PARTICIPANT'S HANDBOOK

Reducing Stigma and Discrimination Related to HIV and AIDS

Training for Health Care Workers

ENGENDERHEALTH

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Table of Contents

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Introduction

Background

Stigma and discrimination related to HIV and AIDS are a persistent problem in many health care facilities around the world, particularly in those countries hardest hit by the epidemic. Stigma and discrimination result in poor quality of care for those who are infected or ill (or suspected of being infected), frighten away potential clients in need of HIV-related and other services from seeking care, and undermine prevention efforts by limiting access and service utilization. There is a growing body of evidence suggesting that stigma and discrimination in health care settings have contributed to the limited uptake of HIV services such as voluntary counseling and testing (VCT) and programs for the prevention of mother-to-child HIV transmission. As HIV treatment programs become increasingly available in resource-poor countries, access to these life-saving services will depend on the degree to which health facilities welcome and respect the rights of HIV-positive clients.

Stigma and discrimination in health facilities have numerous causes, including lack of knowledge among staff about the modes and risk of HIV transmission, and judgmental attitudes and assumptions about the sexual lives of people living with HIV. Another significant cause of stigma and discrimination is health workers' fears of becoming infected during the course of their work. In the absence of assurance that they will be protected from the virus, and without access to drugs for post-exposure prophylaxis, health workers may engage in behavior that can prevent HIV-positive and other vulnerable individuals from receiving lifesaving care and support.

Some examples of stigmatizing attitudes, behaviors and actions documented in health care settings are as follows:

- Health workers who blame those who are infected with HIV.
- Health workers who poorly treat patients that belong to stigmatized populations or patients that they believed to be infected.
- Health workers who breach client confidentiality by sharing test results with relatives and other staff, publicly marking a client's status.
- Health workers who discriminate against or do not cooperate with colleagues known to be infected with HIV.
- Health workers who demand routine, mandatory HIV testing, or insist on testing as a condition for providing services.
- Health workers who segregate or isolate HIV and AIDS patients in special beds or wards when there is no clinical need to do so.
- Health workers who discharge HIV-positive patients, regardless of overall health status, immediately or soon after test results become available.
- Health workers who withhold treatment from HIV and AIDS patients by treating them less aggressively than other seriously ill patients who are not HIV-positive, or provide substandard care.

Health workers' fears are not unfounded; they are based on real risks due to their lack of access to supplies and training in infection prevention and standard precautions. There is mounting evidence that medical transmission is an important, yet largely neglected route of HIV transmission in resource-poor settings. While sexual transmission undoubtedly accounts for the vast majority of cases, it is becoming clear that HIV programs have paid insufficient attention to transmission in health care settings. The number of cases of HIV infection through medical transmission is certainly not trivial; transmission of hepatitis B and C is also a serious risk.

Health workers' negative attitudes and behaviors are also driven by beliefs and myths about HIV and AIDS, lack of knowledge and skills in HIV and AIDS clinical management and counseling, lack of drugs and supplies, limited knowledge of the modes and risks of HIV transmission in health care settings, and an overestimation of the risk of HIV infection following occupational exposure. In addition, health care workers are members of the communities in which they work; their attitudes often reflect the prevalent stigma found in communities, especially toward marginalized populations such as sex workers. The following quote from a heath care provider in Kenya illustrates the challenge:

"Health workers are expected to know, feel and act certain ways. But what has prepared them for this [HIV and AIDS]? Many health workers have the same information the man in the street has. . . The disease is fatal! Who is not afraid of death? . . . Knowledge and skills, yes, that they have. It is part of many training programmes. But what about preparing them to come to terms with their fears and anxieties about their own sexuality and mortality, their prejudices?"[1]

The needs and obligations of HIV-positive health workers are also not being adequately addressed. Hospitals lack policies that protect the rights of infected staff to confidentiality, employment in a discrimination-free environment, insurance and sickness benefits, counseling, and medical care. Due to fear of stigmatization and unemployment, health workers avoid being tested to learn of their own HIV status, depriving themselves of the opportunity to receive timely emotional support and clinical care. By denying their own possible infection, health workers potentially expose their patients to infection.

Training Approach and Content

To reduce stigma and discrimination in health care settings, we need to address health care workers' fears about getting infected on the job, and their need to protect themselves through standard precautions. This manual uses participatory training methodologies to modify health care workers' attitudes while giving them practical knowledge and tools to both ensure client rights and meet their own needs for a safe work environment. The training covers the following:

- Values clarification about HIV and AIDS
- Stigma and discrimination towards people believed or known to be HIV-positive
- Clients' rights to dignity, comfort, privacy, confidentiality, and safety
- Clients' right to receive services free from discrimination
- Basic information about HIV transmission
- Health care staff's need for safety from injury and infection on the job
- Standard precaution practices for infection prevention
- Detailed guidance for preventing occupational injury and exposure to HIV
- Post-exposure care, including post-exposure prophylaxis
- HIV testing issues in the health care setting
- A process for participants to develop personal and facility-wide action plans to address client rights, standard precautions, and post-exposure care.

[1] Healthcare provider, Kenya. List-serve discussion cited in: Lisanne Brown, Lea Trujillo, Kate Macintyre. "Interventions to Reduce HIV/AIDS Stigma: What Have We Learned?" Horizons Program, Tulane University, September 2001.

This manual contains current information and protocols for preventing and managing occupational exposure to HIV. Please note that the term *standard precautions* is used throughout this document. *Standard precautions* help protect both clients and health care staff from exposure not only to blood, but also to other body fluids that can transmit infection. This term encompasses the commonly used term *universal precautions*, which refers to practices performed to protect health care staff from exposure to bloodborne microorganisms.

session 1:

Introduction to the Training

Purpose and Objectives

This session will provide an overview of the training objectives and content.

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

- Identify your own biases and fears related to HIV and AIDS, and explain how these attitudes can negatively influence your interactions with HIV-positive clients or those perceived to be positive;
- Describe HIV prevalence statistics in your country and community;
- Explain the link between stigma and discrimination in the health care setting against HIV-positive persons or those thought to be infected;
- List clients' rights and health care staff's needs;
- Explain how HIV is transmitted in the health care or home care setting;
- Describe standard precautions for prevention of HIV transmission in the health care or home care setting;
- Describe post-exposure care procedures in the event of needlestick or sharp instrument injuries;
- Identify client rights issues related to HIV testing in the health care setting; and
- Develop individual and facility-specific work plans to implement or improve standard precaution and post-exposure care protocols and to ensure clients' rights.

session 2:

Setting the Stage

Purpose and Objectives

This session will help you explore the impact of attitudes toward people who are infected or believed to be infected with HIV and toward people living with AIDS.

By the end of this session, you should be able to:

1. Imagine the feelings of people who are infected with HIV;
2. Explore the ways in which people become infected with HIV, and how they deal with it in their daily lives;
3. Understand how other people react when someone close to them is infected with HIV or living with AIDS; and
4. Reflect on the issues of stigma and discrimination toward people who are HIV-positive or living with AIDS.

session 3:

Impact of HIV and AIDS on Our Personal and Professional Lives

Purpose and Objectives

This session will help you to identify your own biases and fears related to HIV and AIDS and to see how your attitudes can negatively influence interactions with HIV-positive clients or those perceived to be infected.

By the end of this session, you should be able to:

1. Describe your feelings and attitudes about how HIV and AIDS have affected you personally and professionally;
2. Consider different types of responses to HIV and AIDS within your community and country;
3. Show empathy for those infected with HIV by imagining how you would feel if you were HIV-positive; and
4. Explain how fears and worries about HIV and AIDS can affect quality of care for clients.

Essential Ideas to Consider

- HIV and AIDS is an emotionally charged issue that is frequently associated with fear, stigma, and prejudice. Myths, misunderstandings, and mistreatment of clients can result from the sense of panic that surrounds HIV and AIDS. In addition, talking to clients about a life-threatening illness can be stressful and disturbing for health care staff.
- Fears and worries about HIV and AIDS in the workplace can increase health care staff's stress level, diminish job satisfaction, and decrease quality of services if they are not addressed adequately.
- As health care staff, it is important for us to be aware of our feelings, thoughts, and attitudes about HIV and AIDS. If we do not address our personal reactions and emotions, we may unintentionally treat HIV-positive clients, and those we suspect are infected or at-risk, differently than we normally treat clients, thereby diminishing the quality of care that we provide.
- It is our professional duty to ensure that our personal feelings, thoughts, and attitudes do not spill over to the work place. If they do, it is also our responsibility to determine what action to take to ensure that our clients' right to quality care is not compromised. (For example, to debrief with a supervisor about inappropriate feelings, thoughts and attitudes; to refer clients to other health providers if personal issues are interfering with quality of care; etc.)

Questions about the Personal and Professional Impact of HIV and AIDS

Personal Experiences with HIV and AIDS

- When was the first time you heard about HIV and AIDS?
- What was your reaction and how did you feel about it?
- Do you know anyone who has HIV or AIDS or has died from AIDS? If you do, how did you react to that person when you first found out they had HIV?
- Have your reactions or feelings changed over time? If yes, in what way?
- Has your life changed because of HIV and AIDS? How? If it has not changed, why not?

What If You Had HIV or AIDS?

- If you were infected with HIV, would you want to know?
- What would motivate you to want to know your HIV status?
- How would you feel if someone conducted an HIV test without your knowledge or without your permission?
- If you were told that you had HIV, in what ways would it change your life?
- If you were told that you had HIV, whom would you want to share that information with? How would you want to share that information with them?
- If you were told that you had HIV, whom would you want to keep that information secret from? Why would you want to keep the information secret from them?
- How would you feel if other people spread the information that you were infected with HIV without your knowledge or permission?
- What would happen to your job if your boss or co-workers found out that you were infected?
- If you were infected with HIV, how would you want to be treated by others?
- If you had HIV, how would you want to be treated at a health care facility?

Professional Experiences with HIV and AIDS

- If you work directly with clients, recall the first time you interacted with a client who you knew was HIV-positive. How did you feel providing health services for that person? Did you treat him or her differently than other clients? Why or why not? Thinking back, what things would you do differently now than what you did then?
- Do you think HIV-positive clients should be treated differently from clients who are not infected? Why or why not?
- What are your fears or concerns about providing health services for clients who are or might be infected with HIV?

session 4:

Exploring Our Thoughts, Beliefs, and Attitudes about HIV and AIDS

Purpose and Objectives

In this session, we will explore how negative values and attitudes about HIV and AIDS can interfere with the provision of high quality, client-centered health services.

By the end of this session, you should be able to:

1. Identify your attitudes and values about a range of potentially sensitive issues related to HIV and AIDS;
2. Show respect for the diversity of opinions and feelings within the group;
3. Explain the importance of recognizing and becoming aware of your own attitudes and values about HIV and AIDS and how these might impact your work; and
4. Identify ways to remain neutral while working with clients despite your own values and attitudes.

Values Clarification

Providing client-centered services requires technical competence, respect, and sensitivity, all of which communicate to clients that you care about their needs. This approach helps providers to gather and share information that is necessary to providing good care. In the course of providing health services, we will eventually care for people infected with HIV and people living with AIDS. To provide services in a supportive, respectful, and competent manner to these clients, we must first examine any inhibiting attitudes and values we have about HIV and AIDS, and explore ways to separate our personal feelings from our professional responsibilities to provide quality services.

Essential Ideas to Consider

- People get HIV because of what they or their partner(s) do, not because of who they are. Therefore, we should not make assumptions about who may or may not be infected.
- Testing of clients to determine their HIV status for the benefit of the provider may give the provider a false sense of security if the client is in the "window period." This is the interval shortly after infection when the level of antibodies is not high enough for the antibody test to detect infection.
- It is unethical to test a person without their knowledge or consent, to test a person and not give them the results, or to test a person without the appropriate pre-test and post-test counseling. (Session 14 addresses HIV testing issues.)
- Standard precautions are the best way to ensure prevention of transmission in a clinical setting and can help decrease provider and client fears about HIV transmission. (Session 11 covers standard precautions.)
- Health care workers have a professional obligation to remain objective and non-judgmental with clients and to avoid letting their personal beliefs and attitudes become barriers to providing compassionate and high quality care to clients.
- It is important to examine one's feelings, thoughts, and attitudes about AIDS, particularly in relation to our work as providers. This is a disease that is often associated with fear, stigma, prejudice, and highly charged emotions. There have been many myths and misunderstandings as a result of this. If we do not address our feelings and attitudes about HIV, we may consciously or subconsciously treat clients who are HIV-positive, or perceived to be infected or at risk, differently, thereby reducing the quality of care in our facility. Fears about HIV in the workplace can also lead to additional work-related stress and decreased job satisfaction and performance for some providers.

session 5:

Overview of Clients' Rights and Health Care Staff's Needs

Purpose and Objectives

During this session, we will explore clients' rights and health care staff's needs in health services.

By the end of this session, you should be able to:

1. Describe clients' rights and identify your role in ensuring non-discriminatory health services and a safe environment for other clients and staff; and
2. Describe health care staff's needs and your role in ensuring a safe and supportive environment for clients and other staff.

Clients' Rights in Health Services

Information: Clients have a right to accurate, appropriate, understandable, and unambiguous information related to health. Educational materials for clients need to be available in all parts of the health care facility.

Access to services: Services must be affordable, available at times and places convenient to clients, without physical barriers to the health care facility, without inappropriate eligibility requirements for services, and without social barriers, including discrimination based on gender, age, marital status, fertility, nationality or ethnicity, social class, caste, or sexual orientation.

Informed choice: A voluntary, well-considered decision that an individual makes on the basis of options, information, and understanding. The process is a continuum that begins in the community, where people get information even before coming to a facility for services. It is the provider's responsibility to either confirm or help the client reach an informed choice.

Safe services: Safe services require skilled providers, attention to infection prevention, and appropriate and effective medical practices. This right also refers to proper use of service delivery guidelines, quality assurance mechanisms within the facility, counseling, instructions for clients, and recognition and management of complications related to medical and surgical procedures.

Privacy and confidentiality: Clients have a right to privacy and confidentiality during delivery of services, for example, during counseling and physical examinations, and in staff's handling of their medical records and other personal information.

Dignity, comfort, and expression of opinion: All clients have the right to respectful and considerate treatment. Providers need to ensure that clients are as comfortable as possible during procedures. Clients should be encouraged to express their views freely, even when their views differ from those of service providers.

Continuity of care: All clients have a right to continuity of services and supplies, follow-up and referral.

The Needs of Health Care Staff

Facilitative supervision and management: Health workers function best in a supportive work environment with facilitative management and supervision that motivate staff and enable them to perform their tasks well and better meet the needs of clients.

Information, training and development: For a facility to provide quality health services, staff must possess and continuously acquire the knowledge, skills, and attitudes needed to provide the best reproductive and overall health services possible.

Supplies, equipment and infrastructure: For health workers to provide good services, staff need reliable and sufficient supplies, equipment in working order, and adequate infrastructure.

Safety: To be effective, health care staff need to feel safe when they are at work. Protocols should be in place to protect staff from injury on the job, and injury prevention training and supplies must be ensured.

Essential Ideas to Consider

- To ensure quality services, the rights of clients must be respected. For HIV-positive clients who often face discrimination in health care facilities, assuring their rights to dignity, privacy and confidentiality is essential to make them feel welcome and comfortable accessing services.
- With the advent of the HIV and AIDS epidemic, fear of HIV infection on the job has often increased health care workers' anxiety. Training, supervision, and supplies related to the prevention of infections in the health care facility must be in place to ensure a safe work environment and to reduce these fears.

session 6:

Stigma and Discrimination Related to HIV and AIDS in Health Care Settings

Purpose and Objectives

In this session, we will explore the link between stigma around HIV and AIDS and discrimination in health care settings.

By the end of this session, you should be able to:

1. Define *stigma* and *discrimination;*
2. Discuss the causes and consequences of HIV and AIDS-related stigma and discrimination;
3. Explain how HIV and AIDS-related stigma affects the quality of health care services for people living with HIV or AIDS, or those perceived to be living with HIV or AIDS; and
4. Identify at least two things that can be done at your facility to ensure that HIV-positive clients and those perceived to be HIV-positive or at high risk for HIV infection are not discriminated against.

Examples of discrimination by health care staff include:

- Wearing latex gloves when taking vital signs
- Not being willing to develop care plans to sustain the health of a client because the provider believes that HIV-positive persons are going to die anyway
- Being discourteous, scornful, or unwelcoming toward clients known to be HIV-positive or toward clients believed to be HIV-positive
- Seeing clients known to be HIV-positive in separate areas from the general clinic population

All these behaviors and practices are unnecessary and inappropriate.

Stigma often leads to discrimination when a distinction is made against a person that results in their being treated unfairly and unjustly on the basis of their belonging or the perception that they belong to a particular group. Stigma related to HIV and AIDS is intimately linked to discrimination. For example, when a provider's prejudiced thoughts lead them to do something, or to omit doing something that in turn harms or denies services to the person who is or is perceived to be HIV-infected, the client receives inferior care.

Stigma is defined as an undesirable or discrediting attribute that a person or group possesses that results in the reduction of that person's or group's status in the eyes of society. Stigma can result from a physical characteristic, such as the visible symptoms of a disease, or from negative attitudes toward the behavior of a group, such as homosexuals or prostitutes.

Discrimination, which can be expressed as both negative attitudes or particular behavior or actions, is often described as a distinction that is made about a person that results in their being treated unfairly and unjustly on the basis of their belonging, or being perceived to belong, to a particular group. For example, stigma can lead to prejudice and active discrimination directed toward persons who are actually, or are simply perceived to be, infected with HIV, and the social groups and persons with whom they are associated.

Causes

Stigma and discrimination are often rooted in lack of information, lack of or limited understanding and experience, or fear of the unknown. Discriminatory behaviors are usually irrational and based on stereotypes.

Consequences

Discriminatory practices can negatively impact a client's health by setting up barriers to optimal care and delaying access to needed services. When health care workers reject clients or facility systems are set up to unnecessarily isolate clients who are HIV-positive or perceived to be HIV-positive from the general client population, the Hippocratic principal of doing no harm is violated. The emotional trauma of scorn and rejection adds to the client's existing burden of illness and inherent need for emotional and psychological support. Furthermore, if HIV-positive clients do not feel comfortable entering the clinic, they will not receive the basic health care needed to keep them healthy as long as possible.

Reducing Stigma and Discrimination in the Health Care Setting

In exploring attitudes and beliefs related to HIV and AIDS, we must look at how our attitudes and beliefs lead to stigmatizing certain individuals based on their HIV status or perceived status. Looking at our behaviors helps us to see the things we do that reinforce an unwelcoming environment for providing services to the community and individuals, including our colleagues. Once we have recognized these behaviors, we can find ways to change them. The following are some ways to protect clients' rights:

- ✓ Protect the client's right to privacy by ensuring that locations exist or are created where voices cannot be overheard during counseling and history-taking.
- ✓ Protect the client's right to confidentiality by keeping client records in a secured structure, immediately filing client records at the end of each session, and never discussing client management situations in areas of the facility where anyone can overhear the discussion.
- ✓ Avoid any labeling or signage in the service delivery area that would draw attention to clients with HIV or any other conditions that are stigmatized.
- ✓ Avoid separating clients with HIV from the general client population unless there is an indication, e.g., client is severely immunocompromised and prevention of infection is critical.
- ✓ Avoid using latex gloves for activities that pose no risk of exposure to blood or body fluids.
- ✓ Avoid non-verbal communication that portrays scorn, disgust, or disrespect (facial expressions, hand expressions when touching a client's utensils or clothing, etc.).
- ✓ Avoid any behavior that would communicate that the client is viewed as different.
- ✓ Welcome all clients with warmth, a smile, a kind word, and genuine interest in who they are and their circumstances.

✓ Participate in or conduct in-service training and community outreach activities that address stigma and discrimination, provide accurate information related to modes of HIV transmission and behaviors that prevent infection, and support optimal health among those who are infected.

✓ Advocate or support advocacy for the development and enforcement of policies and legislation that protect people living with HIV and AIDS from abuse (physical or any other form) or discrimination (e.g., loss of employment, divorce without financial support, loss of health insurance, loss of housing, loss of property, and/or loss of access to social services).

Essential Ideas to Consider

■ HIV-positive clients, those presumed to be infected, and those perceived to be at risk for infection, often face stigma, threats of violence, and ostracism in the communities in which they live. It is critical to make the clinic a warm, welcoming, and non-judgmental environment that is open to and respectful of all clients, regardless of their HIV status.

■ Make sure that your clinic provides an environment where clients can seek services and information about HIV and AIDS without fearing discrimination from service providers, or that community members will learn about their situation. This means establishing systems that ensure client privacy and confidentiality.

■ Sometimes health care workers fear getting infected while working with HIV-positive clients. This fear may lead to discrimination against those clients. Standard precautions to prevent HIV transmission greatly reduce the risk of infections on the job and allay such fears. (Session 11 covers standard precautions in detail.) However, health care workers must protect themselves from sexual transmission of HIV as well.

Sample Case Scenarios on HIV and AIDS Stigma and Discrimination

1. A man with AIDS is being treated by a physician who does not want to touch him.
2. A few nurses and clinic assistants are gossiping about an HIV-positive client in front of other clients.
3. A very sick HIV-positive woman is in the clinic's waiting room with her three children. Her husband and in-laws threw her out of the house and she has nowhere else to go.
4. One of the clinic assistant's female relatives comes to the clinic with her child who is sick. She confides in a provider that her husband is HIV-positive and that she is afraid and confused. After the session, the provider immediately tells another provider. They gossip about the clinic assistant and her "dirty" and "immoral" relatives and begin to snub her.
5. When an HIV-positive woman who is known to be a sex worker leaves the clinic after a family planning appointment, other women in the waiting room loudly complain that they do not appreciate being treated in an environment where "sick" and "dirty" women are seen. They don't want the same doctors, nurses, or equipment touching them.
6. A surgeon who is HIV-positive is dressing in the doctors' changing room when she overhears staff talking negatively about people with AIDS.
7. You observe two providers who use gloves to perform every task, clinical and non-clinical, because a client in the room "looks like she is a sex worker and must have AIDS."
8. A midwife working in a clinic hears that one of the other midwives in the clinic is infected with HIV. She gossips about this to you, a staff person in the clinic.
9. The director of a district hospital learns that an orderly who has worked in the operating theater for many years is infected with HIV. Without giving any explanation, he instructs the orderly's immediate supervisor to transfer the orderly to another section of the hospital right away.

Case Scenario Questions Related to HIV and AIDS Stigma and Discrimination

- Do you think these are realistic scenarios?
- What ethical and rights dilemmas did these scenarios explore?
- What did you observe in the behavior of the health care staff that did not reflect discrimination against the client/colleague living with HIV or AIDS or presumed to have HIV or AIDS?
- What did you observe in the behavior of the health care staff that reflected discrimination against the client/colleague with or presumed to have HIV?
- What would you do differently to ensure that people who are HIV-positive, or those presumed to be, are not discriminated against?

Overview of Stigma and Discrimination Related to HIV and AIDS

"Stigma and discrimination associated with HIV and AIDS are the greatest barriers to preventing further infections, providing adequate care, support and treatment and alleviating [the] impact [of HIV and AIDS]." (UNAIDS, 2002)

Stigma and discrimination related to HIV and AIDS are almost as old as the epidemic itself. It is now widely recognized that stigma and discrimination are one of the three phases of the AIDS epidemic. The first phase is the silent spread of HIV throughout a society. This is followed by the second phase, the rising number of HIV-positive people whose health deteriorates and who are eventually diagnosed with AIDS. However, it is the third phase of the epidemic—the spread of stigma, discrimination, collective denial and blame—that may be the most damaging of the three to a society's health. By making it difficult to openly discuss issues related to HIV and AIDS, stigma and discrimination act as obstacles to the establishment and implementation of effective prevention efforts.

