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#57533 Child Abuse Identification and Reporting: The New York Requirement (2 CE Hours).....	1
#57000 Implicit Bias in Health Care (3 CE Hours).....	17
#58643 Infection Control: The New York Requirement (5 CE Hours) .....	32
Course Availability List .....	62–64


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916-783-4238 (outside the U.S.)  
Fax: 916-783-6067  
Email: Info@NetCE.com  
Website: www.NetCE.com

**NETCE**

Director of Development and Academic Affairs,  
Sarah Campbell  
Director of NetCE, Julie Goodwin  
Chief Information Officer, Kevin Bluck  
Director of Graphic Services, Kathryn Harris  
Director of Operations, Alma Parra

**Division Planners**

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John M. Leonard, MD  
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Ronald Runciman, MD  
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James Trent, PhD

**Featured Contributing Faculty**

Lori L. Alexander, MTPW, ELS, MWC  
Alice Yick Flanagan, PhD, MSW  
Carol Shenold, RN, ICP

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# Child Abuse Identification and Reporting: The New York Requirement

This course is approved by the New York State Education Department to fulfill the requirement for 2 hours of training in the Identification and Reporting of Child Abuse and Maltreatment. Provider #80673.

If you have already completed your one-time child abuse education requirement, you may use this course to meet 2 hours of your general CE requirement.

**Audience**

This course is designed for all New York dental professionals required to complete child abuse education.

**Course Objective**

The purpose of this course is to enable dental professionals to define child abuse and identify the children who are affected by violence. This course describes how a victim can be accurately diagnosed and identifies the community resources available in the state of New York for child abuse victims.

**Learning Objectives**

Upon completion of this course, you should be able to:

1. Summarize the historical context of child abuse.
2. Define child abuse and neglect and identify the different forms of child abuse and neglect.
3. Discuss the scope of child abuse and neglect in New York State and in the United States.
4. Describe warning signs and consequences of child abuse and neglect.
5. Review the mandatory reporting process and mandated reporters in New York State, including possible barriers to reporting suspected cases of child abuse.

**Faculty**

**Alice Yick Flanagan, PhD, MSW**, received her Master's in Social Work from Columbia University, School of Social Work. She has clinical experience in mental health in correctional settings, psychiatric hospitals, and community health centers. In 1997, she received her PhD from UCLA, School of Public Policy and Social Research. Dr. Yick Flanagan completed a year-long post-doctoral fellowship at Hunter College, School of Social Work in 1999. In that year she taught the course Research Methods and Violence Against Women to Masters degree students, as well as conducting qualitative research studies on death and dying in Chinese American families. (A complete biography appears at the end of this course.)

### Faculty Disclosure

Contributing faculty, Alice Yick Flanagan, PhD, MSW, has disclosed no relevant financial relationship with any product manufacturer or service provider mentioned.

### Division Planner

William E. Frey, DDS, MS, FICD

### Director of Development and Academic Affairs

Sarah Campbell

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### Designations of Credit

NetCE designates this activity for 2 continuing education credits.

AGD Subject Code 155.

### Special Approvals

This course is approved by the New York State Education Department to fulfill the requirement for 2 hours of training in the Identification and Reporting of Child Abuse and Maltreatment. Provider #80673.

### About the Sponsor

The purpose of NetCE is to provide challenging curricula to assist healthcare professionals to raise their levels of expertise while fulfilling their continuing education requirements, thereby improving the quality of healthcare.

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Sections marked with this symbol include evidence-based practice recommendations. The level of evidence and/or strength of recommendation, as provided by the evidence-based source, are also included so you may determine the validity or relevance of the information. These sections may be used in conjunction with the study questions and course material for better application to your daily practice.

## HISTORICAL CONTEXT

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There is an established system in the United States to respond to reports of child abuse and neglect; however, this has not always been the case. This is not because child abuse, neglect, and maltreatment are new social phenomena. Rather, the terms “child abuse,” “child neglect,” and “child maltreatment” are relatively new, despite the fact that this social problem has existed for thousands of years [1]. Cruelty to children by adults has been documented throughout history and across cultures. In China, infant girls were often neglected during times of famine or sold during times of extreme poverty. There is also historical evidence that cultures have taken steps to stop child abuse and cruelty. For example, 6,000 years ago in Mesopotamia, orphans had their own patron goddesses for help and protection [2].

In many cases, the physical abuse of children has been linked to physical punishment. Throughout history, physical child abuse was justified because it was believed that severe physical punishment was necessary either to discipline, rid the child of evil, or educate [2; 13].

It was not until 1861 that there was a public outcry in the United States against extreme corporal punishment. This reform was instigated by Samuel Halliday, who reported the occurrence of many child beatings by parents in New York City [2].

Sexual abuse of children, particularly incest (defined as sex between family members), is very much a taboo. The first concerted efforts to protect children from sexual abuse occurred in England during the 16th century. During this period, boys were protected from forced sodomy and girls younger than 10 years of age from forcible rape [2]. However, in the 1920s, sexual abuse of children was described solely as an assault committed by “strangers,” and the victim of such abuse was perceived as a “temptress” rather than as an innocent child [2].

The first public case of child abuse in the United States that garnered widespread interest took place in 1866 in New York City. Mary Ellen Wilson was an illegitimate child, 10 years of age, who lived with her foster parents [3]. Neighbors were concerned that she was being mistreated; however, her foster parents refused to change their behaviors and said that they could treat the child as they wished [2]. Because there were no agencies established to protect children specifically, Henry Berge, founder of the Society for the Prevention of Cruelty to Animals, intervened on Mary’s behalf [3]. He argued that she was a member of the animal kingdom and deserved protection.

The case received much publicity, and as a result, in 1874 the New York Society for the Prevention of Cruelty to Children was formed [3]. Because of this case, every state now has a child protective services (CPS) system in place.

As a result of Berge’s advocacy for children’s safety, other non-governmental agencies were formed throughout the United States, and the establishment of the juvenile court was a direct result of the Prevention of Cruelty to Children [13]. In 1912, the U.S. Children’s Bureau was established to monitor and report on children’s social and physical welfare [45]. The Bureau was the first formal federal government vehicle to address the welfare of children [45]. During this time, many states and counties had also established child welfare boards or departments. By 1919, all but three states had juvenile courts. However, many of these nongovernmental agencies could not sustain themselves during the Depression [13].

The topic of child abuse and neglect received renewed interest in the 1960s, when a famous study titled “The Battered-Child Syndrome” was published by Henry Kempe [1; 4]. In the study, researchers argued that the battered-child syndrome consisted of traumatic injuries to the head and long bones, most commonly to children younger than 3 years of age, by parents [1; 4]. The study was viewed as the seminal work on child abuse, alerting both the general public and the academic community to the problems of child abuse [1; 2]. This seminal study was the impetus to the adoption of a formal reporting system, and by 1967, all 50 states required physicians to report child abuse [14; 22]. In the early 1970s, Senator Walter Mondale noted that there was no official agency that spent its energies on preventing and treating child maltreatment [13]. Congress passed the Child Abuse Prevention and Treatment Act (CAPTA) of 1974, which targeted federal funds to improve states’ interventions for the identification, reporting and training for child abuse [13; 22].

Today, child abuse and neglect are considered significant social problems with deleterious consequences. As noted, a system has been implemented in all 50 states to ensure the safety of children, with laws defining what constitutes abuse and neglect and who is mandated to report. In 2006, recognizing the role of physicians in the detection of child abuse, child abuse pediatrics became a board-certified subspecialty [46]. In 2010, additional prevention and treatment programs were funded through CAPTA, and in 2012, the Administration on Children, Youth, and Families began to focus on protective factors to child abuse and neglect [22].

## DEFINITIONS OF CHILD ABUSE AND NEGLECT

The federal definition of child abuse is evident in CAPTA, published as a product of federal legislation. CAPTA defines a child to be any individual younger than 18 years of age, except in cases of sexual abuse. In cases of sexual abuse, the age specified by the child protection laws varies depending on the state in which the child resides [5]. CAPTA defines child abuse as, “any recent act or failure to act on the part of a parent or caretaker, which results in death, serious physical or emotional harm, sexual abuse, or exploitation, or an act or failure to act which presents an imminent risk of serious harm” [6]. The state of New York defines child abuse and neglect as follows [7]:

The term abuse encompasses the most serious harms committed against children. An “abused child” is a child whose parent or other person legally responsible for his/her care inflicts upon the child serious physical injury, creates a substantial risk of serious physical injury, or commits a sex offense against the child. Not only can a person be abusive to a child if they perpetrate any of these actions against a child in their case, they can be guilty of abusing a child if they allow someone else to do these things to that child.

## FORMS OF CHILD ABUSE AND NEGLECT

There are several acts that may be considered abusive, and knowledge of what constitutes abuse is vital for healthcare providers and other mandated reporters. In this section, specific behaviors that fall under the category of abuse and neglect will be reviewed.

### Physical Abuse

Physical abuse injuries can range from minor bruises and lacerations to severe neurologic trauma and death. Physical abuse is one of the most easily identifiable forms of abuse and the type most commonly seen by healthcare professionals. Physical injuries that may be indicative of abuse include bruises/welts, burns, fractures, abdominal injuries, lacerations/abrasions, and central nervous system trauma [8; 61].

Bruises and welts are of concern, particularly those that appear on:

- The face, lips, mouth, ears, eyes, neck, or head
- The trunk, back, buttocks, thighs, or extremities
- Multiple body surfaces

Patterns such as the shape of the article (e.g., a cord, belt buckle, teeth, hand) used to inflict the bruise or welt should be noted. Cigar or cigarette burns are common, and they will often appear on the child’s soles, palms, back, or buttocks. Patterned burns that resemble shapes of appliances, such as irons, burners, or grills, are of particular concern.

Fractures that result from abuse might be found on the child’s skull, ribs, nose, or any facial structure. These may be multiple or spiral fractures at various stages of healing. When examining patients, note bruises on the abdominal wall, any intestinal perforation, ruptured liver or spleen, and blood vessel, kidney, bladder, or pancreatic injury, especially if accounts for the cause do not make sense. Look for signs of abrasions on the child’s wrists, ankles, neck, or torso. Lacerations might also appear on the child’s lips, ears, eyes, mouth, or genitalia. If violent shaking or trauma occurred, the child might experience a subdural hematoma [8; 61].

Sentinel injuries are those minor injuries (e.g., bruises, intra-oral injuries, fractures) that are recognized by providers or parents prior to the formal recognition of child abuse [47; 48]. It is crucial to monitor for these sentinel injuries.

### Sexual Abuse

Sexual abuse is defined by CAPTA as [6]:

the employment, use, persuasion, inducement, enticement, or coercion of any child to engage in, or assist any other person to engage in, any sexually explicit conduct or simulation of such conduct for the purpose of producing a visual depiction of such conduct; or the rape, and in cases of caretaker or interfamilial relationships, statutory rape, molestation, prostitution, or other form of sexual exploitation of children, or incest with children.

Child sexual abuse can be committed by a stranger or an individual known to the child. Sexual abuse may be manifested in many different ways, including [9; 10]:

- Verbal: Obscene phone calls or talking about sexual acts for the purpose of sexually arousing the adult perpetrator
- Voyeurism: Watching a child get dressed or encouraging the child to masturbate while the perpetrator watches
- Commercial sexual exploitation and child sex trafficking: Involving the child in sexual acts for monetary profit
- Child pornography: Taking photos of a child in sexually explicit poses or acts
- Exhibitionism: Exposing his/her genitals to the child or forcing the child to observe the adult or other children in sexual acts

- Molestation: Touching, fondling, or kissing the child in a provocative manner; for example, fondling the child's genital area or long, lingering kisses
- Sexual penetration: The penetration of part of the perpetrator's body (e.g., finger, penis, tongue) into the child's body (e.g., mouth, vagina, anus)
- Rape: Usually involves sexual intercourse without the victim's consent and usually involves violence or the threat of violence

This definition is wide in scope and includes behaviors beyond touching, contact, or physical force. Instead, it encompasses sexual intent against an individual's will. It also takes into consideration consent, as there may be some who cannot consent due to age, disability, fear of harm, and/or state of consciousness or intoxication [62].

### Physical Neglect

Undoubtedly, the definition of neglect is an area of controversy. Some argue that neglect is a form of abuse, because neglect involves a caregiver having lower priority and value of the welfare of the child [49]. Some differentiate between the two terms by the fact that emotional abuse involves a commission of an act, while emotional neglect involves an omission [50].

Due to the ambiguity of definitions of child abuse and neglect, CAPTA provides minimum standards that each state must incorporate in its definition. Examples of child neglect may include [6; 11; 12]:

- Failure to provide adequate food, clothing, shelter, hygiene, supervision, education, and protection
- Refusal and/or delay in medical attention and care (e.g., failure to provide needed medical attention as recommended by a healthcare professional or failure to seek timely and appropriate medical care for a health problem)
- Abandonment, characterized by desertion of a child without arranging adequate care and supervision. Children who are not claimed within two days or who are left alone with no supervision and without any information about their parents'/caretakers' whereabouts are examples of abandonment.
- Expulsion or blatant refusals of custody on the part of parent/caretaker, such as ordering a child to leave the home without adequate arrangement of care by others
- Inadequate supervision (i.e., child is left unsupervised or inadequately supervised for extended periods of time)

In New York state, neglect also involves parents/caregivers who fail to exercise a minimum of care of minor who "misuses drugs and alcohol to the extent he/she loses self-control of his/her actions" [63].

### Emotional Abuse/Neglect

The following behaviors constitute emotional abuse and neglect [6; 11; 12]:

- Verbal abuse: Belittling or making pejorative statements in front of the child, which results in a loss or negative impact on the child's self-esteem or self-worth
- Inadequate nurturance/affection: Inattention to the child's needs for affection and emotional support
- Witnessing domestic violence: Chronic spousal abuse in homes where the child witnesses the violence
- Substance and/or alcohol abuse: The parent/caretaker is aware of the child's substance misuse problem but chooses not to intervene or allows the behavior to continue
- Refusal or delay of psychologic care: Failure or delay in obtaining services for the child's emotional, mental, or behavioral impairments
- Permitted chronic truancy: The child averages at least five days per month of school absence and the parent/guardian does not intervene
- Failure to enroll: Failure to enroll or register a child of mandatory school age or causing the child to remain at home for nonlegitimate reasons
- Failure to access special education services: Refusal or failure to obtain recommended services or treatment for remedial or special education for a child's diagnosed learning disorder

In New York, emotional abuse entails the above behaviors or behaviors that impair emotional health or mental or emotional condition [63].

Enacted in 2015, the Justice for Victims of Trafficking Act includes an amendment to CAPTA, and several states now track data related to the numbers of victims of sex trafficking. In 2020, 35 states reported 953 victims of sex trafficking [15].

The Comprehensive Addiction and Recovery Act (CARA) of 2016 included an amendment to CAPTA to collect and report the number of infants with prenatal substance exposure. In 2020, 47 states reported this data and referred prenatal substance exposure cases to Child Protective Service agencies. There have been a total of 27,709 reports since passage of this Act [15].

## EPIDEMIOLOGY OF CHILD ABUSE AND NEGLECT

### NATIONAL PREVALENCE

In 2020, there were 3.9 million referrals to CPS agencies in the United States [15]. Almost 2.2 million were assessed to be appropriate for a response, and 27.6% of reports were made by health and mental or behavioral health professionals [15]. Girls tend to be victims at a slightly higher rate (8.9 per 1,000 girls) compared with boys (7.9 per 1,000 boys) [15]. More than a half (52%) of perpetrators are women, and the majority (83.2%) are between the ages of 18 and 44 years [15].

As of 2020, there were at least 3.1 million children referred to CPS agencies and who received an investigation and some form of response, and 8.4 of every 1,000 children in the United States were victims of abuse and/or neglect [15]. This is the unique rate, meaning each child is counted only once regardless the number of times a report may have been filed for abuse/neglect. The fatality rate for 2020 was 2.38 deaths per 100,000 children [15].

Research has shown that racial and ethnic minority children (particularly African American, Native American/Alaska Native, and multi-racial children) tend to have higher rates of reported child maltreatment compared to their white counterparts (**Table 1**) [15]. However, the lowest reported rate is among Asian American children [15].

### NEW YORK STATE PREVALENCE

In 2020, the rate of child abuse and neglect in New York State was 14.8 per 1,000 children [15]. This translates to approximately 59,126 cases of child abuse and neglect in New York in 2020, a decrease of 9.2% compared with 2016 [15]. In terms of fatalities, 105 children in New York died in 2020 as a result of child abuse and neglect—a rate of 2.63 per 100,000 children [15]. This is greater than the national rate of 2.38 per 100,000 per children [15].

## RECOGNIZING WARNING SIGNS

It is crucial that practitioners become familiar with the indications of child abuse and neglect. These factors do not necessarily conclusively indicate the presence of abuse or neglect; rather, they are clues that require further interpretation and clinical investigation. Some parental risk indicators include [8; 10; 12; 15; 16; 64]:

CHILD ABUSE VICTIMIZATION ACCORDING TO RACE/ETHNICITY, 2020	
Race/Ethnicity	Child Abuse Rate Per 1,000 Children
Native American/Alaska Native	15.5
African American	13.2
Multi-race	10.3
Pacific Islander	9.0
White	7.4
Hispanic	7.8
Asian American	1.6
Source: [15] <span style="float: right;">Table 1</span>	

- Recounting of events that do not conform either with the physical findings or the child’s physical and/or developmental capabilities
- Inappropriate delay in bringing the child to a health facility
- Unwillingness to provide information or the information provided is vague
- History of family violence in the home
- Parental misuse of substances and/or alcohol
- Minimal knowledge or concern about the child’s development and care
- Environmental stressors, such as poverty, single parenthood, unemployment, or chronic illness in the family
- Unwanted pregnancy
- Early adolescent parent
- Expression that the parent(s) wanted a baby in order to feel loved
- Unrealistic expectations of the child
- Use of excessive physical punishment
- Healthcare service “shopping”
- History of parent “losing control” or “hitting too hard”
- Asks teacher to employ harsh disciplining for misbehaviors



Child risk indicators include [8; 10; 12; 16; 48; 64]:

- Multiple school absences
- Learning or developmental disabilities or special needs
- History of multiple, unexplained illnesses, hospitalizations, or accidents
- Poor general appearance (e.g., fearful, poor hygiene, malnourished appearance, inappropriate clothing for weather conditions)
- Begs for money or food
- Stress-related symptoms, such as headaches or stomachaches
- Frozen watchfulness
- Mental illness or symptoms, such as psychosis, depression, anxiety, eating disorders, or panic attacks
- Regression to wetting and soiling
- Sexually explicit play
- Excessive or out-of-the-ordinary clinging behavior
- Difficulties with concentration
- Disruptions in sleep patterns and/or nightmares
- Symptoms of wasting (i.e., unintended and significant weight loss), protruding ribs or bones, abdominal distension, edema, and sparse hair indicating nutritional neglect
- Abuses/mistreats pets

Some of the types of behaviors and symptoms discussed in the definitions of physical, sexual, and emotional abuse/neglect are also warning signs. For example, any of the injuries that may result from physical abuse, such as a child presenting with bruises in the shape of electric cords or belt buckles, should be considered risk factors for abuse.

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## CONSEQUENCES OF CHILD ABUSE

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The consequences of child abuse and neglect vary from child to child; these differences continue as victims grow older. Several factors will mediate the outcomes. These factors include [17]:

- Severity, intensity, frequency, duration, and nature of the abuse and/or neglect
- Age or developmental stage of the child when the abuse occurred
- Relationship between the victim and the perpetrator
- Support from family members and friends

- Level of acknowledgment of the abuse by the perpetrator
- Quality of family functioning

In examining some of the effects of physical abuse, it is helpful to frame the consequences along a lifespan perspective [18]. During infancy, physical abuse can cause neurologic impairments. Most cases of infant head trauma are the result of child abuse [19]. Neurologic damage may also affect future cognitive, behavioral, and developmental outcomes. Some studies have noted that, in early childhood, physically abused children show less secure attachments to their caretakers compared to their nonabused counterparts [20].

By middle to late childhood, the consequences are more notable. Studies have shown significant intellectual and linguistic deficits in physically abused children [18]. Other environmental conditions, such as poverty, may also compound this effect. In addition, a number of affective and behavioral problems have been reported among child abuse victims, including anxiety, depression, low self-esteem, excessive aggressive behaviors, conduct disorders, delinquency, hyperactivity, and social detachment [8; 10; 12; 18].

Surprisingly, there has been little research on the effects of childhood physical abuse on adolescents [18]. However, differences have been noted in parents who abuse their children during adolescence rather than preadolescence. It appears that lower socioeconomic status plays a lesser role in adolescent abuse as compared to abuse during preadolescence [21]. In addition, parents who abuse their children during adolescence are less likely to have been abused as children themselves compared to those parents who abused their children during preadolescence [21]. It is believed that the psychosocial effects of physical abuse manifest similarly in late childhood and adolescence.

Research findings regarding the effects of childhood physical abuse on adult survivors have been less consistent. Some adult survivors function well socially and in terms of mental and physical health, while others exhibit depression, anxiety, post-traumatic stress, substance abuse, criminal behavior, violent behavior, and poor interpersonal relationships [17; 18]. A 2012 meta-analysis found that victims of child abuse were more likely to experience depression than non-abused counterparts, with the rates varying according to the type of abuse sustained (1.5-fold increase for physical child abuse, 2.11-fold increase for neglect, and 3-fold increase for emotional abuse) [24]. Similar results were found in a longitudinal study that compared a child welfare cohort to a group with no child welfare involvement. The child welfare group was twice as likely to experience moderate-to-severe depression and generalized anxiety compared with the control group [25].

Although not all adult survivors of sexual abuse experience long-term psychologic consequences, it is estimated that 20% to 50% of all adult survivors have identifiable adverse mental health outcomes [23]. In the Wisconsin Longitudinal Study, men who disclosed a history of childhood sexual abuse were more likely to have or develop depression, somatic symptoms, and increased levels of hostility [51]. Other possible psychologic outcomes include [10; 52]:

- Affective symptoms: Numbing, post-traumatic stress disorder, anxiety, depression, obsessions and compulsions, somatization
- Various health problems, including general pain and gastrointestinal symptoms
- Interpersonal problems: Difficulties trusting others, social isolation, feelings of inadequacy, sexual difficulties (e.g., difficulties experiencing arousal and orgasm), avoidance of sex
- Distorted self-perceptions: Poor self-esteem, self-loathing, self-criticism, guilt, shame
- Behavioral problems: Risk of suicide, substance abuse, self-mutilation, violence
- Increased risk-taking behaviors: Abuse of substances, cigarette smoking, sexual risk-taking

Adult male survivors of child sexual abuse are three times as likely to perpetrate domestic violence as non-victims. In addition, female survivors of child sexual abuse are more vulnerable to bulimia, being a victim of domestic violence, and being dependent on alcohol [28].

In more recent years, research has focused on the impact of adverse childhood experiences (ACEs) in general. ACEs are defined as potentially traumatic experiences that affect an individual during childhood (before 18 years of age) and increase the risk for future health and mental health problems (including increased engagement in risky behaviors) as adults [76]. Abuse and neglect during childhood are clear ACEs, but other examples include witnessing family or community violence; experiencing a family member attempting or completing suicide; parental divorce; parental or guardian substance abuse; and parental incarceration [76]. Adults who experienced ACEs are at increased risk for chronic illness, impaired health, violence, arrest, and substance use disorder [77; 78].

The economic costs of non-fatal child maltreatment equate to \$210,012 per child victim, excluding the costs associated with adverse physical and mental health consequences and those incurred by the criminal justice and special education systems [53]. A 2017 study found a cost of more than \$400,000 per child abuse victim over the course of his or her lifetime [65].

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## REPORTING SUSPECTED CHILD ABUSE

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### MANDATED REPORTERS

In the state of New York, certain professionals are legally required or mandated to report any suspected cases of child abuse, maltreatment, and/or neglect that they encounter in their professional roles to the New York Statewide Central Register (SCR) of Child Abuse and Maltreatment. Reasonable cause for suspicion is based upon behaviors that have been observed or reported that cause the professional to believe that a specific circumstance might involve child abuse or neglect [26]. Child abuse laws in New York, and in all states, do not require reporters to have absolute proof of abuse [27]. Reporting suspected cases should be done in good faith, and mandatory reporting laws give the reporter immunity from criminal and civil liability regardless of the substantiation of abuse [16]. Good faith is defined as “the reporter, to the best of his or her knowledge, has reason to believe that the child in question is being subjected to abuse or neglect” [14]. However, if mandated reporters fail to report an incident of suspected child abuse or maltreatment, they may be charged with a Class A misdemeanor, subject to criminal penalties, and can be sued for monetary damages for any harm in a civil court [26]. It is vital to remember that mandated reporters are not required to provide absolute evidence; this is the responsibility of CPS [29].

The following individuals are classified as mandated reporters in the state of New York [26]:

- Physicians (including osteopaths)
- Registered physician’s assistants
- Surgeons
- Medical examiners
- Coroners
- Dentists
- Dental hygienists
- Optometrists
- Chiropractors
- Podiatrists
- Medical residents
- Interns
- Psychologists
- Registered nurses
- Social workers
- Emergency medical technicians
- Licensed creative arts therapists

- Licensed marriage and family therapists
- Licensed mental health counselors
- Licensed psychoanalysts
- Hospital personnel engaged in the admission, examination, care, or treatment of persons
- Christian Science practitioners
- School officials
- Social services workers
- Day care center workers
- Providers of family or group family day care
- Any employees or volunteers in a residential care facility for children
- Any other childcare or foster care workers
- Mental health professionals
- Substance abuse counselors
- Alcoholism counselors
- Peace officers
- Police officers
- District attorneys or assistant district attorneys
- Investigators employed in the Office of the District Attorney
- Any other law enforcement officials

#### THE PROCESS OF REPORTING TO THE NEW YORK STATEWIDE CENTRAL REGISTER (SCR) OF CHILD ABUSE AND MALTREATMENT

When mandated reporters suspect a case of child abuse or maltreatment, they must report to the SCR at 1-800-635-1522. The general public can report suspected abuse by calling 1-800-342-3720 [38].

