increasing opportunities for contact with individuals from different groups** — Expanding your network of friends and colleagues or attending events where people of other racial and ethnic groups, gender identities, sexual orientation, and other groups may be present
- 6. Partnership building** — Reframing the interaction with the patient as one between collaborating equals, rather than between a high-status person and a low-status person



How to reduce implicit bias

- 7. Emotional regulation** — People who have good emotional regulation skills and who experience positive emotion during clinical encounters may be less likely to view patients in terms of their individual attributes, and to use more inclusive social categories. It's easier to empathize with others when people view themselves as being part of a larger group. (The Joint Commission, 2016).
- 8. Mindfulness** — A "mode of awareness" that can be enacted in different situations, including those which are emotionally challenging (Burgess, 2017).



How to reduce implicit bias

9. Habit replacement — Implicit bias is like a habit that can be broken through a combination of awareness of implicit bias, concern about the effects of that bias, and the application of strategies to reduce bias.

(Devine et al, 2012)

10. Take care of yourself — Protect your mental resources. Do things to protect your mental energy, such as getting sufficient sleep, finding ways to reduce stress and taking mental breaks throughout the day to refocus on being present with your patients. (van Ryn, 2016)

The Institute for Healthcare Improvement (2017)



How to reduce implicit bias

The Institute for Healthcare Improvement (2017) also offers practical tips to combat implicit bias in healthcare, drawn from the book *Seeing Patients: Unconscious Bias in Health Care*, by Dr. Augustus White.

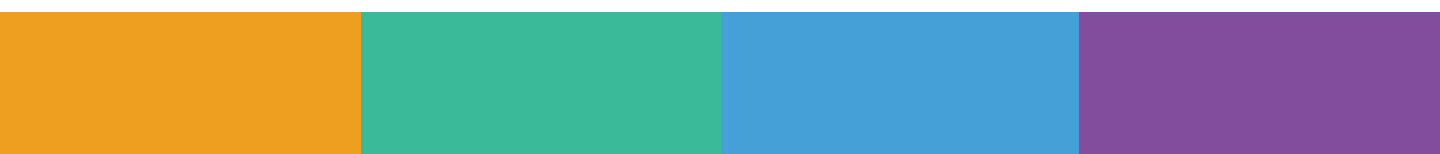
- Have a basic understanding of the cultures your patients come from.
- Don't stereotype your patients; individuate them.
- Understand and respect the tremendous power of unconscious bias.
- Recognize situations that magnify stereotyping and bias.



How to reduce implicit bias

The Institute for Healthcare Improvement (2017) also offers practical tips to combat implicit bias in healthcare, drawn from the book *Seeing Patients: Unconscious Bias in Health Care*, by Dr. Augustus White.

- Know the National Culturally and Linguistically Appropriate Services (CLAS) Standards. (Available at <https://thinkculturalhealth.hhs.gov/clas/standards>)
- Do a “Teach Back.” Teach Back is a method to confirm patient understanding of health care instructions that is associated with improved adherence, quality, and patient safety.
- Assiduously practice evidence-based medicine.



Recommended viewing

Institute for Healthcare Improvement. (2020)

- How Does Implicit Bias Affect Health Care?
<http://www.ihl.org/education/IHIOpenSchool/resources/Pages/AudioandVideo/Anurag-Gupta-How-Does-Implicit-Bias-Affect-Health-Care.aspx>
- What Are the Harms of Not Addressing Bias in Health Care?
<http://www.ihl.org/education/IHIOpenSchool/resources/Pages/AudioandVideo/Anurag-Gupta-What-Are-the-Harms-of-Not-Addressing-Bias-in-Health-Care.aspx>

Recommended viewing

Institute for Healthcare Improvement. (2020)

- What Is Bias, and What Can Medical Professionals Do to Address It?
<http://www.ihl.org/education/IHIOpenSchool/resources/Pages/AudioandVideo/Anurag-Gupta-What-Is-Bias,-and-What-Can-Medical-Professionals-Do-to-Address-It.aspx>
- Why Shouldn't Providers Judge Patients' Choices?
<http://www.ihl.org/education/IHIOpenSchool/resources/Pages/AudioandVideo/Nia-Zalamea-Why-Shouldnt-Providers-Judge-Patients-Choices.aspx>

References

- Burgess, D. J., Beach, M. C., & Saha, S. (2017). Mindfulness practice: A promising approach to reducing the effects of clinician implicit bias on patients. *Patient education and counseling*, 100(2), 372-376. <https://doi.org/10.1016/j.pec.2016.09.005>
- Devine, P. G., Forscher, P. S., Austin, A. J., & Cox, W. T. (2012). Long-term reduction in implicit race bias: A prejudice habit-breaking intervention. *Journal of experimental social psychology*, 48(6), 1267-1278. <https://doi.org/10.1016/j.jesp.2012.06.003>
- FitzGerald, C., & Hurst, S. (2017). Implicit bias in healthcare professionals: a systematic review. *BMC medical ethics*, 18(1), 19. <https://doi.org/10.1186/s12910-017-0179-8>
- Hall, W. J., Chapman, M. V., Lee, K. M., Merino, Y. M., Thomas, T. W., Payne, B. K., ... & Coyne-Beasley, T. (2015). Implicit racial/ethnic bias among health care professionals and its influence on health care outcomes: a systematic review. *American journal of public health*, 105(12), e60-e76. <https://doi.org/10.2105/AJPH.2015.302903>

References

Institute for Healthcare Improvement (2017). How to Reduce Implicit Bias.
<https://www.ihl.org/insights/how-reduce-implicit-bias>

Korn Ferry Institute. (2022). Understanding Bias and the Brain. [Understanding Bias and the Brain \(kornferry.com\)](https://www.kornferry.com/understanding-bias-and-the-brain)

Narayan, M. C. (2019). Addressing implicit bias in nursing: a review. *AJN The American Journal of Nursing*, 119(7), 36-43. doi: 10.1097/01.NAJ.0000569340.27659.5a

Stanford University. (2020). Unconscious Bias in Medicine.
<https://online.stanford.edu/courses/som-ycme0027-unconscious-bias-medicine-cme>

Learning for Justice. (2022). Test Yourself for Hidden Bias.
<https://www.tolerance.org/professional-development/test-yourself-for-hidden-bias>

References

The Joint Commission. (2016, April). Quick Safety Issue 23: Implicit bias in health care. [Quick Safety Issue 23: Implicit bias in health care | The Joint Commission](#)

The Ohio State University. (2020). Mitigating Implicit Bias In Health Care: Aligning Outcomes With Intentions. <https://u.osu.edu/breakingbias/>

Van Ryn M. (2016). Avoiding Unintended Bias: Strategies for Providing More Equitable Health Care. *Minnesota medicine*, 99(2), 40–46.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5476527/>

Whitmer, G. (2020). Executive Directive No. 2020-7: Improving equity in the delivery of health care.
https://content.govdelivery.com/attachments/MIEOG/2020/07/09/file_attachments/1491769/ED%202020-07