Defining Stigma and Discrimination

Stigma, although it exists in one form or another in all societies, is a social construct that is understood in different ways around the globe. Various words and terms are used by diverse societies for the social phenomenon known as "stigma" in the Western world. One of the simplest definitions of the term describes stigma as an undesirable or discrediting attribute that a person or group possesses that results in the reduction of that person's or population's status in the eyes of society. Stigma can result from a physical characteristic, such as the visible symptoms of a disease, or from negative attitudes toward the behavior of a group, such as homosexuals or prostitutes. Stigmatization is also often described as a dynamic process of devaluation, and it is frequently linked to issues of power and social control within a particular society. The creation of stigma related to HIV and AIDS within a society often builds upon and reinforces earlier negative attitudes and thoughts that exist within a society. Oftentimes people with HIV or AIDS are believed to deserve the disease because they have done something that is considered "wrong" by society, such as engaging in homosexual behavior or being "promiscuous."

Once we understand the definition of the term, we can separate instances of stigma into two categories: felt stigma and experienced stigma. Felt stigma refers to the expectations that stigmatized people have as to how others will react to their conditions. Felt stigma can be described as self-stigmatization and as the fear of stigma. It is an internal, psychological process for the stigmatized person, and it often leads people to hide their stigmatizing condition so that they can avoid subjecting themselves to the painful experiences of discrimination. In the case of HIV and AIDS, felt stigma may prevent someone who is at risk for HIV from getting tested because they want to avoid the discrimination they may face if the test comes back positive.

Experienced stigma is a term used to describe how a stigmatized person experiences discriminatory acts and to depict these acts from the stigmatized person's point of view. For example, experienced stigma refers to how a stigmatized person feels and reacts to having their HIV status disclosed against their wishes, losing their job or housing once the community hears of their status, or being denied the right to marry because of their HIV status.

Discrimination, which can be expressed as both negative attitudes or particular behavior or actions, is often described as a "distinction that is made against a person that results in their being treated unfairly and unjustly on the basis of their belonging, or being perceived to belong, to a particular group." Discriminatory acts can be official laws that restrict the rights and liberties of certain populations or individuals, such as laws that prohibit people living with HIV or AIDS from receiving medical care. Discriminatory acts can also

be informal action taken by community members, such as the rejection and banishment of a person with HIV or AIDS from their community.

It is important to understand that stigma and discrimination exist in a vicious cycle. Stigma encourages the development of discriminatory attitudes or prejudice. These attitudes are then often expressed in discriminatory behavior that draws attention to and reinforces the stigma. In this way stigma and discrimination reinforce and perpetuate each other.

Instances of discrimination related to HIV and AIDS have been recorded all over the world. People living with HIV or AIDS (PLHA) have been: the focus of gossip and rumors, segregated in schools, refused employment and housing, denied the right to marry, rejected by their communities and families, and even killed because of their HIV-positive status. Studies have found that PLHA often internalize stigmatizing messages about themselves and suffer anguish and loss of hope about their future. Some PLHA also suffer from severe depression that drives them to withdraw from social interactions and isolate themselves from the rest of society.

Sadly, many PLHA have faced discrimination even when they go to seek assistance from those who are supposed to help them, the health care providers. Reported instances of discrimination related to HIV or AIDS within health care settings have been rising around the globe over the past few years. A list of examples of discrimination that PLHA have faced in health care settings includes: having treatment delayed or denied, being provided inappropriate treatment, being discharge prematurely, being refused admission to a health care facility, being tested without consent, having their confidentiality breached, being called names, and being the subject of ridicule and degrading behavior.

Causes of Stigma and Discrimination Related to HIV and AIDS

There are numerous factors that contribute to the creation of stigma and discrimination related to a particular characteristic, attribute, or disease within a society. When discussing stigma and discrimination related to HIV and AIDS within the context of health care settings, it is important to realize that there are two main groups of causes: societal factors and causal factors that are specific to health care settings.

One of the most important societal factors that contributes to the creation of stigma and discrimination related to HIV and AIDS is the general lack of knowledge about HIV transmission and AIDS. Studies have shown that people who are aware that casual transmission is impossible are less likely to be prejudiced against PLHA than those people who are less knowledgeable about HIV transmission. Also, because AIDS is an incurable and degenerative disease, it is closely associated with death and the terminally ill. This association with death, along with poor levels of knowledge about HIV and AIDS, acts to increase stigma surrounding HIV and AIDS.

One of the reasons that stigma and discrimination related to HIV and AIDS are so difficult to overcome is that HIV and AIDS are linked to pre-existing prejudices. Long-standing stigma surrounding the first populations that were hit by the epidemic, such as homosexual men, prostitutes, and intravenous drug users, contributed to the general stigma associated with HIV and AIDS. HIV and AIDS became known as the "gay plague" or as a "woman's disease" throughout different parts of the world. Along with the association with these already stigmatized populations came the belief that people who became infected with HIV were receiving a just punishment for their previous "immoral" and "deviant" behavior. Sadly, because many PLHA are members of groups that are already stigmatized and socially marginalized (such as the poor, homosexuals, and commercial sex workers), these people may experience multiple, compounding stigmas. The powerful effects of these compounding stigmas create new, and further entrench old, prejudices within society that are extremely difficult to overcome.

In addition to the general societal factors that contribute to the creation of stigma and discrimination related to HIV and AIDS, there is another set of causes that are specific to health care settings. Perhaps the greatest of these factors is the fear that many health care workers (HCWs) have about getting infected while working. Although there is a slight risk of occupational exposure for HCWs, most of the HCWs' fears about casual occupational exposure are unjustified. Studies have shown that the unfounded fear of casual transmission that many HCWs have can be dispelled with accurate information and training. In addition, many HCWs hold the same prejudices that exist within the general society, and therefore may be upset at having to risk their health to treat people who became infected through what the HCWs believe to be "immoral," risky behavior. Along with all of the fear that HCWs may have about becoming infected is the concern that HCWs may have about becoming stigmatized as being HIV-positive or having AIDS as well.

There are two other causes of stigma and discrimination related to HIV and AIDS within health care settings that are closely related to the health care system. HCWs who are faced with a lack of resources, whether it be drugs for treatment, testing kits, or a shortage of staff, may feel that treating PLHA is not worth the time or effort. HCWs may believe that their time and energy is better spent assisting clients who are suffering from curable conditions that are easier to manage than HIV or AIDS. Such attitudes, while perhaps not intended by the HCWs to be discriminatory, can prevent PLHA from receiving the treatment and care that they require. In addition, PLHA may face institutional discrimination when trying to access health care services. Some health care systems have discriminatory policies in place that restrict the ability of PLHA to access treatment and health services, thereby denying them services (such as anti-retroviral drug therapy) that could significantly improve and lengthen their lives.

Consequences of Stigma and Discrimination Related to HIV and AIDS in Health Care Settings

There are two types of consequences that can occur when stigma and discrimination related to HIV and AIDS exists within a health care setting: consequences for the targets of the stigma and discrimination and consequences for the potential targets of the stigma and discrimination. It is important to realize that not all people who suffer from stigma and discrimination related to HIV and AIDS are HIV-positive or have AIDS. In fact, a person can be stigmatized and discriminated against when others simply presume that person is HIV-positive or has AIDS (perhaps because the person in question looks unhealthy or is known to participate in risky activities). As discussed above, when a client is assumed or known to be HIV-positive or living with AIDS, his or her health can suffer as he or she is denied access to necessary treatment and care. Furthermore, because PLHA or people presumed to be living with HIV or AIDS know that they might encounter stigma and discrimination in a health care facility, some may elect not to attempt to access services, thereby decreasing the utilization of treatment services. In addition, because the stigma and discrimination associated with HIV and AIDS are so intense and undesirable, some people living with HIV or AIDS may go to extreme measures to avoid disclosing their status to others and subjecting themselves to stigma and discrimination. For example, PLHA may avoid using condoms when having sex for fear that their partners may presume that they are infected. In this manner, stigma and discrimination actually contribute to the spread of the epidemic and decrease the efficacy of prevention efforts.

Besides creating obstacles for PLHA or people presumed to be living with HIV or AIDS to access and utilize services and prevention methods, stigma and discrimination can also lead to severe psychological trauma for those targeted. Research has demonstrated that people who are stigmatized and subjected to discrimination because of their known or presumed HIV status often suffer from loss of self-worth, depression, and despair. Stigma and discrimination can also indirectly lead to the social isolation of people known or presumed to be living with HIV or AIDS. In fact, PLHA are often isolated not only from other people, but oftentimes from the

development process for HIV interventions as well. Stigma and discrimination cause PLHA to be seen as some kind of problem, rather than as part of the solution to the epidemic. By not including PLHA in the planning process for our HIV interventions, we miss out on prevention and epidemic management opportunities. Without including PLHA in the planning process for HIV-related clinical services we miss out on the chance to get input from potential clients about how we can improve the services we offer and make them more attractive to PLHA. By simply ensuring that PLHA are included in the planning process for HIV-related services, we help to increase service utilization rates, which will eventually help to increase the efficacy of our prevention efforts as well.

It is important to realize that the consequences of stigma and discrimination related to HIV and AIDS extend beyond PLHA and people who are presumed to be living with HIV or AIDS. In fact, there is another population affected by stigma and discrimination: people who are unsure about their HIV status—the potential targets of stigma and discrimination. The threat of being stigmatized and subjected to discrimination may be so strong that people who know they are at risk for HIV may elect not to get tested because they would rather not find out that they are HIV-positive. Those people who purposefully avoid getting tested for fear of being stigmatized are then forced to live with the constant worry that they may be HIV-positive and in danger of developing AIDS. Furthermore, if a person is HIV-positive and decides not to get tested because they do not want to become stigmatized because of their HIV status, they may be unknowingly spreading HIV to others. This is yet another example of how stigma and discrimination perpetuate the growth of the epidemic.

It is evident that stigma and discrimination related to HIV and AIDS is harmful to PLHA, people who are presumed to be living with HIV or AIDS, and to the entire society in general. In order to effectively combat the HIV/AIDS epidemic and to offer PLHA the best clinical services possible, we must do everything we can to reduce the stigma and discrimination that exists today—particularly in health care settings. Only once stigma and discrimination are reduced within a society can prevention and treatment services reach their maximum potential levels of efficacy.

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session 7:

Moving Beyond "Us" and "Them:" Understanding the Perspective of Clients Living with HIV and AIDS

Purpose and Objectives

During this session, we will explore the perspective of clients who are HIV-positive or living with AIDS.

By the end of this session, you should be able to:

1. Better articulate the perspective of clients living with HIV and AIDS; and
2. Describe the impact of health care workers' behaviors on HIV-positive clients' health and well-being.

Questions for Small Group Work:

- How would you feel if you were in this situation?
- What would your reaction be?
- Would you return to that hospital or clinic? Why or why not?
- If not, what would you do for care?

Discussion Questions:

- How did it feel to imagine that you were the HIV-positive clients on your cards?
- What client rights issues came up?
- How did this exercise help us understand the impact of health care staff's behaviors?
- What can we do in our facilities to make sure that "positive experiences" are the norm for HIV-positive clients?

Essential Ideas to Consider

- It is important for us to understand the perspective of clients living with HIV so that we can provide appropriate and compassionate care and support.
- We should strive to create an environment in our health care facilities where HIV-positive clients are treated the way we would want to be treated if we were in their situation.

session 8:

Recognizing Our Own Stigmatizing Language and Discriminatory Actions

Purpose and Objectives

During this session we will explore language and actions that are stigmatizing and discriminatory and discuss ways to eliminate them from health care facilities.

By the end of this session, you should be able to:

1. Identify language and practices used in health care facilities that contribute to stigmatization of and discrimination against people living with HIV and AIDS;
2. Identify non-stigmatizing language you can use when talking about HIV and people living with HIV and AIDS; and
3. Identify ways to treat HIV-positive clients in a non-stigmatizing or non-discriminatory way.

Examples of Stigmatizing Language and Discriminatory Actions:

Stigmatizing Language

- AIDS victim
- Slim disease
- Bad blood
- AIDS sufferer
- AIDS carrier
- AIDS is a death sentence
- High-risk groups
- HIV/AIDS
- AIDS orphan

Non-stigmatizing Language

- HIV-positive person
- Person living with HIV
- People living with HIV or AIDS
- HIV and AIDS
- HIV-positive patient
- Positive living

Discriminatory Actions and Practices in the Health Care Setting

- Coding of HIV-positive patients' charts
- Double-gloving when taking pulse of HIV-positive patient
- Change of facial expression when finding out you are treating an HIV-positive patient
- Denial of full, unconditional, high quality care and treatment
- Isolating HIV-positive patients in a corner or special ward
- Refusing to touch an HIV-positive patient
- Expressing a fatal prognosis—that there are "no options" or that "there is nothing we can do."

Non-discriminatory Actions and Practices in the Health Care Setting

- Warm greetings, showing care and compassion
- Not labeling or coding client's files
- Touching an HIV-positive patient
- Respect, privacy, dignity, right to opinion
- Listening
- Emotional support
- Ensuring confidentiality
- Not wearing gloves when examining patients or giving medication
- Positive non-verbal communication (nodding, smiling, eye contact)

Language to Avoid:

HIV/AIDS—This makes no distinction between being HIV-positive and having AIDS. In order to make people aware that HIV-positive people can live healthy and productive lives, without illness, it is best not to combine the two acronyms, using instead, HIV and/or AIDS.

AIDS victim, sufferer, etc—Similarly these terms do not recognize that HIV-positive people can live healthy, productive lives, and that they are not necessarily in need of other's pity.

High-risk group—This phrase has contributed to the stigmatization of certain groups in society, such as commercial sex workers and truck drivers, as the source of the HIV epidemic. It has also contributed to people's reluctance to get tested or disclose their HIV status because they do not want to be associated with these groups. Finally, it has contributed to denial about the risk behaviors of those who do not identify with any of the so-called "high-risk groups."

Essential Ideas to Consider

- Most health care personnel are committed to providing high quality services to all, including people living with HIV and AIDS. However, we sometimes use stigmatizing language or act in discriminatory ways without realizing we are doing so. Raising awareness about the language we use and our practices in the health care setting is a first step in creating change and providing appropriate and compassionate care and support.
- There are many ways to make our health care facility "non-stigmatizing" and "non-discriminatory." By doing so we can create an environment in which people living with HIV or AIDS feel welcome and where everyone can access the prevention, care, and support services they need.

session 9:

Testimonials: People Living with HIV or AIDS

Purpose and Objectives

In this session we will hear from people living with HIV or AIDS and discuss with them some of their hopes and concerns. By the end of this session, you should be able to better understand some of the hopes, concerns, and issues that people living with HIV or AIDS face.

Essential Ideas to Consider

- The topics and issues the panelists discussed are personal, but are likely to also be concerns and issues other people living with HIV or AIDS are facing. This information is useful because we were able to hear firsthand the concerns, hopes, and issues some people living with HIV or AIDS have.
- As service providers, the participants should talk and listen to their clients who are living with HIV or AIDS. This way, the participants can become more aware of the complexity of issues and the reality some of the clients they are serving have to face.

session 10:

HIV Transmission Overview: Understanding Personal and Professional Risk

Purpose and Objectives

We will review issues related to the risk of HIV transmission and practices that facilitate or hinder its spread in this session. This will allow you to provide accurate information to clients and the community.

By the end of the session, you should be able to:

1. Identify the level of HIV infection transmission risk related to various practices and/or behaviors;
2. Explain the ways in which HIV is not transmitted;
3. Discuss common health care practices that facilitate HIV transmission: provider to client, client to provider, and client to client;
4. State the level of risk of HIV transmission from accidental exposure to blood; and
5. Explain why the term "risk behavior" is more appropriate than the term "risk groups."

HIV Infection

HIV is a member of a group of viruses called retroviruses. One reason why HIV is a particularly serious infection is that it attacks and destroys cells of the immune system—called T-cells or CD4 cells—that are designed to fight infections and diseases. After HIV penetrates these cells, it takes over their machinery (or reprograms the cell) so that it begins to produce many copies of the virus. Eventually, HIV destroys the immune cells. HIV has the ability to mutate (change itself) frequently, which makes it especially difficult for researchers to find effective treatments or vaccines.

There are two types of HIV. HIV-1 is responsible for the vast majority of infection and cases of AIDS in the world. HIV-2 is the more common type in West Africa and has a slower course than HIV-1.

From the time a person is infected with HIV, the virus begins to damage the immune system. Although an infected person's immune system struggles to fight back—and can do so for as many as ten years or more in an otherwise healthy adult—the virus continues to destroy these defenses until the immune system is too weak to fight off infections.

A person can be infected with HIV and not know it, because symptoms or illnesses related to HIV may not occur for many years after infection. Most people lead healthy and productive lives after HIV infection. In fact, many people are not aware they are infected because they feel fine. Unfortunately, even if the infected person feels fine, he or she can pass the infection on to others.

AIDS

AIDS is advanced HIV infection—it is the late stage of the infection, when the immune system is weakened. Advanced infection with HIV weakens the immune system to the point that it cannot fight off infections as

effectively as usual. The individual becomes more susceptible to a variety of infections (called opportunistic infections) and other conditions (e.g., cancer). Eventually, the infected person may lose weight and become ill with diseases such as persistent severe diarrhea, fever, tuberculosis, pneumonia, or skin cancer. Opportunistic infections are known as such because they take advantage of a weakened immune system to cause illness. Some examples of opportunistic infections include chronic cryptosporida diarrhea, cytomegalovirus eye infection, mycobacterium avium complex, pneumocystis pneumonia, tuberculosis, and toxoplasmosis. Other AIDS-associated conditions include invasive cervical cancer, Kaposi's sarcoma, and lymphoma.

According to the United States Centers for Disease Control and Prevention, any one of a number of conditions indicating severe immunosuppression or HIV infection in an individual with a CD4 (T-cell) count of less than 200 cells per microliter (less than half of what is considered to be the bottom of the normal range) constitutes an AIDS diagnosis.

Persons living with AIDS often have multiple infections, neurological disorders, extreme weight loss, diarrhea, and cancers. Although an infected person generally dies as a result of complications of these infections, conditions, and malignancies, living with AIDS is like living with other chronic diseases: sometimes the person feels sick, and at other times s/he feels fine and can go about normal activities. No one dies from AIDS or HIV; rather, a person with AIDS dies from an infection or condition that her/his weakened immune system can no longer fight off.

In Europe and the United States, the average time from HIV infection to the development of AIDS is more than 11 years. In developing countries, the average time is shorter, which is probably due to multiple factors, including a higher background level of pre-existing infections; less access to care, including prophylaxis for opportunistic infections; and poor nutrition. Progress of the infection in infants is generally much faster than in adults.

The Immune System

The immune system is composed of many interdependent cells and organs that protect the body from bacteria, parasites, fungi, viruses, and tumor cells. The immune system acts like an army that protects the body from invaders, and each of the different cells of the immune system performs a highly specialized and interrelated function in fighting off these invaders.

When bacteria, viruses, or other agents invade the body, they are recognized as foreign, which then signals the immune system to attack and destroy them. If the immune system does not act sufficiently in response to an invading agent, the result will be infection.

How HIV Affects the Immune System

After a retrovirus penetrates a cell, it creates a DNA version of its genes, and its DNA becomes part of the infected cell's DNA. HIV infects one particular type of immune system cell, called CD4 cells (or T-cells). T-cells coordinate immune system regulation and secrete specialized factors that activate other white blood cells to fight off infection. In healthy individuals, the number of CD4 cells normally ranges from 450 to 1,200 cells per microliter of blood (this measurement is known as the T-cell count).

When infected with HIV, a T-cell becomes an HIV-replicating cell. In other words, the virus binds with the cell,

copies itself into the cell's DNA, and causes the cell to begin producing new HIV viruses. This process eventually causes the cell to die. As the number of T-cells decreases, the infected person's immune system becomes increasingly compromised. When a person's T-cell count (number of CD4 cells) drops to below 200 cells per microliter of blood, the person is considered to have AIDS.

An infected person's body tries to fight off HIV infection by aggressively manufacturing antibodies, which are tiny bits of protein designed to bond with HIV particles and neutralize them before they can infect more cells. Most HIV tests actually detect the presence of these antibodies, not HIV itself.

It is particularly difficult for the immune system to fight off HIV infection for a number of reasons, including the following:

- HIV attacks the immune system itself, weakening its ability to fight back.
- HIV replicates in large quantities that are more than the compromised immune system can handle.
- HIV has the ability to mutate (change itself), making it more difficult for the body to fight the infection.

HIV Transmission

HIV is spread through three main modes. These modes of transmission are as a result of exposure to body fluids (blood, semen, vaginal fluids, and breast milk) of infected individuals. Specifically, HIV can be transmitted through:

1. Sexual contact:
   - Vaginal sex
   - Anal sex
   - Oral sex

2. Blood contact:
   - Injections/needles (sharing needles, intravenous drugs, drug paraphernalia, or injury from contaminated needles or other sharp objects)
   - Cutting tools (using contaminated skin-piercing instruments, such as scalpels, needles, razor blades, tattoo needles, circumcision instruments)
   - Transfusions (receiving infected blood or blood products) or transplant of an infected organ
   - Contact with broken skin (exposure to blood through cuts or lesions)

3. Mother-to-child transmission:
   - Pregnancy
   - Delivery
   - Breastfeeding

Although any exposure through one of these methods can lead to HIV infection, not every exposure results in transmission of the infection.

How HIV Is <u>Not</u> Transmitted

Many myths exist about how HIV is transmitted, and many myths are culturally specific. It is important for people to realize that HIV is actually quite difficult to transmit. For example, it is far less transmissible than hepatitis B or some other sexually transmitted infections. HIV is not transmitted through:

- Ordinary social or casual contact
- Shared clothing
- Touching
- Shared food or dishes
- Dry kissing
- Shaking hands
- Toilet seats
- Insect bites
- Massaging another person
- Sexually stimulating a partner using your hand (although a risk may exist if blood, semen, or vaginal fluids come in contact with broken skin)
- Masturbation
- Living with a person with HIV

In addition, HIV is not transmitted through tears, sweat, saliva, vomit, feces, or urine. Although these substances can contain HIV, they do not contain the virus in amounts significant enough to cause infection. Extensive, continuing evaluation of new HIV infections over the last 20 years in many countries has not uncovered any persons being infected through these body fluids. Blood, semen, vaginal secretions, and breast milk are the only body fluids through which HIV transmission has been documented.

It is theoretically possible to transmit the virus through deep kissing if the gums have open sores or are bleeding, but this is highly unlikely. Even so, transmission in this case would be through blood rather than through saliva.

Transmission through Sexual Contact

One of the most common ways HIV is transmitted is through sexual contact, primarily through unprotected vaginal or anal intercourse. In every act of sexual penetration, there is an inserter and a receiver. The receiver is generally at greater risk than the inserter, although if the penis of the inserter has open cuts, sores, or ulcers, then the inserter's risk will be increased.

Unprotected anal sex (penetration of the anus by the penis) between two men or between a man and a woman is particularly risky because the chance of damage (small tears and lesions) to the thin lining of the rectum is high. This facilitates HIV transmission by enabling the virus in semen to quickly enter the bloodstream.

With penile-vaginal sex, the female partner is generally at greater risk because of the greater exposed surface area in the female genital tract than in the male genital tract, the higher concentrations of HIV in seminal fluids than in vaginal fluids, and the larger amount of semen than vaginal fluids exchanged during intercourse.