The SCR is open 24 hours per day, 7 days per week [26]. The mandated reporter is not obligated to contact the parents or the legal guardians of the child either before or after the call to SCR [26]. Good practice dictates that the reporter either seek consent or notify the parent(s) that essential information is being (and is required to be) shared, unless doing so would put the child's health or safety at risk. However, even if the parent does not consent, the mandated reporter is still obligated to contact the SCR [26]. (Additional child abuse hotline information may be found in the **Resources** section of this course.)

The worker who answers the phone will attempt to accumulate as much information from you as possible. According to the New York State Office of Children and Family Services, they will ask you the following types of questions [26; 38]:

- What is the nature and extent of the child's injuries, or the risk of harm to the child?
- Have there been any prior suspicious injuries to this child or his/her siblings?
- What is the child's name, home address, age?
- What is the name and address of the parent or other person legally responsible who caused the injury, or created the risk of harm to the child?
- What are the names and addresses of the child's siblings and parents if different from the information provided above?
- Do you have any information regarding treatment of the child, or the child's current whereabouts?

Within 48 hours of reporting the suspected abuse to SCR, the reporter must also complete and sign a written report (LDSS-2221A) and submit the report to the local department of social services (LDSS) that has been assigned to the investigation [26]. The forms may be accessed on the New York State of Children and Family Services website at <https://ocfs.ny.gov/search/docs.php>.

The CPS unit of the LDSS is required to begin an investigation of the reported abuse within 24 hours [26]. A CPS specialist will ask questions about the suspected abuse and the child. For example, the specialist will ask for the child's name, age, and home address, the name of the suspected person who inflicted the abuse, his or her address, and the nature of the abuse. The specialist should also evaluate the safety of the child named in the report as well as that of any other children in the home. If the child's safety is at risk, the specialist may take the child and other children in the home into protective custody to prevent further abuse or maltreatment. CPS has 60 days after receiving the report to determine whether it is "indicated" or "unfounded." CPS is obligated to inform the child's parents or other subject of the report of their rights, according to the New York State Social Services Law, and must inform the SCR of the determination of the investigation [26].

## BARRIERS TO REPORTING

Studies have shown that many professionals who are mandated to report child abuse and neglect are concerned and/or anxious about reporting. Identified barriers to reporting include [29; 30; 31; 40; 54; 55]:

- Professionals may not feel skilled in their knowledge base about child abuse and neglect. In addition, they lack the confidence to identify sexual and emotional abuse.
- Professionals may be frustrated with how little they can do about poverty, unemployment, drug use, and the intergenerational nature of abuse.
- Although professionals understand their legal obligation, they may still feel that they are violating patient confidentiality.
- Many professionals are skeptical about the effectiveness of reporting child abuse cases given the bureaucracy of CPS and the large caseloads.
- Practitioners may be concerned that they do not have adequate or sufficient evidence of child abuse.
- Practitioners may have a belief that government entities do not have the right to get involved in matters within the family arena.
- There may be some confusion and emotional distress in the reporting process.
- Practitioners may fear that reporting will negatively impact the therapeutic relationship.
- Loyalty to the family
- Fear of driving the family away from seeking health, social, and mental health services
- Some professionals have concerns that there might be negative repercussions against the child by the perpetrator.
- Some simply underestimate the seriousness and risk of the situation and may make excuses for the parents.

The failure to identify and report child abuse may result in continued abuse of the child and potentially severe consequences. Improved and ongoing education about child abuse and maltreatment has been shown to improve identification and reporting rates among physicians and other professionals. The education should include [32]:

- Management and outcomes
- The role of the CPS investigator
- The role of the physician/other reporting professional
- The benefits of CPS involvement
- The benefits of mandated education on identification/reporting

- The benefits of professional debriefing for the reporter
- The benefits of collaboration (e.g., with local emergency departments, pediatric specialists)

Other suggestions for improving reporting include [32]:

- Improving the relationship between CPS and medical providers
- Allowing certain registered professionals with demonstrated expertise in identifying/treating child abuse “flexible reporting options” (e.g., defer reporting when no immediate threat exists or make the report confidentially and defer an investigation until deemed necessary)
- Improving interaction with the legal system

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## ASSESSMENT GUIDELINES FOR PROFESSIONALS

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Assessment for child abuse and neglect involves the systematic collection of data. Information should be obtained regarding the primary reason for the visit, family health history, the child’s health history, history of illnesses, the parents’ attitudes toward discipline, and the child’s pattern of nutrition, sleep, and diet [16]. If abuse is a concern after the preliminary evaluation, consultation with a child abuse specialist, pediatric specialist, or pediatrician experienced in this area, if available, may be helpful in determining the best way to proceed with assessment [16].



The U.S. Preventive Services Task Force concludes that the current evidence is insufficient to assess the balance of benefits and harms of primary care interventions to prevent child maltreatment in children who do not have signs or symptoms of maltreatment. However, children with signs or symptoms suggestive of maltreatment should be assessed or reported according to the applicable state laws.

(<https://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/child-maltreatment-primary-care-interventions>. Last accessed February 1, 2023.)

**Strength of Recommendation:** I (Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be measured.)

It is important for professionals to ask questions in a non-judgmental manner [33]. An environment where support and concern facilitate an open, trusting relationship between the parent and the practitioner should be created. By providing such an environment, the parent has the opportunity to voice concerns and ask for help. Questions that convey concern and may provide valuable information to the professional include, “Who helps you care for your children?” or “How do you discipline your children?” It may be necessary to interview the child and parent separately; however, by spending some time with the child and parent together, practitioners can observe interactions and communication.

Accuracy in record taking is also important. Be sure to record the date and time of the visit, the sources of any information, and the date, time, and place of the alleged abuse or assault [16; 34]. When talking to the child, the practitioner should use developmentally appropriate language that will be easily understood. Leading questions should be avoided [34]. Be sensitive to the fact that children often wonder if the abuse actually happened, as the abuser may behave as if nothing occurred [56]. Asking the following questions may be helpful when interacting with children [34; 35]:

- “Do you know why you are here today?”
- “Can you tell me what happened?”
- “How did it begin?”
- “What happened next?”
- “Where did this happen?”
- “Have you been hurt lately?”

It is important to note the child’s demeanor during questioning. Some children may be protective of their abuser, openly fearful of their abuser, or may fear retribution for “telling.” Strong nonverbal cues of anxiety and reluctance to answer questions about potential abuse are important considerations when a safety plan for the child is necessary [16; 33].

Supporting and facilitating the victim’s emotions are also important. This helps to promote rapport between the interviewer and the child. One way of promoting the rapport is by expressing interest or care by saying: “I want to know more about how you are feeling” [65]. Certain feelings or events may be legitimized by confirming to the child that he/she is safe talking about bad things. Finally, the interviewer can reinforce these sentiments by thanking the child for expressing certain emotions [65].

Because studies have demonstrated a correlation between child abuse and domestic violence, there is a need for dual screening for both types of family violence [16; 20]. An estimated 75% of victims of domestic violence live in a household with at least one child younger than 18 years of age, and between 3.3 million and 10 million children witness domestic violence annually [36; 37]. When a woman presents with a child whom the professional suspects to be at risk for child abuse, the professional should ask the woman if she has ever been hurt or injured by her spouse/intimate partner. Professionals should minimize the discomfort associated with the questioning by first discussing the prevalence of domestic violence in intimate relationships and by stating that such questioning is commonly done [39]. Because of the sensitive nature of child abuse, it can evoke extreme emotions on the part of the professional. However, it is important to manage emotions when talking to children [57].

In cases of child sexual abuse, the child should be interviewed alone. The professional should try to keep a neutral tone of voice and manner. Open-ended, nonleading questions should be used. For example, the practitioner may ask: “Has anyone ever touched you in a way that you did not like or that made you feel uncomfortable?” Because the interview may be admissible in court, careful documentation of the questions and responses is important; the exchange should be documented verbatim [16].

#### **SCREENING FOR ABUSE IN CHILDREN WITH SPECIAL NEEDS OR DISABILITIES**

The rates of child maltreatment for children with disabilities are reportedly 1.7 to 7 times higher compared with children without disabilities [42]. In one study, researchers found that among substantiated reports of maltreatment among children, 22% of victims had some form of disability, most commonly an emotional disability [58]. A systematic review found that there was a prevalence rate of 20.4% for physical abuse, 13.7% for sexual abuse, and 26.7% for both forms of abuse combined among children with intellectual disabilities [66]. Children with disabilities can be more vulnerable to maltreatment if the parents/caregivers view the disability and its associated behaviors as “difficult,” if the parents have unrealistic expectations of the child’s behavior or abilities, if the parents are facing additional caregiver stress, or if the parent perceives the child as unable to defend him/herself [43]. Furthermore, they may be less likely to disclose the abuse because they not only do not realize they have been harmed or they have impaired communication skills [59].

To effectively interview a child with a disability, the practitioner should first obtain some preliminary data, including [33]:

- The child's primary disability
- Accompanying disabilities, if any
- How the disability affects the child's current functioning
- Whether the child is highly distractible
- What the appropriate method of communication will be (e.g., sign language, language board, facilitative communication) if communication is an issue
- What, if any, behavioral challenges (e.g., compulsive, withdrawal) the child has

Overall, when conducting an interview of a child with a disability or special need, the practitioner should work with someone to validate impressions or feelings about the child, develop and use a multidisciplinary resource team, be aware of the child's vulnerabilities (e.g., behavioral challenges, accompanying disabilities), and remember that he/she may be the first person able to stop the child from being further victimized [41]. When questioning the child, it is important to ask open-ended questions, as this approach maximizes recall. Some assume that children with disabilities will not be able to handle open-ended questions, but this is not strictly true [67]. When working with those with intellectual disabilities, interviewers should try shorter open-ended questions before falling back to closed-ended questions [67]. Scaffolding questions, or breaking up the tasks and gradually building up the questions with specific instructions and comprehension checks along the way, can also be beneficial [68]. Comprehension check questions can be as simple as: "Can you repeat the question I just asked?" or "I just asked you <insert question>, what does that question mean to you?" [68].

#### SCREENING FOR ABUSE IN NON-ENGLISH-PROFICIENT FAMILIES

Communication with children and families regarding the signs and history of abuse is a necessary step in obtaining an accurate diagnosis. When interviewing children for whom English is not their first language, they may switch back to their first language during the interview, even if they express the wish to have the interview conducted in English [69].

There will also be many occasions when an interpreter is warranted. Without an interpreter, children may experience additional stress, struggling to find the right words in English, which can result in more feelings of fear, disempowerment, and voicelessness [44].

It may be tempting to locate a practitioner who has some language ability to speak to the child and/or family member; however, this should be avoided if at all possible [44]. When looking for an interpreter in the community, it is important to consider if the interpreter and the family are acquainted, as this can cause an uncomfortable situation [69]. The language for screening for child abuse requires precision as well as sensitivity, and professional interpreters are recommended.

In this multicultural landscape, interpreters are a valuable resource to help bridge the communication and cultural gap between patients and practitioners [33]. Interpreters are more than passive agents who translate and transmit information back and forth from party to party. When they are enlisted and treated as part of the interdisciplinary clinical team, they serve as cultural brokers, who ultimately enhance the clinical encounter. They should be familiar with both the nuances of the language and the cultural norms and value systems of the target community [44]. When providing care for children and parents for whom English is a second language, the consideration of the use of an interpreter and/or patient education materials in their native language may improve patient understanding and outcomes.

It is also vital to take into account interpreters' competence when working in the area of child abuse. Because of the sensitive nature of child abuse and the type of information being asked and recalled, interpreters should be well trained in communicating with victims and perpetrators [60].

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## INTERPROFESSIONAL COLLABORATIONS AND CHILD MALTREATMENT

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Interprofessional collaboration, defined as a partnership or network of providers who work in a concerted and coordinated effort on a common goal for clients/patients and their families to improve health, mental health, social, and/or family outcomes, is a vital component in child abuse identification and intervention [70]. Positive outcomes with this approach have been demonstrated on individual and organizational levels, including increased patient/client safety and satisfaction and improved health outcomes and quality of life [71; 72; 73].

However, promoting interprofessional collaboration can be challenging, as it challenges the Western paradigm that focuses on individualism and working in a silo [74]. For example, physicians and other health professionals often do not ask their patients and family members about child abuse/neglect or about contact with the child welfare system. Even if this issue is not acute, knowledge of this background information can help to better understand the patient or family as a whole unit. Similarly, child welfare workers rarely engage with physicians, instead focusing primarily on their investigation [75].

Practitioners should work with each other to learn and understand each other's roles and traditions [79; 80]. In focus groups, physicians believed that child welfare workers were supposed to solve child abuse cases by providing social services and removing a child from the home, but did not appreciate the underlying complexities of child abuse and neglect. Child welfare workers overestimated physicians' understanding of the child welfare system [75].

Social workers are often an integral part of the interprofessional practice for child abuse and neglect, acting as a liaison between the families, healthcare workers, and outside entities [81]. When a family has to deal with an issue of suspected child abuse, social workers are able to intervene and offer tools to manage the crisis.

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## CONCLUSION

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Child abuse and neglect are considered significant social problems with deleterious consequences. As noted, a system has been implemented in all 50 states to ensure the safety of children, with laws defining what constitutes abuse and neglect and who is mandated to report. Healthcare professionals, regardless of their discipline or field, are in a unique position to assist in the identification, education, and prevention of child abuse and neglect.

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## RESOURCES

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### **American Academy of Pediatrics**

345 Park Boulevard  
Itasca, IL 60143  
800-433-9016  
<https://www.aap.org>

### **State Child Abuse Hotlines**

#### ***New York Statewide Central Register (SCR) of Child Abuse and Maltreatment***

#### **General Public**

1-800-342-3720

### **Onondaga County**

315-422-9701

### **Childhelp**

6730 N. Scottsdale Road, Suite 150  
Scottsdale, AZ 85253  
1-800-4-A-CHILD  
<https://www.childhelp.org>

### **Child Welfare Information Gateway**

330 C Street SW  
Washington, DC 20201  
1-800-394-3366  
<https://www.childwelfare.gov>

### **Child Welfare League of America**

727 15th Street NW, 12th Floor  
Washington, DC 20005  
202-688-4200  
<https://www.cwla.org>

**National Council on Child Abuse and Family Violence**

P.O. Box 5222

Arlington, VA 22205

202-441-1304

<https://www.preventfamilyviolence.org>

**Prevent Child Abuse New York**

4 Global View

Troy, NY 12180

1-800-CHILDREN

<https://www.preventchildabuse.ny.org>

**New York State Office of Children and Family Services**

**Child Protective Services**

Capital View Office Park

52 Washington Street

Rensselaer, New York 12144

518-473-7793

<https://ocfs.ny.gov/programs/cps>



COURSE TEST - #57533 CHILD ABUSE IDENTIFICATION AND REPORTING: THE NEW YORK REQUIREMENT

This is an open book test. A passing grade of at least 70% must be achieved in order to receive credit for this course.

**This 2 CE Credit Hour activity must be completed by January 31, 2024.**

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AGD SUBJECT CODE: 155.

1. The first child abuse case in the United States that garnered widespread interest involved Mary Ellen Wilson, a foster child in New York City. This case took place in
  - A) 1790.
  - B) 1866.
  - C) 1921.
  - D) 1965.
2. Child abuse is defined at the federal level by the
  - A) Child Protective Services.
  - B) Office of Child and Family Welfare.
  - C) Child Abuse Prevention and Treatment Act.
  - D) National Council on Child Abuse and Family Violence.
3. Which of the following injuries is NOT considered a possible indicator of physical abuse?
  - A) Patterned burns
  - B) Bruises on multiple body areas
  - C) Abrasions to the knees and elbows
  - D) Multiple or spiral fractures at various stages of healing
4. Child sexual abuse is categorized as exhibitionism if the act involves
  - A) obscene phone calls.
  - B) forcing a child to observe sexual acts.
  - C) watching a child get dressed or undressed.
  - D) touching, fondling, or kissing the child in a provocative manner.
5. A child discloses that he has not gone to school for two weeks. When questioned regarding the reason for the absences, the child states that his parents do not feel like bringing him to school. This may be reported as which type of abuse?
  - A) Physical abuse
  - B) Financial abuse
  - C) Emotional abuse/neglect
  - D) This is not an abuse case.
6. More than one-quarter of child abuse reports are made by
  - A) parents.
  - B) teachers.
  - C) other children.
  - D) health and mental or behavioral health professionals.

Test questions continue on next page →

7. In 2020, how many children in New York died as a result of child abuse and neglect?
- A) 7
  - B) 23
  - C) 46
  - D) 105
8. Which of the following is a parental risk indicator that may be present in cases of child abuse/neglect?
- A) *Multiple work absences*
  - B) *Poor general appearance*
  - C) *Disruptions in sleep patterns*
  - D) *Unwillingness to provide information*
9. Of the following, who is legally mandated by the state of New York to report suspected cases of child abuse?
- A) *Peace officers*
  - B) *District attorneys*
  - C) *Registered nurses*
  - D) *All of the above*
10. Patient A, a child 10 years of age, arrives at the emergency department with a burn. Upon intake, a registered nurse notices that the burn on the child's thigh resembles the face of an iron. In addition, the child has bruising on her upper arm. The nurse suspects abuse and therefore calls the toll-free number for mandated reporters to report the case. Which of the following steps must the nurse take following the report?
- A) *The nurse must contact a physician for a complete evaluation of the child, including assessment for sexual abuse.*
  - B) *The nurse should call a legal aid society to ask for a lawyer to represent her in the event he/she is held liable if the case is not substantiated.*
  - C) *This nurse should inform the mother that he/she will be contacting the appropriate agencies regarding suspected child abuse and maltreatment.*
  - D) *The nurse must complete and sign a written report (LDSS-2221A) within 48 hours and submit the report to the local department of social services (LDSS) that has been assigned to the investigation.*

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# Implicit Bias in Health Care

## Audience

This course is designed for dental professionals working in all practice settings.

## Course Objective

The purpose of this course is to provide dental professionals with an overview of the impact of implicit biases on clinical interactions and decision making.

## Learning Objectives

Upon completion of this course, you should be able to:

1. Define implicit and explicit biases and related terminology.
2. Evaluate the strengths and limitations of the Implicit Association Test.
3. Describe how different theories explain the nature of implicit biases, and outline the consequences of implicit biases.
4. Discuss strategies to raise awareness of and mitigate or eliminate one's implicit biases.

## Faculty

**Alice Yick Flanagan, PhD, MSW**, received her Master's in Social Work from Columbia University, School of Social Work. She has clinical experience in mental health in correctional settings, psychiatric hospitals, and community health centers. In 1997, she received her PhD from UCLA, School of Public Policy and Social Research. Dr. Yick Flanagan completed a year-long post-doctoral fellowship at Hunter College, School of Social Work in 1999. In that year she taught the course Research Methods and Violence Against Women to Masters degree students, as well as conducting qualitative research studies on death and dying in Chinese American families. (A complete biography appears at the end of this course.)

## Faculty Disclosure

Contributing faculty, Alice Yick Flanagan, PhD, MSW, has disclosed no relevant financial relationship with any product manufacturer or service provider mentioned.

## Division Planner

William E. Frey, DDS, MS, FICD

## Director of Development and Academic Affairs

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## INTRODUCTION

In the 1990s, social psychologists Dr. Mahzarin Banaji and Dr. Tony Greenwald introduced the concept of implicit bias and developed the Implicit Association Test (IAT) as a measure. In 2003, the Institute of Medicine published the report *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care* highlighting the role of health professionals' implicit biases in the development of health disparities [1]. The phenomenon of implicit bias is premised on the assumption that while well-meaning individuals may deny prejudicial beliefs, these implicit biases negatively affect their clinical communications, interactions, and diagnostic and treatment decision-making [2; 3].

One explanation is that implicit biases are a heuristic, or a cognitive or mental shortcut. Heuristics offer individuals general rules to apply to situations in which there is limited, conflicting, or unclear information. Use of a heuristic results in a quick judgment based on fragments of memory and knowledge, and therefore, the decisions made may be erroneous. If the thinking patterns are flawed, negative attitudes can reinforce stereotypes [4]. In health contexts, this is problematic because clinical judgments can be biased and adversely affect health outcomes. The Joint Commission provides the following example [3]: A group of physicians congregate to examine a child's x-rays but has not been able to reach a diagnostic consensus. Another physician with no knowledge of the case is passing by, sees the x-rays, and says "Cystic fibrosis." The group of physicians was

aware that the child is African American and had dismissed cystic fibrosis because it is less common among Black children than White children.

The purpose of this course is to provide health professionals an overview of implicit bias. This includes an exploration of definitions of implicit and explicit bias. The nature and dynamics of implicit biases and how they can affect health outcomes will be discussed. Finally, because implicit biases are unconscious, strategies will be reviewed to assist in raising professionals' awareness of and interventions to reduce them.

## DEFINITIONS OF IMPLICIT BIAS AND OTHER TERMINOLOGIES

### IMPLICIT VS. EXPLICIT BIAS

In a sociocultural context, biases are generally defined as negative evaluations of a particular social group relative to another group. Explicit biases are conscious, whereby an individual is fully aware of his/her attitudes and there may be intentional behaviors related to these attitudes [5]. For example, an individual may openly endorse a belief that women are weak and men are strong. This bias is fully conscious and is made explicitly known. The individual's ideas may then be reflected in his/her work as a manager.

FitzGerald and Hurst assert that there are cases in which implicit cognitive processes are involved in biases and conscious availability, controllability, and mental resources are not [6]. The term "implicit bias" refers to the unconscious attitudes and evaluations held by individuals. These individuals do not necessarily endorse the bias, but the embedded beliefs/attitudes can negatively affect their behaviors [2; 7; 8; 9]. Some have asserted that the cognitive processes that dictate implicit and explicit biases are separate and independent [9].

Implicit biases can start as early as 3 years of age. As children age, they may begin to become more egalitarian in what they explicitly endorse, but their implicit biases may not necessarily change in accordance to these outward expressions [10]. Because implicit biases occur on the subconscious or unconscious level, particular social attributes (e.g., skin color) can quietly and insidiously affect perceptions and behaviors [11]. According to Georgetown University's National Center on Cultural Competency, social characteristics that can trigger implicit biases include [12]:

- Age
- Disability
- Education

- English language proficiency and fluency
- Ethnicity
- Health status
- Disease/diagnosis (e.g., HIV/AIDS)
- Insurance
- Obesity
- Race
- Socioeconomic status
- Sexual orientation, gender identity, or gender expression
- Skin tone
- Substance use

An alternative way of conceptualizing implicit bias is that an unconscious evaluation is only negative if it has further adverse consequences on a group that is already disadvantaged or produces inequities [6; 13]. Disadvantaged groups are marginalized in the healthcare system and vulnerable on multiple levels; health professionals' implicit biases can further exacerbate these existing disadvantages [13].

When the concept of implicit bias was introduced in the 1990s, it was thought that implicit biases could be directly linked to behavior. Despite the decades of empirical research, many questions, controversies, and debates remain about the dynamics and pathways of implicit biases [2].

#### **OTHER COMMON TERMINOLOGIES**

In addition to understanding implicit and explicit bias, there is additional terminology related to these concepts that requires specific definition.

##### **Cultural Competence**

Cultural competence is broadly defined as practitioners' knowledge of and ability to apply cultural information and appreciation of a different group's cultural and belief systems to their work [14]. It is a dynamic process, meaning that there is no endpoint to the journey to becoming culturally aware, sensitive, and competent. Some have argued that cultural curiosity is a vital aspect of this approach.

##### **Cultural Humility**

Cultural humility refers to an attitude of humbleness, acknowledging one's limitations in the cultural knowledge of groups. Practitioners who apply cultural humility readily concede that they are not experts in others' cultures and that there are aspects of culture and social experiences that they do not know. From this perspective, patients are considered teachers of the cultural norms, beliefs, and value systems of their group, while practitioners are the learners [15]. Cultural humility is a lifelong process involving reflexivity, self-evaluation, and self-critique [16].

##### **Discrimination**

Discrimination has traditionally been viewed as the outcome of prejudice [17]. It encompasses overt or hidden actions, behaviors, or practices of members in a dominant group against members of a subordinate group [18]. Discrimination has also been further categorized as lifetime discrimination, which consists of major discreet discriminatory events, or everyday discrimination, which is subtle, continual, and part of day-to-day life and can have a cumulative effect on individuals [19].

##### **Diversity**

Diversity "encompasses differences in and among societal groups based on race, ethnicity, gender, age, physical/mental abilities, religion, sexual orientation, and other distinguishing characteristics" [20]. Diversity is often conceptualized into singular dimensions as opposed to multiple and intersecting diversity factors [21].

##### **Intersectionality**

Intersectionality is a term to describe the multiple facets of identity, including race, gender, sexual orientation, religion, sex, and age. These facets are not mutually exclusive, and the meanings that are ascribed to these identities are inter-related and interact to create a whole [22].

##### **Prejudice**

Prejudice is a generally negative feeling, attitude, or stereotype against members of a group [23]. It is important not to equate prejudice and racism, although the two concepts are related. All humans have prejudices, but not all individuals are racist. The popular definition is that "prejudice plus power equals racism" [23]. Prejudice stems from the process of ascribing every member of a group with the same attribute [24].

##### **Race**

Race is linked to biology. Race is partially defined by physical markers (e.g., skin or hair color) and is generally used as a mechanism for classification [25]. It does not refer to cultural institutions or patterns. In modern history, skin color has been used to classify people and to imply that there are distinct biologic differences within human populations [26]. Historically, the U.S. Census has defined race according to ancestry and blood quantum; today, it is based on self-classification [26].

There are scholars who assert that race is socially constructed without any biological component [27]. For example, racial characteristics are also assigned based on differential power and privilege, leading to different statuses among groups [28].

## Racism

Racism is the “systematic subordination of members of targeted racial groups who have relatively little social power...by members of the agent racial group who have relatively more social power” [29]. Racism is perpetuated and reinforced by social values, norms, and institutions.

There is some controversy regarding whether unconscious (implicit) racism exists. Experts assert that images embedded in our unconscious are the result of socialization and personal observations, and negative attributes may be unconsciously applied to racial minority groups [30]. These implicit attributes affect individuals’ thoughts and behaviors without a conscious awareness.

Structural racism refers to the laws, policies, and institutional norms and ideologies that systematically reinforce inequities resulting in differential access to services such as health care, education, employment, and housing for racial and ethnic minorities [31; 32].

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## MEASUREMENT OF IMPLICIT BIAS: A FOCUS ON THE IAT

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Project Implicit is a research project sponsored by Harvard University and devoted to the study and monitoring of implicit biases. It houses the Implicit Association Test (IAT), which is one of the most widely utilized standardized instruments to measure implicit biases. The IAT is based on the premise that implicit bias is an objective and discreet phenomenon that can be measured in a quantitative manner. Developed and first introduced in 1998, it is an online test that assesses implicit bias by measuring how quickly people make associations between targeted categories with a list of adjectives [33]. For example, research participants might be assessed for their implicit biases by seeing how rapidly they make evaluations among the two groups/categories career/family and male/female. Participants tend to more easily affiliate terms for which they hold implicit or explicit biases. So, unconscious biases are measured by how quickly research participants respond to stereotypical pairings (e.g., career/male and family/female). The larger the difference between the individual’s performance between the two groups, the stronger the degree of bias [34; 35]. Since 2006, more than 4.6 million individuals have taken the IAT, and results indicate that the general population holds implicit biases [3].

## interactive activity

Visit <https://implicit.harvard.edu/implicit> and complete an assessment. Does it reflect your perception of your own biases? Did you learn anything about yourself?

Measuring implicit bias is complex, because it requires an instrument that is able to access underlying unconscious processes. While many of the studies on implicit biases have employed the IAT, there are other measures available. They fall into three general categories: the IAT and its variants, priming methods, and miscellaneous measures, such as self-report, role-playing, and computer mouse movements [36]. This course will focus on the IAT, as it is the most commonly employed instrument.

The IAT is not without controversy. One of the debates involves whether IAT scores focus on a cognitive state or if they reflect a personality trait. If it is the latter, the IAT’s value as a diagnostic screening tool is diminished [37]. There is also concern with its validity in specific arenas, including jury selection and hiring [37]. Some also maintain that the IAT is sensitive to social context and may not accurately predict behavior [37]. Essentially, a high IAT score reflecting implicit biases does not necessarily link to discriminating behaviors, and correlation should not imply causation. A meta-analysis involving 87,418 research participants found no evidence that changes in implicit biases affected explicit behaviors [38].

## EXTENT OF IMPLICIT BIASES AND RISK FACTORS

Among the more than 4 million participants who have completed the IAT, individuals generally exhibited implicit preference for White faces over Black or Asian faces. They also held biases for light skin over dark skin, heterosexual over gender and sexual minorities (LGBTQ+), and young over old [39]. The Pew Research Center also conducted an exploratory study on implicit biases, focusing on the extent to which individuals adhered to implicit racial biases [40]. A total of 2,517 IATs were completed and used for the analysis. Almost 75% of the respondents exhibited some level of implicit racial biases. Only 20% to 30% did not exhibit or showed very little implicit bias against the minority racial groups tested. Approximately half of all single-race White individuals displayed an implicit preference for White faces over Black faces. For single-race Black individuals, 45% had implicit preference for their own group. For biracial White/Black adults, 23% were neutral. In addition, 22% of biracial White/Asian participants had no or minimal implicit racial biases. However, 42% of the White/Black biracial adults leaned toward a pro-White bias.

In another interesting field experiment, although not specifically examining implicit bias, resumes with names commonly associated with African American or White candidates were submitted to hiring officers [41]. Researchers found that resumes with White-sounding names were 50% more likely to receive callbacks than resumes with African American-sounding names [41]. The underlying causes of this gap were not explored.

Implicit bias related to sex and gender is also significant. A survey of emergency medicine and obstetrics/gynecology residency programs in the United States sought to examine the relationship between biases related to perceptions of leadership and gender [42]. In general, residents in both programs (regardless of gender) tended to favor men as leaders. Male residents had greater implicit biases compared with their female counterparts.

Other forms of implicit bias can affect the provision of health and mental health care. One online survey examining anti-fat biases was provided to 4,732 first-year medical students [43]. Respondents completed the IAT, two measures of explicit bias, and an anti-fat attitudes instrument. Nearly 75% of the respondents were found to hold implicit anti-fat biases. Interestingly, these biases were comparable to the scope of implicit racial biases. Male sex, non-Black race, and lower body mass index (BMI) predicted holding these implicit biases.

Certain conditions or environmental risk factors are associated with an increased risk for certain implicit biases, including [44; 45]:

- Stressful emotional states (e.g., anger, frustration)
- Uncertainty
- Low-effort cognitive processing
- Time pressure
- Lack of feedback
- Feeling behind with work
- Lack of guidance
- Long hours
- Overcrowding
- High-crises environments
- Mentally taxing tasks
- Juggling competing tasks

## THEORETIC EXPLANATIONS AND CONTROVERSIES

A variety of theoretical frameworks have been used to explore the causes, nature, and dynamics of implicit biases. Each of the theories is described in depth, with space given to explore controversies and debates about the etiology of implicit bias.

### SOCIAL PSYCHOLOGICAL AND COGNITIVE THEORETICAL FRAMEWORKS

One of the main goals of social psychology is to understand how attitudes and belief structures influence behaviors. Based on frameworks from both social and cognitive psychology, many theoretical frameworks used to explain implicit bias revolve around the concept of social cognition. One branch of cognitive theory focuses on the role of implicit or nondeclarative memory. Experts believe that this type of memory allows certain behaviors to be performed with very little conscious awareness or active thought. Examples include tooth brushing, tying shoelaces, and even driving. To take this concept one step farther, implicit memories may also underlie social attitudes and stereotype attributions [46]. This is referred to as implicit social cognition. From this perspective, implicit biases are automatic expressions based on belonging to certain social groups [47]. The IAT is premised on the role of implicit memory and past experiences in predicting behavior without explicit memory triggering [48].

Another branch of cognitive theory used to describe implicit biases involves heuristics. When quick decisions are required under conditions of uncertainty or fatigue, and/or when there is a tremendous amount of information to assimilate without sufficient time to process, decision-makers resort to heuristics [49]. Heuristics are essentially mental short cuts that facilitate (usually unconscious) rules that promote automatic processing [50]. However, these rules can also be influenced by socialization factors, which could then affect any unconscious or latent cognitive associations about power, advantage, and privilege. Family, friends, media, school, religion, and other social institutions all play a role in developing and perpetuating implicit and explicit stereotypes, and cognitive evaluations can be primed or triggered by an environmental cue or experience [51]. When a heuristic is activated, an implicit memory or bias may be triggered simultaneously [47]. This is also known as the dual-process model of information processing [50].

### BEHAVIORAL OR FUNCTIONAL PERSPECTIVES

Behavioral or functional theorists argue that implicit bias is not necessarily a latent or unconscious cognitive structure. Instead, this perspective recognizes implicit bias as a group-based behavior [52]. Behavior is biased if it is influenced by social cues indicating the social group to which someone belongs [52]. Social cues can occur rapidly and unintentionally, which ultimately leads to automatic or implicit effects on behavior. The appeal of a behavioral or functional approach to implicit bias is that it is amoral; that is, it is value- and judgment-free [52]. Rather than viewing implicit bias as an invisible force (i.e., unconscious cognitive structure), it is considered a normal behavior [53].

### NEUROSCIENTIFIC PERSPECTIVES

Implicit bias has neuroscientific roots as well and has been linked to functions of the amygdala [2; 54]. The amygdala is located in the temporal lobe of the brain, and it communicates with the hypothalamus and plays a large role in memory. When situations are emotionally charged, the amygdala is activated and connects the event to memory, which is why individuals tend to have better recall of emotional events. This area of the brain is also implicated in processing fear. Neuroscientific studies on implicit biases typically use functional magnetic resonance imaging (fMRI) to visualize amygdala activation during specific behaviors or events. In experimental studies, when White research subjects were shown photos of Black faces, their amygdala appeared to be more activated compared to when they viewed White faces [55]. This trend toward greater activation when exposed to view the faces of persons whose race differs from the viewer starts in adolescence and appears to increase with age [54]. This speaks to the role of socialization in the developmental process [54].

It may be that the activation of the amygdala is an evolutionary threat response to an outgroup [56]. Another potential explanation is that the activation of the amygdala is due to the fear of appearing prejudiced to others who will disapprove of the bias [56]. The neuroscientific perspective of implicit bias is controversial. While initial empirical studies appear to link implicit bias to amygdala activation, many researchers argue this relationship is too simplistic [2].

### STRUCTURAL OR CRITICAL THEORY

Many scholars and policymakers are concerned about the narrow theoretical views that researchers of implicit bias have taken. By focusing on unconscious cognitive structures, social cognition and neuroscientific theories miss the opportunity to also address the role of macro or systemic factors in contributing to health inequities [9; 57]. By focusing on the neurobiology of implicit bias, for example, racism and bias is attributed to

central nervous system function, releasing the individual from any control or responsibility. However, the historical legacy of prejudice and bias has roots in economic and structural issues that produce inequities [58]. Larger organizational, institutional, societal, and cultural forces contribute, perpetuate, and reinforce implicit and explicit biases, racism, and discrimination. Psychological and neuroscientific approaches ultimately decontextualize racism [9; 57].

In response to this conflict, a systems-based practice has been proposed [59]. This type of practice emphasizes the role of sociocultural determinants of health outcome and the fact that health inequities stem from larger systemic forces. As a result, medical and health education and training should focus on how patients' health and well-being may reflect structural vulnerabilities driven in large part by social, cultural, economic, and institutional forces. Health and mental health professionals also require social change and advocacy skills to ensure that they can effect change at the organizational and institutional levels [59].

Implicit bias is not a new topic; it has been discussed and studied for decades in the empirical literature. Because implicit bias is a complex and multifaceted phenomenon, it is important to recognize that there may be no one single theory that can fully explain its etiology.

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## CONSEQUENCES OF IMPLICIT BIASES

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### HEALTH DISPARITIES

Implicit bias has been linked to a variety of health disparities [1]. Health disparities are differences in health status or disease that systematically and adversely affect less advantaged groups [60]. These inequities are often linked to historical and current unequal distribution of resources due to poverty, structural inequities, insufficient access to health care, and/or environmental barriers and threats [61]. Healthy People 2030 defines a health disparity as [62]:

...a particular type of health difference that is closely linked with social, economic, and/or environmental disadvantage. Health disparities adversely affect groups of people who have systematically experienced greater obstacles to health based on their racial or ethnic group; religion; socioeconomic status; gender; age; mental health; cognitive, sensory, or physical disability; sexual orientation or gender identity; geographic location; or other characteristics historically linked to discrimination or exclusion.



As noted, in 2003, the Institute of Medicine implicated implicit bias in the development and continued health disparities in the United States [1]. Despite progress made to lessen the gaps among different groups, health disparities continue to exist. One example is racial disparities in life expectancy among Black and White individuals in the United States. Life expectancy for Black men is 4.4 years lower than White men; for Black women, it is 2.9 years lower compared with White women [63]. Hypertension, diabetes, and obesity are more prevalent in non-Hispanic Black populations compared with non-Hispanic White groups (25%, 49%, and 59% higher, respectively) [64]. In one study, African American and Latina women were more likely to experience cesarean deliveries than their White counterparts, even after controlling for medically necessary procedures [65]. This places African American and Latina women at greater risk of infection and maternal mortality.

Gender health disparities have also been demonstrated. Generally, self-rated physical health (considered one of the best proxies to health) is poorer among women than men. Depression is also more common among women than men [66]. Lesbian and bisexual women report higher rates of depression and are more likely than non-gay women to engage risk behaviors such as smoking and binge drinking, perhaps as a result of LGBTQ+-related stressors. They are also less likely to access healthcare services [67].

Socioeconomic status also affects health care engagement and quality. In a study of patients seeking treatment for thoracic trauma, those without insurance were 1.9 times more likely to die compared with those with private insurance [68].

#### **CLINICAL DECISIONS AND PROVIDER-PATIENT INTERACTIONS**

In an ideal situation, health professionals would be explicitly and implicitly objective and clinical decisions would be completely free of bias. However, healthcare providers have implicit (and explicit) biases at a rate comparable to that of the general population [6; 69]. It is possible that these implicit biases shape healthcare professionals' behaviors, communications, and interactions, which may produce differences in help-seeking, diagnoses, and ultimately treatments and interventions [69]. They may also unwittingly produce professional behaviors, attitudes, and interactions that reduce patients' trust and comfort with their provider, leading to earlier termination of visits and/or reduced adherence and follow-up [7].

In a landmark 2007 study, a total of 287 internal medicine physicians and medical residents were randomized to receive a case vignette of an either Black or White patient with coronary artery disease [70]. All participants were also administered the IAT. When asked about perceived level of cooperativeness of the White or Black patient from the vignette, there were no differences in their explicit statements regarding cooperativeness. Yet, the IAT scores did show differences, with scores showing that physicians and residents had implicit preferences for the White patients. Participants with greater implicit preference for White patients (as reflected by IAT score) were more likely to select thrombolysis to treat the White patient than the Black patient [70]. This led to the possible conclusion that implicit racial bias can influence clinical decisions regarding treatment and may contribute to racial health disparities. However, some argue that using vignettes depicting hypothetical situations does not accurately reflect real-life conditions that require rapid decision-making under stress and uncertainty.

#### **PATIENTS' PERCEPTIONS OF CARE**

It has been hypothesized that providers' levels of bias affect the ratings of patient-centered care [34]. Patient-centered care has been defined as patients' positive ratings in the areas of perception of provider concern, provider answering patients' questions, provider integrity, and provider knowledge of the patient. Using data from 134 health providers who completed the IAT, a total of 2,908 diverse racial and ethnic minority patients participated in a telephone survey. Researchers found that for providers who scored high on levels of implicit bias, African American patients' ratings for all dimensions of patient-centered care were low compared with their White patient counterparts. Latinx patient ratings were low regardless of level of implicit bias.

A 2013 study recorded clinical interactions between 112 low-income African American patients and their 14 non-African American physicians for approximately two years [71]. Providers' implicit biases were also assessed using the IAT. In general, the physicians talked more than the patients; however, physicians with higher implicit bias scores also had a higher ratio of physician-to-patient talk time. Patients with higher levels of perceived discrimination had a lower ratio of physician-to-patient talk time (i.e., spoke more than those with lower reported perceived discrimination). A lower ratio of physician-patient talk time correlated to decreased likelihood of adherence.

Another study assessed 40 primary care physicians and 269 patients [72]. The IAT was administered to both groups, and their interactions were recorded and observed for verbal dominance (defined as the time of physician participation relative to patient participation). When physicians scored higher on measures of implicit bias, there was 9% more verbal dominance on the part of the physicians in the visits with Black patients and 11% greater in interactions with White patients. Physicians with higher implicit bias scores and lower verbal dominance also received lower scores on patient ratings on interpersonal care, particularly from Black patients [72].

In focus groups with racially and ethnically diverse patients who sought medical care for themselves or their children in New York City, participants reported perceptions of discrimination in health care [73]. They reported that healthcare professionals often made them feel less than human, with varying amounts of respect and courtesy. Some observed differences in treatment compared with White patients. One Black woman reported [73]:

When the doctor came in [after a surgery], she proceeded to show me how I had to get up because I'm being released that day "whether I like it or not"... She yanked the first snap on the left leg...So I'm thinking, 'I'm human!' And she was courteous to the White lady [in the next bed], and I've got just as much age as her. I qualify on the level and scale of human being as her, but I didn't feel that from the doctor.

Another participant was a Latino physician who presented to the emergency department. He described the following [73]:

They put me sort of in the corner [in the emergency department] and I can't talk very well because I can't breathe so well. The nurse comes over to me and actually says, "Tu tiene tu Medicaid?" I whispered out, "I'm a doctor...and I have insurance." I said it in perfect English. Literally, the color on her face went completely white...Within two minutes there was an orthopedic team around me...I kept wondering about what if I hadn't been a doctor, you know? Pretty eye opening and very sad.

These reports are illustrative of many minority patients' experiences with implicit and explicit racial/ethnic biases. Not surprisingly, these biases adversely affect patients' views of their clinical interactions with providers and ultimately contribute to their mistrust of the healthcare system.

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## DEVELOPMENTAL MODEL TO RECOGNIZING AND REDUCING IMPLICIT BIAS

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There are no easy answers to raising awareness and reducing health providers' implicit bias. Each provider may be in a different developmental stage in terms of awareness, understanding, acceptance, and application of implicit bias to their practice. A developmental model for intercultural sensitivity training has been established to help identify where individuals may be in this developmental journey [74; 75]. It is important to recognize that the process of becoming more self-aware is fluid; reaching one stage does not necessarily mean that it is "conquered" or that there will not be additional work to do in that stage. As a dynamic process, it is possible to move back and forth as stress and uncertainty triggers implicit biases [74]. This developmental model includes six stages:

- **Denial:** In this stage, the individual has no awareness of the existence of cultural differences between oneself and members of other cultural groups and subgroups. Individuals in this stage have no awareness of implicit bias and cannot distinguish between explicit and implicit biases.
- **Defense:** In this stage, the person may accept that implicit biases exist but does not acknowledge that implicit biases exist within themselves.
- **Minimization:** An individual in this stage acknowledges that implicit biases may exist in their colleagues and possibly themselves. However, he or she is uncertain of their consequences and adverse effects. Furthermore, the person believes he or she is able to treat patients in an objective manner.
- **Acceptance:** In the acceptance stage, the individual recognizes and acknowledges the role of implicit biases and how implicit biases influence interactions with patients.
- **Adaptation:** Those in the adaptation stage self-reflect and acknowledge that they have unrecognized implicit biases. Not only is there an acknowledgement of the existence of implicit bias, these people begin to actively work to reduce the potential impact of implicit biases on interactions with patients.
- **Integration:** At this stage, the health professional works to incorporate change in their day-to-day practice in order to mitigate the effects of their implicit biases on various levels—from the patient level to the organization level.

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## CREATING A SAFE ENVIRONMENT

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Creating a safe environment is the essential first step to exploring issues related to implicit bias. Discussions of race, stereotypes, privilege, and implicit bias, all of which are very complex, can be volatile or produce heightened emotions. When individuals do not feel their voices are heard and/or valued, negative emotions or a “fight-or-flight” response can be triggered [76]. This may manifest as yelling, demonstrations of anger, or crying or leaving the room or withdrawing and remaining silent [76].

Creating and fostering a sense of psychological safety in the learning environment is crucial. Psychological safety results when individuals feel that their opinions, views, thoughts, and contributions are valued despite tension, conflict, and discomfort. This allows the individual to feel that their identity is intact [76]. When psychological safety is threatened, individuals’ energies are primarily expended on coping rather than learning [76]. As such, interventions should not seek to confront individuals or make them feel guilty and/or responsible [77].

When implicit bias interventions or assessments are planned, facilitators should be open, approachable, non-threatening, and knowledgeable; this will help create a safe and inclusive learning environment [77]. The principles of respect, integrity, and confidentiality should be communicated [77]. Facilitators who demonstrate attunement, authenticity, and power-sharing foster positive and productive dialogues about subjects such as race and identity [76]. Attunement is the capacity of an individual to tacitly comprehend the lived experiences of others, using their perspectives to provide an alternative viewpoint for others. Attunement does not involve requiring others to talk about their experiences if they are not emotionally ready [76]. Authenticity involves being honest and transparent with one’s own position in a racialized social structure and sharing one’s own experiences, feelings, and views. Being authentic also means being vulnerable [76]. Finally, power-sharing entails redistributing power in the learning environment. The education environment is typically hierarchical, with an expert holding more power than students or participants. Furthermore, other students may hold more power by virtue of being more comfortable speaking/interacting [76]. Ultimately, promoting a safe space lays a foundation for safely and effectively implementing implicit bias awareness and reduction interventions.

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## STRATEGIES TO PROMOTE AWARENESS OF IMPLICIT BIAS

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As discussed, the IAT can be used as a metric to assess professionals’ level of implicit bias on a variety of subjects, and this presupposes that implicit bias is a discrete phenomenon that can be measured quantitatively [79]. When providers are aware that implicit biases exist, discussion and education can be implemented to help reduce them and/or their impact.

Another way of facilitating awareness of providers’ implicit bias is to ask self-reflective questions about each interaction with patients. Some have suggested using SOAP (subjective, objective, assessment, and plan) notes to assist practitioners in identifying implicit biases in day-to-day interactions with patients [80]. Integrating the following questions into charts and notes can stimulate reflection about implicit bias globally and for each specific patient interaction:

- Did I think about any socioeconomic and/or environmental factors that may contribute to the health and access of this patient?
- How was my communication and interaction with this patient? Did it change from my customary pattern?
- How could my implicit biases influence care for this patient?

When reviewing the SOAP notes, providers can look for recurring themes of stereotypical perceptions, biased communication patterns, and/or types of treatment/interventions proposed and assess whether these themes could be influenced by biases related to race, ethnicity, age, gender, sexuality, or other social characteristics.

A review of empirical studies conducted on the effectiveness of interventions promoting implicit bias awareness found mixed results. At times, after a peer discussion of IAT scores, participants appeared less interested in learning and employing implicit bias reduction interventions. However, other studies have found that receiving feedback along with IAT scores resulted in a reduction in implicit bias [81]. Any feedback, education, and discussions should be structured to minimize participant defensiveness [81].

## INTERVENTIONS TO REDUCE IMPLICIT BIASES

Interventions or strategies designed to reduce implicit bias may be further categorized as change-based or control-based [58]. Change-based interventions focus on reducing or changing cognitive associations underlying implicit biases. These interventions might include challenging stereotypes. Conversely, control-based interventions involve reducing the effects of the implicit bias on the individual's behaviors [58]. These strategies include increasing awareness of biased thoughts and responses. The two types of interventions are not mutually exclusive and may be used synergistically.

### PERSPECTIVE TAKING

Perspective taking is a strategy of taking on a first-person perspective of a person in order to control one's automatic response toward individuals with certain social characteristics that might trigger implicit biases [82]. The goal is to increase psychological closeness, empathy, and connection with members of the group [4]. Engaging with media that presents a perspective (e.g., watching documentaries, reading an autobiography) can help promote better understanding of the specific group's lives, experiences, and viewpoints. In one study, participants who adopted the first-person perspectives of African Americans had more positive automatic evaluations of the targeted group [83].

### interactive activity

Consuming media that presents a viewpoint and life experience different from your own can help minimize implicit biases. Visit the following sites and consider how they might challenge or expand your perception of each group. Internet searches can help identify many more options for various social groups.

#### Think Out Loud Podcast

Young Black people share their experiences growing up in Portland, Oregon.

<https://podcasts.apple.com/us/podcast/young-black-people-share-their-experiences-growing/id274122573?i=1000496652363>

#### George Takei: Growing Up Asian-American

This PBS clip is a brief introduction, and the subject can be further explored in Takei's book *They Called Us Enemy*.

<https://www.pbs.org/wnet/pioneers-of-television/video/george-takei-growing-up-asian-american>

#### Seattle Public Library LGBTQ Staff Picks

A reading list including books and films focusing on LGBTQ+ life, culture, history, and politics.

<https://www.spl.org/programs-and-services/social-justice/lgbtq/lgbt-staff-picks>

## EMPATHY INTERVENTIONS

Promoting positive emotions such as empathy and compassion can help reduce implicit biases. This can involve strategies like perspective taking and role playing [77]. In a study examining analgesic prescription disparities, nurses were shown photos of White or African American patients exhibiting pain and were asked to recommend how much pain medication was needed; a control group was not shown photos. Those who were shown images of patients in pain displayed no differences in recommended dosage along racial lines; however, those who did not see the images averaged higher recommended dosages for White patients compared with Black patients [84]. This suggests that professionals' level of empathy (enhanced by seeing the patient in pain) affected prescription recommendations.

In a study of healthcare professionals randomly assigned to an empathy-inducing group or a control group, participants were given the IAT to measure implicit bias prior to and following the intervention. Level of implicit bias among participants in the empathy-inducing group decreased significantly compared with their control group counterparts [85].

### INDIVIDUATION

Individuation is an implicit bias reduction intervention that involves obtaining specific information about the individual and relying on personal characteristics instead of stereotypes of the group to which he or she belongs [4; 82]. The key is to concentrate on the person's specific experiences, achievements, personality traits, qualifications, and other personal attributes rather than focusing on gender, race, ethnicity, age, ability, and other social attributes, all of which can activate implicit biases. When providers lack relevant information, they are more likely to fill in data with stereotypes, in some cases unconsciously. Time constraints and job stress increase the likelihood of this occurring [69].

### MINDFULNESS

Mindfulness requires stopping oneself and deliberately emptying one's mind of distractions or allowing distractions to drift through one's mind unimpeded, focusing only on the moment; judgment and assumptions are set aside. This approach involves regulating one's emotions, responses, and attention to return to the present moment, which can reduce stress and anxiety [86]. There is evidence that mindfulness can help regulate biological and emotional responses and can have a positive effect on attention and habit formation [4]. A mindfulness activity assists individuals to be more aware of their thoughts and sensations. This focus on deliberation moves the practitioner away from a reliance on instincts, which is the foundation of implicit bias-affected practice [4; 87].

Mindfulness approaches include yoga, meditation, and guided imagery. Additional resources to encourage a mindfulness practice are provided later in this course.

Goldstein has developed the STOP technique as a practical approach to engage in mindfulness in any moment [88]. STOP is an acronym for:

- Stop
- Take a breath
- Observe
- Proceed

### interactive activity

Visit the following website to view a short animated video on the STOP technique. After viewing the video, consider how you can incorporate the technique into your work.  
<https://elishagoldstein.com/short-animated-stop-practice-elisha-goldstein-phd>

Mindfulness practice has been explored as a technique to reduce activation or triggering of implicit bias, enhance awareness of and ability to control implicit biases that arise, and increase capacity for compassion and empathy toward patients by reducing stress, exhaustion, and compassion fatigue [89]. One study examined the effectiveness of a loving-kindness meditation practice training in improving implicit bias toward African Americans and unhoused persons. One hundred one non-Black adults were randomized to one of three groups: a six-week loving-kindness mindfulness practice, a six-week loving-kindness discussion, or the waitlist control. The IAT was used to measure implicit biases, and the results showed that the loving-kindness meditation practice decreased levels of implicit biases toward both groups [90].