Although HIV transmission through unprotected oral sex—cunnilingus (oral-vulva contact) or fellatio (oral-penile contact)—can occur, the risk is much lower than for unprotected vaginal or anal sex. But this behavior is not free of risk. With oral sex, the person at greater risk is the one using her/his mouth to stimulate the other person's genitals. The risk is increased when that person has open sores in the mouth or bleeding gums. The risk is also increased when that person receives semen in the mouth or swallows any secretions.

HIV transmission has also been reported through infected semen used for artificial insemination. Reputable sperm banks now test all samples before using them.

If both partners in a relationship know that they are not infected and they are monogamous (which may be difficult to know in some situations), there will be no risk for HIV transmission during unprotected sex.

HIV Transmission through Blood and Blood Products

Sharing Injection Drug Paraphernalia

The sharing of HIV-contaminated needles, syringes, drugs, and other drug paraphernalia can lead to the transmission of HIV. Even if syringes and needles are sterile, drugs that are mixed in containers (including spoons or bottle caps) and are shared, or drugs shared from a common container, make for very risky injections.

While intravenous injections hold the greatest risk for infection, it is possible to be infected from subcutaneous and intramuscular injections as well. In many countries, injectable medications, syringes, and needles are available to the general public without a prescription. If multiple people use these, the risk for HIV transmission will increase.

Transfusions and Organ Transplants

Transfusions or treatments with infected blood or blood products can lead to HIV transmission. Many parts of the world now routinely test donated blood for HIV before approving its use, but many countries lack the resources to do so. Organs or tissue taken from individuals with HIV can also transmit the virus to the people receiving them.

Sharing Skin-cutting or Skin-piercing Tools

HIV can be transmitted by skin-piercing, cutting and tattooing instruments (needles, razor blades, circumcision instruments) that have been in contact with infected blood or body fluids and have not been correctly processed before reuse.

Transmission in Health Care Settings

Clients are at risk during clinical or surgical procedures if they are exposed to blood or body fluids containing HIV from other clients. Health care workers, including cleaners and lab technicians, are risk for becoming infected with HIV if they are exposed to blood and other body fluids of infected individuals during their work.

Mother-to-Child HIV Transmission

A woman infected with HIV can pass the virus to her baby during pregnancy, labor and delivery, or breastfeeding. Roughly 15 to 30 percent of newborns of untreated HIV-positive women will become infected with HIV during pregnancy and delivery and an additional 10 to 20 percent during breastfeeding. The risk has varied by region with rates of 15 to 25 percent transmission in industrialized countries of Western Europe and the United States, but higher rates (25 to 35 percent) reported from developing countries. Some studies have found rates as high as 43 percent in sub-Saharan Africa. These rates represent the risk for transmission without any preventive interventions. Options for using antiretroviral drugs that can greatly reduce the rate of HIV transmission from mother to child are becoming more readily available in resource-constrained settings.

The risk for HIV transmission from breastfeeding, which has been estimated to be between 10 and 20 percent, increases with the length of breastfeeding. The risk for HIV infection through breastfeeding appears to be greatest in the first few months of life. However, HIV infection is lower among infants who are fed breastmilk exclusively than among those who are breastfed and also receive supplemental foods or liquids. Babies who are exclusively breastfed are less likely to become infected in the first few months of life compared to those who are mixed fed.

The risk for HIV transmission from an individual woman to her child is affected by a variety of factors, including:

Stage of infection: If a woman is further along in her infection, she will have a higher viral load and will be more likely to transmit the virus to the child. Also, if she becomes infected during or just before pregnancy, the initial spike in viral load at the time of infection may increase the risk of mother-to-child HIV transmission.

Breastfeeding pattern: Exclusive breastfeeding has been found to present a decreased risk over mixed feeding, which is the norm in many countries.

Duration of breastfeeding: Risk increases with the duration of breastfeeding.

Oral or breast lesions: Oral lesions in the baby or lesions on the mother's breasts increase the risk for transmission due to the increased portals of entry for the virus and exposure to blood.

Gastrointestinal illness: A weakened gut may increase portals of entry for the virus found in breast milk in a baby who is breastfeeding.

Antiretroviral therapy: This can significantly reduce the risk for mother-to-child HIV transmission during pregnancy, labor, and delivery.

Cesarean section: This can significantly reduce the risk for mother-to-child HIV transmission, but it is technically and financially intensive, and not necessarily realistic in resource-poor settings.

Invasive procedures: Avoidance of invasive procedures during delivery can significantly reduce the risk of mother-to-child HIV transmission.

It is important to note that all children born to HIV-positive women will test positive for HIV antibodies at birth, whether or not the children are actually infected. This is due to the presence of the mothers' antibodies in the children's blood. Antibody testing can accurately determine infection in the infant after the age of 18 months.

HIV Risk and Vulnerability

Risk

A variety of demographic, behavioral, and social factors place people at risk for becoming infected with HIV and other sexually transmitted infections. Traditionally cited risk factors include, for example, age, multiple sexual partners, partners with multiple sexual partners, history of sexually transmitted infections, and drug and alcohol use. Early in the AIDS pandemic, there was a tendency to refer to "high-risk groups"—groups of people who have historically contracted the infection in large numbers. This often included, for example, sex workers and homosexuals. These types of categorizations may lead some people to assume that they are not at risk for infection if they do not belong to these groups.

Over time, experience has shown that risk is not based on who you are, but rather on what you do. The idea of risk behaviors is that HIV and AIDS do not discriminate on the basis of race, ethnicity, caste, income level, age, or gender. Anyone who engages in a behavior that exposes her or him to HIV is at risk for infection. This includes:

- Anyone of any age who engages in unprotected oral, vaginal, or anal intercourse with someone other than an uninfected, mutually monogamous partner;
- Anyone whose partner engages in unprotected intercourse with others;
- Drug users who share needles and other drug works;
- Anyone who receives an injection with a potentially contaminated needle or syringe;
- The sexual partner(s) of an injection drug user;
- Recipients of transfusions or treatment with blood or blood products in regions where reliable screening of the blood supply does not occur;
- Anyone who uses potentially contaminated tattoo needles or other skin-piercing instruments;
- Workers or clients at health care facilities who come into contact with blood, blood products, unclean needles, or surgical instruments; and
- A fetus or nursing child of a mother who is infected with HIV.

This understanding—along with the experience that identifying groups of people as "high-risk" leads to unjust stigma and discrimination—has led to a shift in the language from "risk groups" to "risk behaviors." The distinction between risk groups and risk behaviors is important.

Vulnerability

More recently, there has been a growing recognition that in addition to these individual behaviors or characteristics, certain social, economic, and political forces make people or groups of people vulnerable to infection. So while anyone can get HIV or AIDS, statistics show that some groups of people are more susceptible to HIV and AIDS than others. Some factors that affect social vulnerability include gender inequalities, economic power, youth, cultural constructs, and government policies.

Women, in particular, may be vulnerable to infection because of gender inequalities and because they may lack power within sexual relationships, which make it difficult, if not impossible, for them to negotiate safer sex with partners. Lack of economic power can lead to vulnerability as some women are forced to enter into sex work or to form temporary partnerships to barter sex for economic survival. Furthermore, because of women's greater biological vulnerability to infection transmission, they face greater risk of infection.

Young people of both sexes are vulnerable to infection for many reasons: social, biological, behavioral, and demographic. For example, young men often face tremendous pressure to be sexually active and are therefore less likely to seek information about how to protect themselves and their partners for fear of appearing inexperienced. Young women, on the other hand, may be particularly vulnerable for biological reasons (less mature tissue may be more readily permeated or damaged) and for social reasons, including lack of economic resources or negotiating power.

HIV Transmission in Health Care Settings and Home Care

Staff of health care facilities and those providing home-based care, client receiving care, and those living in the community are all at risk of HIV infection related to the provision of health care services.

Risk of Occupational HIV Infection

Health care workers can acquire infections caused by HIV and other bloodborne organisms from breaches in infection prevention practices related to, for example, handwashing, handling of sharps, and instrument processing. The risk of occupational HIV infection—infection of health care staff during their work—has been recognized since the mid-1980s.

When a health care worker's skin is pierced or cut by a contaminated needle or other sharp instrument, the risk of HIV transmission is actually very small, approximately 0.3% (in other words 1 in 300), depending on several factors, such as the size and location of the injury, the amount of blood involved and the level of virus in the blood.

When a client's blood or other body fluids are splashed on a health care worker's mucous membranes (e.g., eyes, nose, mouth,) the risk of HIV transmission is even smaller than by injury by needles or sharpsæabout 0.1% (in other words 1 in 1000).

Other bloodborne infections such as hepatitis B and C are more easily transmitted through sharp injuries and mucous membrane exposure.

Transmission of HIV to Clients in Health Care Settings

Clients are also at risk of infection when health care workers do not follow appropriate infection prevention practices and, for example, give unsafe injections or reuse contaminated instruments. It is estimated that 40% of the 16 billion injections given annually in developing countries are given with unsterilized, reused syringes and needles. Each year, unsafe injections are the cause of some 20 million hepatitis B infections, 2 million hepatitis C infections, and 250,000 HIV infections. These chronic infections have a profound effect on local and national economies and quality of life.

Unsafe injection practices usually involve the re-use of needles and syringes—either re-use without sterilization or re-use of disposable needles and syringes. A frequent practice is to either rinse the needle and syringe in tepid water between injections or to change the needle between clients while reusing the same syringe multiple times. Both are unsafe practices. The water will not kill bloodborne microorganisms and syringes become contaminated because negative pressure is generated when the needle is removed, drawing up whatever is in the needle into the syringe. For this reason, one sterile syringe and needle for each client is the acceptable standard of safe injection practice.

Risk of HIV Transmission to the Community by Health Care Practices

Members of the community are also at risk of infection, particularly from inappropriate disposal of medical waste, such as contaminated sharps or organic materials. Practices that put the community at risk include:

- Improper disposal of medical waste, including contaminated dressings, tissues, needles, syringes, and scalpel blades. These items can be found by children or others scavenging in open dumps. Medical waste is often scattered on the ground in areas where adults and children travel, putting them at risk of infections and injury.
- Not giving a client's clothing that has been soiled with blood or body fluids to family members in a plastic bag with instructions for handling and laundering the clothing at home.
- Not giving the client or her family the placenta in an appropriate container with clear instructions for handling in settings where the family keeps the placenta after delivery. Instruct the family that it is best not to touch the placenta with their bare hands. Advise family members to always use gloves or cover their hands with intact plastic bags when handling the placenta. If the placenta must be handled with bare hands, it should be soaked in a 0.5% chlorine solution for at least 10 minutes.
- Health care workers wearing contaminated work clothing in public and into their homes.
- Not providing information to family members or caretakers of clients infected with HIV or living with AIDS on how they can protect themselves.

Reducing the Risk of Health Care-related HIV Transmission

Following appropriate infection prevention practices can drastically reduce the risk for occupational exposure

and HIV transmission to clients and members of the community. The best way to prevent health care-related infections is by following standard precautions. These are a set of recommendations designed to help minimize the risk for exposure to infectious materials by both clients and staff. (See session 11 for additional information on standard precautions.)

Providers should follow standard precautions with every client regardless of whether or not they think the client might have an infection. This is important because it is impossible to tell who is infected with HIV just by looking at them, and often the infected persons themselves do not know that they are infected. Remember: it is safer to act as if every client is infected, rather than to apply standard precautions to some clients and not to others.

Essential Ideas to Consider

- As health care workers, whether we counsel clients or not, it is important for us to understand the behaviors and situations that can lead to HIV infection. This information will not only help us better serve our clients, but can help us better understand the risk for HIV infection in the health care setting and in our own lives.
- Variations in sexual behavior, relationships, and social factors can influence HIV risk. Risk of transmission depends on the context in which a particular behavior occurs, as well as other factors such as age (younger women may be more susceptible due to less mature vaginal tissue; a woman who is significantly younger than her partner may have difficulty negotiating safer sex practices), gender (women may have difficulty negotiating safer sex practices with their partner), whether or not a partner is infected, whether or not a person is a "giver" or "receiver" of body fluids during sexual activity, and the difficulty of knowing a partner's sexual history and infection status.
- Often HIV myths and misconceptions are focused on specific groups who are marginalized in a community (commercial sex workers, for example). It is important for health care workers to recognize how these myths contribute to discrimination against these groups so that we can help prevent stigma and ensure that our services are welcoming and accessible to all groups.
- By understanding the various risks for HIV transmission in health care settings, we can better protect ourselves from infection. Standard precautions against HIV infection should be in place to reduce the risk. (Session 11 covers standard precautions.)
- Unprotected sexual intercourse and unsafe sexual practices carry a significantly higher risk of HIV transmission than accidental exposure to blood and body fluids in the health care setting.
- Identifying groups of people as "high-risk" leads to unjust stigma and discrimination. Shifting the language from "risk groups" to "risk behaviors" is a very important distinction that has a positive effect on attitudes toward people infected with HIV.

HIV Risk Continuum

Practice	Risk	Notes 
Abstinence	No risk	There is no risk for HIV transmission as long as no body fluids are exchanged.
Masturbation	No risk	There is no risk for HIV transmission as long as no body fluids are exchanged.
Unprotected sex with a monogamous, uninfected partner	No risk	Having unprotected sex in a monogamous relationship carries no risk as long as both partners are uninfected. However, it is often difficult to know if a partner is truly monogamous and uninfected.
Sharing eating utensils with an HIV-positive person	No risk	Studies have found that saliva does not contain enough virus to allow for HIV transmission.
Shaking hands with an HIV-positive person	No risk	There is no risk for HIV transmission as long as no body fluids are exchanged.
Sitting on a public toilet seat	No risk	There is no risk for HIV transmission as long as no body fluids are exchanged.
Getting bitten by a mosquito	No risk	Studies have found that mosquitoes do not transmit HIV between people.
Massage	No risk	There is no risk for HIV transmission as long as no body fluids are exchanged.
Hugging an HIV-positive person	No risk	There is no risk for HIV transmission as long as no body fluids are exchanged.
Helping someone with a nosebleed	No risk	If the skin on your hands is intact, then there is no risk for transmission.
Taking a blood pressure without gloves	No risk	There is no risk for HIV transmission as long as no body fluids are exchanged.
Taking a temperature without gloves	No risk	There is no risk for HIV transmission as long as no body fluids are exchanged.
Performing an abdominal exam without gloves	No risk	There is no risk for HIV transmission as long as no body fluids are exchanged.
Performing an antenatal abdominal exam without gloves	No risk	There is no risk for HIV transmission as long as no body fluids are exchanged.
Getting a client's blood on your hands	No risk	If the skin on your hands is intact, then there is no risk for transmission.
Cleaning up a blood spill wearing latex gloves	No risk	The gloves offer protection from the possible exchange of body fluids.
Performing a cesarean section delivery with gloves	Low risk/ No risk	In the absence of sharps injury, the risk of HIV transmission is very low.
Sexual stimulation of another's genitals using hands	Low Risk/ No risk	Risk is very low if there are no cuts or broken skin on hands, especially if there is no contact with secretions, semen, or menstrual blood.

HIV Risk Continuum continued

Practice	Risk	Notes 
Oral sex on a man (fellatio) with a condom	Low Risk/ No risk	Risk is very low if the condom is used correctly. However, some STIs (e.g. herpes) can be transmitted though contact with skin not covered by the condom.
Vaginal sex with a condom	Low risk	As long as the condom is used correctly, the risk of transmission is low. Some sexually transmitted infections (e.g. herpes) can still be transmitted though contact with skin not covered by the condom.
Vaginal sex with multiple partners; condom use every time	Low risk	Multiple partners increase risk, however correct and consistent condom use lowers risk. A new condom must be used with every partner and for every sexual act.
Cleaning up a blood spill without wearing latex gloves	Low risk	Risk is higher if hands have cuts or rashes.
Getting blood from a client splashed in your eye	Low risk	The risk of transmission is approximately 1 in 1,000.
Getting blood from a client splashed into your mouth	Low risk	The risk of transmission is approximately 1 in 1,000.
Performing a delivery without wearing latex gloves	Low risk	The risk of transmission is low as long as the skin of the hands is intact.
Performing a pelvic exam during labor without wearing gloves	Low risk	The risk of transmission is low as long as the skin is intact. However, meticulous handwashing is required to minimize infection transmission.
Getting a client's blood on your hand that has a recent cut on it	Low risk	Depending on the size and depth of the cut, the amount of blood, and the amount of virus in the blood. Few or no documented cases of this mode of transmission.
Getting a client's blood on your hand which has a rash	Low risk	Depending on the severity of the rash, the amount of blood and the amount of virus in the blood. Few or no documented cases of this mode of transmission.
Getting a client's blood on your hand with a torn cuticle	Low risk	Depending on the size and depth of the tear, the amount of blood and the amount of virus in the blood. Few or no documented cases of this mode of transmission.
Recapping a used needle	Low risk	Although the risk of injury is high, the actual risk of infection is low (approximately 1 in 300).
Sticking yourself with a used needle in the lab	Low risk/ possibly medium risk	The approximate risk of transmission is 1 in 300. Risk may vary depending on depth of injury and source patient's stage of illness.
Anal sex with a condom	Low/ possibly medium risk	Risk of condom breakage is greater than for vaginal sex. Some STIs (e.g. herpes) can be transmitted though contact with skin not covered by the condom.

HIV Risk Continuum continued

Practice	Risk	Notes 
Oral sex on a man (fellatio) without a condom	Low/ possibly medium risk	HIV can be transmitted through oral sex, though the risk is very low unless there are cuts or sores in the mouth. The risk of transmission is lower if no semen enters the mouth.
Oral sex on a woman (cunnilingus)	Low/ possibly medium risk	HIV can be transmitted through oral sex, though the risk is very low unless there are cuts or sores in the mouth.
Unprotected vaginal sex with withdrawal prior to ejaculation	High risk	HIV can be present in pre-ejaculate, and therefore, risk of transmission is high, however withdrawal may reduce risk of HIV transmission somewhat. Unlikely to reduce risk of other sexually transmitted infections.
Vaginal sex without a condom	High risk	One of the highest risk activities. Receptive partner is at greater risk.
Anal sex without a condom	High risk	One of the highest risk activities. Receptive partner is at greater risk.
Re-using sharp instruments to cut skin (e.g. instruments used for scarification, FGM, tattoos)	High risk	If these instruments have been used on others and are not properly processed, HIV and hepatitis could be transmitted
Re-using injection needles or syringes between clients	High risk	Injection needles must be disposed of in a puncture-resistant container (disposable) or processed for reuse to prevent transmission of bloodborne organisms from one client to another. To process correctly, use high-level disinfection or sterilization.
Breastfeeding from an HIV-positive mother	High risk	Although the risk is relatively high, if no other good source of nutrition is available, it is still recommended that an HIV-positive woman breastfeed.
Labor and delivery, risk to child when mother is HIV-positive	High risk	Risk can be significantly reduced with certain antiretroviral drug regimens and safe obstetric practices.
Sharing needles, syringes, drugs or other drug paraphernalia	High risk	HIV and hepatitis can readily be transmitted from an infected person through sharing of injection needles and syringes.
Traditional circumcision	Unknown risk	If the razor blade or cutting instrument is re-used and not properly sterilized, risk could be high.
Going to the dentist	Unknown risk	Depends on the dentist's infection prevention practices.
Having unprotected sex with your spouse	Unknown risk	It may be difficult to know whether your spouse engages in activities that put you at risk.
Receiving a blood transfusion	Unknown risk	In many countries, the blood supply is adequately screened for HIV.
Donating blood	Unknown risk	In the presence of correct infection prevention practices, there is no risk.

session 11:

Standard Precautions in the Health Care Setting and in Home Care

Purpose and Objectives

This session provides an overview of standard precautions which should be used to reduce the risk of infection transmission in health care and home care settings.

By the end of the session, you should be able to:

1. Describe the standard precautions for use in health care settings for infection prevention;
2. Describe the standard precaution practices to be taught to family members and caretakers of people living with AIDS; and
3. Discuss ways to adhere to standard precautions in resource-constrained settings.

Standard Precautions in the Health Care Settings

The following information is a summary of standard precautions for health care and home care settings. For more detailed information about infection prevention practices, refer to Appendix B: Reprint of *Infection Prevention: A reference booklet for health care providers*, on page 81.

Standard precautions refer to a broad set of clinical practice recommendations designed to help minimize the risk of exposure to infectious materials, such as blood and other body fluids. Standard precautions help break the disease-transmission cycle at the "mode of transmission" step and decrease the risk of infection transmission to both clients and health care workers.

Universal precautions is an older term that refers to practices performed to protect health care workers from exposure to bloodborne microorganisms.

Handwashing

Wash your hands with soap and running water after coming in contact with blood, body fluid, secretions, excretions, and contaminated items, whether you have worn gloves or not. Wash hands immediately after gloves have been removed and, between client contacts to avoid transferring microorganisms among clients, well as to the environment. (For more information, see Appendix B, page 5.)

Gloves

Wear gloves when coming in contact with blood, body fluid, secretions, excretions, or contaminated items. Put on clean gloves just before touching mucous membranes and non-intact skin. Change into a new clean pair of gloves between tasks and procedures on the same client after contact with material that may contain a high concentration of microorganisms. Rinse gloved hands in 0.5 percent chlorine solution before removing gloves. Then remove gloves immediately before touching non-contaminated items and surfaces. Note: Health care staff with open lesions, cuts, weeping dermatitis, rashes or severely chapped hands, should avoid direct client contact and should not handle contaminated equipment because breaks in the skin

provide points for microorganisms to enter the bloodstream and cause infection. (For more information, see Appendix B, page 7.)

Eye Protection

Wear eye protection, face shield, mask to protect mucous membranes of the eyes, nose, and mouth during procedures (e.g., during delivery, cutting of the umbilical cord) and client care activities that might produce splashes or sprays of blood, body fluids, secretions, and excretions.

Protective Clothing

Wear gowns (clean, non-sterile gown) to protect skin and to prevent soiling of clothing during procedures and client-care activities that might produce splashes or sprays of blood, body fluids, secretions, or excretions. If feasible, use a plastic or rubber barrier (e.g., apron) to protect clothing if large amounts of soiling are anticipated (e.g. during delivery). Remove a soiled gown immediately, placing in a designated container for decontamination, and wash hands. (For more information, see Appendix B, page 44.)

Instrument Processing

Process used instruments consistent with accepted infection prevention guidelines for decontamination, cleaning, high-level disinfection, and/or sterilization. Make sure that a reusable instrument is not used on another client until it has been appropriately processed. (For more information, see Appendix B, page 25.)

Handling Sharps

Handle sharps with care to avoid injury and reduce the risk of infection.

- Avoid recapping needles (use the one-hand capping technique if recapping is absolutely necessary).
- Do not bend, break or cut needles after use.
- Do not remove the needle from the syringe before disposal.
- Dispose of used needles in a puncture-resistant container that is not overly full immediately after use.

If injured by a contaminated needle or sharp instrument, wash the area immediately with soap and water and follow your facility's post-exposure prophylaxis guidelines. (Session 12 covers prevention of needlestick and sharp injuries in more detail, while Session 13 covers post-exposure care. Also, see Appendix B, page 20.)

Environmental Cleanliness and Waste Disposal

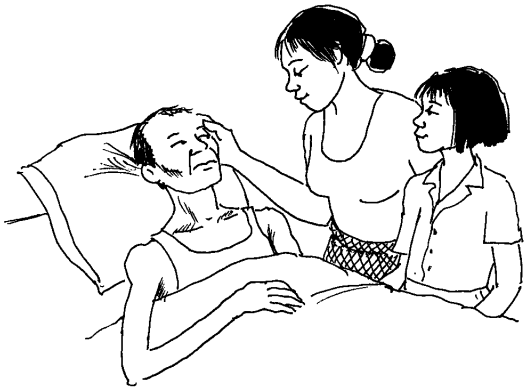
Maintain environmental cleanliness and waste-disposal practices according to appropriate infection prevention guidelines. Make sure that liquid waste is placed in a container with enough disinfecting solution to maintain an effectiveness to kill organisms.