There is also some novel evidence that mindfulness may have neurologic implications. For example, one study showed decreased amygdala activation after a mindfulness meditation [91]. However, additional studies are required in this area before conclusions can be reached.

### COUNTER-STEREOTYPICAL IMAGING

Counter-stereotypical imaging approaches involve presenting an image, idea, or construct that is counter to the oversimplified stereotypes typically held regarding members of a specific group. In one study, participants were asked to imagine either a strong woman (the experimental condition) or a gender-neutral event (the control condition) [92]. Researchers found that participants in the experimental condition exhibited lower levels of implicit gender bias. Similarly, exposure to female leaders was found to reduce implicit gender bias [93].

Whether via increased contact with stigmatized groups to contradict prevailing stereotypes or simply exposure to counter-stereotypical imaging, it is possible to unlearn associations underlying various implicit biases. If the social environment is important in priming positive evaluations, having more positive visual images of members in stigmatized groups can help reduce implicit biases [94]. Some have suggested that even just hanging photos and having computer screensavers reflecting positive images of various social groups could help to reduce negative associations [94].

### EFFECTIVENESS OF IMPLICIT BIAS INTERVENTIONS

The effectiveness of implicit bias trainings and interventions has been scrutinized. In a 2019 systematic review, different types of implicit bias reduction interventions were evaluated. A meta-analysis of empirical studies published between May 2005 and April 2015 identified eight different classifications of interventions [13]:

- Engaging with others' perspectives, consciousness-raising, or imagining contact with outgroup: Participants either imagine how the outgroup thinks and feels, imagine having contact with the outgroup, or are made aware of the way the outgroup is marginalized or given new information about the outgroup.
- Identifying the self with the outgroup: Participants perform tasks that lessen barriers between themselves and the outgroup.
- Exposure to counter-stereotypical exemplars: Participants are exposed to exemplars that contradict negative stereotypes of the outgroup.
- Appeal to egalitarian values: Participants are encouraged to activate egalitarian goals or think about multiculturalism, cooperation, or tolerance.
- Evaluative conditioning: Participants perform tasks to strengthen counter-stereotypical associations.
- Inducing emotion: Emotions or moods are induced in participants.
- Intentional strategies to overcome biases: Participants are instructed to implement strategies to over-ride or suppress their biases.
- Pharmacotherapy

Interventions found to be the most effective were, in order from most to least, [13]:

- Intentional strategies to overcome biases
- Exposure to counter-stereotypical exemplars
- Identifying self with the outgroup
- Evaluative conditioning
- Inducing emotions

In general, the sample sizes were small. It is also unclear how generalizable the findings are, given many of the research participants were college psychology students. The 30 studies included in the meta-analysis were cross-sectional (not longitudinal) and only measured short-term outcomes, and there is some concern about “one shot” interventions, given the fact that implicit biases are deeply embedded. Would simply acknowledging the existence of implicit biases be sufficient to eliminate them [95; 96]? Or would such a confession act as an illusion to having self-actualized and moved beyond the bias [95]?

Optimally, implicit bias interventions involve continual practice to address deeply habitual implicit biases or interventions that target structural factors [95; 96].

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## ROLE OF INTERPROFESSIONAL COLLABORATION AND PRACTICE AND IMPLICIT BIASES

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The study of implicit bias is appropriately interdisciplinary, representing social psychology, medicine, health psychology, neuroscience, counseling, mental health, gerontology, LGBTQ+ studies, religious studies, and disability studies [13]. Therefore, implicit bias empirical research and curricula training development lends itself well to interprofessional collaboration and practice (ICP).

One of the core features of IPC is sharing—professionals from different disciplines share their philosophies, values, perspectives, data, and strategies for planning of interventions [97]. IPC also involves the sharing of roles, responsibilities, decision making, and power [98]. Everyone on the team employs their expertise, knowledge, and skills, working collectively on a shared, patient-centered goal or outcome [98; 99].

Another feature of IPC is interdependency. Instead of working in an autonomous manner, each team member’s contributions are valued and maximized, which ultimately leads to synergy [97]. At the heart of this are two other key features: mutual trust/respect and communication [99]. In order to share responsibilities, the differing roles and expertise are respected.

Experts have recommended that a structural or critical theoretical perspective be integrated into core competencies in healthcare education to teach students about implicit bias, racism, and health disparities [100]. This includes [100]:

- **Values/ethics:** The ethical duty for health professionals to partner and collaborate to advocate for the elimination of policies that promote the perpetuation of implicit bias, racism, and health disparities among marginalized populations.
- **Roles/responsibilities:** One of the primary roles and responsibilities of health professionals is to analyze how institutional and organizational factors promote racism and implicit bias and how these factors contribute to health disparities. This analysis should extend to include one’s own position in this structure.
- **Interprofessional communication:** Ongoing discussions of implicit bias, perspective taking, and counter-stereotypical dialogues should be woven into day-to-day practice with colleagues from diverse disciplines.
- **Teams/teamwork:** Health professionals should develop meaningful contacts with marginalized communities in order to better understand whom they are serving.

Adopting approaches from the fields of education, gender studies, sociology, psychology, and race/ethnic studies can help build curricula that represent a variety of disciplines [78]. Students can learn about and discuss implicit bias and its impact, not simply from a health outcomes perspective but holistically. Skills in problem-solving, communication, leadership, and teamwork should be included, so students can effect positive social change [78].

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## CONCLUSION

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In the more than three decades since the introduction of the IAT, the implicit bias knowledge base has grown significantly. It is clear that most people in the general population hold implicit biases, and health professionals are no different. While there continue to be controversies regarding the nature, dynamics, and etiology of implicit biases, it should not be ignored as a contributor to health disparities, patient dissatisfaction, and suboptimal care. Given the complex and multifaceted nature of this phenomenon, the solutions to raise individuals’ awareness and reduce implicit bias are diverse and evolving.

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## RESOURCES

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**American Bar Association  
Diversity and Inclusion Center  
Toolkits and Projects**

<https://www.americanbar.org/groups/diversity/resources/toolkits>

**National Implicit Bias Network**

<https://implicitbias.net/resources/resources-by-category>

**The Ohio State University**

**The Women's Place: Implicit Bias Resources**

<https://womensplace.osu.edu/resources/implicit-bias-resources>

**The Ohio State University**

**Kirwan Institute for the Study of Race and Ethnicity**

<http://kirwaninstitute.osu.edu>

**University of California, Los Angeles**

**Equity, Diversity, and Inclusion: Implicit Bias**

<https://equity.ucla.edu/know/implicit-bias>

**University of California, San Francisco,**

**Office of Diversity and Outreach**

**Unconscious Bias Resources**

<https://diversity.ucsf.edu/resources/unconscious-bias-resources>

**Unconscious Bias Project**

<https://unconsciousbiasproject.org>

## MINDFULNESS RESOURCES

**University of California, San Diego**

**Center for Mindfulness**

<https://medschool.ucsd.edu/som/fmph/research/mindfulness>

**University of California, Los Angeles**

**Guided Meditations**

<https://www.uclahealth.org/marc/mindful-meditations>

**Mindful: Mindfulness for**

**Healthcare Professionals**

<https://www.mindful.org/mindfulhome-mindfulness-for-healthcare-workers-during-covid>

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## FACULTY BIOGRAPHY

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**Alice Yick Flanagan, PhD, MSW**, received her Master's in Social Work from Columbia University, School of Social Work. She has clinical experience in mental health in correctional settings, psychiatric hospitals, and community health centers. In 1997, she received her PhD from UCLA, School of Public Policy and Social Research. Dr. Yick Flanagan completed a year-long post-doctoral fellowship at Hunter College, School of Social Work in 1999. In that year she taught the course Research Methods and Violence Against Women to Masters degree students, as well as conducting qualitative research studies on death and dying in Chinese American families.

Previously acting as a faculty member at Capella University and Northcentral University, Dr. Yick Flanagan is currently a contributing faculty member at Walden University, School of Social Work, and a dissertation chair at Grand Canyon University, College of Doctoral Studies, working with Industrial Organizational Psychology doctoral students. She also serves as a consultant/subject matter expert for the New York City Board of Education and publishing companies for online curriculum development, developing practice MCAT questions in the area of psychology and sociology. Her research focus is on the area of culture and mental health in ethnic minority communities.

**COURSE TEST - #57000 IMPLICIT BIAS IN HEALTH CARE**

This is an open book test. A passing grade of at least 70% must be achieved in order to receive credit for this course.

**This 3 CE Credit Hour activity must be completed by August 31, 2024.**

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10/1/2021 to 9/30/2027  
Provider ID #217994.

DESIGNATIONS OF CREDIT: NetCE DESIGNATES THIS ACTIVITY FOR 3 CONTINUING EDUCATION CREDITS.

AGD SUBJECT CODE: 149.

1. Dr. X, a physician, acknowledges that she still has a lot to learn about different racial and ethnic minority groups. She is willing to learn from her patients and assume the role of learner. Dr. X is demonstrating
  - A) diversity.
  - B) reflexivity.
  - C) explicit bias.
  - D) cultural humility.
2. What tool is used to quantitatively measure implicit bias?
  - A) IAT
  - B) SOAP
  - C) STOP
  - D) fMRI
3. Which of the following is NOT a risk factor in triggering implicit biases for health professionals?
  - A) Uncertainty
  - B) Cognitive dissonance
  - C) Time pressure to make a rapid decision
  - D) Heavy workload and feeling behind schedule
4. How might critical theory or a structural perspective be integrated into the values and ethics of interprofessional collaboration and practice?
  - A) Advocate for more neurologic imaging studies to examine how implicit bias affects the brain.
  - B) Analyze how communications should reflect autonomous decision-making in its role in racism.
  - C) The ethical responsibility is to advocate for policies that perpetuate and reinforce implicit biases.
  - D) The role of health professionals is to focus less on the unconscious and instead emphasize explicit bias as the behaviors.
5. Which of the following statements regarding health disparities is FALSE?
  - A) Health disparities are linked to disadvantaged groups.
  - B) Health disparities refer to differences in health status and disease that are tied to structural inequities.
  - C) There are no differences in life expectancies among African Americans and White Americans.
  - D) The Institute of Medicine has implicated implicit bias in the development and continuance of health disparities.



6. An implicit bias training is offered at a hospital, and a total of 50 health professionals attend. During the breakout session, training participants are assigned to discussion groups. One nurse agrees that implicit bias is prevalent, but she is quite sure she does not hold any implicit biases. Which developmental stage might this nurse be in?
  - A) *Defense*
  - B) *Minimization*
  - C) *Structural competence*
  - D) *Counter-stereotype acceptance*
7. If psychological safety is threatened, what might be a potential outcome in implicit bias training?
  - A) *Recriminations*
  - B) *Self-confessions of guilt*
  - C) *Health disparities increase*
  - D) *Learning may be compromised*
8. As part of an implicit bias training, participants watch a film about an African American man's experiences navigating the health system and are asked to enter the protagonist's lived reality. What type of intervention is this?
  - A) *Priming*
  - B) *Attunement*
  - C) *Control strategies*
  - D) *Perspective taking*
9. Mr. A, a social worker, attempts to record personal information about his patients and not simply social characteristics. For example, he writes, "Patient is an elderly Hispanic woman, age 79 years. She lives with her daughter and is an avid pianist." What is this an example of?
  - A) *STOP*
  - B) *Priming*
  - C) *Powersharing*
  - D) *Individuation*
10. All of the following are concerns with research conducted to examine the effectiveness of implicit bias reduction interventions, EXCEPT:
  - A) *The studies conducted to examine implicit bias reduction interventions utilize cross-sectional and not longitudinal designs.*
  - B) *The studies conducted to examine implicit bias reduction interventions may not be generalizable to the general population.*
  - C) *The studies conducted to examine implicit bias reduction interventions have measured long-term but not immediate outcomes.*
  - D) *Study samples have tended to include psychology students and it is not clear whether findings can be applied to other populations.*

Go to [NetCE.com/NYDH23](https://NetCE.com/NYDH23) and click on the Get Started button.  
Enter the Customer ID and Quick Code found on the back of your booklet,  
then transfer your test answers and complete the course evaluation.

# Infection Control: The New York Requirement

This course is approved by the New York State Education Department of Health to fulfill the requirement for Infection Control Training as mandated by Chapter 786 of the Laws of 1992. Provider #OT10781.

If you have already completed infection control within the last four years, you may use this course to meet 5 hours of your general CE requirement.

## Audience

This course is designed for dental professionals in New York required to complete education to enhance their knowledge of infection control.

## Course Objective

The purpose of this course is to provide a review of current infection control practices and accepted standards, with an emphasis on the application of infection control standards and practices in dental care settings.

## Learning Objectives

Upon completion of this course, you should be able to:

1. Discuss the standards of professional conduct associated with infection control in the healthcare setting.
2. Outline the infectious disease process.
3. Describe various practices that can result in exposure to bloodborne pathogens.
4. Identify effective strategies to prevent or control infection, including precautions, isolation techniques, hand hygiene, standards for cleaning, and safe injection practices.
5. Describe the role of surveillance and reporting in an effective infection control program.
6. Discuss the impact of communicable diseases in healthcare professionals, including the necessity for preplacement evaluations, periodic health assessments, education, and postexposure prophylaxis.
7. Evaluate the impact and appropriate response to sepsis.

## Faculty

**Lori L. Alexander, MTPW, ELS, MWC**, is President of Editorial Rx, Inc., which provides medical writing and editing services on a wide variety of clinical topics and in a range of media. A medical writer and editor for more than 30 years, Ms. Alexander has written for both professional and lay audiences, with a focus on continuing education materials, medical meeting coverage, and educational resources for patients. She is the Editor Emeritus of the American Medical Writers Association (AMWA) Journal, the peer-review journal representing the largest association of medical communicators in the United States. Ms. Alexander earned a Master's degree in technical and professional writing, with a concentration in medical writing, at Northeastern University, Boston. She has also earned certification as a life sciences editor and as a medical writer.

**Carol Shenold, RN, ICP**, graduated from St. Paul's Nursing School, Dallas, Texas, achieving her diploma in nursing. Over the past thirty years she has worked in hospital nursing in various states in the areas of obstetrics, orthopedics, intensive care, surgery and general medicine.

Mrs. Shenold served as the Continuum of Care Manager for Vencor Oklahoma City, coordinating quality review, utilization review, Case Management, Infection Control, and Quality Management. During that time, the hospital achieved Accreditation with Commendation with the Joint Commission, with a score of 100.

Mrs. Shenold was previously the Infection Control Nurse for Deaconess Hospital, a 300-bed acute care facility in Oklahoma City. She is an active member of the Association for Professionals in Infection Control and Epidemiology (APIC). She worked for the Oklahoma Foundation for Medical Quality for six years.

### Faculty Disclosure

Contributing faculty, Lori L. Alexander, MTPW, ELS, MWC, has disclosed no relevant financial relationship with any product manufacturer or service provider mentioned.

Contributing faculty, Carol Shenold, RN, ICP, has disclosed no relevant financial relationship with any product manufacturer or service provider mentioned.

### Division Planner

Mark J. Szarejko, DDS, FAGD

### Director of Development and Academic Affairs

Sarah Campbell

### Division Planner/Director Disclosure

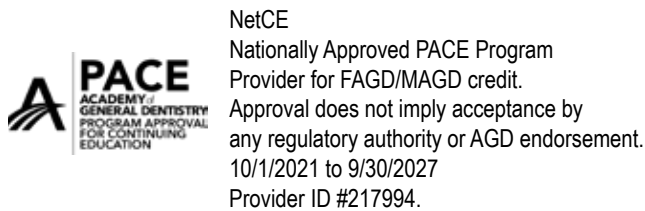
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### Designations of Credit

NetCE designates this activity for 5 continuing education credits.

AGD Subject Code 148.

### Special Approvals

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Sections marked with this symbol include evidence-based practice recommendations. The level of evidence and/or strength of recommendation, as provided by the evidence-based source, are also included so you may determine the validity or relevance of the information. These sections may be used in conjunction with the study questions and course material for better application to your daily practice.

## INTRODUCTION

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The development of formal infection control programs in hospitals and other healthcare facilities was spurred by the Joint Commission accreditation standards for infection control, published in 1976. According to the standards, accredited facilities should have a program for the surveillance, prevention, and control of healthcare-associated infections (HAIs) [1]. The most important aspect of infection control is establishing multidisciplinary programs that promote teamwork and foster an organizational culture centered on patient safety.

HAIs are one of the leading causes of death and increased morbidity for hospitalized patients and are a significant problem for healthcare providers [2]. Historically, these infections have been known as nosocomial infections or hospital-acquired infections because they develop during hospitalization. As health care has increasingly expanded beyond hospitals into outpatient settings, nursing homes, long-term care facilities, and even home care settings, the more appropriate term has become healthcare-acquired or healthcare-associated infection.

Many factors have contributed to an increase in HAIs. Advances in medical treatments have led to more patients with decreased immune function or chronic disease. The increase in the number of these patients, coupled with a shift in health care to the outpatient setting, yields a hospital population that is both more susceptible to infection and more vulnerable once infected. In addition, the increased use of invasive devices and procedures has contributed to higher rates of infection [3].

According to data published in 2014, HAIs develop in an estimated 1 in 25 hospitalized patients (excluding skilled nursing facilities); this number varies from year to year and had previously been estimated at a high of 1 in 10 [1; 4; 5; 6]. HAI data from the Centers for Disease Control and Prevention (CDC) indicate that the number is higher, at 1 in 31 patients [5]. Based on CDC-sponsored hospital surveillance data from 2018, an estimated 633,000 hospitalized patients develop an HAI each year [7]. These infections are the cause of approximately 72,000 deaths and add approximately \$28.4 to \$33.8 billion in direct medical costs annually [4; 6; 8].

Between January 2015 and December 2017, the most common types of HAIs were surgical site infections (42.4%), catheter-associated urinary tract infections (29.7%), central-line-associated bloodstream infections (25.3%), and ventilator-associated pneumonia (2.6%) [9]. Of the 355,633 reported pathogens, *Escherichia coli* was the most common pathogen across all HAIs, accounting for nearly 18% of reported infections [9].

As HAIs have become a cause for increasing concern, many national organizations, state departments of health, and professional organizations have taken additional steps to prevent or control infection in the healthcare environment. According to data from the CDC, these steps appear to be working. The 2020 *National and State Healthcare-Associated Infections (HAI) Progress Report* provides national- and state-level data about HAI incidence across four healthcare settings: acute care hospitals, critical access hospitals, inpatient rehabilitation facilities, and long-term acute care hospitals [10]. The progress report includes data gathered by the CDC's National Healthcare Safety Network (NHSN), a national HAI surveillance system that gathers data from more than 25,000 hospitals and other healthcare facilities.

Prior to 2020, the prevalence of HAIs had been declining, the result of an ongoing national collaborative effort. However, an analysis of NHSN data from acute care hospitals in 12 U.S. states found that rates of central-line-associated bloodstream infections, catheter-related urinary tract infections, and ventilator-associated events increased significantly compared with 2019, largely as a result of the COVID-19 pandemic [11]. The analysis showed that national standard infection ratios for central-line-associated bloodstream infections initially declined in the first quarter of 2020 compared with the first quarter of 2019, but then rose by 27.9%, 46.4%, and 47.0% in the second, third, and fourth quarters of the year, respectively. Ventilator-associated events rose by 44.8% in the fourth quarter of 2020 compared with the same period for 2019 [11]. While acknowledging that 2020 was an unprecedented time for hospitals, the authors of the analysis emphasized the continued need for regular review of HAI surveillance data to identify gaps in prevention [11].

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## STANDARDS OF PROFESSIONAL CONDUCT

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The increased focus on healthcare quality over the past decade has highlighted the need to prevent HAIs as part of overall efforts to enhance patient safety. These efforts have been developed by healthcare quality agencies, professional associations, advocacy organizations, healthcare regulating bodies, and policymakers [12; 13; 14; 15; 16; 17; 18; 19]. Prevention of HAIs and of methicillin-resistant *Staphylococcus aureus* (MRSA) infection are listed among safe healthcare practices established by the Agency for Healthcare Research and Quality (AHRQ) and the National Quality Forum, and prevention of HAIs was noted by the Institute of Medicine (IOM) to be one of 20 priority areas for enhancing the quality of health care [12; 13; 18]. In 2004, the Institute for Healthcare Improvement (IHI) established the 100,000 Lives Campaign as a challenge to save

100,000 patient lives through six healthcare interventions, three of which were related to HAIs: preventing central-line infections, surgical site infections, and ventilator-associated pneumonia [14]. Building on the success of the 100,000 Lives Campaign, the IHI established the 5 Million Lives Campaign in December 2006, adding six more interventions, one of which is to reduce MRSA infection [14]. In 2010, the Centers for Medicare & Medicaid Services (CMS) launched the Partnership for Patients with the goal of reducing all HAIs 40% compared to 2010 and reducing readmissions due to HAIs by 20% by focusing on transitions from one care setting to another [20]. According to data from the AHRQ, successful reductions in HAIs helped prevent 20,500 hospital deaths and saved \$7.7 billion in healthcare costs from 2014 to 2017 [20].

Regulatory bodies have also focused on HAIs. Goal 7 of the National Patient Safety Goals developed by the Joint Commission is to reduce the risk of HAIs in hospitals as well as ambulatory care/office-based surgery, long-term care, and assisted living settings [19]. Perhaps the most aggressive campaign against HAIs has come from CMS, which has suspended reimbursement of hospital costs related to three categories of HAIs it considers “reasonably preventable:” catheter-related urinary tract infection, vascular catheter-associated infection, and various surgical site infections [16; 17; 21]. However, studies have shown that this policy has not been a contributor to any decrease in the rate of HAIs, and a survey indicated that adherence to only a few prevention strategies has increased as a result of the policy [22; 23]. The policy also has the potential to lead to increased unnecessary use of antimicrobials in an effort to prevent infections [24]. Additionally, one study found that many acute care hospitals commonly listed the reimbursement restricted HAIs as “present on admission,” which mitigated the impact intended by CMS [25].

The New York Codes, Rules, and Regulations require that certain healthcare professionals who may influence the control and prevention of HAIs complete training or education regarding infection control and barrier precautions [26]. New York State has also established professional standards of conduct to ensure that infection prevention and control practices are adhered to. According to the Rules of the Board of Regents: Part 29, “failing to use scientifically accepted infection prevention techniques appropriate to each profession for the cleaning and sterilization or disinfection of instruments, devices, materials and work surfaces, utilization of protective garb, use of covers for contamination-prone equipment and the handling of sharp instruments” is considered unprofessional conduct [27]. Appropriate infection control techniques include, but are not limited to, wearing appropriate personal protective equipment, adhering to recommendations for Universal and Standard Precautions, following sterilization and disinfection standards, and using the correct equipment in the correct way [27].

Healthcare professionals have the responsibility to adhere to scientifically accepted principles and practices of infection control in all healthcare settings and to oversee and monitor those medical and ancillary personnel for whom the professional is responsible [27]. Healthcare professionals are expected to use scientifically accepted infection prevention techniques appropriate to each profession for handwashing; aseptic technique; cleaning and sterilization or disinfection of instruments, devices, materials, and work surfaces; use of protective garb; use of covers for contamination-prone equipment; and handling of sharp instruments [26; 27; 28].

### **CONSEQUENCES OF NONCOMPLIANCE WITH GUIDELINES**

The results of the CDC Study of Efficacy of Nosocomial Infection Control suggested that 6% of all HAIs could be prevented by minimal infection control efforts and 32% by “well organized and highly effective infection control programs” [29; 30]. A later review estimated that as many as 65% to 70% of cases of catheter-associated infections and 55% of cases of surgical site infections are preventable [31].

Evidence-based guidelines are at the heart of strategies to prevent and control HAIs and drug-resistant infections and address a wide range of issues from architectural design of hospitals to hand hygiene. These guidelines have been developed primarily by the CDC and the World Health Organization (WHO), infection-related organizations, and other professional societies. Some specialty organizations and quality improvement groups have summarized the guidelines for easier use in practice [2; 28; 32; 33; 34; 35; 36; 37; 38; 39; 40; 41; 42; 43; 44; 45; 46; 47; 48; 49; 50; 51; 52; 53]. Adherence to individual guidelines varies but, in general, is low. Historically, 87% of hospitals have failed to implement all of the recommended guidelines for preventing HAIs [54]. Hand hygiene is the most basic and single most important preventive measure, yet compliance rates among healthcare workers have averaged only 30% to 50% [3; 25; 42; 55; 56; 57; 58]. Decreasing the number of HAIs will require research to better understand the reasons behind lack of compliance with guidelines and to develop strategies that target those reasons.

In addition, there are professional consequences for New York healthcare professionals who do not adhere to appropriate infection control efforts. Healthcare professionals who fail to use scientifically accepted barrier precautions and state-established infection control practices may be subject to charges of professional misconduct [59]. The Office of Professional Medical Conduct may investigate on its own any suspected professional misconduct and is required to investigate each complaint received regardless of the source. The charges must state the substance of the alleged misconduct and the material facts (but not the evidence). A hearing may be called, if warranted. The results of the hearing (i.e., findings, conclusions, determinations, order) will be made public upon issuance. Any professional found guilty of misconduct shall be subject to penalties, including [60]:

- Censure and reprimand
- Suspension of license or limitation of license to a specified area or type of practice
- Revocation of license
- Annulment of license or registration
- Limitation on registration or issuance of any further license
- A fine not to exceed \$10,000 upon each specification of charges of which the respondent is determined to be guilty
- A requirement that a licensee pursue a course of education or training
- A requirement that a licensee perform up to 500 hours of public service in a manner and at a time and place as directed

## METHODS OF COMPLIANCE

The education and training of healthcare personnel are prerequisites for ensuring that Standard Precautions are understood and practiced. Education on the principles and practices for preventing transmission of infectious agents should begin during training in the health professions and be provided to anyone who has an opportunity for contact with patients or medical equipment. Education programs for healthcare personnel have been associated with sustained improvement in adherence to best practices [28].