Make sure that all contaminated waste (bloody dressings, swabs, tissues, gauze, cloths soiled with body fluids, etc.) is placed in designated and clearly marked bags or containers, collected, and taken for incineration or other safe disposal. Immediately clean up surface spills of blood, body fluid, secretions, and excretions with a disinfectant solution such as 0.5 percent chlorine solution, and then clean the area with detergent and water. (For more information, see Appendix B, page 56.)

Handling and Processing Linen

When handling linen soiled by blood, body fluids, secretions, or excretions always wear gloves and place items in designated and clearly marked bags or containers. If using a plastic bag, place linen in one bag and then place that bag inside another plastic bag (double bag). Transport soiled linen in a way that avoids puncturing the bag or loss of soiled items on the way to the laundry. Launder soiled linen using detergent and germicide according to appropriate infection prevention guidelines. (For more information, see Appendix B, page 44.)

Standard Precautions When Providing Care in the Home



As in health care settings, standard precautions can help prevent the spread of infections when care is being given in the home. Home-based care may include childbirth, postnatal follow-up of mother and baby, and care of individuals with infectious diseases such as AIDS. Standard precautions in home-based care are the same as those followed in the health care setting. Health care staff providing home-based care should follow standard precautions as they would in the facility. It is essential that health care staff teach family members and other caretakers infection prevention practices. Clients should also be informed of infection prevention practices so that they do not misinterpret the behavior of their caretakers as rejection or scorn. If family members or caretakers can read, a short instruction sheet can be prepared for their reference. Any information shared with the family and/or caretakers should include the following, as a minimum:

Handwashing

Wash hands with soap and running water immediately:

- before you begin providing care to an HIV-positive person;
- after you take off gloves, or if the glove gets torn; and
- if you get blood or body fluids on your hand (or any other body area, wash the area).

Gloves

If feasible, wear latex gloves when:

- you touch the infected person's mucous membrane (e.g., mouth, genitals), broken skin, or body fluid (blood, stool, urine; drainage from wounds, saliva, or vomit);
- you handle any items or surfaces soiled with blood or body fluids; and
- you clean up blood or body fluids around the area where you are caring for the client.

Put on a pair of new gloves each time you perform a procedure or task. If gloves are not available or affordable, consider using plastic bags (that do not have holes) that you might get from a market, to put over your hands.

Protective Clothing (masks, eye/face shields, gown/apron)

Wear protective clothing during any task that might expose you to blood or body fluids. If large plastic garbage bags are available, cut a hole in the middle of the sealed end and on either side so that you can put the bag over your head and put your arms through. Wear the bag when you expect to be exposed to splashes or to getting wet with contaminated fluids.

Washing Soiled Linen and Clothing

Linen and clothing that have been soiled with blood or other body fluids must be washed separately from other items, using a detergent and a bleach solution. Explain to those providing home care how many parts of bleach and water you should use for laundering soiled clothing.

Disposal of Contaminated Waste

When throwing away items soiled with blood or body fluids, place them in a plastic bag, and put the bag inside a second plastic bag (double bag). If possible, mark the bag with a colored tie or marker (e.g., red) and place in the area designated by the local health facility for medical waste disposal. Find out from your

health facility or health care worker where to dispose of infected body fluids and waste. If burial is the only means available, dig a hole 50 meters from any water source downhill from a well and not close to areas set aside for planting. Dig the hole at least 1-2 meters wide, 2-5 meters deep. If possible, fence in the area to keep out children and animals.

Keeping Surfaces Safe

Clean up spills of blood and body fluids immediately with a bleach solution before washing the area with soap/detergent and water. Remember to wear heavy-duty gloves when cleaning up spills and cleaning surfaces.

Needle Precautions

Avoid recapping needles (use the one-hand capping technique if recapping is absolutely necessary). Do not bend, break or cut needles after use. Do not remove the needle from the syringe before disposal. Dispose of used needles in a puncture-resistant container that is not overly full immediately after use.

If you experience a needlestick injury, immediately:

- flush the injured area with running water;
- wash hands with soap and water, and where there is bleeding;
- allow the site to bleed briefly; and
- inform your supervisor immediately after caring for the wound.

Note: In the absence of water, an antiseptic solution can be used to flush the area, but remember that antiseptic solutions have not been proven to be any more effective than soap and water.

If a family member will be giving injections, teach the person the appropriate way to handle and dispose of used needles and syringes. Tell the family member that when the container is 3/4 full, they should bring it to the facility's waste disposal site for safe destruction. Inform family members that if they should be accidentally injured by a used needle, wash the wound immediately with soap and water, allow the wound to bleed, cover it, and come to the facility for assessment and management.

Increasing Awareness of Potential Risks

Remind clients and family members that there can be risks of HIV transmission associated with practices performed by traditional healers, traditional birth attendants, and circumcisionists when exposure to blood and shared cutting instruments are involved.

Essential Ideas to Consider

- Standard precautions prevent infection in both providers and clients and should be used with all clients, regardless of known or presumed infection status.
- Consistent handwashing, use of gloves and other protective attire, avoiding recapping used needles, and safe disposal of contaminated waste are all vital standard precaution procedures that should be followed in both the health and home care settings.
- Simple and practical recommendations exist for effectively implementing standard precautions, even in resource-constrained settings.

Case Studies: Standard Precautions in Resource-Constrained Settings

Case Study #1:

Mrs. Yaro is a mother of four who just delivered a baby at home. You are the community nurse making your home visits when you find the family preparing to bring Mrs. Yaro to the facility because she has been bleeding more heavily than she did after her other deliveries. You observe that her clothing is very bloody, indicating active bleeding. You don't have any more sterile gloves in your bag but you have disposable gloves.

In managing this situation to provide necessary treatment and protect yourself and the client from bloodborne microorganisms, what should you do?

Case Study #2:

Anita works in a woman's health clinic and is responsible for charting clients' blood pressure, temperature, and weight, and for drawing a few drops of blood from clients' fingers to check their hematocrit. She does not usually wear gloves during any part of this process but does wash her hands before seeing the next client. In cases where the client looks thin and 'sickly' Anita wears gloves, as she is concerned that these clients might be infected with HIV.

Is this an appropriate infection prevention practice? Why?

Case Study #3:

Dr. Asante is the director of the Suta Clinic, which is holding a community health fair. During the opening session, many more community members arrive than the space can accommodate, and they spill out into the bushy areas. As the opening speech is being given, a painful wail is heard from the back of the crowd: a man has stepped on a needle and syringe, which is now sticking out of his foot. Upon inspection of the area where the man has been standing, Dr. Asante finds a pile of fresh medical waste at the base of a tree. He becomes angry and confused--since the clinic has an incinerator, he does not understand why the medical waste was dumped there. He discusses the issue with the staff responsible for waste disposal and running the incinerator, who tell him that they often receive more waste than the incinerator can handle and sometimes have to dump waste in the trees.

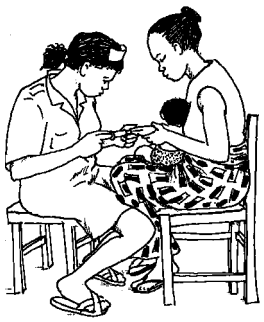
What are the waste-disposal issues here and what can be done about this situation?

Case Study #4:

Your clinic has a special container for disposing of sharps. The container is located in the vaccination room, since that is where most injections are usually given. Occasionally, clients need to be given injections in the treatment room, which is down the hall from the vaccination room. When this occurs, the nurses recap the hypodermic needles, carry them down the hall to the vaccination room, and dispose of them in the sharps-disposal container.

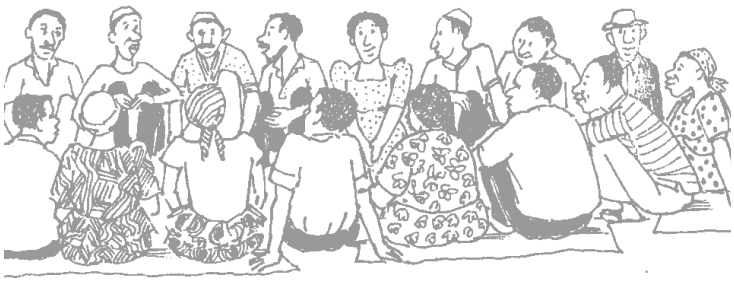
What should be done differently to reduce the risk of infections at your clinic?

Case Study #5:



You are the supervisor visiting a health post in a rural area. During your visit you observe that there are more mothers than usual bringing their infants for immunization. Though the session is almost over, there are at least 20 mothers with their children still waiting. The housekeeping person is boiling needles and syringes to keep up with the demand but you also notice that one of the older nurses is giving injections and only changing the needle, reusing the same syringe. When you point out to her that this practice is not the correct technique for giving injections, she replies that she does not want to keep the women waiting longer than they already have and that it is only the needle that pierces the skin that needs to be sterile.

In managing this situation to prevent unsafe injection practices, what should you do?



session 12:

Prevention of Needlestick and Sharp Instrument Injuries

Purpose and Objectives

In this session we will review common causes of needlestick and sharp instrument injuries and discuss strategies for preventing them.

By the end of this session, you should be able to:

1. List at least five ways in which injuries are most likely to occur when using needles and sharp instruments;
2. Describe at least four actions that health care staff can take to prevent or minimize injuries by needles and sharp instruments; and
3. Identify at least three actions that members of a surgical team can take to prevent or minimize injuries by sharp instruments.

Preventing Needlestick and Sharp Instrument Injuries

In most countries, exact data are not available on the number of needlestick and sharp instrument injuries experienced by health care workers each year. In the United States, it is estimated that 600,000 to 800,000 such injuries occur annually, with as many as half of these going unreported. Most reported needlestick injuries involve nurses, but midwives, laboratory staff, physicians, housekeepers, and other health care workers are also injured, resulting in exposure to bloodborne organisms (HBV, HCV, and HIV). The emotional and physical impact is serious, whether or not infection is transmitted. It is far simpler and more cost-effective to prevent injuries from sharp instruments than it is to manage the emotional and financial costs of trauma to the worker and to her/his partner, time spent in extensive counseling, providing drugs if available, and follow-up monitoring. Injuries by sharp instruments can be prevented. To better understand how to prevent these injuries, it is important to understand how they occur.

How Injuries with Needles and Other Sharps Commonly Occur

Injuries by needles and sharp instruments occur in many circumstances including when:

- Suture needles or other items are manipulated by hand (e.g., when a suture needle is repositioned in a needle holder or a scalpel is mounted on a scalpel holder);
- Instruments are dismantled after use;
- Needles or sharps are placed into disposal containers that are full or do not allow for easy insertion of the item;
- Needles are removed from IV tubing ports;
- Needles are recapped, bent, cut or broken after use;
- Blood is transferred from a syringe into a test tube.

- Fingers are used as a guide by surgeons or surgical assistants;
- Tissue is hand-held during suturing or sutures are tied with the needle still attached;
- Needles are left exposed on needle holders;
- When a scalpel or other sharp instrument is handed from the user to an assistant or from the assistant to the user

Injury-prevention Strategies

There are many strategies that can be used to reduce the risk of injury during health care services.

Needles

- Let the client know when you are going to give an injection to avoid startling the client and causing an injury.
- Avoid capping needles after use. Use the one-hand capping method if recapping is absolutely necessary.
- Do not bend, break, cut or remove needles from syringes after use.
- Dispose of used needles immediately in a puncture-resistant container.
- Place sharps disposal containers close to work areas so that staff does not have to cross the room to reach the container or go down the hall to find one.
- Burn or bury the container when it is three-quarters full.
- When transferring blood from a syringe to a test tube, place the test tube in a holder and insert the needle into the test tube using one hand.
- Promote safety awareness during in-service training sessions focused on supporting behavior change to prevent or minimize needlestick and sharp instrument injuries.

Scalpels and Other Sharps

- Manipulate or reposition scalpel blades and suture needles using forceps to grasp the blade or needle as opposed to your fingers.
- Consider using staples in place of suture and suture needles, if it would be an appropriate option.
- Use curved needles with a needle holder as a safer option to straight, hand-held needles.
- Blunt instruments can be an alternative for preventing injuries, such as rounded-point scissors, non-penetrating towel clips, blunt retractors, and synthetic sutures instead of wire sutures.
- When transferring sharps between personnel, avoid hand-to-hand transfer. Create a *safety zone* using a flat tray, mat, part of the instrument stand, or designated area on the field where the user can place instruments and the assistant can safely pick them up. Do not use a kidney basin, because it can be hard to pick up items from inside the basin.

Team Efforts for Prevention of Injuries

- Communicate verbally to those around you when moving to prevent collision between hand or body and sharps.
- As members of a surgical team announce transfer of sharps to avoid injury. For example, always say "needle back" or "sharp back" when passing these instruments back to the *safety zone*.
- Avoid reflex sponging of tissue unanticipated by the surgeon when a sharp is in use.
- Keep hands away from the incision during cutting and suturing.
- Avoid manual retraction; use retractors whenever possible.
- Maintain a well-lit surgical field to facilitate visibility of sharp items and instruments.
- Keep an eye on all sharps in use until they are returned to the *safety zone* and removed from the field.
- Meet as a team to analyze patterns of injury and to develop strategies for their prevention.

Keep in mind that along with protecting health care providers, injury-prevention strategies protect housekeeping, maintenance and other staff working in health care facilities.

session 13:

Post-exposure Care and Post-exposure Prophylaxis

Purpose and Objectives

In this session we will review post-exposure care and prophylaxis so that you can manage an accidental exposure to blood according to guidelines from the World Health Organization and UNAIDS.

By the end of this session, you should be able to:

1. Explain your feelings about the risk of occupational exposure to HIV;
2. Describe the risk of HIV infection following a needlestick injury, splash of HIV-infected blood to mucus membranes, or contact of non-intact skin with blood or body fluids containing HIV;
3. List post-exposure care options following accidental exposure to blood in health care settings; and
4. Discuss the recommendations for post-exposure prophylaxis.

Post-exposure Care and Prophylaxis for Injured Health Care Staff

The risk of becoming infected with HIV following a needlestick or sharp instrument injury is around 0.3 percent (that is 1 in 300) on average; most injuries do not result in infection. The risk of becoming infected with HIV after mucous membrane or non-intact skin has been exposed is 0.1 percent (1 in 1,000), depending on the amount of infected material, length of time of exposure and the amount of HIV in the material. Following an injury with a contaminated needle or a sharp instrument, or a mucous membrane exposure, immediate action should be taken to reduce the risk of infection.

WHO, UNAIDS and The U.S. Centers for Disease Control and Prevention recommend post-exposure prophylaxis for health care worker exposed to blood and other body fluids—where antiretroviral drugs are available—if it is determined that the risk of infection is significant. Treatment is not recommended after every occupational exposure because most exposures do not result in infection and the side effects of the treatment may be serious. Post-exposure care should be guided by local policies and is dependent on the availability of counseling, HIV testing and drugs. Taking zidovudine (ZDV, or AZT) alone can lower the risk of acquiring infection by about 80%; with triple therapy, the risk is reduced further. However, health care workers have become HIV-positive following occupational exposure even though they received post-exposure prophylaxis.

1. Immediately following exposure:

- Flush the injured area with running water and wash with soap and water. Where there is bleeding, allow the site to bleed briefly. There is no scientific evidence that squeezing the wound decreases the risk of transmitting bloodborne organisms.
- If a mucous membrane has been injured or splashed, flush with a large amount of water. If there has been a splash to the eyes, irrigate with clean water, saline, or sterile irrigating solution.
- In the absence of water, an antiseptic solution can be used to flush the area, although antiseptic solutions have not been proven to be any more effective than soap and water.

2. Assess the injured health worker's risk for infection following exposure.

If feasible, determine the HIV status of the source patient, following appropriate counseling and informed consent (see below). This is particularly important in settings with limited resources, where antiretroviral drugs may not be readily available. Determining that the source patient is HIV-negative will eliminate the need for drug therapy, its attendant side effects, costs, and the emotional stress of not knowing the risk following exposure or whether the drug therapy will work.

Special Considerations for Pregnant Women

A pregnant health care worker who becomes occupationally exposed to HIV must be given full information about what the injury means to her and her baby, and what is not known regarding the potential risks and benefits associated with the use of antiretroviral drugs to her and her baby. Counseling discussions with the pregnant health care worker should include:

- The potential risk for HIV transmission based on the type of exposure;
- The stage of pregnancy (the first trimester is the period of maximal risk); and
- What is known about how prophylactic drugs work in the body, their safety and tolerability.

ZDV taken during the second and third trimesters of pregnancy has not caused serious side effects in mothers or infants. Little is known about the safety of ZDV when taken during the first trimester. Post-exposure care should not be withheld from exposed health care staff because they are pregnant.

Risk of infection following occupational exposure is increased when:

- The source client has very advanced AIDS
- The needle or instrument is visibly contaminated with blood
- The needle was used directly in an artery or vein before the injury occurred
- The injury is deep

3. If, following counseling, the injured worker decides to undergo post-exposure prophylaxis:

- Blood should be drawn for HIV antibody testing as soon as possible
- Drug treatment should be started as soon as possible after the injury, i.e., within 1-2 hours or at most within the first 24 hours of injury and continued for four weeks from the day of exposure
- Possible side effects associated with the drugs should be reviewed
- Information should be given about behaviors to prevent transmission of HIV, such as not donating blood and practicing safer sex
- Counseling should be provided, including discussing with the injured health care worker her/his emotional response, fears, and/or concerns regarding the reaction of their partner or spouse

Note: In settings where breastmilk substitutes are affordable, accessible, and can be safely used, nursing women may be advised to avoid breastfeeding during the post-exposure prophylaxis period.

4. Follow-up care for those undergoing post-exposure prophylaxis should include:

- Periodic HIV testing for up to six months after exposure (e.g., at six weeks, 12 weeks, and six months)
- Routine monitoring for toxicity with complete blood count, kidney, and liver-function tests
- Ongoing counseling and support as needed. Often the emotional toll following occupational exposure is substantial.

Testing the Source Patient and Related Issues

When the HIV status of the source patient is not known, this person must be informed about the accident in order to obtain consent to test for HIV. Confidentiality of the results is an important quality of care element, and must be maintained. The source patient has the right to refuse testing.

If the person refuses or consent is not possible (e.g. the patient is unconscious), prophylaxis should be considered if there are indications of possible infection—dependent on the prevalence of infection among the patients in the institution or suspicion of a risk factor in the source patient. When the HIV status is unknown, we must assume that the client is infected if the exposure occurs in a country with a high prevalence of HIV.

Post-exposure Care Guidelines for Facilities

- Have in place or create a mechanism for reporting workplace injuries to facility authorities, noting the type of exposure, and the actions taken. If completion of accident forms is required, complete and submit them to the appropriate authorities. Accident forms should include information about how the incident occurred, who witnessed the incident, and the name of the client, if known.
- Provide written guidelines for health care supervisors and staff regarding recommended immediate care, HIV risk assessment, voluntary counseling, HIV testing, prophylaxis, and follow-up, based on international standards for accidental exposure to blood and other body fluids. Periodically review policies for consistency with international standards.
- Provide in-service training of all health care staff on prevention and management of occupational exposure to blood and other body fluids.
- Establish a system to manage post-exposure care at all hours, with access to counseling and available antiretroviral drugs.

Recommended Post-exposure Prophylaxis

(A) Zidovudine (ZDV) 250-300mg twice per day + Lamivudine (3TC) 150 mg twice per day for increased effectiveness + a protease inhibitor, e.g., Indinavir (IDV) 800mg three times per day where large volume of blood with a large amount of HIV makes exposure the highest risk.

(B) Where antiretroviral drugs are not widely used, ZDV monotherapy is a viable option. The recommended duration of treatment is four weeks because four weeks of ZDV appeared protective in occupational and animal studies; however, the optimal duration has never been evaluated. Certain countries propose minimum treatment of two weeks and maximum four weeks.

Sources: World Health Organization, UNAIDS, Module 7, *Guidance Modules on Antiretroviral Treatments*, "Treatments following Exposure to HIV," WHO/ASD/98.1, UNAIDS/98.7, page 16.

Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposure to HBV, HCV, and HIV and Recommendations for Postexposure Prophylaxis, MMWR. June 29, 2001/50(RR11); 1-42, page 17.

Essential Ideas to Consider

- Risk of HIV infection following occupational exposure is very low—most occupational exposures do not result in infection.
- Following exposure to infected blood, immediately clean the wound.
- Counsel the injured health care worker.
- Assess the risk and share findings during counseling of the injured health care worker.
- Offer HIV testing to the source client and provide counseling before and after HIV testing if the client consents to being tested.
- Provide counseling before and after HIV testing of the injured health care worker.
- Provide antiretroviral drug therapy, if indicated, available, and the health care worker consents.
- Provide follow-up monitoring and counseling, including voluntary counseling and testing periodically up to six months after exposure (e.g., at six weeks, 12 weeks, and six months).

session 14:

HIV Testing and Client Rights

Purpose and Objectives

In this session, we will review the principles of voluntary counseling and testing (VCT).

By the end of this session, you should be able to:

1. Explain the process of HIV voluntary counseling and testing;
2. Explain the meaning of positive and negative test results as well as the meaning of the "window period;"
3. Define "informed voluntary decision making" and "informed consent;" and
4. Discuss the practical and ethical issues related to HIV testing that may arise in health care settings.

HIV Testing and Client Rights

Health care staff's concerns about infections from bloodborne organisms including HIV—particularly staff members involved in direct client care or in performing invasive procedures—have sometimes led staff to inappropriately order or request HIV testing of clients before performing procedures. They do this in the belief that knowledge of the client's HIV status will help staff members to better protect themselves from exposure. This thinking interferes with the staff consistently performing appropriate infection prevention practices that are designed to protect all health staff, clients, and the communities they serve. It also violates the clients' rights to make informed and voluntary decisions about their health care.

What Is Informed and Voluntary Decision-Making?

The concept of *informed and voluntary decision-making* applies broadly to any health care decision and assumes that individuals have both the right and the ability to make their own health care decisions. The key factors that support informed and voluntary decision-making include:

- Services options are available;
- People have appropriate information;
- Good client-provider interactions, including counseling, is ensured; and
- The health care and social environment supports autonomous decision-making.

What Is Informed Consent for HIV Testing?

Informed consent refers to the process whereby the client agrees to get tested for HIV following counseling about the various benefits and potential negative outcomes of knowing one's HIV status. For informed consent to be established, the client must demonstrate the mental capacity to understand this information and freely agree, without coercion, to have the test performed. The client can consent to testing either verbally or by signing an informed consent form.

Conditions of Consent:

- Client is of legal age to consent according to local laws
- Client is in a sound mental state and can understand the information given
- Client gives consent voluntarily, not through coercion

Information client must receive to establish informed consent:

- Nature of the HIV test
- What test results mean
- Risks of the test
- Benefits of the test

What Is Voluntary Counseling and Testing?

"Voluntary counseling and testing"—often referred to as VCT—is a model for HIV testing that ensures clients' rights and the quality of care. VCT includes counseling a person prior to testing, performing the actual test, and counseling the client about the results of the test. Confidentiality is essential for successful VCT services. *Voluntary* means that the service is non-coercive and respects the principles of informed decision-making and informed consent. The emphasis on *counseling* ensures that clients receive the information they need to make a decision about whether or not to get tested and what their test results mean. The approach is client-centered and includes pre-test, post-test, partner notification, and referrals counseling. HIV *testing* commonly uses a technology that detects antibodies to HIV in the blood.

The Rationale for VCT Is To:

- Respond to people's desire and right to know their HIV status;
- Assist those who test positive to access appropriate care, including clinical treatment, emotional and practical support, prevention of mother-to-child-transmission, and legal services;
- Provide those who test negative with prevention services, such as education, condom distribution and provision, social support, or empowerment programs;
- Support healthy behaviors of both positive and negative clients;
- Benefit the community by normalizing HIV, reducing stigma, and promoting awareness about HIV transmission and prevention; and
- Assist public health authorities to track the scale of the epidemic in the community, and to detect developing trends at an early stage.

In many of the countries hardest hit by the AIDS epidemic, HIV testing is becoming increasingly available at specialized VCT centers. In addition, VCT services are becoming more available in association with other health services such as family planning and antenatal services. In antenatal services, VCT allows providers to better determine care options during pregnancy, birthing, and the postnatal period and to reduce perinatal HIV transmission.

The Main Elements of VCT Are:

a. Pre-test counseling
b. HIV testing
c. Post-test counseling
d. Partner notification
e. Follow-up and referral.

Since VCT services are meant to be client-centered, the flow of the counseling and information giving may not follow any particular sequence. The following elements of HIV counseling are a guide; actual counseling sessions will vary, depending on clients' needs.

Pre-test Counseling Includes:

- Exploring a client's motivation for getting tested;
- Assisting the client to identify risks in her/his life, including domestic violence;
- Explaining risk reduction and clarifying any misconceptions;
- Developing a personal risk-reduction plan, including identifying social/community support resources;
- Discussing what the client would do if he/she tested positive (what their reaction would be, who they would tell and how, how they would tell their partner, how they would get support); and
- Explaining the test itself, confirmatory testing for positive results, and the meaning of both positive and negative results including the "window period"(see box).

Window Period:

The period of time from infection with HIV until the body has developed detectable levels of antibodies is called the window period. The window period is approximately three months on average. During this period, a person may not test positive for HIV antibodies even though he/she is infected with the virus.

Post-test Counseling for a Negative Result Includes:

- Giving the tests results, explaining their meaning and implications, including the concept of the window period;
- Talking about feelings generated by the results;
- Counseling the client about how to stay negative by reviewing personal risk and developing a risk-reduction plan;
- Referring the client to other services when appropriate and available; and
- Discussing follow-up testing, if necessary.

Note: Because HIV screening tests occasionally give false-positive results, never inform a person that he/she is infected before the initial test has been confirmed.

Post-test Counseling for a Positive Result Includes:

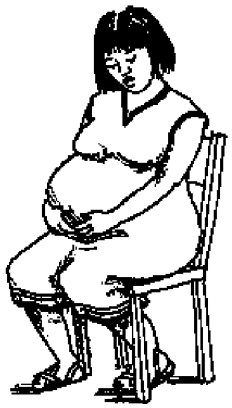
- Giving the tests results, explaining their meaning and implications;
- Addressing emotional responses, including risk and plan related to domestic violence;
- Explaining options and making referrals;
- Discussing self care;
- Discussing prevention of transmission to others; and
- Arranging a follow-up appointment if client wishes.

HIV Testing:

Most HIV tests actually test for the presence of HIV antibodies in a person, rather than for the virus itself. The most common tests are:

- ELISA: Highly accurate, measures antibodies to HIV, requires laboratory equipment and for positives a confirmatory test using the Western Blot.
- Rapid serologic tests: Provide results in less than 30 minutes using simple procedure, confirmatory test required for positives, higher false-positive rate than ELISA.
- Western Blot: Used when the results of a screening test are positive. Considered by most to be the "gold standard" for confirmation of positive screening test results. Requires laboratory equipment.
- Alternate testing strategies: For resource-constrained settings WHO and UNAIDS recommend using a combination of two screening tests (ELISA or rapid tests) without using the Western Blot.

The shock of learning that one is infected with HIV is overwhelming, even when a person strongly suspects that he/she is infected. As a result, most people can absorb only a limited amount of information at the first counseling session. If at all possible, arrange several counseling sessions to assist the person to absorb all the information required and to make the appropriate referrals.



Partner Notification

Partner counseling and notification is a very challenging issue for both clients and providers due to the emotional stress involved and the potential for violence or abandonment by a client's partner, spouse, or family. The infected person needs time to prepare to inform her/his partner. Help the client assess the potential for violence and determine if it is safe and feasible for them to tell their partner(s).

Follow-up and Referrals

For clients who test HIV-positive, follow-up can include linking clients to specific medical services, programs to prevent mother-to-child HIV transmission, social and emotional support, peer support, future planning, family planning, and condom-distribution programs. For clients who are HIV-negative, referrals can include linking them to condom provision/distribution, social support, micro-enterprise and empowerment, and family planning programs.

Domestic Violence and HIV Voluntary Counseling and Testing

While this training cannot cover details of domestic violence in the provision of health services, the following points must be taken into consideration in relation to the service delivery and community context:

- Domestic violence is a pattern of coercive behavior that can include physical, sexual, economic, emotional, and/or psychological abuse exerted by an intimate partner or by a family member over another with the goal of establishing and maintaining power and control.
- Fear of domestic violence may prevent people from accessing HIV counseling and testing and from asserting their rights in a relationship to reduce their risk of HIV infection. In light of this, assessing each individual's risk of violence following disclosure of her/his HIV status must be taken into consideration as part of ethical service delivery.

Pre-test counseling

Providers are encouraged to initiate discussion of domestic violence issues during pre-test counseling as part of an overall discussion of support-system planning in anticipation of positive test results. Early initiation of this discussion will also avoid bringing up the subject at the same time people learn of their positive status. It also gives providers additional time to explore resources for referral and support to the individual.

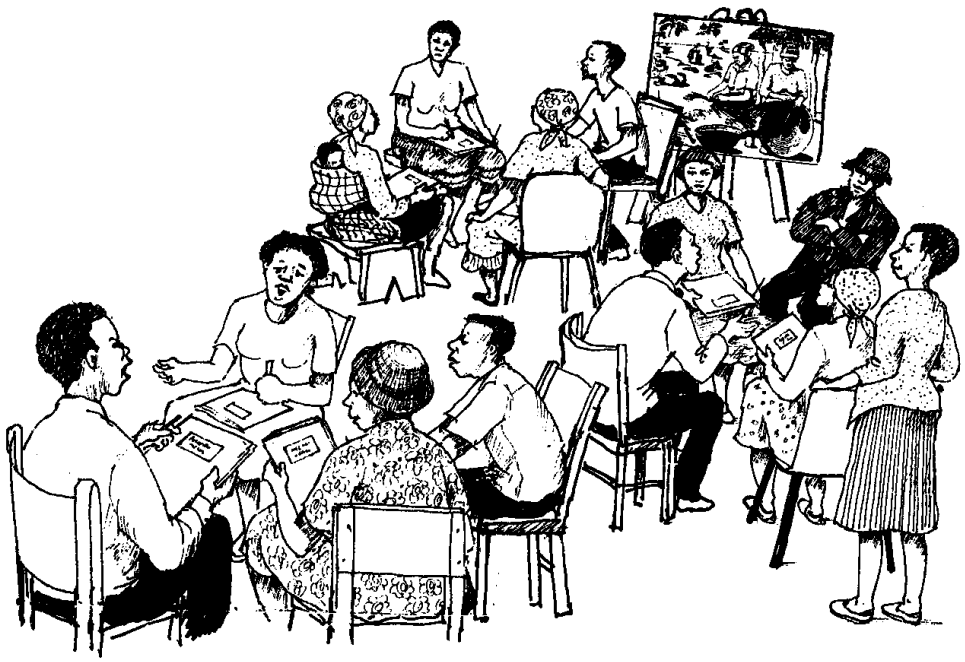
Post-test counseling

Providers are encouraged to revisit the discussion of domestic violence regardless of the HIV test results. Providers should help individuals formulate a risk-reduction plan in the context of the potential for domestic violence. Care must be taken to help clients identify ways to reduce their risk of physical harm and excessive emotional stress while at the same time initiating the process of recognizing and reducing risk behavior. Although disclosure to an individual's partner(s) is ideal to avoid infection of an uninfected partner, providers must remember that the safety of the individual is the first priority. Therefore, partner notification or disclosure discussion should be deferred any time there is a risk of violence toward the HIV-positive individual. Maintain a follow-up schedule and whenever appropriate and available, refer individuals to community resources that can provide the necessary support.

Making Voluntary Counseling and Testing Successful

Research has shown that VCT programs are successful when:

- Services are accessible and affordable
- Staffing is adequate
- Staff has access to high quality training on counseling and testing procedures
- Staff are retained and measures taken to prevent staff burn-out
- Clients are assured of strict confidentiality
- Staff are empathetic toward clients and clients' needs
- Counseling is client-centered
- Health service decision-makers and staff are aware of the level of HIV and AIDS in the local population, as well as the level of stigma related to HIV and AIDS in their community
- Staff and clients know of, and are linked to, referral networks



Managing a Client Whose HIV Status is Known

Where a client's HIV status becomes known in the process of providing health services, confidentiality should be strictly maintained, as with all client information. The provider should not reveal confidential communications or information without the consent of the client. Only those staff members who need to know a client's HIV status should be informed, after discussion with the client.

HIV Testing and Health Care Staff

Health care staff who are HIV-positive fear discrimination and possible rejection by their colleagues just like any other HIV-positive individual in the community. As a result, staff members may be reluctant to get tested and if they are HIV-positive may be reluctant seek treatment when it is available. When health care staff members do not know their HIV status, it may put them and others in the work setting at risk. However, the consistent practice of standard precautions will protect both clients and fellow providers.

A health care staff member who knows that he/she is HIV-positive should not be involved in any exposure risk procedure that would present a risk of transmission to clients. Exposure risk procedures are invasive procedures where there is a risk that injury to the health care worker may result in the exposure of the patient's open tissue to the blood of the health care worker. Procedures where the staff's gloved hands may be in contact with sharp instruments, needle tips, or sharp tissue inside a patient's open body cavity, wound, or confined anatomical space where the hands or fingertips may not be completely visible at all times are considered exposure risk procedures. These include:

- gynecologic surgery, e.g., hysterectomy
- obstetric surgery, e.g., cesarean section
- cardiothoracic surgery
- orthopedic surgery

Procedures that are <u>not</u> considered exposure risk are those where the hands and fingertips of the worker are visible and outside the patient's body at all times, and internal examinations or procedures that do not involve possible injury to the worker's gloved hands from sharp instruments and/or tissue. These include:

- Taking blood;
- Setting up and maintaining IV lines;
- Minor surface suturing;
- The incision of abscesses;
- Routine vaginal or rectal examinations; and
- Simple endoscopic procedures.

Where possible, employment policies that protect the privacy of staff and support HIV-positive staff to be as productive as possible without social isolation should be developed and instituted.

Essential Ideas to Consider

- Whether or not to test for HIV is a personal choice influenced by many factors, including knowledge about HIV, knowledge about the benefits and drawbacks of testing, the level of stigma in the community, the potential for being subjected to ostracism or violence if one tests positive, and personal ideas and feelings about risk, death and dying, among others.
- HIV antibody testing will not necessarily give accurate information about HIV status. If the client was recently infected, he/she may be in the "window period," when there are insufficient amounts of HIV antibodies for the screening test to detect.
- HIV antibody testing must not be used as a tool for discrimination. People must not be tested without their knowledge or against their will, and positive HIV test results must not be used to deny treatment to anyone or to segregate them from other patients (unless it is clinically warranted for their own health).
- VCT can help clients to adopt behaviors to prevent infection or repeated exposure to the virus and to make realistic plans for themselves and their family members. For those who test positive, VCT can provide linkages to treatment, care and support programs.
- Health care staff may not ethically refuse to treat a client who is HIV-positive, nor should they withhold indicated procedures for fear of the risk to themselves of acquiring the virus. They can protect themselves from exposure to blood-borne organisms and reduce their risk of occupational HIV infection by consistently performing standard precautions.
- Health care workers who know they are HIV-positive should not be involved in any activities or procedures that would present a risk of transmission to clients. Although the risk is low, health care staff can accidentally transmit HIV to clients. Therefore, health care workers should get tested for HIV and always protect clients while delivering services.
- Employment policies should be developed and instituted that protect the privacy and confidentiality of staff and that support staff living with HIV to be as productive as possible without social isolation.

session 15:

Action Plan Development

Purpose and Objectives

During this session, you will be given an opportunity to think about how you can apply what you have learned during the training to your personal practices and the facility where you work.

By the end of this session, you should have developed an action plan for applying what you have learned during this training to reduce stigma and discrimination in your facility and to apply standard precautions in your work.

"At My Facility…"

Instructions

One of the most important parts of any training is taking all the information that has been presented, as well as the experience you have had, and determining how to apply it to your daily work. Exactly how you do this may differ from how other participants do it since your work roles and responsibilities may be different from theirs. The important thing is to figure out how you can best take what you have learned in this training and use it to ensure that stigma and discrimination do not impact negatively on the services provided in the facility where you work.

Think about all that you learned during this training and then think about your health care setting and the degree to which attitudes, policies, procedures, and practices are in line with what you have learned. Based on your answers, list the problems you see and select the three most urgent ones to address.

At your facility:

1. Are there in-service continuing education activities or staff meetings that address staff attitudes and feelings about HIV, AIDS stigma, and client rights?

2. Are guidelines for standard precautions and other infection prevention procedures posted in service areas?

3. Are supervisors helping staff maintain good infection prevention?

4. Are there protocols for management of injuries from needlestick and sharp instruments (post-exposure care

5. Are post-exposure care protocols, including prophylaxis
   - Posted in service areas?
   - Included in the service-delivery guidelines?
   - Included in supervision checklists?
   - Included in in-service continuing education sessions?

6. Do staff members participate in developing strategies to prevent needlestick and sharps injuries? Are those strategies/activities implemented and monitored?

7. Do staff members participate in developing strategies for ensuring safety, dignity, and the rights of all clients? Are those strategies/activities implemented and monitored?

8. Are clients' rights protected during the delivery of all health services?

9. Are provider needs ensured by supervisors and program managers so that staff can respond appropriately and safely to clients' needs?

Facility Action Plan

Instructions
Given your resources in the previous activity, design an action plan to address the identified problems.

Problem	Action Step	Resources Needed	By Whom	By When
Problem #1	a.			
	b.			
	c.			
Problem #2	a.			
	b.			
	c.			
Problem #3	a.			
	b.			
	c.			

Personal Action Plan

Problem	Action Step	Resources Needed	By Whom	By When
Problem #1	a.			
	b.			
	c.			
Problem #2	a.			
	b.			
	c.			
Problem #3	a.			
	b.			
	c.			

Appendix A
HIV-related Stigma and Standard Precautions Assessment Tool

Considerations: This form is designed for gathering detailed information on use of HIV-related stigma and standard precautions at health care facilities and in home care. It can be used as a self-assessment tool by health care staff or by supervisors or outside evaluators for the purposes of evaluation or service assessment. When using this tool, select the sections that are most relevant to your health care setting.

Note: Some items in this tool refer to "international guidelines" as the standard for assessment. In settings where national guidelines are in place, those guidelines should be included as the standard for assessment. It is beyond the scope of this tool to address resolution of national guidelines that are in conflict with international guidelines. However, awareness of conflicts can be addressed in other arenas. Where national guidelines do not exist, the statements with reference to international guidelines should be used as the standard for assessment.

INSTRUCTIONS:

For each of the standards listed below, place a check in the "Yes" or "No" box, as appropriate, to indicate whether or not the standard is being achieved at the facility. If a particular standard is not applicable to the facility for which the assessment is being conducted, enter N/A ("not applicable") in the "Achieved" column.

Use the "Comments" column to note details about why a standard was not achieved or other information that may be useful in identifying or resolving inappropriate practices.

Standard	Achieved?		Comment
	Yes	No	
Clients' Rights			
1. Clients are provided with accurate, appropriate, understandable information related to their health care.			
2. Providers use educational materials to support information sharing.			
3. Services are affordable and convenient to clients, without physical and social barriers.			
4. Providers support informed choice by providing accurate, complete, and understandable information with options that promote well-considered decision-making.			
5. Providers are skilled and practice in accordance with service-delivery guidelines.			
6. Staff maintain client privacy and confidentiality during service delivery.			
7. All clients are treated with respect and consideration, ensuring comfort during procedures.			
8. Continuity of services and supplies are ensured; follow-up and referral are the norm.			
Prevention of Stigma and Discrimination			
9. Clients are welcome to services regardless of age, class, color, ethnicity, or HIV status.			
10. All clients are treated competently, equally, fairly, and respectfully, regardless of age, class, ethnicity, or HIV status.			
11. Services are provided to clients known to be HIV+ without separating them from the general client population.			
12. Prior to invasive procedures, patients are not selectively tested for HIV without their consent.			
13. Health care staff do not wear gloves or masks inappropriately with people who are HIV+ or presumed to be (only use gloves or masks as indicated by standard precautions).			

Standard	Achieved?		Comment
	Yes	No	
14. Providers develop management plans to maintain clients' health regardless of their HIV status.			
15. The facility avoids labels or signs in the service delivery area that would draw attention to clients with HIV.			
16. Staff avoid non-verbal communication that portrays disgust, scorn, or disrespect (facial expressions or hand gestures) when interacting with clients known or thought to be HIV+ or when handling their utensils or clothing.			
17. HIV awareness and sensitization training are provided to all staff.			
Voluntary HIV Counseling and Testing Policy			
18. A counseling and testing policy is in place that protects people's privacy and confidentiality.			
19. There is a mechanism in place to prevent providers from testing clients without clients' knowledge and consent as part of pre-operative screening.			
20. There is a policy that prevents staff from refusing to treat a client who is HIV+.			
21. There is a counseling and testing policy that prevents coercion and insures informed consent.			
Voluntary HIV Counseling and Testing Services			
22. Voluntary pre- and post-testing counseling, partner notification, and referrals are provided.			
23. Provides pre-test counseling according to international standards, including: ■ Exploring clients' motivation for getting tested ■ Assisting clients to identify risk in their lives ■ Explaining risk reduction and clarification of misconceptions related to HIV, AIDS, transmission, and treatment.			

Standard	Achieved?		Comment
	Yes	**No**	
■ Assisting clients to develop personal risk-reduction plans ■ Explaining the test, the meaning of *positive* and *negative* results ("window period")			
24. Provides post-test counseling for negative results according to international standards, including: ■ Giving results, explaining their meaning and the implication of the "window period" ■ Talking about a client's feelings generated by the test results ■ Reviewing personal risk and risk-reduction plans ■ Discussing follow-up testing, if necessary			
25. Provides post-test counseling for positive results according to international standards, including: ■ Giving results and explaining their meaning ■ Addressing the client's emotional responses ■ Explaining health options and making referrals ■ Discussing self-care ■ Discussing prevention of transmission to others ■ Arranging a follow-up appointment, if desirable and possible, to provide additional emotional support and information ■ Does not inform the person that they are infected before the screening test has been confirmed by a second confirmatory test			
26. Providers explore with the HIV-positive person the anticipated reaction by partner(s) if results are shared ■ Assesses for risk of violence or abandonment			

Standard	Achieved?		Comment
	Yes	No	
■ Offers to assist person to discuss results with partner(s) ■ Allows time for person to prepare her/himself to notify her/his partner(s)			
HIV-positive Health Care Staff			
27. There is a policy that supports HIV+ staff's confidentiality and their right to continue working.			
28. The facility provides in-service sessions to address the emotional support and client-provider protection needs of staff members who may be infected with HIV.			
29. Has guidelines to minimize the risk of transmission from provider to client, including the following: ■ In the presence of skin lesions, cover the area or wear gloves when providing services ■ Avoid performing invasive procedures where risk of injury to provider may result in exposure of the client's open tissues to the provider's blood ■ Avoid procedures where the provider's gloved hands may be in contact with sharp instruments, needle tips, or sharp tissues inside a client's open body cavity, wound, or confined anatomical space where the hands or fingertips may not be completely visible at all times (e.g., cesarean section, hysterectomy)			
30. Orients staff to procedures that are not considered exposure risks. These include: ■ Activities where the hands and finger tips of the staff person are visible and outside the client's body at all times ■ Internal examinations or procedures that do not involve possible injury to the staff person's gloved hands from sharp instruments and/or tissues ■ Taking blood			

Standard	Achieved?		Comment
	Yes	No	
■ Setting up and maintaining IV lines ■ Minor surface suturing ■ Incision of abscesses ■ Routine vaginal or rectal examination wearing gloves			
Standard Precautions–Health Care Setting			
31. Washes hands with soap and running water after coming into contact with blood, body fluids, secretions, excretions, and contaminated items—whether or not gloves were worn.			
32. Wears gloves when coming into contact with blood, body fluids, secretions, excretions, and contaminated items.			
33. Puts on gloves before touching mucous membranes and non-intact skin.			
34. Changes into another clean pair of gloves between tasks or procedures on the same client after contact with material that may contain a high concentration of microorganisms.			
35. Rinses gloved hands in 0.5% chlorine solution before removing gloves.			
36. Removes gloves immediately before touching non-contaminated items and surfaces.			
37. Wears eye protection, face shield, mask to protect mucous membranes of the eyes, nose, and mouth during procedures and client-care activities that might produce splashes of blood or other body fluids.			

Standard	Achieved?		Comment
	Yes	No	
38. Wears protective clothing to protect skin and to prevent soiling of clothing during procedures and client-care activities that might produce splashes or sprays of blood or other body fluids.			
39. Wears rubber apron if large amounts of soiling are anticipated.			
40. Removes soiled gown, immediately placing them in a designated container for decontamination.			
41. Processes instruments consistent with infection prevention guidelines for decontamination, cleaning, high-level disinfection and sterilization.			
42. Makes sure that reusable instruments are appropriately processed before use with another client.			
43. Handles sharps with care to avoid injury and risk of infection by *not bending or recapping needles after use* and disposing of non-reusable needles and sharps in a puncture-proof container.			
44. Performs waste disposal practices according to infection prevention guidelines for liquid, solids, and sharps.			
45. Maintains environmental cleanliness according to infection prevention guidelines.			
46. Maintains safety of linens by using gloves when collecting linens soiled with blood and other body fluids, placing them in a designated bag or container or in a doubled plastic bag.			
Standard Precautions—Home care			
47. Washes hands or advises family members to wash hands with soap and running water immediately after taking off gloves or if gloves get torn, if blood or body fluids gets on hands, and before/after touching the infected person.			
48. Wears gloves, if feasible, according to infection prevention guidelines.			

Standard	Achieved?		Comment
	Yes	No	
49. Removes gloves immediately after use and places them in a designated bag for safe disposal.			
50. If gloves are not available or affordable, uses plastic bags that do not have holes to put over hands or advises family members to do the same.			
51. Wears protective clothing during any task that might expose provider or family member to blood or body fluids.			
52. If protective clothing is not available, wears or advises family members to wear a large plastic garbage bag, cutting out a hole for the head and hands, and disposing in a designated bag after use.			
53. Washes or advises the family members to wash linens and clothing that have been soiled with blood separately from other clothing, using detergent and bleach solution.			
54. Disposes of contaminated waste in a plastic bag (double bagged), placing it in the area designated by the health facility for waste disposal. Advises family members of the same.			
55. Advises family members to bury contaminated waste in a hole 50 meters downhill from a water sources; 1-2 meters wide, 2-5 meters deep; and to fence off the area if possible.			
56. Keeps surfaces safe, or advises family members to do so, by cleaning them daily with a solution of bleach and water.			
57. Cleans up spills of blood or body fluids immediately with the bleach solution before washing the area with soap and water. Advises family members of the same.			
58. Uses heavy-duty gloves, or reminds family members to do so, when cleaning up spills and cleaning surfaces.			