Adherence to recommended infection control practices decreases transmission of infectious agents in healthcare settings; however, several observational studies have shown limited adherence to recommended practices by healthcare personnel. Improving adherence to infection control practices requires a multifaceted approach that incorporates continuous assessment of both the individual and the work environment. It also requires that the organizational leadership make prevention an institutional priority and integrate infection control practices into the organization's safety culture [28; 61; 62].

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## THE INFECTIOUS DISEASE PROCESS

A comprehensive description of the pathogenesis of infection is beyond the scope of this course. However, a broad overview of pathogen-host interaction will aid in the understanding of how infection develops in the healthcare setting.

A healthy human body has several defenses against infection: the skin and mucous membranes form natural barriers to infection, and immune responses (nonspecific and specific) are activated to resist micro-organisms that are able to invade. The skin can effectively protect the body from most micro-organisms unless there is physical disruption. For example, the human papillomavirus can invade the skin, and some parasites can

penetrate intact skin, but bacteria and fungi cannot [63]. Other disrupters of the natural barrier are lesions (e.g., chapped, abraded, affected by dermatitis), injury, or in the healthcare setting, invasive procedures or devices [64].

In addition to breaks in the skin, other primary entry points for micro-organisms are mucosal surfaces, such as the respiratory, gastrointestinal, and genitourinary tracts [65]. The membranes lining these tracts comprise a major internal barrier to micro-organisms due to the antimicrobial properties of their secretions. The respiratory tract filters inhaled micro-organisms, and mucociliary epithelium in the tracheobronchial tree moves them out of the lung. In the gastrointestinal tract, gastric acid, pancreatic enzymes, bile, and intestinal secretions destroy harmful micro-organisms. Nonpathogenic bacteria (commensal bacteria) make up the normal flora in the gastrointestinal tract and act as protectants against invading pathogenic bacteria. Commensal bacteria are a source of infection only if they are transmitted to another part of the body or if they are altered by the use of antibiotics [2].

HAIs are commonly caused by bacteria, but can also be caused by viruses, fungi, and parasites. These types of infection occur less frequently and often do not carry the same risks of morbidity and mortality as bacterial infections. Viral infections are more common in children than in adults and carry a high epidemic risk [1]. Fungal infections frequently occur during prolonged treatment with antibiotics and in patients who have compromised immune systems [2]. Various pathogens have different levels of pathogenicity, virulence, and infectivity.

The transmission of infection follows the cycle (the "cycle of infection") that has been described for all diseases, and humans are at the center of this cycle [2; 66]. In brief, a micro-organism requires a reservoir (a human, soil, air, or water), or a host, in which to live. The micro-organism also needs an environment that supports its survival once it exits the host and a method of transmission. Inherent properties allow micro-organisms to remain viable during transmission from a reservoir to a susceptible host, another essential factor for transmission of infection. The primary routes of transmission for infections are through the air, blood (or body fluid), contact (direct or indirect), fecal-oral route, food, animals, or insects. Once inside a host, micro-organisms thrive because of adherent properties that allow them to survive against mechanisms in the body that act to flush them out. Bacteria adhere to cell surfaces through hair-like projections, such as fibrillae, fimbriae, or pili, as well as by proteins that serve as adhesions [65]. Fimbriae and pili are found on gram-negative bacteria, whereas other types of adhesions are found with both gram-negative and gram-positive bacteria. Receptor molecules in the body act as ligands to bind the adhesions, enabling bacteria to colonize skin and mucous membranes. The virulence of the micro-organism, the integrity of the skin and membrane barriers, and patient status will determine whether colonization is followed by invasive

infection. With colonization, there is no damage to local or distant tissues and no immune reaction; with infection, bacterial toxins that break down cells and intracellular matrices are released, causing damage to local and distant tissues and prompting an immune response in the host. Bacteria continue to thrive within a host through strategies that enable them to acquire iron for nutrition and to defend against the immune response. These virulence factors enhance a micro-organism's potential for infection by interrupting or avoiding phagocytosis or living inside phagocytes [65].

A healthcare environment increases the risk of infection for two primary reasons. First, it is likely that normally sterile body sites will become exposed, allowing pathogens to cause infection through contact with mucous membranes, nonintact skin, and internal body areas [66]. Second, the likelihood of a susceptible host is high due to the vulnerable health status of patients. Especially in an era of decreased hospital stays and increased outpatient treatments, it is the sickest patients who are hospitalized, increasing the risk not only for infection to develop in these patients but also for their infection to be more severe and to be transmitted to others.

Infection is transmitted in a healthcare environment primarily through exogenous and endogenous modes. Exogenous transmission is through patient-to-patient or staff-to-patient contact. Patients who do not have infection but have bacterial colonization can act as vectors of transmission. Staff members can also act as vectors because of colonization or contamination. Endogenous infection occurs within an individual patient through displacement of commensal micro-organisms.

Factors specifically related to the healthcare environment are not common causes of HAIs [2; 67; 68]. However, consideration should be given to the prevention of infection with environmental pathogens. The CDC revised guideline related to environmental factors for infection provides clear recommendations for infection control measures according to several environment-related categories, including air (normal ventilation and filtration, as well as handling during construction or repair), water (water supply systems, ice machines, hydrotherapy tanks and pools), and environmental services (laundry, housekeeping) [41].

In general, the spread of infectious disease is prevented by eliminating the conditions necessary for the micro-organism to be transmitted from a reservoir to a susceptible host. This can be accomplished by:

- Destroying the micro-organism
- Blocking the transmission
- Protecting individuals from becoming vectors of transmission
- Decreasing the susceptibility of potential hosts

Antiseptic techniques and antibiotics will kill micro-organisms, while proper hand hygiene will block their transmission. Gloves, gowns, and masks remove healthcare professionals from the transmission cycle by protecting them from contact with micro-organisms. Contact Precautions and isolation techniques help patients avoid being vectors of transmission. Lastly, ensuring that patients and healthcare professionals are immune or vaccinated can help decrease the availability of potential hosts.

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## **HIGH-RISK PRACTICES: EXPOSURE TO BLOODBORNE PATHOGENS**

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Healthcare professionals, emergency response personnel, and public safety personnel may be exposed to a variety of bloodborne pathogens, including human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis C virus (HCV). Exposure may occur percutaneously, parenterally, or through contact with mucous membranes and nonintact skin [69].

### **PERCUTANEOUS EXPOSURE**

Percutaneous exposures may occur through the handling, disassembly, disposal, or reprocessing of contaminated needles and other sharp objects. They may also be related to the performance of procedures in which there is poor visualization (e.g., blind suturing, placing the nondominant hand next to or opposing a sharp, or performing procedures where bone spicules or metal fragments are produced). Data from the CDC National Surveillance System for Hospital Health Care Workers (NaSH) have shown that approximately 70% of percutaneous injuries occur during use of a sharp, 15% occur after use and before disposal, and 3% occur during or after disposal [70].

### **PARENTERAL EXPOSURE**

Parenteral exposures (i.e., injection with infectious material) may occur during administration of parenteral medications, sharing of blood monitoring devices (e.g., glucometers, lancets), or infusion of contaminated blood products or fluids. Generally, these exposures are the result of poor adherence to Standard Precautions and infection control guidelines.


### **MUCOUS MEMBRANE AND NONINTACT SKIN EXPOSURE**

Mucous membrane and nonintact skin exposures may occur when blood or body fluids come in direct contact with the eyes, nose, mouth, or other mucous membranes via contaminated hands, open skin lesions, or splashes or sprays of blood or body fluids (e.g., during irrigation or suctioning). Again, following established infection control guidelines greatly reduces the risk of this type of exposure.



## PRECAUTIONS AND ISOLATION TECHNIQUES

The CDC guideline for isolation precautions in hospitals, last updated in 2007, synthesizes a variety of recommendations for precautions based on the type of infection, the route of transmission, and the healthcare setting [28]. As defined by the CDC, Standard Precautions represent measures that should be followed for all patients in a healthcare facility, regardless of diagnosis or infection status. Standard Precautions apply to blood; all body fluids, secretions, and excretions except sweat, regardless of whether they contain visible blood; nonintact skin; and mucous membranes [28]. For patients who are known to have or are highly suspected to have colonization or infection, Contact Precautions should be followed. This type of precaution is designed to reduce exogenous transmission of micro-organisms through direct or indirect contact from healthcare professionals or other patients. Airborne Precautions are used for patients who have or are highly suspected of having infection that is spread by airborne droplet nuclei, such as tuberculosis, measles, or varicella. Droplet Precautions target infections that are transmitted through larger droplets generated through talking, sneezing, or coughing, such as invasive *Haemophilus influenzae* type b disease, diphtheria (pharyngeal), pertussis, group A streptococcal pharyngitis, influenza, mumps, and rubella [28].



The Infectious Diseases Society of America and Society for Healthcare Epidemiology of America recommend patients with suspected *Clostridioides difficile* infection should be placed on preemptive contact precautions pending the *C. difficile* test results if test results cannot be obtained on the same day.

(<https://www.idsociety.org/practice-guideline/clostridium-difficile>. Last accessed March 11, 2022.)

**Strength of Recommendation/Level of Evidence:**  
Strong recommendation, moderate-quality evidence

The CDC guideline includes descriptions of all the elements involved in the four types of precautions, including hand hygiene; the use of personal protection equipment (i.e., gloves, gown, face protection); placement of the patient; handling of patient-care equipment; and environmental services and occupational health. New elements of Standard Precautions added to the 2007 guideline include infection control practices

(i.e., use of masks) for special lumbar puncture procedures, safe injection practices (discussed later in this course), and respiratory hygiene/cough etiquette [28]. Recommendations in this area address the importance of educating healthcare professionals about adherence to measures to control the transmission of respiratory pathogens, especially during seasonal outbreaks of viral respiratory tract infections. In addition, the guideline states that efforts should be made to contain respiratory secretions in patients and other individuals who have signs and symptoms of a respiratory infection, beginning at the point of initial encounter in a healthcare setting. Signs should be posted to instruct patients and visitors with symptoms of respiratory infection to cover their mouths/noses when coughing or sneezing, to use and dispose of tissues, and to perform hand hygiene after contact with respiratory secretions. Masks should be offered to coughing patients and other individuals with symptoms, and such persons should be encouraged to maintain an ideal distance of at least 3 feet from others in common waiting areas.

The following descriptions of precautions are summarized from the 2007 guideline for isolation precautions [28]. Although the 2007 guideline is the most recent version, guidance regarding Ebola virus precautions and isolation has been updated and will be discussed briefly [71].

### STANDARD PRECAUTIONS

#### Hand Hygiene

The guideline includes recommendations found in the CDC guideline on hand hygiene [42]. Hand hygiene guidelines will be discussed in length later in this course.

#### Gloves

Wear gloves (clean, nonsterile gloves are adequate) when touching blood, body fluids, secretions, excretions, and contaminated items. Latex or nitrile gloves are preferable for clinical procedures that require manual dexterity and/or will involve more than brief patient contact. Put on clean gloves just before touching mucous membranes and nonintact skin. When worn in combination with other personal protective equipment, don gloves last.

Change gloves between tasks and procedures on the same patient after contact with material that may contain a high concentration of micro-organisms. Remove gloves promptly after use, before touching noncontaminated items and environmental surfaces and before going to another patient, and wash hands immediately to avoid transfer of micro-organisms to other patients or environments. Avoid contamination of clothing and skin when removing gloves. Do not reuse gloves or wash gloves for subsequent reuse.



### **Mask, Eye Protection, Face Shield**

Wear a mask and eye protection or a face shield to protect mucous membranes of the eyes, nose, and mouth during procedures and patient-care activities that are likely to generate splashes or sprays of blood, body fluids, secretions, or excretions.

### **Gowns**

Wear a gown (a clean, nonsterile gown is adequate) to protect skin and to prevent soiling of clothing during procedures and patient-care activities that are likely to generate splashes or sprays of blood, body fluids, secretions, or excretions. Select a gown that is appropriate for the activity and amount of fluid likely to be encountered. Remove a soiled gown as promptly as possible (turning outer “contaminated” side of the gown inward), roll gown into a bundle, and discard appropriately. Wash hands to avoid transfer of micro-organisms to other patients or environments. Do not reuse gowns, even for repeated tasks with the same patient.

### **Patient Placement**

Use a private room for a patient who contaminates the environment or who does not (or cannot be expected to) assist in maintaining appropriate hygiene or environmental control. If a private room is not available, consult with infection control professionals regarding patient placement or other alternatives.

### **Patient-Care Equipment**

Handle used patient-care equipment soiled with blood, body fluids, secretions, and excretions in a manner that prevents skin and mucous membrane exposures, contamination of clothing, and transfer of micro-organisms to other patients and environments. Ensure that reusable equipment is not used for the care of another patient until it has been cleaned and reprocessed appropriately. Ensure that single-use items are discarded properly.

### **Environmental Control**

Ensure that the hospital has adequate procedures for the routine care, cleaning, and disinfection of environmental surfaces, beds, bedrails, bedside equipment, and other frequently touched surfaces, and ensure that these procedures are being followed.

### **Linen**

Handle, transport, and process used linen soiled with blood, body fluids, secretions, and excretions in a manner that prevents contamination of air, surfaces, and individuals.

### **Occupational Health and Bloodborne Pathogens**

Take care to prevent injuries when using needles, scalpels, and other sharp instruments or devices; when handling sharp instruments after procedures; when cleaning used instruments; and when disposing of used needles. Never recap used needles, or otherwise manipulate them using both hands, or use any other technique that involves directing the point of a needle toward any part of the body. Rather, use either a one-handed “scoop” technique or a mechanical device designed for holding the needle sheath. Do not remove used needles from disposable syringes by hand, and do not bend, break, or otherwise manipulate used needles by hand. Place used disposable syringes and needles, scalpel blades, and other sharp items in appropriate puncture-resistant containers, which are located as close as practical to the area in which the items were used, and place reusable syringes and needles in a puncture-resistant container for transport to the reprocessing area.

Use mouthpieces, resuscitation bags, or other ventilation devices as an alternative to mouth-to-mouth resuscitation methods in areas where the need for resuscitation is predictable.

## **CONTACT PRECAUTIONS**

### **Patient Placement**

Place the patient in a private room. When a private room is not available, place the patient in a room with a patient(s) who has active infection with the same micro-organism but with no other infection (cohorting). When a private room is not available and cohorting is not achievable, consider the epidemiology of the micro-organism and the patient population when determining patient placement. Consultation with infection control professionals is advised before patient placement.

### **Gloves and Handwashing**

In addition to wearing gloves as outlined under Standard Precautions, wear gloves (clean, nonsterile gloves are adequate) when entering the room. During the course of providing care for a patient, change gloves after having contact with infective material that may contain high concentrations of micro-organisms (e.g., fecal material, wound drainage). Remove gloves before leaving the patient’s room, and wash hands immediately with an antimicrobial agent or a waterless antiseptic agent. After glove removal and handwashing, ensure that hands do not touch potentially contaminated environmental surfaces or items in the patient’s room, to avoid transfer of micro-organisms to other patients or environments.

### Gown

In addition to wearing a gown as outlined under Standard Precautions, wear a gown (a clean, nonsterile gown is adequate) when entering the room if you anticipate that your clothing will have substantial contact with the patient, environmental surfaces, or items in the patient's room, or if the patient is incontinent or has diarrhea, an ileostomy, a colostomy, or wound drainage not contained by a dressing. Remove the gown before leaving the patient's environment. After gown removal, ensure that clothing does not contact potentially contaminated environmental surfaces, to avoid transfer of micro-organisms to other patients or environments.

### Patient Transport

Limit the movement and transport of the patient from the room to essential purposes only. If the patient is transported out of the room, ensure that precautions are maintained to minimize the risk of transmission of micro-organisms to other patients and contamination of environmental surfaces or equipment.

### Patient-Care Equipment

When possible, dedicate the use of noncritical patient-care equipment to a single patient (or cohort of patients infected or colonized with the pathogen requiring precautions) to avoid sharing between patients. If use of common equipment or items is unavoidable, then adequately clean and disinfect them before use for another patient.

## AIRBORNE PRECAUTIONS

All precautions described for airborne pathogens are in addition to Standard Precautions.

### Patient Placement

Place the patient in a private room that has (1) monitored negative air pressure in relation to the surrounding areas; (2) 6 to 12 air changes per hour; and (3) appropriate discharge of air outdoors or monitored high-efficiency filtration of room air before the air is circulated to other areas in the hospital. Keep the room door closed and the patient in the room. When a private room is not available, place the patient in a room with a patient who has active infection with the same micro-organism, unless otherwise recommended, but with no other infection. When a private room is not available and cohorting is not desirable, consultation with infection control professionals is advised before patient placement.

### Respiratory Protection

Wear respiratory protection (N95 respirator) when entering the room of a patient with known or suspected infectious pulmonary tuberculosis. Susceptible persons should not enter the room of patients known or suspected to have rubeola (measles) or varicella (chickenpox) if other immune caregivers are available. If susceptible persons must enter the room of a patient known or suspected to have rubeola or varicella, they should wear respiratory protection (N95 respirator). Persons immune to rubeola or varicella need not wear respiratory protection.

### Patient Transport

Limit the movement and transport of the patient from the room to essential purposes only. If transport or movement is necessary, minimize patient dispersal of droplet nuclei by placing a surgical mask on the patient, if possible.

## DROPLET PRECAUTIONS

All precautions described for droplet pathogens are in addition to Standard Precautions.

### Patient Placement

Place the patient in a private room. When a private room is not available, place the patient in a room with a patient(s) who has active infection with the same micro-organism but with no other infection. When a private room is not available and cohorting is not achievable, maintain spatial separation of at least 3 feet between the infected patient and other patients and visitors. Special air handling and ventilation are not necessary, and the door may remain open.

### Masks

In addition to wearing a mask as outlined under Standard Precautions, wear a mask when working within 3 feet of the patient. (Logistically, some hospitals may want to implement a policy of wearing a mask to enter the room.)

### Patient Transport

Limit the movement and transport of the patient from the room to essential purposes only. If transport or movement is necessary, minimize patient dispersal of droplets by placing a surgical mask on the patient, if possible.

## HAND HYGIENE

Hand hygiene is the most important preventive measure in hospitals, and the Joint Commission mandates that hospitals and other healthcare facilities comply with the Level I recommendations in the CDC guideline for hand hygiene [42]. The CDC guideline states the specific indications for washing hands, the recommended hand hygiene techniques,

SUMMARY OF CDC RECOMMENDATIONS FOR HAND HYGIENE	
<b>Indications for Hand Hygiene</b>	
Wash hands with nonantimicrobial or antimicrobial soap and water when they are visibly dirty, contaminated, or soiled. If hands are not visibly soiled, use an alcohol-based handrub for routinely decontaminating hands.	
<b>Specific Indications</b>	
Wash hands before patient contact and before putting on gloves for insertion of invasive devices that do not require surgery (e.g., urinary catheters, intravascular devices). Wash hands after:	
<ul style="list-style-type: none"> <li>• Contact with a patient's skin</li> <li>• Contact with body fluids or excretions, nonintact skin, or wound dressings</li> <li>• Removing gloves</li> </ul>	
<b>Recommended Handrub Technique</b>	
Apply to palm of one hand, rub hands together, covering all surfaces until dry.	
<b>Recommended Handwashing Technique</b>	
<ul style="list-style-type: none"> <li>• Wet hands with water, apply soap, and rub hands together for at least 15 seconds.</li> <li>• Rinse and dry with disposable towel.</li> <li>• Use towel to turn off faucet.</li> </ul>	
<b>Fingernails and Artificial Nails</b>	
Keep tips of natural nails to a length of ¼ inch. Do not wear artificial nails during direct contact with high-risk patients (e.g., patients in intensive care unit or operating room).	
<b>Use of Gloves</b>	
Use gloves when there is potential for contact with blood or other potentially infectious materials, mucous membranes, or nonintact skin. Change gloves after use for each patient.	
Source: [42]	Table 1

and recommendations about fingernails and the use of gloves (**Table 1**) [42]. The guideline also provides recommendations for surgical hand antisepsis, selection of hand-hygiene agents, skin care, educational and motivational programs for health-care professionals, and administrative measures.

Despite the simplicity of the intervention, its substantial impact, and wide dissemination of the guideline, compliance with recommended hand hygiene has ranged from 16% to 81%, with an average of 30% to 50% [3; 42; 54; 56; 57; 58]. Among the reasons given for the lack of compliance are inconvenience, understaffing, and damage to skin [1; 42; 56; 72]. The development of effective alcohol-based handrub solutions addresses these concerns, and studies have demonstrated that these solutions have increased compliance [57; 73; 74]. The CDC guideline recommends the use of such solutions on the basis of several advantages, including [42]:

- Better efficacy against both gram-negative and gram-positive bacteria, mycobacteria, fungi, and viruses than either soap and water or antimicrobial soaps (e.g., chlorhexidine)

- More rapid disinfection than other hand-hygiene techniques
- Less damaging to skin
- Time savings (18 minutes compared with 56 minutes per 8-hour shift)

The guideline suggests that healthcare facilities promote compliance by making the handrub solution available in dispensers in convenient locations (e.g., entrance to patients' room, at the bedside) and provide individual pocket-sized containers [42]. In one small survey of hand hygiene practices, healthcare workers indicated that they would be more likely to clean their hands as recommended if alcohol-based handrub solution was located near the patient [75]. The handrub solution may be used in all clinical situations except for when hands are visibly dirty or are contaminated with blood or body fluids. In such instances, soap (either antimicrobial or nonantimicrobial) and water must be used.

However, there are many other reasons for lack of adherence to appropriate hand hygiene, including denial about risks, forgetfulness, and belief that gloves provide sufficient protection [1; 42; 56]. These reasons demand education for healthcare professionals to emphasize the importance of hand hygiene. Also necessary is research to determine which interventions are most likely to improve hand-hygiene practices, as no studies have demonstrated the superiority of any intervention [76]. Single interventions are unlikely to be effective [76]. Studies indicate that multimodal interventions (e.g., education, observation, provision of supplies, administrative support, reminders, surveillance, performance feedback) may be more effective in raising compliance [76; 77; 78].

Several single-institution studies have demonstrated that appropriate hand hygiene reduces overall rates of HAIs, including those caused by MRSA and vancomycin-resistant enterococci [57; 58; 73; 74]. However, rigorous evidence linking hand hygiene alone with the prevention of HAIs is lacking, making it difficult to evaluate the true impact of hand hygiene alone in reducing HAIs [79]. One challenge in evaluating the impact of hand hygiene is that a variety of methodologies (e.g., surveys, direct observation, measurement of product use) have been used to assess compliance, each with its own advantages and disadvantages [80]. Measuring the effect of appropriate hand hygiene alone is also difficult because the intervention is often one aspect of a multicomponent strategy to reduce infection [58]. Lastly, as noted previously, the development of HAIs is complex, with many contributing factors [58]. Although more research is needed to assess the individual impact of appropriate hand hygiene, this basic prevention measure is the essential foundation of an effective infection control strategy and is an element of every infection control guideline [2; 28; 36; 37; 39; 40; 42; 43; 44; 47; 49].

## EBOLA VIRUS

Care of patients with Ebola requires Standard, Contact, and Airborne Precautions. Duration of these measures is determined on a case-by-case basis, in conjunction with local, state, and federal health authorities. A single-patient room with the door closed is preferred. A log of all people entering the patient's room is required. Avoid entry of visitors into the patient's room except as needed for the patient's well-being and on a case-by-case basis. Any visits should be scheduled and controlled. Barrier protections against blood and body fluids should be used upon entry into the room (i.e., gloves, fluid-resistant or impermeable gown, face/eye protection with masks, goggles or face shields). Additional protective wear (i.e., double gloves, leg and shoe coverings) should be used during the final stages of illness when hemorrhage may occur. The use of dedicated disposable medical equipment is preferred

for patient care. All nondedicated, nondisposable equipment should be cleaned and disinfected after use. Disinfection of environmental surfaces should be conducted using a U.S. Environmental Protection Agency (EPA)-registered hospital disinfectant. Selection of a disinfectant product with a higher potency than is normally required for an enveloped virus is recommended. If possible, needles, sharps, and aerosol-generating procedures should be avoided as much as possible, and the number of procedures and tests should be limited. All needles and sharps should be handled with extreme care and disposed in puncture-proof, sealed containers. Ebola virus is classified as a Category A infectious substance regulated by the U.S. Department of Transportation's (DOT) Hazardous Materials Regulations (HMR, 49 C.F.R., Parts 171-180). Any item transported offsite for disposal that is contaminated or suspected of being contaminated with a Category A infectious substance must be packaged and transported in accordance with the HMR. Public health officials should be notified immediately if Ebola is suspected [28; 71; 81; 82].

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## STANDARDS FOR EQUIPMENT AND ENVIRONMENTAL SERVICES

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The infection control manual should contain details on cleaning and disinfecting equipment and the healthcare environment. The procedures should follow those set forth by the CDC in its guidelines for environmental infection control and for disinfection and sterilization [37; 41]. These procedures are related to the routine cleaning, disinfection, and reprocessing of equipment; the cleaning and disinfection of environmental surfaces; the cleaning of spills of blood and other body fluids; the cleaning and maintenance of laundry and bedding, carpeting, and cloth furnishings; and the handling of medical waste.

### CLEANING, DISINFECTING, AND REPROCESSING EQUIPMENT

The guideline on disinfection and sterilization published by the CDC in 2008 includes updated evidence-based recommendations on preferred methods for cleaning, disinfecting, and sterilizing medical devices and for cleaning and disinfecting the healthcare environment [37]. The guideline also addresses several new topics, including inactivation of antibiotic-resistant bacteria, bioterrorist agents, emerging pathogens, and bloodborne pathogens; toxicologic, environmental, and occupational concerns associated with disinfection and sterilization practices; disinfection of patient-care equipment used in ambulatory settings and home care; new sterilization processes, such as hydrogen peroxide gas plasma and liquid peracetic acid; and disinfection of complex medical instruments (e.g., endoscopes) [37].