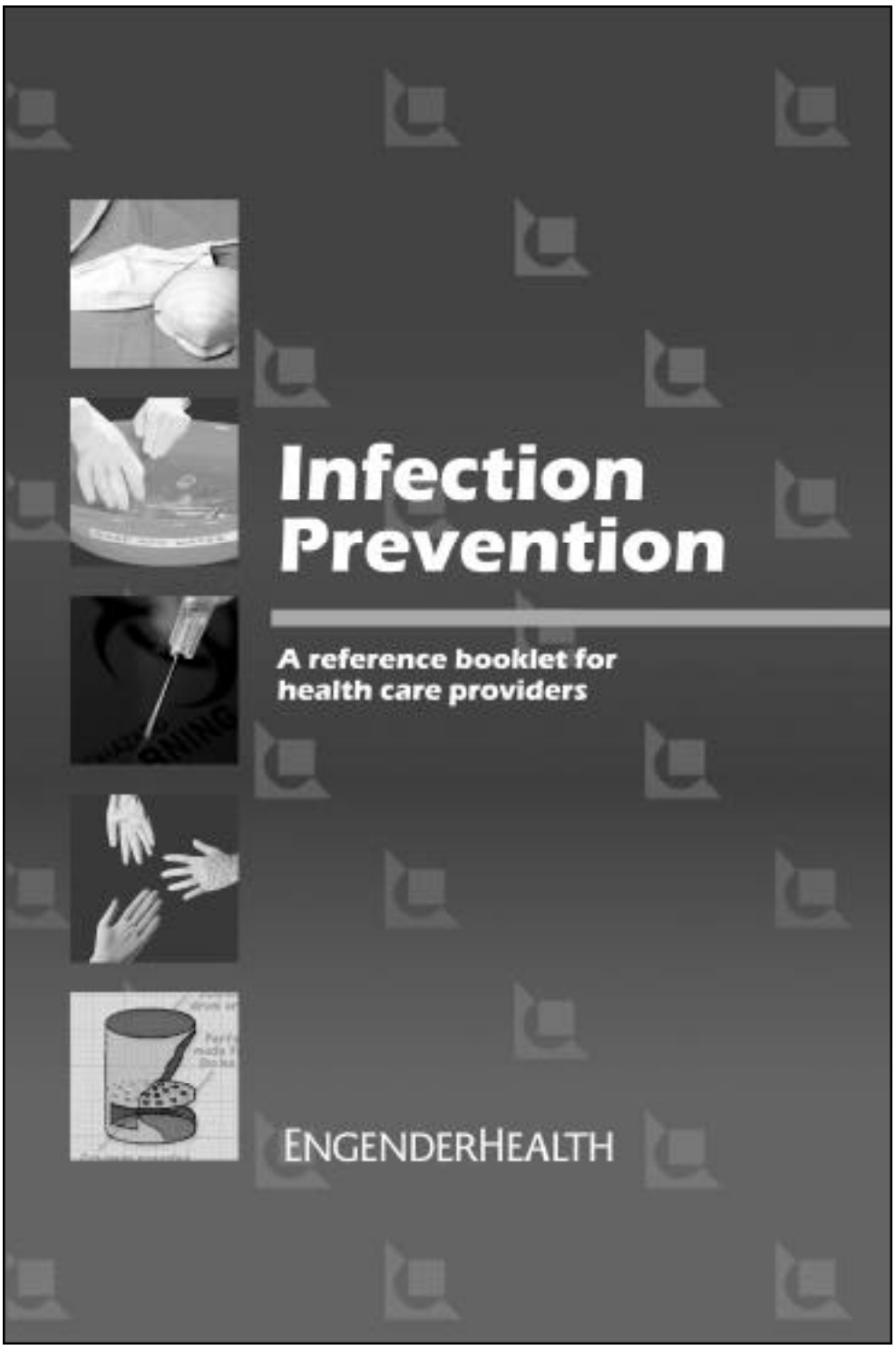
Standard	Achieved?		Comment
	Yes	No	
59. If a health care provider gave injections in the home, disposes of needles and syringes in a puncture-resistant container that is not overfilled.			
60. If a family member is giving injections in the home, teaches the person(s) not to recap or bend needles and to throw the needles away in puncture-resistant container that is not over-full.			
61. Advises family members to dispose of the container by bringing it to the health facility for safe destruction.			
62. Advises family members that if they should be accidentally injured by a used needle, wash the wound immediately with soap and water, allow the wound to bleed, cover it, and come to the facility for assessment and management.			
63. Reminds clients and family members that there can be risks of HIV transmission with practices performed by traditional healers, traditional birth attendants, and circumcisionists when exposure to blood and shared cutting instruments are involved.			
Prevention of Needlesticks and Sharp Object Injuries			
64. Avoids recapping needles after use or uses the one-hand recapping technique.			
65. Disposes of needles immediately in a puncture-resistant container that is less than 3/4 full.			
66. Locates disposal containers for needles and sharps close to the work area to avoid crossing the room with sharps in hand.			
67. Burns or buries container when it is 3/4 full.			
68. Places test tubes in a holder using one hand before inserting needle into the test tube.			

Standard	Achieved?		Comment
	Yes	No	
69. Promotes safety awareness among colleagues through in-services sessions focused on supporting behavior change to prevent or minimize injuries.			
70. Manipulates or repositions scalpel blades using forceps to grasp the blade.			
71. If appropriate and available, uses staples in place of sutures and suture needles.			
72. Uses curved needles with needle holder as a safer option than straight, hand-held needles.			
73. If available, uses blunt instruments during surgical procedures.			
74. When transferring sharps between personnel during a surgical procedure, avoids hand-to-hand transfer, creating a safety zone using a flat surface for placement and retrieval.			
75. Communicates verbally to prevent collision between hand or body and sharp.			
76. Keeps hands away from the incision during cutting and suturing.			
77. Uses retractors instead of manual retraction.			
78. Maintains a well-lit surgical field to help keep an eye on all sharps in use until they are returned to the safety zone.			
79. Protects housekeeping staff from injury by disposing of sharps according to infection prevention guidelines.			
Post-exposure Care (PEC), Including Post-exposure Prophylaxis (PEP): For the Facility			
80. Has a written PEC/PEP policy in place and guidelines posted in the work area.			
81. Has a schedule for periodically reviewing the policies and guidelines for consistency with international standards.			
82. Provides in-service orientation of staff on the prevention and appropriate management of occupational exposure to blood.			

Standard	Achieved?		Comment
	Yes	No	
83. Establishes a system to manage PEC at all hours of the day with access to counseling and available antiretroviral drugs.			
84. Provides counseling for injured health personnel, including emotional support.			
85. Has incident forms available in the work area.			
86. Has a procedure for notifying the supervisor.			
87. Has a PEP guideline consistent with WHO and UNAIDS guidance that includes the following: ■ HIV-antibody testing of injured health personnel, as soon as possible after exposure (at 6 weeks, 12 weeks, and 6 months). ■ Assessment of toxicity with CBC; kidney and liver function test before treatment begins and at 2 weeks after treatment begins. ■ Instructions to clients to report signs of flu-like symptoms or rash occurring during the follow-up period. ■ Emotional support counseling for injured person and her/his partner(s). ■ Drugs and dosages.			
Post-exposure Care (PEC), Including Post-exposure Prophylaxis (PEP): For Injured Personnel			
88. Immediately flushes the injured area with running water.			
89. Washes hands with soap and water and where there is bleeding, allows site to bleed briefly.			
90. If mucous membrane has been injured, flushes with a large amount of water.			
91. If the eye has been splashed, irrigates with clean water, saline, or sterile irrigation solution.			
92. If water is not available, uses an antiseptic solution to flush the area.			
93. Assesses injured health personnel's risk for infection following exposure based on the depth of wound, type of instrument involved, amount and type of body fluid.			

Standard	Achieved?		Comment
	Yes	No	
94. If feasible, determines the HIV status of the source client, following appropriate counseling and disclosure guidelines.			
95. Provides injured health personnel with voluntary counseling, HIV testing, treatment and follow-up care.			
96. If health personnel will receive antiretroviral drugs, counsels the person about possible side effects			
97. Counsels the injured health personnel about behaviors to prevent HIV transmission: ■ Avoid donating blood, organs, or semen; ■ Abstain from sexual intercourse, or ■ Use latex condoms with every act of sex; and ■ Encourage partner(s) to come for counseling.			
98. Where breastmilk substitutes are affordable, accessible, and can be safely used, advises injured health personnel to avoid breastfeeding until HIV status has been determined to prevent exposure of the infant to HIV in the breastmilk.			
99. If the injured health care worker is pregnant, provides counseling related to potential risk for HIV transmission, risk to pregnancy (first trimester is the period of maximal risk), and what is known about how prophylactic drugs work in the body, their safety, and tolerability during pregnancy.			
100. Where available, provides antiretroviral drugs to prevent mother to child transmission.			

Appendix B
Reprint of Infection Prevention:
A reference booklet for health care providers



Infection Prevention

A reference booklet for health care providers

ENGENDERHEALTH

Publisher's note: Since the publication of this reference booklet, the steps of the "safe handling of sharps" (page 21) have been revised. This PDF version of the booklet contains the revised text.

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EngenderHealth works worldwide to improve the lives of individuals by making reproductive health services safe, available, and sustainable. We provide technical assistance, training, and information, with a focus on practical solutions that improve services where resources are scarce. We believe that individuals have the right to make informed decisions about their reproductive health and to receive care that meets their needs. We work in partnership with governments, institutions, and health care professionals to make this right a reality.

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Contents

Foreword

Infectious diseases are constantly in transition. New diseases develop, known diseases become widespread or reemerge, and some diseases are eradicated. Over the past few decades, tuberculosis and cholera, diseases that were once better controlled or occurred rarely, have re-emerged. In addition, HIV and the hepatitis C virus have been newly identified and are a significant cause of illness and death in many parts of the world.

Health care personnel are on the front line of protecting themselves and their clients from infectious diseases. They perform clinical procedures or other activities that can expose themselves and clients to potentially infectious microorganisms. Many of their clients are sick and thus may be more susceptible to infections or have infections that can be transmitted to others.

Fortunately, health care staff can perform safe and simple procedures to minimize risk and the spread of infections. These practices can be integrated at minimal cost into the routine workday at clinics and hospitals around the world.

The contents of this booklet represent EngenderHealth's collaboration with health care organizations from around the globe. Working with our partners, we are committed to offering quality reproductive health services to the women and men of the world.

Amy E. Pollack, M.D., M.P.H.
President

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The content of this booklet is based upon EngenderHealth's infection prevention training curriculum, CD-ROM, and online course www.engenderhealth.org/ip. EngenderHealth would like to extend special thanks to the health professionals throughout the developing world who have volunteered to test this mate-rial and to provide vital feedback that has helped make this booklet better serve the needs of the global health community.

We would also like to thank all the colleagues, EngenderHealth staff members, and consultants who participated in the development and testing of the material on which this booklet is based. In particular, we would like to thank: the staff and colleagues around the world who developed and reviewed the print curriculum, CD-ROM, and online course; those who helped test the print curriculum in Egypt, Ghana, India, and Kyrgyzstan; the staff and colleagues in Nepal, Ghana, and South Africa who participated in the testing of the CD-ROM; and the global health professionals who have helped test both the instructor-led and self-instructional versions of the online course.

In addition, we would like to thank the EngenderHealth team that developed and produced this booklet: Mark Barone (content expert), Cassandra Cook (production manager), Stephanie Greig (design), Pamela Beyer Harper (content reviewer), Anna Kurica (production), Margaret Scanlon (proofreader), and Joanne Tzanis (editor).

Introduction

Without the proper precautions, your health care facility can cause the spread of infections and diseases. When providing health services, it is essential to prevent the transmission of infections at all times.

Importance of good infection prevention practices

Over the past few decades, the world has seen increased outbreaks of disease that were once better controlled, and previously unidentified infectious agents that can cause incurable diseases, such as HIV and hepatitis C, have become a significant cause of illness and death in many parts of the world. In addition, hospital-acquired infections are a continuing problem everywhere in the world. There are many complex reasons for these developments, including:

- Rapid population growth, combined with increased poverty
- Expansion of the population into "remote" areas
- Environmental degradation
- Improved transportation, leading to easier spread of disease
- Inadequate or deteriorating public health infrastructure
- Widespread, and often inappropriate, availability and use of antibiotics
- Poor disease control and disease prevention

Infections in health care settings

Although we do not often think about it, health care facilities are ideal settings for transmission of disease because:

- Invasive procedures, which have the potential to introduce microorganisms into parts of the body where they can cause infections, are performed routinely.
- Service providers and other staff are constantly exposed to potentially infectious materials as part of their work.
- Many of the people seeking health care services are already sick and may be more susceptible to infections.
- Some of the people seeking services have infections that can be transmitted to others.
- Services are sometimes provided to many clients in a limited physical space, often during a short period of time.

With appropriate infection prevention practices, you can:

- Prevent postprocedure infection, including surgical-site infections and pelvic inflammatory disease (PID).
- Provide high-quality, safe services.
- Prevent infections in service providers and other staff.
- Protect the community from infections that originate in health care facilities.

- Prevent the spread of antibiotic-resistant microorganisms.
- Lower the costs of health care services, since prevention is cheaper than treatment.

How are infections transmitted?

Infections are caused by microorganisms, which are tiny organisms that can only be seen under a microscope. If you could look at your environment under a microscope, you would see that microorganisms are everywhere—on your skin, in the air you breathe, and in people, animals, plants, soil, and water.

Some microorganisms are normally present on your skin and in your respiratory, intestinal, and genital tracts. These are called normal flora. Other microorganisms are normally not found on or in the human body and are usually associated with disease. These are known as pathogens. All microorganisms, including normal flora, can cause infection or disease.

Infections are transmitted when normal flora are introduced into an area of the body where they are not normally found or when pathogens are introduced into the body.

Modes of transmission

There are four ways that infections are transmitted:

- **Contact**—Direct transfer of microorganisms through touch (staphylococcus), sexual intercourse (gonorrhea, HIV), fecal/oral transmission (hepatitis A, shigella), or droplets (influenza, TB)
- **Vehicle**—Material that serves as a means of transfer of the microorganisms. This can be food (salmonella), blood (HIV, HBV), water (cholera, shigella), or instruments and other items used during clinical procedures (HBV, HIV, pseudomonas)
- **Airborne**—Some microorganisms can be carried by air currents (measles, TB)
- **Vector**—Invertebrate animals can transmit the microorganisms (mosquito: malaria and yellow fever; flea: plague)

Who is at risk of infection?

Infection prevention is everybody's business. Just as everyone who works at a health care facility is at risk of infection, every health care worker has a role to play in practicing appropriate infection prevention. In order for infection prevention to be effective, each staff member must do his or her part.

Risks to staff

Service providers are at significant risk of infection because they are exposed to potentially infectious blood and other body fluids on a daily basis. Staff who process instruments and other items, clean up after procedures, clean operating theaters and procedure rooms, and dispose of waste are particularly at risk. Client-to-health care worker transmission can occur through exposure to infectious blood and other body fluids:

- When a health care worker's skin is pierced or cut by contaminated needles or sharp instruments
- When fluids are splashed on the mucous membranes of the health care worker (e.g., eyes, nose, or mouth)
- Through broken skin due to cuts, scratches, rashes, acne, chapped skin, or fungal infections

Almost all cases of hepatitis B and HIV transmission to health care workers have occurred through preventable accidents, such as puncture wounds.

Risks to clients

Clients are at risk of postprocedure infection when, for example, service providers do not wash their hands between clients and procedures, when they do not adequately prepare clients before a clinical procedure, and when used instruments and other items are not cleaned and processed correctly.

Note: It is very rare for clients to get a bloodborne infection like HIV from an infected health care worker. Because this risk is so small, in most cases infected health care workers should not be kept from their regular activities based solely on their medical diagnoses.

Risks to the community

The community is also at risk of infection, particularly from inappropriate disposal of medical waste, such as contaminated sharps. Improperly discarded medical waste—including contaminated dressings, tissue, needles, syringes, and scalpel blades—can be found by children or others scavenging in open dumps, or can scatter on the ground where adults and children travel, putting them at risk of injury and infection. In addition,

some infections can be spread by staff to their family members or others in the community. For example, the Ebola virus outbreak in Africa in 1995 was spread throughout communities, in part, because of poor infection prevention practices in health care facilities.

Stopping transmission of infections

As health professionals, we cannot provide health care services without conducting procedures that put clients and staff at some risk of exposure to potentially infectious materials, but we can prevent transmission in many cases. The only way to prevent infections is to stop the transmission of microorganisms.

The best way to prevent infections at a health facility is by following standard precautions. These are a set of recommendations designed to help minimize the risk of exposure to infectious materials by both clients and staff. The chapters in this booklet give detailed explanations of how to apply the standard precautions to your everyday work in a health facility.

Summary of standard precautions:

1. Wash your hands.
2. Wear gloves.
3. Wear eye protection or faceshields.
4. Wear gowns.
5. Prevent injuries with sharps.
6. Correctly process instruments and client-care equipment.
7. Maintain correct environmental cleanliness and waste-disposal practices.
8. Handle, transport, and process used/soiled linens correctly.

Standard precautions should be followed with every client regardless of whether or not you think the client might have an infection. This is important because it is not always possible to tell who is infected with viruses such as HIV and the hepatitis viruses, and often the infected persons themselves do not know that they are infected. It is safer to act as if every client is infected rather than to apply standard precautions to some clients and not others.

Handwashing

For more than 100 years, research has shown that proper handwashing is the most important way to reduce the spread of infections in health care settings.

Appropriate times for staff to wash hands:

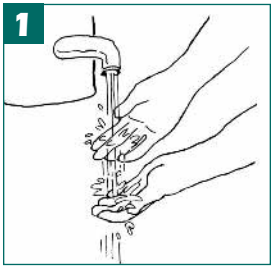
- Immediately when arriving at work
- Before and after examining each client
- After touching anything that might be contaminated
- After handling specimens
- Before putting on gloves for clinical procedures
- After removing any type of glove
- After using the toilet or latrine
- Before leaving work

Three kinds of handwashing

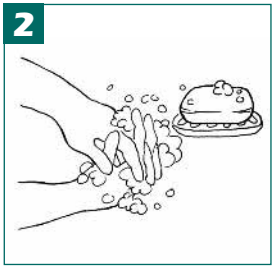
1 Routine handwashing with plain soap and running water

This is appropriate in most situations.

Steps of Routine Handwashing

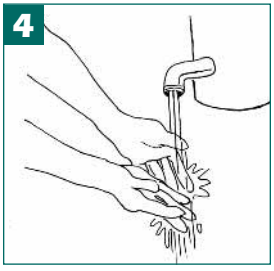


Wet hands with running water.



Rub hands together with soap and lather well. Make sure to rub all parts of your hands.

Vigorously weave fingers and thumbs together and slide them back and forth for 10–15 seconds (longer if hands are visibly soiled).



Rinse hands under a stream of clean, running water until all soap is gone.

Dry hands with a clean towel or allow hands to air-dry.

2 Washing with antiseptics and running water

This is appropriate before invasive procedures (inserting central venous catheter, spinal tap, etc.) and before contact with clients at high risk of infection (newborns, immunosuppressed clients, etc.).

3 An alcohol handrub

This kills or inhibits microorganisms, but does **not** remove microorganisms or soil. Alcohol handrub is used when washing with soap and water is not possible or practical—but only if hands are not visibly dirty. Because using alcohol alone tends to dry the skin, it is best to use an alcohol handrub solution by adding together 2 mL of glycerine, propylene glycol, or sorbitol and 100 mL of 60–90% alcohol.

To use an alcohol handrub solution: Pour 3–5 mL of an alcohol handrub solution into the palm of your hand and rub hands together until they are dry.

If running water is not available, use:

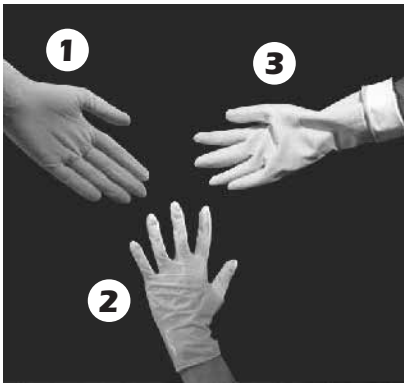
- A bucket with a tap that can be turned off and on
- A bucket and pitcher (one person pours the water over the other's hands)
- Alcohol handrub, if hands are not dirty

Handwashing Tips:

- ☛ **Keep bar soap on a rack to allow drainage.**
- ☛ **Always use running water—avoid dipping or washing hands in a basin of standing water.**
- ☛ **Use small bars of soap, or cut large ones into small pieces.**
- ☛ **Always use a clean towel or air-dry your hands.**

Gloves

Gloves protect both clients and staff by acting as a barrier against infectious microorganisms. Staff should wear gloves whenever they expect that their hands will come in contact with a client's blood or tissue. Staff should also wear gloves whenever their hands may come in contact with medical waste.



Three kinds of gloves

1 Surgical gloves

These are used when there will be contact with the bloodstream or with tissues under the skin (for example, surgical procedures, pelvic examination for women in labor, etc.).

2 Single-use exam gloves

These are used when there will be contact with intact mucous membranes or where the primary purpose of gloving is to reduce the provider's risk of exposure. These gloves should be thrown out after one use.

3 Utility or heavy-duty household gloves

These are used for handling contaminated items, handling medical or chemical waste, and performing housekeeping activities.

Gloving Tips:

- **Always wash utility gloves before you take the gloves off your hands.**
- **Always wash your hands after removing any type of gloves.**
- **Never reuse disposable gloves.**
- **If possible, use disposable surgical gloves, since it is difficult to properly process reusable gloves.**

Aseptic Technique

Aseptic technique refers to the practices performed just before or during a clinical or surgical procedure to reduce the client's risk of infection by reducing the likelihood that microorganisms will enter areas of the body where they can cause infection.

Aseptic technique includes:

- Using barriers (surgical attire)
- Surgical scrub and gloving
- Client prep
- Establishing and maintaining a sterile field
- Using good surgical technique
- Creating a safer surgical/procedure area

Barriers: Surgical attire

Gloves prevent microorganisms on the provider's hands from entering the client and protect the provider's hands from contact with blood, other fluids, or tissues.

Masks prevent microorganisms expelled during talking, coughing, or breathing from entering the client and protect the provider's mouth from splashes of blood or other fluids.

Eyecovers and faceshields protect the provider's eyes, nose, and mouth from splashes of blood or other fluids.

Gowns and waterproof aprons prevent microorganisms from the provider's arms, torso, and clothing from entering the client and protect the provider's skin and clothes from splashes of blood and other fluids.

Caps prevent microorganisms from hair and skin on the provider's head from entering the client.

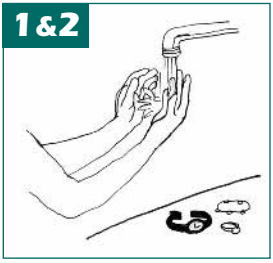
Footwear that is clean and sturdy (closed rubber or leather boots or shoes) helps minimize the number of microorganisms brought into the surgical/procedure area and protects the service provider's feet from injury or splashes of blood and other fluids.

Surgical scrub

Scrubbing reduces the client's risk of infection in case surgical gloves develop holes or tears. Warm, moist conditions inside gloves promote the growth of microorganisms. Performing surgical scrub with an antiseptic before gloving removes or kills many microorganisms, and also helps *prevent* this growth.

Steps of Surgical Scrub

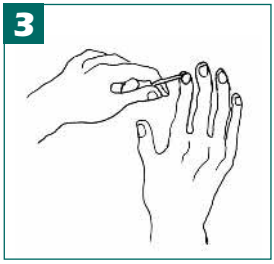
1&2



Remove all jewelry on your hands and wrists.

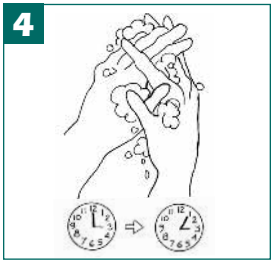
Adjust the water to a warm temperature and wet your hands and forearms thoroughly.

3



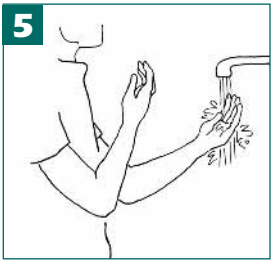
Clean under each fingernail with a stick or brush. It is important for all surgical staff to keep their fingernails short.

4



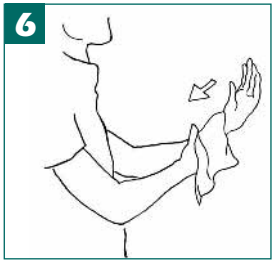
Holding your hands up above the level of your elbow, apply the antiseptic. Using a circular motion, begin at the fingertips of one hand and lather and wash between the fingers, continuing from fingertip to elbow. Repeat this for the second hand and arm. Continue washing in this way for 3–5 minutes.

5



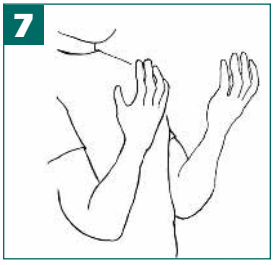
Rinse each arm separately, fingertips first, holding your hands above the level of your elbow.

6



Using a sterile towel, dry your hands and arms—from fingertips to elbow—using a different side of the towel on each arm.

7



Keep your hands above the level of your waist and do not touch anything before putting on surgical gloves.

Recent studies have shown that using a brush during surgical scrub provides no greater reduction of microorganisms on the hands than scrubbing with antiseptic alone. Surgical scrub may be performed using either a soft brush or sponge or using an antiseptic alone. Avoid using a hard brush, which is not necessary and may irritate the skin.

Alternative methods of surgical scrub

Although the use of antiseptic for surgical scrub is recommended, an alternative method is necessary when surgical staff members are allergic to the available antiseptic solutions or when antiseptics are not available. Performing surgical scrub with soap and water, followed by an alcohol handrub, can be used in place of antiseptics in these situations. To do this:

Step 1
Perform a surgical scrub with plain soap and warm, running water while following the steps demonstrated on page 9.

Step 2
Apply 3–5 mL of alcohol (or—because using alcohol alone can dry the skin—use an alcohol handrub solution made up of 2 mL glycerine, propylene glycol, or sorbitol mixed with 100 mL of 60–90% alcohol).

Step 3
Rub hands together until they are dry.

Ideally, surgical scrub should be performed before every procedure. However, to prevent skin irritation from too-frequent scrubbing in high-volume settings, use 3–5 mL of an alcohol handrub solution between clients, rubbing your hands together until the alcohol dries. Then scrub every hour or after every four clients, whichever comes first. Note that alcohol handrub does not remove soil or organic material such as blood. If gloves are torn or punctured, or if there is blood or other body fluids on your hands after you remove your gloves, a surgical scrub should be performed.

Surgical Scrub Tips:

- **Warm water makes antiseptics work more effectively. Avoid using hot water, which removes protective oils from the skin.**
- **If you routinely perform surgical procedures, you should keep your fingernails short.**
- **Always keep your hands above your elbows during and after scrubbing.**
- **Avoid using a hard brush during scrubbing.**
- **Always use an antiseptic during surgical scrub. If you are allergic to antiseptics or if an antiseptic is not available, scrub your hands with plain soap, dry them, and use an alcohol handrub.**

Surgical gloves

Wear sterile or high-level disinfected* surgical gloves for any procedure where your hands will come in contact with the client's bloodstream or tissues under the skin. It is important to put on and remove the gloves correctly. Gloves become contaminated:

- If you touch the outside of the glove with your bare hand
- If you touch anything that is not sterile or high-level disinfected while wearing the gloves
- If you hold your gloved hands below the level of your waist
- If either glove develops a hole, tear, or puncture

Putting on surgical gloves

Surgical gloves are cuffed to make it easier to put them on without contaminating them. When putting on surgical gloves, remember that the first glove should be picked up by the cuff only. The second glove should then be touched only by the other glove.

Remember that the outside of the glove package is not sterile. If you will open the outer package of gloves yourself, do so before you perform a surgical scrub.

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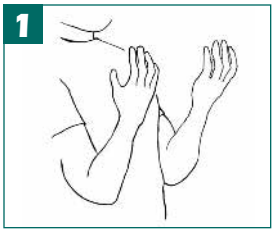
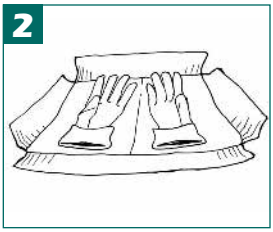
* Sterilization and high-level disinfection are discussed in detail in the Instrument Processing chapter (page 25).

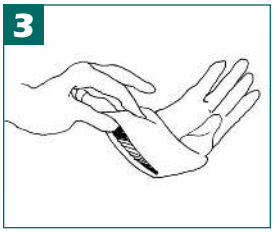
Steps of Putting on Surgical Gloves



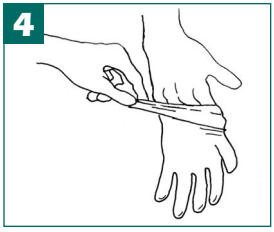
Prepare a large, clean, dry area for opening the package of gloves. Either open the outer glove package and then perform a surgical scrub, or perform a surgical scrub and ask someone else to open the package of gloves for you.



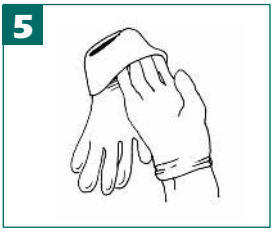
Open the inner glove wrapper, exposing the cuffed gloves with the palms up.



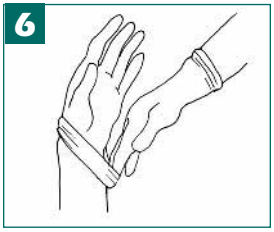
Pick up the first glove by the cuff, touching only the inside portion of the cuff (the inside is the side that will be touching your skin when the glove is on).



While holding the cuff in one hand, slip your other hand into the glove. (Pointing the fingers of the glove toward the floor will keep the fingers open.) Be careful not to touch anything, and hold the gloves above your waist level.



Pick up the second glove by sliding the fingers of the gloved hand under the cuff of the second glove. Be careful not to contaminate the gloved hand with the ungloved hand as the second glove is being put on.



Put the second glove on the ungloved hand by maintaining a steady pull through the cuff. Adjust the glove fingers and cuffs until the gloves fit comfortably.

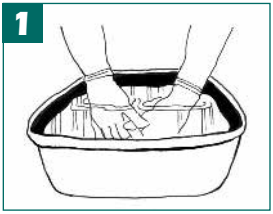
Removing contaminated surgical gloves

As you remove the gloves, do not allow the outside surface of the gloves to come in contact with your skin. Avoid letting the gloves snap, as this may cause contaminants to splash into your eyes or mouth or onto your skin or other people in the area.

Remove used gloves before touching anything: countertops, faucets, and pens and pencils are frequently contaminated because health care workers touch them while wearing used gloves.

Steps of Removing Surgical Gloves

1

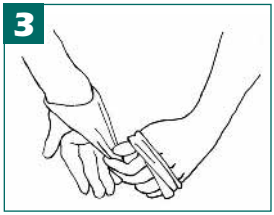


Rinse gloved hands in a basin of decontamination solution to remove blood or other body fluids.

2

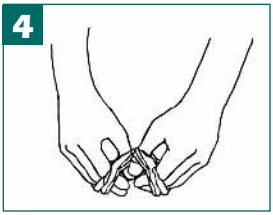
Grasp one glove near the cuff and pull it partway off. The glove will turn inside out. Keep the first glove partially on before removing the second one to protect you from touching the outside of a glove with your bare hand.

3



Leaving the first glove over your fingers, grasp the second glove near the cuff and pull it partway off. Keep the second glove partially on.

4



Pull off the two gloves at the same time, being careful to touch only the inside surface of the gloves with your bare hand.

5

If the gloves are disposable or are not intact, dispose of them immediately. If they are to be processed for reuse, decontaminate them before processing. Wash hands immediately after gloves are removed, since tiny holes or tears in gloves may leave you at risk of exposure to contaminated fluids.

Surgical Glove Tips:

- The outside of the glove package is not sterile. Either open the outer package before surgical scrub, or have another person open it for you.
- If the gloves become contaminated during a procedure, stop what you are doing, step away from the sterile field, remove the contaminated gloves, and put on new gloves.
- Don't let gloves snap while you are removing them or blood and other matter may splash on you or on those around you.
- During removal, don't allow the outside surface to contact your skin.
- Remove your used gloves before touching anything—including countertops, faucets, pens, and pencils.

Client prep

Proper client prep with antiseptics before a clinical or surgical procedure is critical, since bacteria from a client's skin or mucous membranes can cause infections.

Shaving the surgical/procedure site is no longer recommended because it causes small nicks and breaks in the skin where bacteria can grow and multiply, and it can lead to increased risk of postprocedure infections. Hair around the surgical/procedure site may be clipped very short if it interferes with the procedure. If the site *must* be shaved: 1) use antimicrobial soap and water or shave dry; and 2) shave immediately before the procedure, in the operating theater or procedure room.

To properly prep a surgical/procedure site:

1. Wash the area with soap and water.
2. Apply an antiseptic and gently scrub the skin in a circular motion, beginning in the center of the site and moving out, using sterile cotton balls, cotton wool, or gauze sponges held by a sponge forceps.

For the vagina, cervix, and other mucous membranes: Do not use alcohol or alcohol-based antiseptics on mucous membranes. Using sterile cotton balls, cotton wool, or gauze sponges held by a sponge forceps, apply an antiseptic liberally to the cervix and vagina before instrumentation of the uterus.

About antiseptics

An antiseptic is a chemical agent used to reduce the number of microorganisms on skin and mucous membranes without causing damage or irritation. In addition to removing or killing microorganisms, antiseptics may also prevent the growth and development of some types of microorganisms. Antiseptics are used for:

- Skin, cervical, or vaginal preparation before a clinical procedure
- Surgical scrub
- Handwashing in high-risk situations, such as before an invasive procedure or contact with a client at high risk of infection (e.g., a newborn or immunosuppressed client)

Antiseptics are not meant to be used on inanimate objects, such as instruments and surfaces. Antiseptics are designed to be used for reducing or destroying microorganisms on the skin or mucous membranes without damaging these tissues. They usually do not have the same killing power as chemicals used for disinfection of inanimate objects. Never use antiseptic solutions to disinfect inanimate objects, such as instruments and reusable gloves, and never leave items such as pickup forceps, scissors, scalpel blades, and suture needles soaking in an antiseptic solution.

Common antiseptics used for client prep:

- Iodophors (e.g., Betadine)
- 4% chlorhexidine gluconate (e.g., Hibiclens)
- 1%–3% iodine, followed by 60%–90% alcohol (ethyl or isopropyl)
- Chlorhexidine gluconate with cetrimide (e.g., Savlon)

AVOID using: Hydrogen peroxide (0.3%), which is not appropriate for surgical scrub or client prep; products containing quaternary ammonium compounds, such as benzalkonium chloride (e.g., Zephiran), which are disinfectants and should not be used as antiseptics; or compounds containing mercury (such as mercury laurel), which are highly toxic.

Preventing contamination of antiseptic solutions

Using contaminated solutions can cause infections in clients. Solutions become contaminated when:

- The water used to dilute a solution is contaminated
- Containers in which the solution is placed are contaminated
- Microorganisms from skin or objects contact the solutions during use (such as when removing cotton balls from a solution for use in skin prep)
- The area in which solutions are prepared or used is not clean

Proper handling will reduce the chances of contaminating antiseptic solutions. Pour solutions into smaller containers for use during service delivery to avoid contaminating the stock container. Pour solutions out of the container without touching the rim or the solution itself with your hands, a cotton swab, cloth, or gauze. These can contaminate the entire container of solution. Store solutions in a cool, dark area, because direct light or excessive heat may reduce their strength, making them more susceptible to contamination.

Client Prep Tips:

- ☛ **Never leave cotton balls, cotton wool, or gauze sponges soaking in an antiseptic.**
- ☛ **Never dip cotton or gauze into the antiseptic container. Instead, pour some antiseptic into a small container, dip the cotton or gauze into this small container, and discard the unused antiseptic left over after client prep.**
- ☛ **Shaving the surgical site is not recommended, because it causes small nicks or cuts in the skin where bacteria can grow and multiply. Instead, hair may be clipped short.**

Properties of Common Antiseptics

Antiseptics vary between countries, and a variety of products are available throughout the world. This section notes the most common antiseptics and provides the trade names of commonly available products. In general, these have been studied extensively and their effectiveness is known. The information here reflects the most up-to-date scientific studies available. If possible, use these antiseptics, since others may not have been properly studied and their effectiveness may not be known.

Iodophors, such as povidone iodine **(e.g., Betadine), contain iodine in a complex form, making them relatively nonirritating and nontoxic.**

- **Antimicrobial spectrum:** Effective against a range of microorganisms.
- **Advantages:** Less irritating to the skin than iodine; can be used on mucous membranes.
- **Disadvantages:** Effectiveness is moderately reduced by blood or other organic material.
- **Usage:** Recommended for surgical scrub and client prep, and is the best antiseptic for use in the genital area, vagina, and cervix. Effective 1–2 minutes after application; for optimal effectiveness, wait several minutes after application. Use full strength; do not dilute.
- **Comments:** Iodophors are distinctly different from iodine. Iodophors are sudsy; iodine is not.

Chlorhexidine gluconate **(e.g., Hibitane, Hibiclens, Hibiscrub);** ***Chlorhexidine gluconate with cetrimide*** **(e.g., Savlon)**

- **Antimicrobial spectrum:** Effective against a range of microorganisms, but has a minimal effect on tuberculosis and fungi.
- **Advantages:** Good, persistent effect; remains effective for at least 6 hours after being applied. Effectiveness is not reduced by organic material.
- **Disadvantages:** On rare occasions, products containing chlorhexidine have been reported to cause irritation, especially when used in the genital area. Effectiveness can be reduced by hard water, hand creams, and natural soaps.
- **Usage:** Recommended for surgical scrub and skin prep. Preparations without cetrimide are preferable. While products containing chlorhexidine are ideal for surgical scrub and skin prep, they may cause irritation if used in the genital area, vagina, or cervix. Chlorhexidine is the best alternative if an iodophor is not available.

- **Comments:** The concentration of chlorhexidine in products with the name Savlon may vary from one country to another. Savlon products containing at least 4% chlorhexidine are appropriate for use as antiseptics. Savlon products containing less than 4% chlorhexidine in an alcohol base are also adequate, but should not be used on mucous membranes.

Iodine; tincture of iodine (iodine and alcohol)

- **Antimicrobial spectrum:** Effective against a range of microorganisms.
- **Advantages:** Fast acting.
- **Disadvantages:** Can cause skin irritation. Effectiveness is markedly reduced by blood or other organic material.
- **Usage:** Too irritating for routine use in surgical scrub or for use on mucous membranes. Because of potential irritation when used for skin prep, iodine must be allowed to dry and then removed from the skin with alcohol.

Alcohol (60%–90% ethyl or isopropyl)

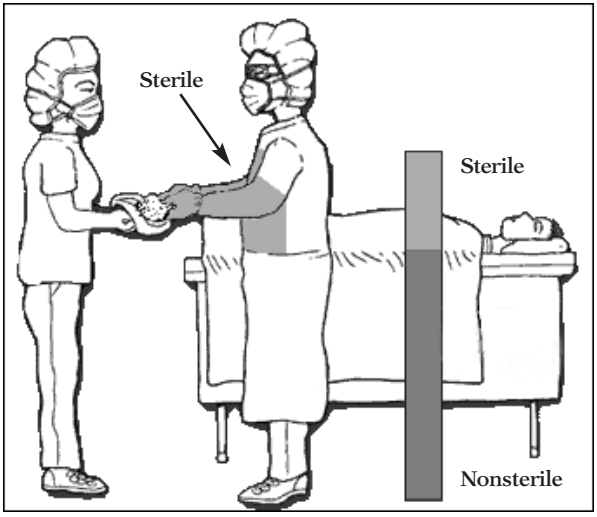
- **Antimicrobial spectrum:** Effective against a range of microorganisms.
- **Advantages:** Kills microorganisms rapidly. Most effective in reducing microorganisms. Effectiveness is moderately reduced by organic material.
- **Disadvantages:** Has a drying effect on skin. Cannot be used on mucous membranes.
- **Usage:** Cannot be used when skin is dirty; wash the area before applying. It must dry completely to be effective.
- **Comments:** 60–70% strength is most effective because alcohol must be diluted for optimal effectiveness, and it is also less drying to skin.

Para-chloro-*meta*-xylenol, PCMX, chloroxylenol (all three also known as Dettol)

- **Antimicrobial spectrum:** Fairly effective against most microorganisms.
- **Advantages:** Has a persistent effect over several hours. Activity is only minimally reduced by blood or other organic material.
- **Disadvantages:** Less effective than chlorhexidine and iodophors.
- **Comments:** Not recommended for routine use. Antiseptic PCMX preparations containing alcohol should not be used on mucous membranes. Disinfectant preparations should not be used as antiseptics.

Establishing and maintaining a sterile field

A sterile field is created by placing sterile towels or surgical drapes around the surgical/procedure site. A sterile field should also be established on the stand that will hold sterile instruments and other items needed during the procedure.



Items below the level of the draped client are outside the field and are not sterile. A gowned and gloved provider's sterile area extends from the chest to the level of the sterile field. Sleeves are sterile from 5 cm above the elbow to the cuff.

To maintain a sterile field:

- Allow only sterile items and personnel within the sterile field.
- Do not contaminate items when opening, dispensing, or transferring them.
- Consider any sterile item that has been penetrated (cut, wet, or torn) to be nonsterile.
- Never set up a sterile field near a door or an open window.
- When in doubt about whether or not an item is still sterile, consider it to be contaminated.

Good surgical technique

Meticulous attention to bleeding and gentle tissue handling during surgical and clinical procedures can help reduce the risk of infection. Post-procedure infections are more likely to occur in tissue that has been damaged due to rough or excessive manipulation during surgery or when there is excessive bleeding (because the tissue is then more susceptible to invasion by microorganisms).

Use of prophylactic antibiotics

The use of prophylactic antibiotics (giving antibiotics before a procedure to prevent infections from developing) does not take the place of good infection prevention. In general, prophylactic antibiotics may be indicated in contaminated or clean-contaminated surgical procedures, in those involving implantation of a foreign body, or when the client is severely immunosuppressed.

Prophylactic antibiotics are often prescribed inappropriately (e.g., when they are not effective against microorganisms likely to cause infections) or given at the wrong time in relation to the procedure (e.g., when given postoperatively instead of pre- or intraoperatively), thus decreasing the likelihood that they will have any effect.

Avoid routine use of prophylactic antibiotics: it increases costs and increases the likelihood of promoting antibiotic resistance.

Creating a safer surgical/procedure area

Specific rooms should be designated for performing surgical/clinical procedures.

Limiting the traffic, activities, and the number and movement of people in these areas will lower the risk of infection, since the number of people and amount of activity influence the number of potentially disease-causing microorganisms. To maintain a safer environment:

- Reduce the number of people permitted in the area. (It is important to restrict the number of people to only those involved in the activities being carried out.)
- Define the movement of people and activities within the area.
- Close doors and curtains during all procedures.
- Require that personnel in surgical areas wear clean clothes, a mask, a cap, and sturdy footwear.
- Enclose these areas to minimize dust and eliminate insects.
- Air-condition the areas, if possible.
- Disinfect and clean examination/operating tables, counters, instrument carts or trolleys, light handles, and any other surfaces that may have been contaminated with blood or other body fluids during a procedure before a new client is brought into the room.

Use and Disposal of Sharps

In health care settings, injuries from needles and other sharp items are the number-one cause of infections in staff from bloodborne pathogens. All staff who touch sharps are at risk of infection. Health care workers can be injured:

- When they recap, bend, or break hypodermic needles
- When they are stuck by a person carrying unprotected sharps
- When sharps show up in unexpected places, like linens
- During procedures in which they use many sharps, cannot see their hands, or are working in a small, confined space (such as during many gynecological procedures)
- When they handle or dispose of waste that contains used sharps
- When clients move suddenly during injections

Giving injections

Providers can be stuck or splashed with blood if a client moves suddenly; clients can be infected if the needle, syringe, or solution is contaminated. To minimize risks:

- Always warn the client before giving an injection.
- Always use a new or properly processed needle and syringe for every injection.

Before giving an injection, wash the injection site with soap and water if there is visible dirt on the skin. Wipe the client's skin at the injection site with an antiseptic solution to minimize the number of microorganisms and reduce the risk of infections. Using a fresh swab, wipe in a circular motion from the center outward. If alcohol is used, allow the alcohol to dry in order to provide maximum effectiveness in reducing microorganisms.

IV fluids and multidose vials

Infections may be transmitted through these items if proper procedures are not followed.

IV fluids. Unhook the needle or catheter from the IV line. Dispose of the needle in a sharps-disposal container. Throw away the catheter and IV line and any remaining fluid. Microorganisms can survive and grow in IV fluids; never use the same IV line and fluid bag/bottle with multiple clients.

Multidose vials. Before filling a syringe from a multidose vial, check the vial to be sure there are no leaks or cracks. Check the solution to be sure it is not cloudy and that there is no particulate matter in the vial. (Most solutions are clear, although some, like Depo-Provera, are milky.) Wipe

the top of the vial with a fresh cotton swab soaked with 60%–70% alcohol and allow it to air-dry. Always use a new or correctly processed hypodermic needle and syringe every time medication is withdrawn from a multidose vial. Reusing the same syringe with multiple clients—even if the needle is changed—is not a safe practice. Also, never leave one needle inserted in the vial cap for multiple uses. This provides a direct route for microorganisms to enter the vial and contaminate the fluid between each use.

Safe handling of sharps

Health care workers can accidentally stick each other when passing sharps during a procedure. Always pass sharps in such a way that the surgeon and assistant are never touching the item at the same time. This is known as the "hands-free" technique.

To use the hands-free technique:

- The assistant puts the sharps in a "safe zone" using a designated part of the instrument stand or area on the field where instruments can be placed.
- The assistant tells the service provider that the sharps are in the safe zone.
- The provider picks up a sharp item, uses it, and returns it to the safe zone.

Disposal and decontamination of sharps

Improper disposal of contaminated sharps can cause infection throughout the community. To avoid injuries during sharps disposal:

- Avoid recapping needles
- Do not bend, cut, or break needles
- Do not remove needles from syringes before disposal
- Dispose of sharps in a puncture-resistant sharps container, such as a metal box, heavy cardboard box, or an empty plastic jug
- Wear utility gloves when disposing of sharps containers

Recapping needles

Whenever possible, dispose of needles immediately without recapping them. When recapping is necessary (for example, to avoid carrying an unprotected sharp), always use the "one-hand" technique.