## DEFINITIONS OF LEVELS OF CLEANING AND DISINFECTION

Level	Definition
Decontamination	Use of a 0.5% chlorine solution to reduce the number of pathogenic organisms on the device
Cleaning	Use of soap and water to remove all visible dust, soil, blood, or other body fluids
Low-level disinfection	Use of disinfectant to destroy pathogenic organisms (may not eliminate resistant bacteria or most viruses or fungi)
Intermediate-level disinfection	Use of disinfectant to destroy pathogenic organisms (eliminates most bacteria, viruses, and fungi)
High-level disinfection	Use of chemical disinfectants, boiling, or steaming to destroy all micro-organisms
Sterilization	Use of high-pressure steam (autoclave), dry heat (oven), chemical sterilants, or radiation to eliminate all forms of viable micro-organisms
Reprocessing	A multistep procedure that consists of meticulous cleaning, high-level disinfection with a liquid chemical sterilant or disinfectant, and proper drying
Source: [2; 37; 66]	

Table 2

Various levels of cleaning and disinfection have been defined, and decontamination and cleaning must be carried out before any of the higher level processes (**Table 2**) [2; 37; 66]. The cleaning and disinfection of devices varies according to the Spaulding classification, which categorizes devices as critical (i.e., enters normally sterile tissue or the vascular system), semicritical (i.e., comes into contact with intact mucous membranes and does not ordinarily penetrate sterile tissue), or noncritical (i.e., does not ordinarily touch a patient or touches only intact skin) [66; 83]. Critical devices require sterilization, and semicritical devices require high-level disinfection; noncritical devices may be cleaned with low-level disinfection [2; 48; 66; 83].

Endoscopic instruments present a challenge to proper reprocessing because of the complex internal design and long, narrow channels [2]. Reprocessing should be carried out by trained and accredited personnel according to the manufacturer's recommendations, and the process should be monitored regularly for quality control [84]. Guidelines and recommendations for reprocessing of gastrointestinal endoscopes have been developed by several federal agencies, such as the U.S. Food and Drug Administration (FDA) and the CDC, as well as many professional organizations [2; 48; 84; 85; 86; 87]. The reprocessing procedure should begin immediately after use to prevent secretions from drying [2; 37; 86; 87].

Some inconsistencies across reprocessing guidelines and manufacturer recommendations have been found, primarily with regard to drying [86]. Also, various steps in the procedure have been emphasized as being the most critical. For example, one report notes that meticulous mechanical cleaning is the most important step because it removes the majority of the contaminating bacteria [84]. Another report emphasizes the importance of drying to avoid waterborne bacteria, such as *Pseudomonas aeruginosa* [86].

A report of four patients with infection with *P. aeruginosa* after transrectal ultrasound-guided prostate biopsies raised awareness about the need for thorough cleaning of equipment. Evaluation of the findings on the four patients demonstrated that the infection was caused by contamination of the needle guide as a result of inadequate cleaning (with a brush) and improper rinsing (with tap water) after reprocessing [88]. The report led to the FDA issuing a Public Health Notification on proper reprocessing of such devices [89].



The Association of Surgical Technologists recommends the cleaning of instruments should begin during the surgical procedure to prevent drying of blood, soil and debris on the surface and within lumens. The cleaning of instruments should continue

at the point of use post-procedure, including sorting and disassembly of instruments, containment and transportation to the decontamination room.

([http://www.ast.org/uploadedFiles/Main\\_Site/Content/About\\_Us/Standard\\_Decontamination\\_%20Surgical\\_Instruments\\_.pdf](http://www.ast.org/uploadedFiles/Main_Site/Content/About_Us/Standard_Decontamination_%20Surgical_Instruments_.pdf). Last accessed March 11, 2022.)

**Strength of Recommendation:** Expert Opinion/  
Consensus Statement

Reprocessing of bronchoscopes has received less attention, perhaps because of the low risk of infection, but general recommendations, similar to those for gastrointestinal endoscopes, are available [32; 90].

### CLEANING THE ENVIRONMENT

Every healthcare facility should have a written housekeeping schedule for the routine cleaning of the environment. Routine cleaning removes so-called visible dirt, which can harbor micro-organisms. Soap and water can be used to remove visible dirt from most surfaces, such as walls, doors, ceilings, and floors. A disinfectant should be used when there are signs of contamination. The level of asepsis in cleaning depends on the likelihood of contamination. WHO suggests classifying areas within a healthcare facility into four zones [2]:

- Zone A: No patient contact
- Zone B: Care of patients who are not infected and are not highly susceptible
- Zone C: Infected patients (isolation units)
- Zone D: Highly susceptible patients (protective isolation) or protected areas such as operating suites, delivery rooms, intensive care units, neonatal intensive care, transplant units, oncology units, and hemodialysis units

Cleaning according to this classification should be as follows [2]:

- Zone A: Normal cleaning
- Zone B: Cleaning procedures that do not raise dust. (Dry sweeping or vacuum cleaners are not recommended.) Use a detergent solution and disinfect any areas with visible contamination with blood or body fluids before cleaning.
- Zone C: Cleaning with a detergent/disinfectant solution, with separate cleaning equipment for each room
- Zone D: Cleaning with a detergent/disinfectant solution and separate cleaning equipment

Written policies should specify how frequently each area should be cleaned and should note the cleaning agents used for various surfaces and items such as beds, curtains, screens, fixtures, and furniture. In general, all surfaces in the environment (e.g., walls, doors, floors) must be cleaned daily to remove soil. Sinks, toilets, and baths should be scrubbed daily, or more often if needed, with a disinfectant cleaning solution using a separate mop, brush, or cloth. Patient rooms should also be cleaned daily and after each patient is discharged. Surfaces and countertops in procedure rooms, examination rooms, and the laboratory must be cleaned with a disinfectant solution after any activity.

Spills of blood or other body fluid should be removed and cleaned immediately. The area should first be cleaned with a 0.5% chlorine solution and then washed clean with a disinfectant solution. Gloves should be worn while cleaning.

### MANAGING WASTE

Management of waste is a concern in healthcare facilities, but 75% to 90% of waste poses no risk of infection. The following types of waste are considered to be hazardous [2]:

- Infection-associated waste (from isolation units, laboratory cultures, tissue swabs)
- Pathologic waste (blood, body fluids, human tissue)
- Sharps (needles, scalpels, blades, knives)
- Pharmaceutical waste (expired pharmaceutical agents)
- Chemical waste (laboratory reagents, solvents)
- Heavy metal waste (broken blood pressure gauges, batteries)
- Radioactive waste

As with cleaning, written policies should document the appropriate handling, storage, and transportation of all types of waste.

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### SAFE INJECTION PRACTICES

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Infection prevention also includes safe injection practices intended to prevent or reduce the risk of transmission of infectious diseases between one patient and another or between a patient and healthcare provider. A safe injection does not harm the recipient, does not expose the provider to any avoidable risks, and does not result in waste that is dangerous for the community [91].

Unsafe injection practices put patients and healthcare providers at unnecessary risk. A wide variety of procedures, such as the administration of anesthetics for outpatient procedures, the administration of other IV medications, flushing IV lines or catheters, and the administration of IM vaccines, have been associated with unsafe injection [91]. Outbreaks related to these practices indicate that some healthcare personnel do not adhere to basic principles of infection control and aseptic technique. A survey of U.S. healthcare professionals who provide medication through injection found that 1% to 3% reused the same needle and/or syringe on multiple patients [28].

The following guidelines should be considered with regards to injection practices [28]:

- Use aseptic technique to avoid contamination of sterile injection equipment.
- Never administer medications from a syringe to multiple patients, even if the needle or cannula on the syringe is changed. Needles, cannulae, and syringes are sterile, single-use items; they should not be reused for multiple patients.
- Use fluid infusion and administration sets (e.g., intravenous bags, tubing, connectors) for one patient only, and dispose appropriately after use.
- Use single-dose vials for parenteral medications whenever possible.
- If multidose vials must be used, both the needle or cannula and syringe used to access the multidose vial must be sterile.
- Do not keep multidose vials in the immediate patient treatment area, and store in accordance with the manufacturer's recommendations. Discard if sterility is compromised or questionable.
- Do not use bags or bottles of intravenous solution as a common source of supply for multiple patients.

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## SURVEILLANCE

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Surveillance is an essential component of an infection control program. The infection control team has traditionally conducted surveillance through open communication with the nursing staff and physicians and meticulous review of patient records and microbiology results. The advent of electronic health systems has enabled some infection control programs to create algorithm-driven surveillance [1]. In addition, newer technology is adding to changes in the way surveillance is conducted. An electronic, laboratory-based marker has been developed and compared with traditional medical record review and accepted surveillance methods, including hospital-wide detection by the Study on the Efficacy of Nosocomial Infection Control chart review and intensive care unit detection by National Nosocomial Infections Surveillance System techniques. Analysis with the marker was significantly better than the hospital-wide detection methods and had sensitivity comparable to medical record review [92].

The infections most commonly targeted for surveillance are those difficult to treat and those associated with substantial costs in terms of morbidity, mortality, or economics [1]. In addition, infections with a predilection for epidemics are a focus. The data gathered should be evaluated in relation to regional and national norms, and temporal trends should also

be noted. Continuing analysis of the data allows the infection control team to evaluate the efficacy of programs designed to enhance compliance with hospital-wide strategies to prevent HAIs.

## EXPOSURE INCIDENTS

If an occupational exposure to a bloodborne pathogen or infectious material occurs, employers should follow all federal (including the Occupational Safety and Health Administration) and state requirements for recording and reporting. The circumstances surrounding the exposure and postexposure management strategies should be recorded in the exposed person's confidential medical record and should include [93]:

- Date and time of exposure
- Details of the procedure performed
- Details of the exposure
- Details about the exposure source
- Details about the exposed person and any need for counseling, postexposure management, or follow-up

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## COMMUNICABLE DISEASE EXPOSURES IN HEALTHCARE PROFESSIONALS

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### PREPLACEMENT EVALUATIONS AND PERIODIC HEALTH ASSESSMENTS

Medical evaluations before placement may reduce the undue risk of infection to employees, patients, and visitors. Preplacement evaluations should include a review of each employee's job description for duties that may affect the risk of acquiring or transmitting infections in healthcare settings [94]. A health inventory for all new healthcare professionals who have direct patient/family contact must be documented prior to the beginning of patient/family contact. The inventory should include [26; 94; 95]:

- A history of medical conditions and other factors that may affect the risk of acquiring or transmitting infections
- A certificate of immunization against vaccine-preventable diseases (e.g., rubella, measles), as recommended for healthcare personnel by the Advisory Committee on Immunization Practices (ACIP), or professionally certified medical exemption from immunization
- A purified protein derivative (PPD) (Mantoux) skin test for tuberculosis prior to employment, and no less than every year thereafter for negative findings. Positive findings require appropriate clinical follow-up but no repeat test.

- An annual (or more frequent, if needed) health status assessment to ensure freedom from any health impairment that might pose a risk for other workers, patients, or visitors
- Documentation of pre-employment and annual vaccination against influenza

Screening tests are available to determine susceptibility to vaccine-preventable diseases, such as measles, mumps, rubella, and varicella. The results of these tests should be included in personnel immunization records to ensure that susceptible personnel are promptly identified and appropriately vaccinated. All healthcare settings should conduct initial and ongoing risk assessments for the transmission of tuberculosis to determine the types of administrative, environmental, and respiratory-protection controls needed. Part of the assessment should include risk classification to determine the need for a screening program and the frequency of screening. All healthcare professionals with suspected or confirmed tuberculosis disease who have duties that involve face-to-face contact with patients should be included in a screening program [96].

All healthcare professionals experiencing fever, cough, rash, vesicular lesions, draining wounds, vomiting, or diarrhea require immediate evaluation by a licensed medical professional and possible restriction from patient care activities and return to work clearance [95]. The CDC recommends that all healthcare personnel obtain annual influenza vaccination to reduce infection of staff, patients, and family members and to decrease absenteeism [97]. Immunization against hepatitis B and pertussis (Tdap), in addition to all core vaccines, is also recommended [98]. Vaccination of healthcare personnel is considered an essential component of a patient safety program [97].

### Management Strategies

Prompt diagnosis and management of job-related illnesses, appropriate postexposure prophylaxis, and implementation of measures to prevent further infection transmission are important aspects of an effective infection control program. Healthcare organization leaders and administrators are encouraged to establish a timely, confidential, and nonpunitive mechanism for healthcare personnel to report potentially infectious exposures and to access exposure and illness management services 24 hours per day and seven days per week [94]. Exclusion of personnel from work or patient contact, depending on the mode of transmission and the pathogenesis of the disease, may also be necessary. In these cases, personnel should avoid contact with susceptible persons and should be encouraged to report illnesses or exposures, including any that occur outside the healthcare setting. Notification of emergency response personnel possibly exposed to selected infectious diseases is mandatory [95].

Education on best practices is a crucial aspect of preventing HAIs and is a recommendation in all infection control guidelines [2; 15; 28; 36; 37; 39; 40; 42; 43; 44; 47; 49]. Education should highlight the effect of prevention measures on the rates of HAIs, enhance knowledge about currently available guidelines, and provide instruction on carrying out guideline recommendations. Research has also suggested that education about prevention strategies may be more effective if patterns of care and levels of risk are incorporated into recommendations [99]. Numerous studies have shown that knowledge and practices related to HAIs and guidelines are improved after educational programs. The combination of a self-study module (with pretest and post-test), in-service lectures, posters, and fact sheets on the prevention of intravascular device-related bloodstream infections and appropriate practices led to substantial reductions in the prevalence of such infections [100; 101]. A small study showed that intensive care nurses' knowledge and practices were enhanced by education on the prevention of ventilator-associated pneumonia [102]. A Canadian study demonstrated that rates of nosocomial MRSA infection significantly decreased after a mandatory infection control education program on MRSA that included discussion of hospital-specific MRSA data and case-based practice [103].

It is important that all education campaigns, whether they target healthcare professionals, facility staff (e.g., janitorial staff), or the patient populations, take into consideration the special needs of the intended audience. Compounding this issue is the high rate of individuals with limited English proficiency. According to the U.S. Census Bureau data from 2019, more than 65 million Americans speak a language other than English at home, with more than 25.6 million (8.4%) of these individuals reporting that they speak English less than "very well" [104]. Even those who do speak English well may prefer to receive education in another language.

### POSTEXPOSURE EVALUATION AND MANAGEMENT

When a healthcare provider has been exposed to particular infectious agents, it is important that recommended post-exposure management guidelines are followed. This should reduce the risk of infection and of transmitting the infection to others [95].

#### Bloodborne Pathogens

Transmission of bloodborne pathogens due to occupational exposure of healthcare professionals has occurred in needlestick accidents (0.3% risk) and blood splashes to the mucous membranes (0.09% risk) [64]. Needlestick is the most common route, but the risk of infection even through this route is low, and most exposures do not result in infection [64; 105]. The risk for transmission increases based on the source patient's viral load and the quantity of blood transferred (e.g., a needle visibly contaminated with blood; a large-gauge hollow-bore



needle; a procedure that involved the needle entering directly into the patient's artery or vein; a deep puncture from a contaminated needle). In order to decrease the risks associated with bloodborne pathogen exposures, postexposure prophylaxis should be initiated as soon as possible after the incident.

### **Hepatitis Viruses**

Recommendations for HBV postexposure management include initiation of the hepatitis B vaccine series to any susceptible, unvaccinated person who sustains an occupational blood or body fluid exposure. Postexposure prophylaxis with hepatitis B immune globulin (HBIG) and/or hepatitis B vaccine series should be considered for occupational exposures after evaluation of the hepatitis B surface antigen status of the source as well as the vaccination and vaccine-response status of the exposed person [93].

Immune globulin and antiviral agents (e.g., interferon with or without ribavirin) are not recommended for postexposure prophylaxis of HCV. In this instance, the HCV status of the source and the exposed person should be determined as soon as possible (preferably within 48 hours) after the exposure, using one of two options: test for HCV RNA (preferred), or test for anti-HCV and then if positive, test for HCV RNA [106]. If the source patient is known or suspected to have recent behavior risks for HCV acquisition (e.g., injection drug use), or if the risk cannot be reliably assessed, the initial testing should include a nucleic acid test for HCV RNA. Persons with recently acquired acute infection typically have detectable HCV RNA levels as early as one to two weeks after exposure [106]. For healthcare professionals exposed to an HCV-positive source, follow-up HCV testing should be performed to determine if infection develops [93; 106]. The timing and type of follow-up testing recommended is included in guidance from the CDC published in 2020 [106].

Healthcare professionals exposed to hepatitis viruses should refrain from donating blood, plasma, organs, tissue, or semen [93]. When based only on exposure to HBV- or HCV-positive blood, modifications to an exposed healthcare professional's patient-care responsibilities are not necessary. Acutely infected healthcare professionals should be evaluated according to current guidelines; healthcare professionals chronically infected with HBV or HCV should follow all recommended infection control practices [93].

### **HIV**

*This section is from the Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HIV and Recommendations for Postexposure Prophylaxis as published by the CDC on September 25, 2013, in Infection Control and Hospital Epidemiology.*

The following recommendations apply to situations where healthcare professionals have had exposure to a source person with HIV or where information suggests that there is likelihood that the source person is HIV-infected. Because most occupational HIV exposures do not result in the transmission of HIV, potential toxicity should be carefully considered when prescribing postexposure prophylaxis. The 2013 update focused on tolerability, side effects, toxicity, safety in pregnancy and lactation, pill burden, and frequency of dosing to maximize adherence to a postexposure prophylaxis (PEP) regimen [64]. When possible, these recommendations should be implemented in consultation with persons having expertise in antiretroviral therapy and HIV transmission, due to the complexity of selecting appropriate treatment.

The preferred regimen for PEP provided in the U.S. Public Health Service Guidelines for management of healthcare professionals' exposures to HIV is a basic regimen that should be appropriate for most HIV exposures: emtricitabine and tenofovir dispensed together as Truvada, a fixed-dose combination tablet, 1 mg once daily, plus raltegravir, 400 mg twice daily [64]. This preparation is available as a starter packet that should be stocked at every healthcare facility where exposure to HIV is possible. As discussed, the regimen has been selected for its tolerability and safety profile. There are several alternative regimens that may be selected due to individual patient concerns. For example, tenofovir is associated with renal toxicity, and an alternative nucleoside/nucleotide reverse-transcriptase inhibitor pair, such as zidovudine plus lamivudine (available as Combivir) would be selected for patients with renal disease [64].

Healthcare professionals with occupational exposure to HIV should receive follow-up counseling, postexposure testing, and medical evaluation regardless of whether they receive PEP. The 2013 guideline highlights the importance of follow-up within 72 hours to allow the initial shock to fade and to provide greater opportunity for full understanding of the risks and benefits of PEP; confirmation testing to ensure the necessity of PEP; increase adherence to PEP; monitoring for adverse reactions and side effects; and treating comorbidities and altering the regimen [64]. This window provides an opportunity to discuss the importance of preventing secondary transmission of HIV in the 6 to 12 weeks following initial infection. HIV-antibody testing should be performed for at least six months postexposure (e.g., at 6 weeks, 12 weeks, and 6 months). It is unclear whether an extended follow-up period (e.g., 12 months) is indicated for individuals not coinfecting with HCV and HIV. If PEP is used, drug-toxicity monitoring should be performed at baseline and again two weeks after starting PEP. Clinical judgment, based on medical conditions that may exist in pre-exposure and/or as a result of the regimen, should determine the scope of testing. If the source patient is found to be HIV negative, PEP should be discontinued immediately [64].

## Airborne/Droplet Pathogens

### Tuberculosis

Healthcare professionals with known or presumed exposure to *Mycobacterium tuberculosis* should be asked whether they have experienced any signs or symptoms of tuberculosis (i.e., coughing for more than three weeks, loss of appetite, unexplained weight loss, night sweats, bloody sputum, hoarseness, fever, fatigue, or chest pain). Because a blood assay for *M. tuberculosis* (BAMT) conversion likely indicates recent infection, a BAMT result should be obtained to exclude tuberculosis [107]. If either the symptom screen or the BAMT result is positive, the exposed healthcare professional should be promptly evaluated for tuberculosis. If tuberculosis is excluded, additional medical and diagnostic evaluations for latent tuberculosis infection, including an assessment of the extent of exposure, should be obtained [96; 107]. Healthcare professionals with active tuberculosis should be excluded from duty until proved noninfectious [95].

### Measles

According to the CDC and Hospital Infection Control Practices Advisory Committee (HICPAC), postexposure measles vaccine should be administered to measles-susceptible personnel who have had contact with persons with measles within 72 hours postexposure [95]. People at risk for severe illness and complications from measles (e.g., infants younger than 12 months of age, pregnant women with no evidence of immunity) and people with severely compromised immune systems should receive immunoglobulin [108]. Furthermore, adherence to Airborne Precautions (for suspected and proven cases) is also necessary [108]. Healthcare professionals without evidence of immunity who are not vaccinated after exposure should be removed from all patient contact and furloughed from day 5 after first exposure through day 21 after last exposure [98; 108].

### Mumps

The CDC and HICPAC have also established postexposure protocols for mumps. The mumps vaccine should be administered to all personnel without documented evidence of mumps immunity, unless otherwise contraindicated [95; 98]. Routine serologic screening is not necessary unless the healthcare professional considers screening cost-effective or requests it. Susceptible personnel who are exposed to mumps should not work from the 12th day after first exposure through the 26th day after last exposure or, if symptoms develop, until nine days after onset of parotitis [95].

### Pertussis

The CDC/HICPAC guideline indicates that antimicrobial prophylaxis against pertussis should be immediately offered to personnel who have had unprotected, intensive contact with a patient who has clinical syndrome that suggests pertussis and whose cultures are pending [95; 98]. Other healthcare personnel should either receive postexposure antimicrobial prophylaxis or be monitored daily for 21 days after exposure and treated at the onset of signs and symptoms [98]. Prophylaxis may be discontinued if results of cultures or other tests are negative for pertussis and the clinical course suggests an alternate diagnosis.

### Rubella

Susceptible personnel who are exposed to rubella should be excluded from duty from the 7th day after first exposure through the 21st day after last exposure [95; 98]. Those who acquire rubella should not work until seven days after the beginning of the rash.

### Varicella

The Advisory Committee on Immunization Practices (ACIP) recommends postexposure prophylaxis (with vaccination or varicella-zoster immunoglobulin [VZIG], depending on immune status) of exposed healthcare personnel without evidence of immunity [98]. Healthcare professionals who have onset of varicella should be furloughed until all lesions have dried and crusted [95]. Personnel exposed to varicella who are not known to be immune (by history or serology) should be excused from work beginning on the 10th day after first exposure until the 21st day after last exposure.

Immunocompetent personnel with localized zoster should refrain from the care of high-risk patients until lesions are crusted. They may continue to care for other patients with lesions covered [95]. Susceptible personnel exposed to zoster should not engage in patient contact from the 10th day after first exposure through the 21st day after last exposure (or 28th day if VZIG was given) [95; 98].

Serologic screening is indicated for exposed personnel who have not had varicella or are unvaccinated; screening for immunity to varicella may be considered for exposed, vaccinated personnel whose antibody status is not known [95; 98]. If the initial test result is negative, retest five to six days postexposure to determine whether an immune response occurred.

All exposed susceptible personnel should receive postexposure prophylaxis [98]. If VZIG is given, exclude personnel from duty from the 8th day after first exposure through the 28th day after last exposure.

## Norovirus

Although the most frequent routes of transmission of noroviruses are direct contact and food and waterborne routes, several reports suggest that noroviruses may be transmitted through infectious small-particle aerosols (e.g., vomitus, fecal material) over distances further than 3 feet, typically within a defined airspace (e.g., a patient's room) [109; 110; 111; 112; 113; 114]. It is hypothesized that the aerosolized particles are inhaled and subsequently swallowed. Because of its propensity for transmission within healthcare facilities, and its ability to have a disruptive impact in healthcare facilities, norovirus is an "epidemiologically important organism" [28].

The average incubation period for gastroenteritis caused by noroviruses is 12 to 48 hours, with a clinical course lasting 12 to 60 hours. There are no recommendations for postexposure prophylaxis for healthcare personnel with norovirus infection. However, recommendations for healthcare personnel who have symptoms consistent with norovirus infection include exemption from work for a minimum of 48 hours after the resolution of symptoms and exclusion of nonessential staff from areas in which outbreaks of norovirus gastroenteritis have occurred [28; 115].

Cohorting of affected patients to separate airspaces and toilet facilities may help interrupt transmission during outbreaks. Contact Precautions should be used for diapered or incontinent persons for the duration of illness or to control outbreaks. Consistent environmental cleaning and disinfection is important, with focus on restrooms even when apparently unsoiled. Persons who clean heavily contaminated areas may benefit from wearing masks, as the virus can be aerosolized [28].

## HEALTHCARE PROFESSIONALS INFECTED WITH BLOODBORNE PATHOGENS

Routine voluntary, confidential testing has been recommended for all healthcare providers, particularly for those whose clinical practice places them at higher risk for exposure and transmission [116]. The New York Department of Health has developed a policy regarding HIV testing of healthcare professionals (Table 3) [38]. It is important to note that New York State Public Health Law protects the confidentiality and privacy of anyone who has been tested for, exposed to, or treated for HIV [38]. In addition, according to the Americans with Disabilities Act, an individual is considered to have a disability if he or she has a physical or mental impairment that substantially limits one or more major life activities, has a record of such impairment, or is regarded as having such impairment [117]. Persons with HIV disease, both symptomatic and asymptomatic, have physical impairments that substantially limit one or more major life activities and are, therefore, protected by the law. Persons who are discriminated against because they are regarded as being HIV-positive are also protected.

In 2010, the Society for Healthcare Epidemiology of America (SHEA) updated its guidelines for the management of healthcare professionals who are infected with bloodborne pathogens [116]. According to these guidelines, healthcare providers with HBV, HCV, and/or HIV with greater viral loads ( $\geq 10^4$  genome equivalents/mL for hepatitis viruses,  $\geq 5 \times 10^2$  genome equivalents/mL for HIV) should be restricted from performing activities associated with a definite risk for provider-to-patient transmission of bloodborne pathogens, such as most surgeries, organ transplantation, and interactions with patients prone to biting [116]. These providers may engage in procedures for which the risk of transmission is insignificant (e.g., history taking, regular dental preventive procedures, minor surface suturing) or unlikely (e.g., locally anesthetized ophthalmologic surgery, percutaneous cardiac procedures, breast augmentation, minor oral surgery). Routine double gloving is also recommended [116].



EVIDENCE-BASED  
PRACTICE  
RECOMMENDATION

According to the CDC, healthcare providers with active hepatitis B infection (i.e., those who are HBsAg-positive) who do not perform exposure-prone procedures but who practice non- or minimally invasive procedures should not be subject to any restrictions of their activities or study. They do not need to achieve low or undetectable levels of circulating HBV DNA, hepatitis e-antigen negativity, or have review and oversight by an expert review panel, as recommended for those performing exposure-prone procedures.

(<https://www.cdc.gov/mmwr/PDF/rr/rr6210.pdf>.  
Last accessed March 11, 2022.)

**Strength of Recommendation:** Expert Opinion/  
Consensus Statement

Infected healthcare professionals with lower viral burdens ( $<10^4$  genome equivalents/mL of hepatitis viruses,  $<5 \times 10^2$  genome equivalents/mL for HIV) may engage in all clinical activities [116]. However, all healthcare providers with a bloodborne pathogen must obtain advice from an expert review panel about continued practice, undergo follow-up routinely by an appropriate public health official, receive follow-up by a personal physician who has expertise in the management of the infection, and adhere to strict infection control procedures [116]. Those with low viral burdens should undergo testing twice per year to demonstrate maintenance of viral level.

NEW YORK DEPARTMENT OF HEALTH POLICY FOR TESTING POSSIBLE HIV SOURCES IN THE HEALTHCARE SETTING

Postexposure prophylaxis (PEP) is recommended for healthcare professionals following exposure to blood or visibly bloody fluid or other potentially infectious material associated with potential HIV transmission.

If HIV serostatus of the source is unknown, voluntary HIV testing of the source should be sought. In New York State, specific informed consent for HIV testing is required.

Rapid testing with an approved fourth-generation antigen/antibody combination assay is strongly recommended for the source patient and for those organizations subject to OSHA regulations; rapid testing (versus standard testing) is mandated for occupational exposures. Rules regarding confidentiality and consent for testing are identical to those for other HIV tests. Plasma HIV RNA testing is recommended in certain instances.

If the rapid test result is positive, the result should be given to the source patient. To establish a diagnosis of HIV infection, the test must be confirmed by an antibody-differentiation assay, which should be performed as soon as possible.

If the result from testing the source patient is not immediately available or a complete evaluation of the exposure is unable to be made within two hours of the exposure, PEP should be initiated while source testing and further evaluation are underway.

Source: [38]

Table 3

## SEPSIS

Sepsis is a systemic pathophysiologic and clinical syndrome caused by infection and manifest by signs of inflammation, host immune response, and organ dysfunction. The causes of sepsis are myriad, and the scope of illness is broad. Most cases of sepsis syndrome arise from bacterial infection, but certain viral (e.g., Ebola and other hemorrhagic fevers) and fungal (e.g., candidiasis, histoplasmosis) infections induce a sepsis syndrome as well.

In simple terms, infection is the invasion of normally sterile host tissue by a micro-organism; clinically, infection is recognized by the constellation of symptoms and signs that issue from the host response to the invading micro-organism. Bacteremia is defined as the demonstrable presence (e.g., by culture) of viable bacteria within the general circulation.

It is important that clinicians and patients alike are aware that sepsis is a life-threatening medical emergency. Most patients who develop sepsis have recently used healthcare services or have a chronic condition requiring frequent medical care. Morbidity and mortality can be decreased by early recognition and intervention.

## EPIDEMIOLOGY AND BURDEN OF SEPSIS

Sepsis, septic shock, and multiple organ failure are major causes of morbidity and mortality in the United States, resulting in an estimated 1.7 million hospitalizations and 270,000 deaths annually. One in three patients who die in a hospital has sepsis [118]. In New York, sepsis and septic shock impact approximately 50,000 patients each year, almost 30% of which will die from this syndrome [119]. It is estimated that 9.3% of all deaths in the United States, and nearly half of hospital deaths, are a result of sepsis, which equals the number of deaths resulting from myocardial infarction and far exceeds the mortality rates from acquired immune deficiency syndrome (AIDS) or breast cancer. The aggregate hospital cost of care for patients with septicemia totaled nearly \$23.7 billion in 2013 [120; 121; 122; 123; 124].

A study of hospital emergency department visits between 2009 and 2011 found that of the more than 1.3 million visits, nearly 850,000 were attributed to sepsis [125]. The average length of stay in the emergency department is 4.7 hours. However, more than 20% of patients with sepsis had a length of stay that exceeded six hours, resulting in a substantial burden on facilities nationwide in providing sepsis care [126; 127].

The incidence of septicemia more than doubled between 1993 and 2009, increasing by an annual average of 6% [120]. Between 1993 and 2003, 8.4 million cases of sepsis and 2.4 million cases of severe sepsis were reported. The percentage of severe sepsis cases among all sepsis cases increased from 25.6% to 43.8% during the same time period [128]. Studies continue

to report an increase in the incidence of septicemia; however, they also indicate that in-hospital mortality rates for sepsis appear to be declining. For example, according to the results of one retrospective cohort study, the incidence of septicemia as a proportion of medical and surgical admissions increased from 3.9% to 9.4% from 2010 to 2015, whereas the in-hospital mortality rate for sepsis hospitalizations declined from 24.1% to 14.8% during the same period. The percentage of patients at risk for hospital readmission after sepsis increased from 2.7% to 7.8%. Although 30-day readmission rates declined from 26.4% to 23.1% from 2010 to 2015, this was offset by an increase in emergency department visits, from 2.8% in 2010 to 5.4% in 2014 [124]. Another study that analyzed data from 2009 to 2014 also reported an increase in the incidence of sepsis but a decline in sepsis-related mortality rates [129]. The reported incidence of sepsis in the general population varies greatly and has been attributed to the data source, sepsis surveillance definition, and advances in supportive care for the critically ill [129; 130; 131; 132].

The reported incidence rates of sepsis increase with advanced age. Two-thirds of all sepsis cases occur in people 65 years of age and older, with case fatality rates as high as 40% [121]. Age-adjusted rates for sepsis hospitalization and mortality increased annually by 8.2% and 5.6%, respectively, between 1993 and 2003, whereas the fatality rate decreased by 1.4% [128]. Sepsis is more common among men than women, and the fatality rate is greater in men and nonwhite populations [133].

Mortality from sepsis of gram-negative etiology is the cause of 20% to 50% of the overall total number of septic deaths. The figures are now similar for sepsis of gram-positive etiology [134]. Mortality has been reported as high as 60% in patients with underlying medical problems. Among patients who develop the complications of shock and organ failure, mortality can reach 90% [135]. Extent of organ failure contributes to the prognosis, with a greater survival rate in patients with fewer than three failing organs. The risk of death increases as each organ fails [135].

Sepsis is among the leading causes of hospitalization and ranks as the most expensive inpatient condition treated in U.S. hospitals [136]. Data from the 2008 National Hospital Discharge Survey (now the National Hospital Care Survey) show that the rate of hospitalization for sepsis increased from 11.8 to 24 per 10,000 population during the period 2000 through 2008 [136]. Compared with other conditions, the hospital stay for sepsis was 75% longer and the likelihood of dying during hospitalization was eight times higher. The estimated annual cost of hospitalization for sepsis and septicemia in 2008 was \$14.6 billion and increasing at the rate of 11.9% each year [136].

One retrospective study was conducted in 2018 to characterize the burden, outcomes, and costs of managing sepsis patients in U.S. hospitals [137]. The cohort consisted of adults 18 years of age and older with a hospital discharge diagnosis code of sepsis between January 2010 and September 2016. Of the more than 2.5 million patients included in the final study cohort, the mean age was 65 years and more than one-half were female (50.8%). The overall mortality was 12.5% but varied according to severity of sepsis (i.e., 5.6% for sepsis without organ dysfunction; 14.9% for severe sepsis; and 34.2% for septic shock). Economic costs also increased according to the severity level of sepsis (\$16,324, \$24,638, and \$38,298, respectively) and varied widely by sepsis at presentation (\$18,023) and not present at admission (\$51,022) [137].

Despite immense clinical effort and high treatment expenditures, mortality rates remain high. Those who survive often sustain permanent organ damage, some degree of physical disability, and long-term cognitive impairment [138].

### New York State Sepsis Improvement Initiative

In 2013, New York adopted new laws to combat sepsis, referred to as Rory's Regulations, in honor of Rory Staunton, who had died the previous year after multiple healthcare encounters failed to diagnose sepsis [139]. Specifically, amendments were made to sections 405.2 and 405.4 of Title 10 (Health) of the Official Compilation of Codes, Rules and Regulations of the State of New York. Section 405.2 requires hospitals to have in place evidence-based protocols for the early recognition and treatment of patients with severe sepsis/septic shock that are based on generally accepted standards of care [140]. Section 405.4 further requires that these protocols include the following components [140]:

- A process for the screening and early recognition of patients with sepsis, severe sepsis, and septic shock
- A process to identify and document individuals appropriate for treatment through severe sepsis protocols, including explicit criteria defining those patients who should be excluded from the protocols, such as patients with certain clinical conditions or who have elected palliative care
- Guidelines for hemodynamic support with explicit physiologic and biomarker treatment goals, methodology for invasive or non-invasive hemodynamic monitoring, and timeframe goals
- For infants and children, guidelines for fluid resuscitation with explicit timeframes for vascular access and fluid delivery consistent with current, evidence-based guidelines for severe sepsis and septic shock with defined therapeutic goals for children

- A procedure for identification of infectious source and delivery of early antibiotics with timeframe goals
- Criteria for use, where appropriate, of an invasive protocol and for use of vasoactive agents

In addition, hospitals are required to report to the Department data that are used to calculate each hospital's performance on key measures of early treatment and protocol use.

As part of this movement, the New York State Sepsis Care Improvement Initiative was begun by the Department of Health as a resource for quality improvement in sepsis care by improving early detection and intervention, especially for patients with severe sepsis and shock [119]. The Initiative also publishes an annual public report detailing data collection, adherence to guidelines, improvements on quality measures and outcomes, and stakeholder collaborations.

### RISK FACTORS AND PREVENTION

Factors considered important in the development of sepsis include: inappropriate broad-spectrum antibiotic therapy; immunosuppressive treatments, such as cancer chemotherapy; invasive procedures; transplantations; fungal organisms; burns or other trauma; anatomic obstruction; intestinal ulceration; age (the very young and the very old); and progressive clinical conditions, such as malignancy, diabetes, or AIDS [141].

Healthcare-associated infections are a major cause of sepsis among severely ill patients. Increased risk of nosocomial infection is associated with the presence of underlying chronic disease, alteration in host defenses, prolonged hospital stay, and the presence of invasive catheters or monitoring devices [142]. Pulmonary, urinary tract, gastrointestinal, and wound infections predominate [143; 144]. In hospitalized adult patients, the etiology of sepsis has shifted from being predominantly gram-negative nosocomial infections (*Escherichia coli*, *Klebsiella* spp., *Enterobacter* spp., and *Pseudomonas aeruginosa*) to gram-positive infections (*Staphylococcus aureus*, *Streptococcus pneumoniae*, and *Streptococcus pyogenes*) [145]. The incidence of sepsis caused by gram-positive infections has increased by 26.3% per year over the last three decades [146]. Multidrug-resistant pathogens, such as *S. aureus*, now account for more than half of all sepsis cases. *S. aureus* is singly responsible for 40% of ventilator-associated pneumonia episodes and most cases of nosocomial pneumonia [146; 147]. Group B streptococcus is a leading cause of neonatal sepsis in the United States [148].

Vascular and monitoring catheters and infusion sets may become contaminated and lead to the development of nosocomial infections and sepsis. The risk of catheter-related sepsis is increased when the IV catheter is placed in a central vein, particularly if the catheter remains in place longer than three to five days or if the catheter is used for blood sampling [149]. The results of a Cochrane review originally revised in 2013 found evidence indicating that administration sets that do not contain lipids, blood, or blood products may be left in place for intervals of up to 96 hours without increasing the risk of infection [150; 151]. Generally, consideration should be given to changing the catheter and possibly the insertion site after 72 hours [152]. The risk of contamination of arterial catheters is higher than that observed with venous catheters. Contamination can occur if the system is entered frequently for blood sampling, if the infusate remains in place for more than 48 hours, or if inflammation develops near the catheterized artery [152]. Urinary catheters left in the bladder longer than two weeks often cause infection. Therefore, increased surveillance for signs of urinary tract infections when catheters remain in place beyond a few days is necessary [153].

Central venous catheters (CVCs) are increasingly used in the pediatric population, leading to an increase in CVC-related complications. Implanted ports may be the device of choice when long indwelling times are expected, with consideration given to the patient's age and need for sedation and analgesia during the insertion procedure. Radiograph following the insertion procedure is recommended to ensure correct catheter positioning. Full sterile barrier precautions, strict protocols for catheter care, and prompt removal of the catheter when it is no longer needed are recommended to prevent infectious complications [154]. A study conducted by the American Pediatric Surgical Association found that chlorhexidine skin prep and chlorhexidine-impregnated dressing and heparin and antibiotic-impregnated CVCs can decrease CVC colonization and bloodstream infection and that ethanol and vancomycin lock therapy can reduce the incidence of catheter-associated bloodstream infections [155].

Bacterial contamination of platelet units (estimated at 1 in 1,000–3,000) results in many occurrences of transfusion-associated sepsis in the United States each year. In 2017, two separate clusters of platelet transfusion-associated bacterial sepsis were reported in Utah and California, resulting in three deaths [156]. The AABB (formerly the American Association of Blood Banks) adopted a new standard in 2004 requiring member blood banks and transfusion services to implement detection measures and limit bacterial contamination in all platelet components [157]. The 33rd edition of the standard is available as of April 2022 [158; 159].

## DIAGNOSIS AND MANAGEMENT

Methods to identify critically ill patients who are likely to die as a result of sepsis have become clearer, and increased awareness that sepsis is more common and lethal than previously understood has helped to promote the development of an organized approach to care. While the early diagnosis of sepsis continues to be a challenge (primarily because a rapid, sensitive, and specific diagnostic test is lacking), research indicates that improvements in outcomes are possible when treatment protocols are applied in a timely manner [160; 161].

An international consortium of critical care specialty societies has worked to standardize the definition and clinical parameters of sepsis and to develop evidence-based guidelines for optimal management of sepsis and septic shock. This is an ongoing effort, the goal of which is to improve care and reduce mortality worldwide. Clinical care guidelines have been developed by the Surviving Sepsis Campaign and published by the Society of Critical Care Medicine (SCCM) in 2008, 2013, and 2016. Detailed management strategies are provided for rapid diagnostic evaluation and antimicrobial treatment, fluid resuscitation, and the use of vasopressors in septic shock [162; 163; 164].

Initial funding of the Surviving Sepsis Campaign was provided by the SCCM. The ongoing work and the campaign's guidelines have no direct or indirect connection to industry support. The 2021 international guideline for the management of sepsis and septic shock are available online at <https://www.sccm.org/Clinical-Resources/Guidelines/Guidelines/Surviving-Sepsis-Guidelines-2021> [165].

The 2021 guideline recommendations use the "Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) approach to identify outcomes that the authors considered important from a patient's perspective [165; 166].

### Management of Sepsis

#### Fluid Resuscitation and Diagnosis

The SCCM guideline emphasizes that sepsis and septic shock are medical emergencies; treatment and resuscitation should begin immediately upon recognition [165]. Intravenous fluid resuscitation of a patient with sepsis-induced shock (defined as tissue hypoperfusion) should be initiated as soon as the hypoperfusion is recognized (i.e., not delayed pending admission to an ICU).

The principal recommendations for fluid resuscitation are [165]:

- Intravenous fluid resuscitation should be started immediately, beginning with crystalloids (grade weak [downgraded from strong], suggested).

- In the setting of sepsis-induced hypoperfusion, at least 30 mL/kg of intravenous crystalloid fluid should be given within the first three hours (grade weak [downgraded from strong], suggested).
- It is suggested that albumin be added when patients require substantial amounts of crystalloids (grade weak, suggested).
- Fluid resuscitation should initially target a mean arterial pressure (MAP) of 65 mm Hg in patients with septic shock requiring vasopressors (grade strong, recommended).

It is recommended that, following initial fluid resuscitation, additional fluid administration be guided by frequent reassessment of hemodynamic status. A reasonable set of treatment goals suggested for the first six hours of resuscitation are [163; 164; 165]:

- Central venous pressure of at least 8 mm Hg (12 mm Hg in mechanically ventilated patients)
- MAP of 65 mm Hg or greater
- Urine output of 0.5 mL/kg/hour or greater
- Central venous or mixed venous oxygen saturation of at least 70% or 65%, respectively

#### Antibiotic Therapy and Source Control

The SCCM recommends obtaining appropriate cultures before beginning antimicrobial therapy, but the process of doing so should not delay antibiotic administration. Whenever possible, this should be completed within three hours of presentation [165]. At least two sets (aerobic and anaerobic) of blood cultures should be obtained, including one drawn through any indwelling vascular catheter or device in place prior to onset of infection. Cultures from other suspected sites should be obtained as well. The guideline committee also recommends that imaging studies be performed to confirm the source of infection, assuming the patient's condition allows it [162; 163; 164; 165].

Intravenous antimicrobial therapy should be started as early as possible, ideally within the first hour of recognition of sepsis or septic shock (grade strong). Early administration of appropriate antimicrobials is one of the most effective interventions to reduce mortality in patients with sepsis. However, this must be balanced against the potential harms (e.g., allergic or hypersensitivity reactions, kidney injury, *C. difficile* infection, antimicrobial resistance) associated with administering unnecessary antimicrobial agents. The mortality reduction associated with early antimicrobial therapy appears strongest in patients with septic shock versus those without septic shock [165]. Clinical studies have shown that delay in antimicrobial therapy for serious infection and sepsis prolongs morbidity, lengthens hospital stay, and increases mortality [167]. A retrospective cohort study involving 2,731 patients with sepsis showed

that initiation of antimicrobial therapy within the first hour of documented hypotension was associated with increased survival to discharge. Moreover, each hour of delay conferred an approximately 12% decreased probability of survival [168].

The initial choice of antibiotics will depend on the most likely pathogens associated with the source of infection as well as the prevalent micro-organisms in the local community and hospitals. The clinician should assess risk factors for multidrug-resistant pathogens, including prior hospitalization, health facility residence, recent antimicrobial use, and evidence of prior infection with resistant organism. The anticipated susceptibility profile of prevalent local pathogens and the ability of the antibiotic to penetrate to the source of the infection must also be considered. A combination of drugs with activity against all likely pathogens should be administered initially, but the regimen should be reassessed in light of culture results, the goal being to identify a single, narrow-spectrum antibiotic that will best control the infection [169; 170]. It has been found that combining an extended-spectrum beta-lactam antibiotic (e.g., penicillins, cephalosporins) with an aminoglycoside (e.g., gentamicin) was no more effective in reducing mortality than using the beta-lactam agent alone. In addition, the combination carries an increased risk of renal damage [169; 170]. A common approach is to initiate empiric therapy with a carbapenem or extended-spectrum penicillin/beta-lactamase inhibitor (e.g., ticarcillin/tazobactam) to cover gram-negative enteric bacilli and *Pseudomonas*, often in combination with vancomycin to cover *S. aureus* pending culture results.

The empirical antimicrobial regimen should be narrowed as soon as the pathogen has been identified and sensitivities are known. The duration of therapy will depend on the nature of the infection and other considerations specific to a given case. As a general rule, a 7- to 10-day course of bactericidal antimicrobial therapy is considered adequate for most serious infections associated with sepsis [164; 165]. For adults with an initial diagnosis of sepsis or septic shock and adequate source control where optimal duration of therapy is unclear, the SCCM suggests using procalcitonin in conjunction with clinical evaluation to decide when to discontinue antimicrobials over clinical evaluation alone [165]. In the event that the syndrome is due to something other than an infectious cause, such as trauma, antibiotics should be discontinued as soon as possible.

Source control requires that a specific anatomic diagnosis of infection (e.g., skin/soft tissue infection, pyelonephritis, cholangitis, peritonitis) be identified, or excluded, as soon as possible and preferably within the first six hours after presentation [165]. Small studies suggest that source control within 6 to 12 hours is advantageous [166; 171; 172].

Studies generally show reduced survival beyond that point [165]. Radiographic imaging is often necessary and should be undertaken promptly as soon as the patient's condition permits and antimicrobial therapy has been administered. Source control may be achieved by percutaneous drainage of an infected cyst or abscess, debridement of infected tissue, or removal of an infected device or catheter (removal should be prompt after other vascular access has been established) [164; 165; 169]. Surgical exploration also may be indicated when diagnostic uncertainty persists despite radiologic evaluation, when the probability of success with a percutaneous procedure is uncertain, or when the desirable effects of a failed procedure are high [165].

### Vasopressors and Inotropic Therapy

If hypotension persists after intravascular volume repletion, then vasopressors may be required to restore and maintain adequate blood pressure and tissue perfusion (goal MAP 65 mg Hg) [165]. Such patients are considered to have the combination of vasodilation and reduced cardiac contractility, a condition best managed with a combined inotrope-vasopressor agent. In order to monitor arterial pressure accurately, it is suggested that all patients requiring vasopressors have an arterial catheter placed as soon as practical, if resources are available [164].

Historically, norepinephrine, dopamine, and epinephrine were three inotrope-vasopressors used to correct hypotension in septic shock [169]. Based on comparison studies and a meta-analysis of six randomized trials, norepinephrine is considered superior to dopamine and is now the recommended first choice for vasopressor therapy in septic shock (grade strong) [163; 164; 165; 173]. If a second agent is needed to maintain blood pressure, consider adding vasopressin (grade weak). If cardiac dysfunction with persistent hypoperfusion is present, despite adequate volume status and blood pressure, consider adding dobutamine or switching to epinephrine (grade weak) [165]. If dopamine is used, special attention should be given to patients at risk for arrhythmias [165]. For patient safety and effectiveness, intravenous vasopressor therapy should be administered via a central venous catheter.

As an alternative second drug, or to decrease the required effective dose of norepinephrine, vasopressin (up to 0.03 units/minute) may be added to norepinephrine. Vasopressin is usually started when the dose of norepinephrine is in the range of 0.25–0.5 mcg/kg/min [165]. Vasopressin should not be administered as the initial agent in septic shock.



Phenylephrine is a pure vasopressor that may be used in very select cases of septic shock [162; 163]. It reduces cardiac stroke volume, which can have deleterious effects in the patient with low cardiac output, and thus is not recommended as initial or additive therapy. Phenylephrine is reserved for the unusual case in which tachyarrhythmia limits norepinephrine use or the patient has known high cardiac output. Intravenous phenylephrine should be administered only by properly trained individuals familiar with its use [169; 174; 175].

Inotropic therapy may involve the use of dobutamine if the cardiac output remains low. If dobutamine is used, it should be combined with the vasopressors. All patients requiring vasopressors should have an arterial line placed for monitoring blood pressure [169; 174].

### Monitoring Serum Lactate

If elevated, serum lactate provides a marker of tissue hypoperfusion, and serial measurements (of lactate clearance) can be used to monitor progress in resuscitation of the patient with sepsis or early septic shock. In cases in which elevated lactate levels are used as a marker of tissue hypoperfusion, it is recommended that resuscitation efforts target serum lactate with the goal to achieve normalization as rapidly as possible (grade weak) [162; 163; 164; 165].

### Corticosteroids

Prior to the 1990s, there was evidence that the overall 28-day mortality was not impacted by the use of corticosteroids; consequently, their use was not advised. A review of studies conducted between 1992 and 2003 concluded that corticosteroids did not change the 28-day mortality in patients with sepsis and septic shock, but that the use of low-dose corticosteroids did reduce the all-cause mortality [176]. An update to this review found moderate-certainty evidence that corticosteroids reduce 28-day and hospital mortality in children and adults with sepsis and that the agents result in large reductions in ICU and hospital length of stay [177]. Corticosteroids are not recommended in adult patients with sepsis if hemodynamic stability has been achieved with fluid resuscitation and vasopressor therapy [164].

The patient with persistent hypotension despite fluids and vasopressors should be assessed for adrenal responsiveness and may benefit from corticosteroid therapy [165]. If corticosteroids are to be given, the 2021 SCCM guideline suggests IV hydrocortisone at a dose of 200 mg per day, in divided doses or by continuous infusion (grade weak, D) [165]. In 2017, a multispecialty task force of 16 international experts in critical care medicine, endocrinology, and guideline methods, all members of the SCCM and/or the European Society of Intensive Care Medicine, published a guideline for the management of corticosteroid insufficiency in critically ill patients. This group suggests using IV hydrocortisone <400 mg/day for three or

more days at full dose in patients with septic shock that is not responsive to fluid and moderate- to high-dose vasopressor therapy. They suggest not using corticosteroids in adult patients with sepsis without shock [178].

### Recombinant Human Activated Protein C

Drotrecogin alpha (activated), or recombinant human activated protein C (rhAPC), has been studied in patients with sepsis due to its antithrombotic, anti-inflammatory, and profibrinolytic properties. It was voluntarily withdrawn from the market in 2011 due to studies showing no improvement in mortality with treatment [179].

### Blood Product Administration

In some cases, blood product administration may be required. The 2021 guideline recommends using a restrictive (over liberal) transfusion strategy (grade strong). A restrictive transfusion strategy typically includes a hemoglobin concentrations transfusion trigger of 70 g/L; however, RBC transfusion should not be guided by hemoglobin concentration alone. Assessment of the patient's overall clinical status and consideration of extenuating circumstances (e.g., acute myocardial ischemia) is required [165]. The routine use of erythropoietin is not recommended for treatment of anemia in patients with sepsis unless other conditions are present, such as the compromise of red blood cell production induced by renal failure. Prophylactic platelet transfusion is suggested when the platelet count is <10,000/mm<sup>3</sup> ( $10 \times 10^9/L$ ) in the absence of apparent bleeding and when counts are <20,000/mm<sup>3</sup> ( $20 \times 10^9/L$ ) if the patient has a significant risk of bleeding [164].

Patients who require invasive procedures or surgery typically require a platelet count that is in excess of 50,000/mm<sup>3</sup> [169]. The routine use of fresh frozen plasma is not recommended unless there is active bleeding or planned surgery. Direct administration of antithrombin agents for the treatment of sepsis or septic shock is not advised [164; 169].

### Supportive Therapy for Sepsis and Septic Shock

#### Mechanical Ventilation

Patients who develop sepsis-induced acute lung injury (ALI) or acute respiratory distress syndrome (ARDS) may require assisted ventilation. The routine use of pulmonary artery catheters for patients with ALI/ARDS is not recommended, and it is important to remember to avoid high pressures and volumes.

The SCCM guideline committee recommends a target goal for maximum end-inspiratory plateau pressures of 30 cm H<sub>2</sub>O and a target tidal volume of 6 mL/kg predicted body weight in adult patients with sepsis-induced ARDS (grade strong, A). In addition, the use of lower tidal volumes over higher tidal volumes is suggested for adult patients with sepsis-induced respiratory failure without ARDS [165].

Unless contraindicated, it is recommended that mechanically ventilated patients be kept with the head of the bed elevated (30–45 degrees is suggested) to limit aspiration and prevent the development of ventilator-associated pneumonia. In hospitals with advanced experience and equipment, it may be advantageous to treat patients with ARDS in a prone position if higher pressures are required and the patient's condition allows for the positional change [164; 169]. For adults with sepsis-induced moderate-to-severe ARDS, the SCCM recommends using prone ventilation for more than 12 hours daily [165].

A protocol for weaning patients from the ventilator should be developed for use following a successful spontaneous breathing trial. Extubation should be considered if the breathing trial is successful. A successful breathing trial is characterized by the following criteria [169]:

- Patient is arousable.
- Patient is hemodynamically stable (without vasopressor agents).
- Patient has developed no new potentially serious conditions.
- Ventilatory and end-expiratory pressure requirements are low.
- Fraction of inspired oxygen requirements are able to be safely delivered with a face mask or nasal cannula.

The SCCM recommends a conservative fluid strategy for patients with established ARDS and no evidence of tissue hypoperfusion in order to minimize fluid retention and weight gain (which have been shown to prolong mechanical ventilation and lengthen ICU stay) [164].

### **Sedation, Analgesia, and Neuromuscular Blockade**

Sedation, whether intermittent or by continuous infusion, may be required for patients who are mechanically ventilated. In such cases, the practice of daily interruption or lightening of the sedation, preferably by established protocol, will serve to maintain the minimum degree of necessary sedation.

Neuromuscular blockade agents (NMBA) are sometimes used in the ICU to improve chest compliance, reduce airway pressures, and facilitate mechanical ventilation. Neuromuscular blockade agents should be used with caution in the patient with sepsis and only for brief periods, so as to avoid the risk of prolonged blockade when the drug is discontinued. The SCCM 2016 guideline issued a weak recommendation for using NMBA for 48 hours or less in adult patients with sepsis-induced ARDS and a PaO<sub>2</sub>/FiO<sub>2</sub> ratio <150 mm Hg (grade weak, B) [164]. A review of randomized controlled trials published since 2016 produced conflicting results about

important outcomes (e.g., mortality). This uncertainty about the outcomes and the balance between the benefits and potential harms of using NMBA led the 2021 guideline panel to issue a weak recommendation favoring intermittent NMBA boluses over a continuous infusion. Clinicians are reminded to ensure adequate patient sedation and analgesia if NMBA are used [165].

### **Glucose Control**

Glucose control includes a regimen of appropriate nutrition, beginning with IV glucose and enteral feeding within 72 hours (grade weak, suggested) in critically ill patients with sepsis [165]. Following initial stabilization, patients with hyperglycemia should receive IV insulin therapy to reduce blood glucose levels. The 2016 version of the SCCM guideline recommended that blood glucose management be done by protocol: insulin dosing to commence when two consecutive blood glucose levels are greater than 180 mg/dL, and targeting an upper blood glucose of ≤180 mg/dL rather than an upper blood glucose ≤110 mg/dL [164]. In the 2021 guideline, the panel sought to identify what level of glucose (>180 mg/dL or >150 mg/dL) should trigger commencement of IV insulin [165]. After reviewing a network meta-analysis of 35 randomized controlled trials, the panel concluded that the balance of effects (e.g., hospital mortality, hypoglycemia) favored initiation of insulin therapy at a glucose level of >180 mg/dL and provided a strong recommendation to that effect [165]. Following initiation, a typical target blood glucose range is 144–180 mg/dL [165]. Note: The meta-analysis that the 2021 guideline panel reviewed compared four different blood glucose targets: <110 mg/dL; 110–144 mg/dL; 144–180 mg/dL; and >180 mg/dL. No significant difference in risk of hospital mortality was observed among the four targets. Concentrations of <110 mg/dL and 110–144 mg/dL were associated with a four- to nine-fold increase in the risk of hypoglycemia compared with the 144–180 mg/dL and the >180 mg/dL ranges. No significant difference in the risk of hypoglycemia was observed when the target range of 144–180 mg/dL was compared with the target range of >180 mg/dL [165].

### **Bicarbonate Therapy and Deep Vein Thrombosis Prophylaxis**

Bicarbonate therapy to improve hemodynamics or reduce vasopressor requirements in patients with sepsis-induced lactic acidemia is not recommended for those patients with a pH equal to or greater than 7.15 [165]. While the 2016 recommendation is essentially unchanged, for patients with severe metabolic acidemia (pH ≤7.2 and acute kidney injury (AKI) [AKIN score 2 or 3]), the 2021 panel suggests (weak recommendation) using sodium bicarbonate therapy [165].

The use of anticoagulants to prevent deep vein thrombosis (DVT) has been well studied. For patients with sepsis, the SCCM guideline committee recommends the administration of low-dose unfractionated heparin (UFH), two to three times per day, or low-molecular-weight heparin (LMWH), once daily, unless there are contraindications, such as active bleeding, thrombocytopenia, or severe coagulopathy. LMWH has been found to be superior to UFH and is preferred in high-risk patients if there are no contraindications [165; 169].

When contraindications exist, other preventive measures, such as graduated compression stockings or an intermittent compression device, are recommended. In very high-risk patients, such as those who have sepsis and a history of DVT, trauma, or orthopedic surgery, a combination of both therapies is suggested [169; 174].

### **Stress Ulcer Prophylaxis**

The SCCM guideline recommends stress ulcer prophylaxis for patients with sepsis who have risk factors for gastrointestinal bleeding, using either a proton pump inhibitor or a histamine-2 antagonist. It is recommended that stress ulcer prophylaxis not be used for patients without risk factors for gastrointestinal bleeding [165].

### **Patient Education**

History-taking and examination are important aspects in the assessment of patients with suspected sepsis. All patients should be told of the importance of providing accurate and relevant information.

Also included in the supportive therapy points of care is the SCCM recommendation that advance care planning, including the communication of likely outcomes and realistic goals of treatment, be discussed with patients and families [165; 169]. As a result of the evolving racial and immigration demographics in the United States, interaction with patients for whom English is not a native language is inevitable. Because communication with patients and families is considered an essential aspect of care, it is each practitioner's responsibility to ensure that information regarding goals and potential outcomes are explained in such a way that allows for patient understanding. When there is an obvious disconnect in the communication process between the practitioner and patient due to the patient's lack of proficiency in the English language, an interpreter is required.

All patients should be given comprehensive education on their condition and instructions regarding when to seek help. Infection prevention strategies (e.g., appropriate handwashing, wound care, vaccination) are essential. Patients at high risk for sepsis should be informed of risk factors and warning signs/symptoms of the disease. These patients should be told to seek immediate care for worsening infections and sign/symptoms of sepsis.

### **Sepsis Bundle**

Reducing mortality due to sepsis requires an organized process that guarantees early recognition and consistent application of evidence-based practice. To this end, carefully designed protocols and measurable quality indicators should be incorporated into hospital practice. Beginning in 2005 the Surviving Sepsis Campaign converted its guideline into protocols, with sets of quality indicators that could be implemented by hospitals working to improve outcomes. The Sepsis Bundles are a series of therapies that, when implemented together, have been proven to achieve better outcomes than when implemented individually [162]. In conjunction with the 2013 guideline, two bundles (resuscitation and management) were released.

In order to reflect the changes in the 2016 guideline, in 2018 the Surviving Sepsis Campaign published the Hour-1 Bundle, taking the place of the previously separate resuscitation and management bundles [162]. This new bundle emphasizes the importance of beginning resuscitation and management immediately, then escalating care seamlessly (e.g., by adding vasopressor therapy) on the basis of ongoing clinical parameters rather than waiting or extending resuscitation measures over a longer period. The Hour-1 Bundle consists of five elements that are intended to be initiated within the first hour after the time of triage in the emergency department or, if referred from another care location, from the earliest chart annotation consistent with all elements of sepsis or septic shock. The five elements are [162]:

- Measure lactate level. Re-measure if initial lactate is  $>2$  mmol/L.
- Obtain blood cultures prior to administration of antibiotics.
- Administer broad-spectrum antibiotics.
- Rapidly administer 30 mL/kg crystalloid for hypotension or lactate  $\geq 4$  mmol/L.
- Apply vasopressors if patient is hypotensive during or after fluid resuscitation to maintain MAP  $\geq 65$  mm Hg.

More than one hour may be required for resuscitation to be completed, but initiation of resuscitation and treatment should begin immediately [162]. The Hour-1 Bundle, based on the 2018 guideline, is evidence-based and intended for use by emergency department, hospital, and ICU staff as a tool for improving the care of patients with sepsis and septic shock. The Bundle is supported in the 2021 guidelines [165].

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## CONCLUSION

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An effective infection control team is critical to reducing the incidence of HAIs in a healthcare facility. All departments within a healthcare facility should be represented on this team to ensure widespread adherence to prevention measures. The responsibilities of an infection control team are to conduct surveillance of infections; ensure compliance with infection control guidelines, including those for management of drug-resistant organisms; and establish response and control plans for outbreaks and epidemics. Most important is the development of an organizational culture that fosters a focus on patient safety and that emphasizes education on HAIs and infection control for healthcare professionals and patients and their families.

**COURSE TEST - #58643 INFECTION CONTROL: THE NEW YORK REQUIREMENT**

This is an open book test. A passing grade of at least 70% must be achieved in order to receive credit for this course.

**This 5 CE Credit Hour activity must be completed by March 31, 2025.**

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Provider ID #217994.

DESIGNATIONS OF CREDIT: NETCE DESIGNATES THIS ACTIVITY FOR 5 CONTINUING EDUCATION CREDITS.

AGD SUBJECT CODE: 148.

- Which of the following categories of healthcare-associated infections (HAIs) does the Centers for Medicare & Medicaid Services consider to be reasonably preventable?
  - HIV infection
  - Ventilator-associated pneumonia
  - Catheter-related urinary tract infection
  - Methicillin-resistant *Staphylococcus aureus* (MRSA) infection
- Which of the following statements regarding prevention of HAIs is TRUE?
  - An estimated 70% of HAIs are preventable.
  - Adherence to prevention guidelines is generally low.
  - Most professionals comply with hand hygiene guidelines.
  - There are few evidence-based guidelines for the prevention of infection in healthcare facilities.
- For which of the following pathogens is the skin not an effective barrier?
  - Candida* spp.
  - Human papillomavirus
  - Haemophilus influenzae*
  - Mycobacterium tuberculosis*
- Which of the following statements about the pathogenesis of infection is TRUE?
  - Commensal bacteria are always a source of infection.
  - Infection with parasites is as common as infection with bacteria.
  - Viral nosocomial infections are more common in adults than in children.
  - Fungal infections frequently occur during prolonged treatment with antibiotics.
- The greatest risk of morbidity and mortality is associated with infection with
  - fungi.
  - viruses.
  - bacteria.
  - parasites.
- Percutaneous exposure to a bloodborne pathogen may occur during
  - blood splashes.
  - handling contaminated needles.
  - infusion of contaminated fluids.
  - sharing of blood monitoring devices.

Test questions continue on next page →

7. Airborne Precautions should be used for a patient with
  - A) pertussis.
  - B) diphtheria.
  - C) meningitis.
  - D) tuberculosis.
  
8. When adhering to Droplet Precautions, healthcare professionals should
  - A) wear a mask when working within 3 feet of the patient.
  - B) wear an N95 respirator when entering the room of the patient.
  - C) ensure that the patient's room has 6 to 12 air changes per hour.
  - D) not enter the room of the patient if they are susceptible to the disease.
  
9. Hands should be washed after
  - A) removing gloves
  - B) contact with a patient's skin.
  - C) contact with body fluids or excretions, nonintact skin, or wound dressings.
  - D) All of the above
  
10. With regard to hand hygiene,
  - A) compliance is usually more than 80%.
  - B) antibacterial soap is more effective than alcohol-based handrub solutions.
  - C) reasons given for noncompliance include inconveniences, understaffing, and skin damage.
  - D) the impact as an individual strategy in reducing healthcare-associated infections is well documented.
  
11. Intermediate-level disinfection is defined as
  - A) use of a 0.5% chlorine solution to reduce the number of pathogenic organisms on the device.
  - B) use of disinfectant to destroy pathogenic organisms (eliminates most bacteria, viruses, and fungi).
  - C) use of high-pressure steam (autoclave), dry heat (oven), chemical sterilants, or radiation to eliminate all forms of viable micro-organisms.
  - D) a multistep procedure that consists of meticulous cleaning, high-level disinfection with a liquid chemical sterilant or disinfectant, and proper drying.
  
12. According to Spaulding classification, a device that enters the vascular system is
  - A) critical.
  - B) noncritical.
  - C) less critical.
  - D) semicritical.
  
13. According to World Health Organization classification, an isolation unit in a healthcare facility should be cleaned
  - A) using normal cleaning procedures.
  - B) using procedures that do not raise dust.
  - C) after disinfection of any areas with visible contamination with blood or body fluids.
  - D) using a detergent/disinfectant solution, with separate cleaning equipment for each room.
  
14. Which of the following is NOT an aspect of safe injection practices?
  - A) Using aseptic technique
  - B) Keeping multidose vials in the immediate patient treatment area
  - C) Using a sterile needle and syringe when a multidose vial is used
  - D) Using single-dose vials for parenteral medications whenever possible
  
15. After an occupational exposure to an infectious agent, which of the following should be recorded in the exposed person's confidential medical record?
  - A) Date and time of exposure
  - B) Details about the exposure source
  - C) Details about necessary follow-up
  - D) All of the above
  
16. Healthcare professionals experiencing all of the following symptoms require immediate evaluation by a licensed medical professional, EXCEPT:
  - A) Rash
  - B) Vomiting
  - C) Vesicular lesions
  - D) Nasal congestion

17. **Healthcare professionals exposed to hepatitis viruses**
- A) *may safely donate semen.*
  - B) *should be administered ribavirin and interferon.*
  - C) *should refrain from patient-care responsibilities.*
  - D) *should consider receiving hepatitis B immune globulin (HBIG).*
18. **Susceptible personnel who are exposed to mumps should not work**
- A) *until proven noninfectious.*
  - B) *until 3 days after parotitis develops.*
  - C) *from the 12th day through the 26th day after last exposure or, if symptoms develop, until nine days after onset of parotitis.*
  - D) *from the 4th day through the 28th day after last exposure, unless symptoms develop.*
19. **According to the New York Department of Health policy regarding HIV testing,**
- A) *rapid testing is not mandated for occupational exposures.*
  - B) *specific informed consent for HIV testing is not required.*
  - C) *if a rapid test result is positive, the test must be confirmed by an ELISA test.*
  - D) *rules regarding confidentiality and consent for testing in the occupational setting are identical to those for other HIV tests.*
20. **In hospitalized adult patients, sepsis is primarily the result of infection with**
- A) *fungus organisms.*
  - B) *gram-positive bacteria.*
  - C) *gram-negative bacteria.*
  - D) *group B streptococcus.*

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## ORAL AND MAXILLOFACIAL TRAUMA

#50002 • 5 Hours • \$45

**Purpose:** The purpose of this course is to provide dental professionals with a deeper understanding of and appreciation for oral and maxillofacial trauma.

**Faculty:** Mark J. Szarejko, DDS, FAGD

**Audience:** This course is designed for all dental professionals, especially those who work in emergency and trauma care.

**AGD Subject Code:** 070

## AIRWAY MANAGEMENT: BASICS FOR HEALTHCARE PROVIDERS

#50010 • 5 Hours • \$45

**Purpose:** Gaining control of the airway in a compromised patient is absolutely crucial. The purpose of this course is to provide dental professionals with the clinical knowledge needed to rapidly and effectively assess the patient's airway and intervene efficiently to begin to ventilate the patient in distress.

**Faculty:** Richard E. Haas, PhD, CRNA (Retired), LTC US Army Nurse Corps (Retired)

**Audience:** This course is designed for dental professionals involved in monitoring and maintaining patients' airways.

**AGD Subject Code:** 142

## HIPAA PRIVACY AND SECURITY

#51140 • 5 Hours • \$45

**Purpose:** The purpose of this course is to provide information that will allow dental professionals to more easily comply with the Privacy and Security Rules defined by HIPAA.

**Faculty:** Carol Shenold, RN, ICP

**Audience:** This course is designed for all dental professionals.

**AGD Subject Code:** 566

## SMOKING AND SECONDHAND SMOKE

#51784 • 10 Hours • \$90

**Purpose:** The purpose of this course is to provide dental professionals with a formal educational opportunity that will address the impact of tobacco smoking and secondhand exposure in public health and disease as well as interventions to promote smoking cessation among their patients.

**Faculty:** Mark S. Gold, MD, DFASAM, DLFAPA

**Audience:** This course is designed for dental professionals who may intervene to stop patients from smoking.

**AGD Subject Code:** 158

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#51913 • 5 Hours • \$45

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**Faculty:** Mark J. Szarejko, DDS, FAGD

**Audience:** This course is designed for dental professionals involved in assessing and promoting optimum oral care for special needs patients.

**AGD Subject Code:** 750

## ORAL HEALTH ISSUES DURING PREGNANCY

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**Faculty:** Mark J. Szarejko, DDS, FAGD

**Audience:** This course is designed for all dental professionals involved in the care of pregnant patients.

**AGD Subject Code:** 750



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# Course Availability List (Cont'd)

## ORAL AND MAXILLOFACIAL INFECTIONS

#54032 • 5 Hours • \$45

**Purpose:** The purpose of this course is to emphasize to dental professionals the importance of quickly identifying and treating oral and maxillofacial infections.

**Faculty:** Mark J. Szarejko, DDS, FAGD

**Audience:** This course is designed for all dental professionals involved in the identification and treatment of oral and maxillofacial infections.

**AGD Subject Code:** 310

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## ORAL MANIFESTATIONS OF SEXUALLY TRANSMITTED INFECTIONS

#54072 • 5 Hours • \$45

**Purpose:** The purpose of this course is to introduce dental professionals to the pathophysiology of STIs, their oral manifestations, systemic complications, available treatment options, and any modifications required for dental treatment.

**Faculty:** Mark J. Szarejko, DDS, FAGD

**Audience:** This course is designed for all dental professionals.

**AGD Subject Code:** 148

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## NUTRITION AND ORAL HEALTH

#54120 • 6 Hours • \$54

**Purpose:** The purpose of this course is to provide clinicians with a better understanding of the impact of nutrition on dental health and care.

**Faculty:** Mark J. Szarejko, DDS, FAGD

**Audience:** This course is designed for all dental professionals.

**AGD Subject Code:** 150

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## THE CORONAVIRUS DISEASE (COVID-19) PANDEMIC

#54151 • 2 Hours • \$18

**Purpose:** This course is designed for dental professionals who may identify or educate patients regarding coronavirus infection.

**Faculty:** John M. Leonard, MD

**Audience:** This course is designed for dental professionals who may identify or educate patients regarding coronavirus infection.

**AGD Subject Code:** 148

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## MULTIDRUG-RESISTANT MICROBIAL INFECTIONS

#54214 • 5 Hours • \$45

**Purpose:** The purpose of this course is to provide an overview of the basics of antimicrobial resistance mechanisms and to review the classes of multidrug-resistant pathogens currently prevalent in dental facilities and the community, including guidelines for prevention and options for therapy.

**Faculty:** Carol Shenold, RN, ICP; John M. Leonard, MD

**Audience:** This course is designed for dental professionals involved in the treatment and care of patients with infections.

**AGD Subject Code:** 148

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## ANALGESICS IN DENTISTRY

#55044 • 5 Hours • \$45

**Purpose:** The purpose of this course is to describe new reports and new information on analgesics for the dental professional to use in determining the best pharmacotherapeutic approach in those situations requiring oral analgesics.

**Faculty:** Richard L. Wynn, BSPHarm, PhD

**Audience:** This course is designed for all dental professionals.

**AGD Subject Code:** 200

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## ANTIBIOTICS REVIEW

#55073 • 5 Hours • \$45

**Purpose:** The purpose of this course is to provide a review of the major classes of antibiotics and their characteristics as well as an overview of selected individual agents within each class that are most useful for today's clinical practitioner.

**Faculty:** Donna Coffman, MD

**Audience:** This course is designed for dental professionals who prescribe or administer antibiotics to patients.

**AGD Subject Code:** 148

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## MEDICAL MARIJUANA AND OTHER CANNABINOIDS

#55172 • 5 Hours • \$45

**Purpose:** The purpose of this course is to provide dental professionals with unbiased and evidence-based information regarding the use of marijuana and other cannabinoids for the treatment of medical conditions.

**Faculty:** Mark Rose, BS, MA

**Audience:** This course is designed for dental professionals involved in the care of patients who use or who are candidates for the therapeutic use of marijuana and other cannabinoids.

**AGD Subject Code:** 149

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# Course Availability List (Cont'd)

## LOCAL ANESTHETICS IN DENTISTRY

**#55182 • 5 Hours • \$45**

**Purpose:** The purpose of this course is to provide dental professionals with a comparative perspective on the use of local anesthetics.

**Faculty:** Mark J. Szarejko, DDS, FAGD

**Audience:** This course is designed for all dental professionals whose patients may be administered local anesthetics.

**AGD Subject Code:** 340

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## MEDICATION USE IN DENTISTRY

**#55253 • 5 Hours • \$45**

**Purpose:** As the number of medications and range of uses grow, dental prescribing has become increasingly complex. The purpose of this course is to provide dental professionals with the knowledge necessary to effectively prescribe and to monitor the effects of commonly used drugs.

**Faculty:** Mark J. Szarejko, DDS, FAGD

**Audience:** This course is designed for all dental professionals.

**AGD Subject Code:** 010

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## COCAINE USE DISORDER

**#56944 • 5 Hours • \$45**

**Purpose:** The purpose of this course is to provide a current, evidence-based overview of cocaine abuse and dependence and its treatment, in order to allow dental professionals to more effectively identify, treat or refer cocaine-abusing patients.

**Faculty:** Mark Rose, BS, MA

**Audience:** This course is designed for dental professionals who are involved in the evaluation or treatment of persons who use cocaine.

**AGD Subject Code:** 157

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## DENTAL ETHICS: A BRIEF REVIEW

**#57423 • 2 Hours • \$18**

**Purpose:** The purpose of this course is to provide dental professionals with a review of ethics and ethical theoretical systems that pertain to their profession. The content of this course is not intended as legal advice for patients or practitioners.

**Faculty:** William E. Frey, DDS, MS, FICD; Michelle Nichols, RN, BSN, MA

**Audience:** This course is designed for all dental professionals.

**AGD Subject Code:** 555

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## HERBAL MEDICATIONS:

### AN EVIDENCE-BASED REVIEW

**#58394 • 10 Hours • \$90**

**Purpose:** Considering the pharmacological interactions between herbal medications (HMs) and conventional medications, it is paramount to increase the awareness and knowledge of dental professionals about HMs. The purpose of this course is to increase dental professionals' awareness of the potential risks and benefits of HMs from an evidence-based perspective and promote the planned inclusion of HM use in patients' medical history. This course should allow dental professionals to discuss HMs in a knowledgeable and succinct manner with patients and colleagues.

**Faculty:** A. José Lança, MD, PhD

**Audience:** Considering the widespread availability and increased use of herbal medications, this course is designed for dental professionals who will benefit from the course.

**AGD Subject Code:** 010

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### SLEEP DISORDERS

**#58883 • 10 Hours • \$90**

**Purpose:** Many of the complications associated with sleep disorders are preventable, making early diagnosis and appropriate treatment vital. The purpose of this course is to provide dental professionals with the information necessary to identify and contribute to the treatment of sleep disorders, thereby improving patients' quality of life and preventing possible complications.

**Faculty:** Teisha Phillips, RN, BSN

**Audience:** This course is designed for all dental professionals who are involved in the care of patients experiencing a sleep-related disorder.

**AGD Subject Code:** 730

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5 CE Credit Hours — \$35

### #58394 HERBAL MEDICATIONS: AN EVIDENCE-BASED REVIEW

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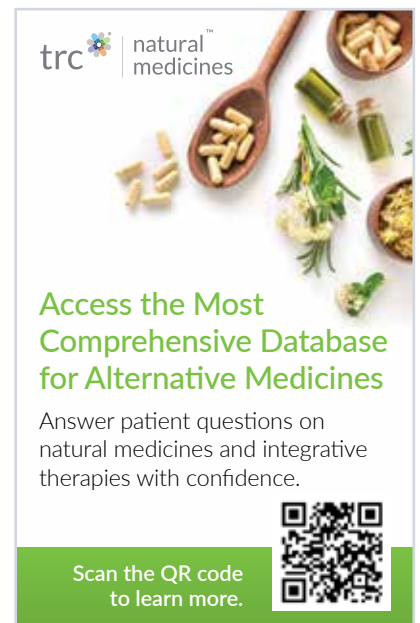
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