Steps of the One-Hand Technique

Step 1

Place the cap on a flat surface and remove your hand from the cap.

Step 2

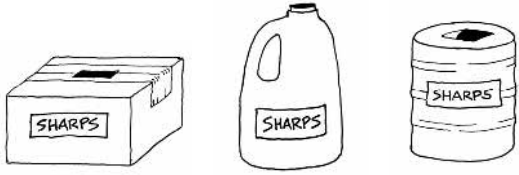
With one hand, hold the syringe and use the needle to "scoop up" the cap.

Step 3

When the cap covers the needle completely, use the other hand to secure the cap on the needle hub. Be careful to handle the cap at the bottom only (near the hub).

Sharps-disposal containers

Use a puncture-resistant container for the disposal of used sharps. A sharps container may be made out of a heavy cardboard box, an empty plastic jug, or a metal container. Sharps-disposal containers should be located in any area where sharps are used (injection rooms, treatment rooms, operating theaters, labor and delivery rooms, and laboratories).



Decontaminating sharps

Improperly discarded sharps can cause infections: when possible make sharps unusable by incinerating them in an industrial incinerator. When this is not possible, decontaminate sharps before disposal. (For more information about proper disposal, see page 68.) Sharps should also be decontaminated before being processed for reuse. (For more information about decontamination, see page 25.)

Steps of Decontaminating Needles and Syringes

Step 1

Immediately after use, fill the assembled needle and syringe with a 0.5% chlorine solution, and draw the solution in and out several times. (More information about the 0.5% chlorine solution appears on page 26.)

Step 2

Drop the needle and syringe into a container of 0.5% chlorine solution, and let them soak for 10 minutes.

Step 3

Remove the needle and syringe from the solution, either by hand or using pickups (lifters, cheatle forceps). If using your hands, be sure to wear utility gloves.

Step 4

Dispose in a sharps container. Or if the syringe and needle are reusable, rinse with clean water, drawing the water in and out several times, or clean immediately.

Management of injuries

If you are exposed to blood or other body fluids:

- Immediately wash cuts or puncture wounds with soap and water.
- Flush splashes to the nose, mouth, or skin with water.
- Irrigate splashes to the eyes with water or saline.

There is no evidence that cleaning a wound with an antiseptic or squeezing a wound decreases the risk of infection. Do not use caustic agents, such as bleach, on sharp-object injuries. As a precaution, all staff who are at risk of exposure to blood or other body fluids should be vaccinated against hepatitis B.

Postexposure prophylaxis

Postexposure prophylaxis with drugs or other therapy can reduce the risk of transmission of some bloodborne pathogens. Whether postexposure prophylaxis is indicated following exposure to blood or other body fluids depends on a number of factors, including the infection status of the client whose blood or fluids are involved, the type of exposure (a splash to the skin versus a deep puncture wound), whether or not the exposed person has been vaccinated against hepatitis B, how much time has passed since the exposure, and the availability of drugs or other therapy.

Some therapies include:

- **For hepatitis B:** Hepatitis B immune globulin and hepatitis B vaccine can reduce the risk of infection after exposure to blood or other body fluids containing the hepatitis B virus.
- **For HIV:** Several antiretroviral drugs, used either alone or in combination, have been recommended to reduce the risk of HIV transmission following accidental exposure in health care workers. These include zidovudine (AZT, Retrovir), lamivudine (3TC, Epivir), indinavir (Crixivan), and nelfinavir (Viracept).
- **For hepatitis C:** There is no postexposure prophylaxis available for hepatitis C. Neither immune globulin nor antiviral drugs have been shown to reduce the risk of hepatitis C transmission.

If you, a co-worker, or a client has been exposed to blood or other body fluids, consult an infectious disease specialist familiar with postexposure prophylaxis, if possible.

Sharps Tips:

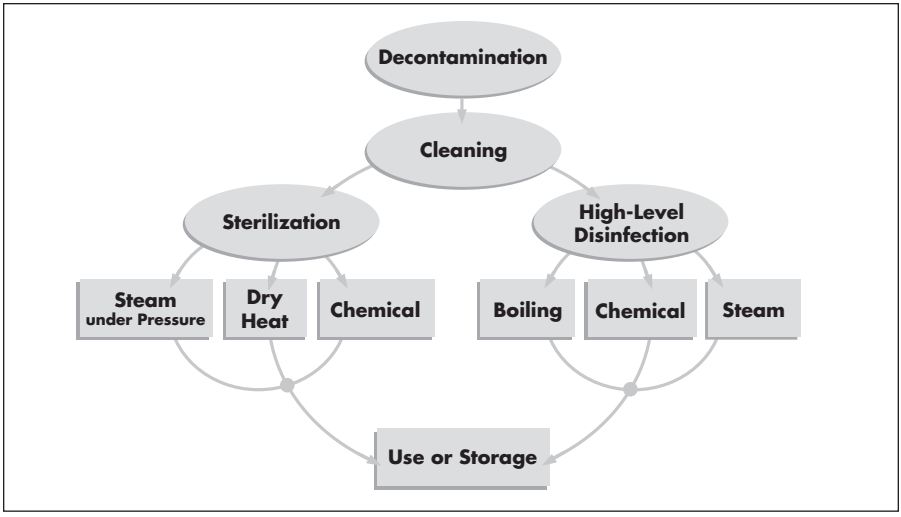
- ☛ **Handle hypodermic needles and other sharps minimally after use, and use extreme care whenever sharps are handled.**
- ☛ **Avoid recapping needles and do not bend, break, or cut them before disposal.**
- ☛ **Dispose of hypodermic needles, scalpel blades, and other sharps in puncture-resistant containers immediately (or as soon as possible) after use.**
- ☛ **Always wear utility gloves when disposing of sharps containers.**
- ☛ **Always wear utility gloves when washing sharps.**
- ☛ **Use the "hands-free" technique to pass sharps during clinical procedures.**

Instrument Processing

Proper processing is critical for reducing infection transmission during clinical or surgical procedures. Correct handling and processing also reduces staff's risk of infection.

The steps of processing

There are four steps to processing instruments and other items used during clinical and surgical procedures: decontamination, cleaning, sterilization or high-level disinfection (HLD), and use or storage.



Step 1 Decontamination

The first step in processing instruments and other items for reuse, decontamination kills viruses (such as hepatitis B, other hepatitis viruses, and HIV) and many other microorganisms, making items safer to handle by the staff who perform cleaning and further processing. Decontamination makes items easier to clean by preventing blood, other body fluids, and tissue from drying on them. Cleaning is still necessary, however, since decontamination does not remove all of the body fluid, tissue, or dirt on the items.

It is important for staff to know how to decontaminate items, to know that they should place items in the decontamination bucket without splashing the solution, and to know that they should always rinse their gloves in a decontamination solution before removing them.

To decontaminate items, use a 0.5% chlorine solution or a solution made from another acceptable disinfectant. (Because chlorine is usually the cheapest, most universally available disinfectant, this booklet will focus on the use of a 0.5% chlorine solution.)

How to make a 0.5% chlorine solution

A solution that is too weak (less than 0.5% active chlorine) may not adequately kill microorganisms during the recommended time for soaking. A solution that is too strong (more than 0.5% active chlorine) may increase the cost of supplies by using more bleach than necessary and may damage instruments, other items, and environmental surfaces.

Because of their low cost and wide availability, chlorine solutions prepared from liquid or powdered bleach are recommended. A chlorine solution can be made from:

1. **Liquid household bleach.** (Sodium hypochlorite)
2. **Bleach powder.** Chlorine compounds available in powder form (calcium hypochlorite or chlorinated lime)
3. **Chlorine-releasing tablets.** (Sodium dichloroisocyanurate)

About Chlorine

Chlorine is one of the oldest and most common compounds used as a disinfectant because:

- **It is a proven and powerful killer of microorganisms.**
- **It deodorizes.**
- **It is not poisonous to humans in the concentrations in which it is used.**
- **It leaves no poisonous residue.**
- **It is colorless, easy to handle, and economical to use.**

Chlorine-containing compounds are described as having a certain percentage of "active" (or available) chlorine. It is the active chlorine in these products that kills microorganisms. The amount of active chlorine is usually described as a percentage, and differs from one product to another. This is important so that a chlorine solution with 0.5% "active" chlorine can be prepared.

Note: In countries where French products are available, the amount of active chlorine is usually expressed in "degrees chlorum." One degree chlorum is equivalent to 0.3% active chlorine.

1. Using liquid household bleach

Chlorine in bleach comes in different concentrations. You can use any type of bleach, no matter what the concentration, to make a 0.5% chlorine solution by using the following formula:

[% active chlorine in liquid bleach ÷ 0.5%] - 1 = parts of water for each part bleach

Note that "parts" can be used for any unit of measure (e.g., ounce, liter, or gallon) and need not even represent a defined unit of measure (e.g., a pitcher or container may be used).

Example: To make a 0.5% chlorine solution from bleach with 3.5% active chlorine, you must use 1 part bleach and 6 parts water:

[3.5% ÷ 0.5%] - 1 = [7] - 1 = 6 parts water for each part bleach

2. Using bleach powder

If using bleach powder, calculate the ratio of bleach to water using the following formula:

[0.5% ÷ % active chlorine in bleach powder] x 1000 = grams of powder for each liter of water

Example: To make a 0.5% chlorine solution from calcium hypochlorite powder containing 35% available chlorine:

[0.5% ÷ 35%] x 1000 = [0.0143] x 1000 = 14.3 grams

Therefore, you must dissolve 14.3 grams of calcium hypochlorite powder in 1 liter of water in order to get a 0.5% chlorine solution.

Note that when bleach powder is used, the resulting chlorine solution is likely to be cloudy (milky).

3. Using chlorine-releasing tablets

Follow the manufacturer's instructions, since the percentage of active chlorine in these products varies. If the instructions are not available with the tablets from your supply source, ask for the product's instruction sheet or contact the manufacturer.

Steps of Decontamination

Step 1

Immediately after use, decontaminate instruments and other items by placing them in a plastic container of 0.5% chlorine solution. Let them soak for 10 minutes. A container of this solution should be kept in every operating theater and procedure room so that used items can be placed directly into the bucket. Service providers should put instruments and other items in the chlorine solution as soon as they are finished using each item.

Step 2

After 10 minutes, remove the items from the chlorine solution and either rinse with water or clean immediately. Do not leave items in the solution for more than 10 minutes, since excessive soaking in the solution can damage instruments and other items. Always wear utility gloves when removing instruments and other items from a chlorine solution.

It may be useful to set up a bucket of tap water next to the bucket of decontamination solution. This way, when the items are ready to be removed from the decontamination solution, they can be placed in the water until the appropriate staff member is ready to clean them.

Items that require special consideration:

- **Reusable needles and syringes:** Fill the assembled needles and syringes with a 0.5% chlorine solution, flush several times (draw up and expel the 0.5% chlorine solution into and out of the syringe), and soak for 10 minutes. Rinse by flushing several times with clean water or clean immediately. Always use pickups and wear utility gloves when removing needles and syringes from the solution. *(For more information on the proper handling of these items, see pages 20–24.)*
- **Gloves:** Before removing contaminated gloves, dip gloved hands into a 0.5% chlorine solution to rinse the outer surfaces and remove blood, other fluids, and tissue. Carefully remove gloves without touching the outer surface with bare hands. Do not snap the gloves. If the gloves are disposable or are not intact, dispose of them properly. If they are surgical gloves that will be processed for reuse, place them in a container of 0.5% chlorine solution and soak for 10 minutes before cleaning. Rinse or clean immediately. To avoid tearing or puncturing gloves during decontamination, place them in a different container than the one used to decontaminate instruments and other items.

- **Linens (caps, gowns, masks, and surgical drapes):** Decontamination of linens is impractical and is not recommended. Handle, transport, and process linens that are soiled with blood, other body fluids, secretions, and excretions in a way that prevents exposure to skin and mucous membranes, contamination of clothing, and transfer of microorganisms to clients or the environment. When transporting linens to washing areas, place the linens in leakproof containers or fold them so that the portions that are contaminated are on the inside, surrounded by dry linen. Always wear heavy utility gloves when handling, transporting, and processing used linens, and wash hands immediately after removing gloves. If linen will be processed outside of the facility, make sure that the person who transports them to the processing site wears utility gloves.
- **Storage containers:** Fill containers with a 0.5% chlorine solution and soak for 10 minutes before cleaning. Rinse or clean immediately.
- **Laparoscopes:** There is no effective way to decontaminate laparoscopes and cables. They cannot be soaked in chlorine solution, since chlorine can damage the laparoscope and cable. In addition, alcohol should not be used, as it can fog the lens or dissolve the cement holding the lens in place. When handling laparoscopes, always wear utility gloves.
- **Instruments used during manual vacuum aspiration (MVA):** Leave the cannula attached to the syringe and flush the syringe with a 0.5% chlorine solution one or two times. This will help remove any blood and tissue remaining in the cannula. Drop the assembled cannula and syringe into the 0.5% chlorine solution and soak for 10 minutes before cleaning. Rinse by flushing the assembled cannula and syringe three times with clean water, or clean immediately.

Step 2 Cleaning

While decontamination makes items safer to handle, cleaning, the second step in processing, removes organic material, dirt, and foreign matter that can interfere with sterilization or HLD. Cleaning also drastically reduces the number of microorganisms, including bacterial endospores, on instruments and other items.

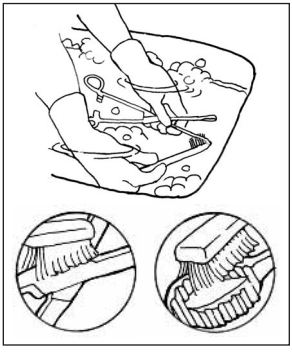
Cleaning refers to scrubbing with a brush, detergent, and water and is a crucial step in processing. Without cleaning, further processing might not be effective because:

- Microorganisms trapped in organic material may be protected and survive further processing.
- Organic material and dirt can make the chemicals used in some processing techniques less effective.

Detergent is important for effective cleaning, because water alone will not remove protein, oils, and grease. When detergent is dissolved in water, it breaks up and dissolves or suspends grease, oil, and other foreign matter, making them easy to remove. Do not use hand soap for cleaning instruments and other items, because the fatty acids contained in the soap will react with the minerals of hard water, leaving a residue or scum that is difficult to remove.

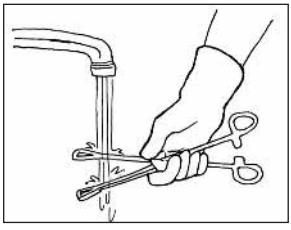
Steps of Cleaning

Always wear utility gloves, a mask, and protective eyewear when cleaning instruments and other items. Avoid using steel wool or abrasive cleansers such as Vim or Comet. These products can scratch or pit metal or stainless steel, resulting in grooves that can become a nesting place for microorganisms. This also increases the potential for corrosion of the instruments and other items.



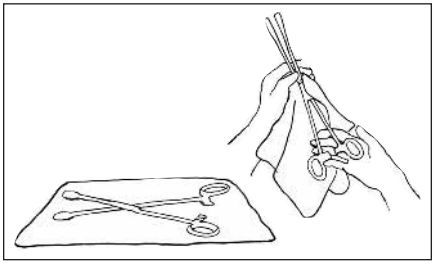
Step 1

Using a soft brush or old toothbrush, detergent, and water, scrub instruments and other items vigorously to completely remove all blood, other body fluids, tissue, and other foreign matter. Hold items under the surface of the water while scrubbing and cleaning to avoid splashing. Disassemble instruments and other items with multiple parts, and be sure to brush in the grooves, teeth, and joints of items where organic material can collect and stick.



Step 2

Rinse items thoroughly with clean water to remove all detergent. Any detergent left on the items can reduce the effectiveness of further chemical processing.



Step 3

Allow items to air-dry (or dry them with a clean towel).

Note: Instruments that will be further processed with chemical solutions must dry completely to avoid diluting the chemicals; items that will be high-level disinfected by boiling or steaming do not need to be dried first.

Items that require special consideration:

- **Reusable needles and syringes:** Disassemble the needle and syringe, then wash with detergent and warm water to remove all particles. If a stylet or wire is available, insert it through the needle to make sure the needle is not clogged. Reassemble and rinse with clean water by flushing with water (drawing in and expelling the water) at least three times. Detach the needle and inspect it to make sure the hub area is clean, the needle is not bent, and the tip is not damaged. Check the syringe to make sure the seal is good and the markings are readable. Air-dry needles; air- or towel-dry syringes.
- **Surgical gloves:** To avoid tearing gloves, handle with care: do not scrub with a brush, and always wash gloves separately from other items. Wash gloves with detergent and warm water, and rinse them in clean water until all detergent is gone. Check for holes by inflating the gloves with air and holding them underwater (air bubbles will appear if there are holes), or fill the gloves with water and check for leaks. Towel-dry inside and out, or air-dry by hanging gloves in an area of low activity.
- **Linens (caps, gowns, masks, and surgical drapes):** Wash with detergent and hot water and rinse with clean water. Air- or machine-dry. To reduce the risk of exposure to infectious material, machine washing is recommended. When machine washing is not possible, staff who wash linens by hand should wear protective gear, such as utility gloves, waterproof aprons, and either faceshields or eyecovers and a mask to reduce the likelihood of exposure to blood and other body fluids.
- **Instruments used during MVA:** Disassemble the syringe completely (including removing the collar stop and the O-ring on the plunger. On a double-valve syringe, also remove the O-ring from inside the valve). Wash the parts of the syringe and the cannula with detergent and water. Scrub the syringe with a soft brush (e.g., a toothbrush). Do not use brushes or other objects to try to remove blood or tissue from the inside of the tip of the cannula; this may cause scratches that can trap materials and microorganisms or may damage the tip, increasing the risk of breakage. Instead, try to dislodge material in the tip by flushing the cannula with water (drawing up and expelling water) or flicking the top of the cannula with your gloved fingertips. Rinse with clean water and air-dry (drying is not necessary if the cannula will be further processed by boiling or steaming). Dry the syringe thoroughly before reassembling it.

Step 3 Sterilization or HLD

Sterilization ensures that items are free of all microorganisms (bacteria, viruses, fungi, and parasites), including bacterial endospores, that can cause infections in clients. Because sterilization kills all microorganisms, it is recommended for items like needles and surgical instruments that come in contact with the bloodstream or tissues under the skin. When sterilization is not available, HLD is the only acceptable alternative for these items.

Using sterilization

The effectiveness of any method of sterilization depends on the amount and type of microorganisms, organic material (blood, other fluids, tissues), and other matter (such as dirt) present on the item and the amount of protection the item gives the microorganisms (such as whether the item has grooves or other areas in which microorganisms can hide). Therefore, it is important to thoroughly clean instruments and other items before sterilization:

- To reduce the number of microorganisms
- To eliminate fluids or tissue remains
- To remove contaminants that can collect in joints, grooves, and teeth of items

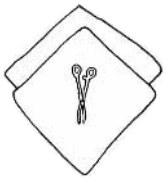
There are three methods of sterilization: steam sterilization (also known as "autoclaving" or "moist heat under pressure"), dry-heat sterilization (electric oven), and chemical ("cold") sterilization. You should have more than one method of sterilization or HLD available to use as a backup for when your equipment breaks down, supplies run low, or electricity is unavailable.

Note: Boiling is *not* a method of sterilization.

Wrapping items before sterilization

Wrapping items before steam and dry-heat sterilization helps decrease the likelihood that sterilized items will be contaminated before use. Under optimal storage conditions and with minimal handling, properly wrapped items can be considered sterile as long as they remain intact and dry. To wrap items for steam sterilization, use two layers of paper, newsprint, or muslin or cotton fabric. Do not use canvas for steam sterilization, since steam may not penetrate this material. When wrapping items for dry-heat sterilization, use foil, double-layered cotton, or muslin fabric.

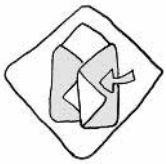
Steps of Wrapping Items for Sterilization



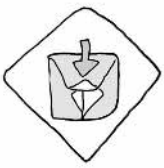
Step 1
Place the instrument or other item in the center of the top wrapper. The wrapper should be positioned so that the points —not the flat edges— are at the top, bottom, and sides.

Step 2
Fold the bottom section of the *top* wrapper to the center, and fold back the point.

Step 3
Fold the left section to the center, and fold back the point.



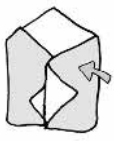
Step 4
Fold the right section to the center, and fold back the point.



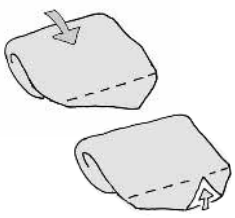
Step 5
Fold the top section to the center, and fold back the point.

Step 6
Fold the bottom section of the *bottom* wrapper to the center, and fold back the point.

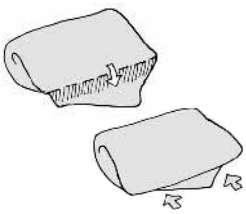
Step 7
Fold the left section to the center, and fold back the point.



Step 8
Fold the right section to the center, and fold back the point.



Step 9
Fold the top section to the center, and fold back the point.

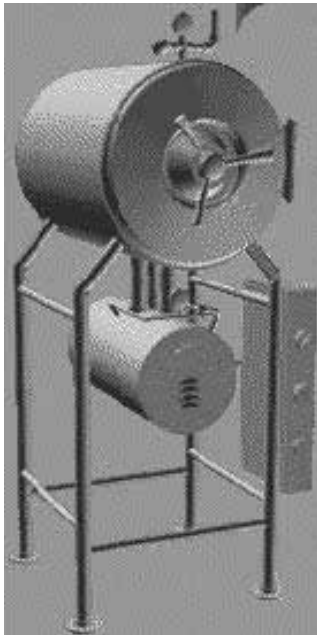


Step 10
Tuck the point under the right and left sections.

Step 11
Fasten the folds securely, using autoclave tape, if available.

1. Steam sterilization (autoclaving)

Steam sterilization in an autoclave is one of the most common forms of sterilization used in health care facilities. Steam sterilization requires moist heat under pressure, so there must be sources of both water and heat. Heat can be provided by electricity or by another fuel source (e.g., kerosene burner), depending on the type of autoclave being used.



It is important to know whether you are using an autoclave or a dry-heat oven, since different procedures are used with each. Remember that if you are using an autoclave, it must have a source of water (either the machine is hooked up directly to a water source or water is put into the machine before the cycle begins) and a pressure gauge.

Steps of Steam Sterilization

Step 1

Decontaminate, clean, and dry all instruments and other items to be sterilized.

Step 2

Open or unlock all jointed items, such as hemostats and scissors, and disassemble those with sliding or multiple parts. (This allows steam to reach all surfaces of the item.) Avoid arranging the items together tightly, because this prevents steam from reaching all surfaces.

Step 3

If items are to be wrapped before steam sterilization, use two layers of paper, newsprint, or cotton or muslin fabric (do not use canvas). Instruments and other items should not be placed in a closed container. If drums are being used, make sure the holes of the drum are open.

Step 4

Arrange all packs, drums, or unwrapped items in the chamber of the autoclave in a way that allows steam to circulate freely.

continued

Steps of steam sterilization continued

Step 5

Because there are many types of autoclaves, this booklet cannot provide specific instructions for each. Follow the manufacturer's instructions whenever possible. In general, sterilize wrapped items for 30 minutes and unwrapped items for 20 minutes at 121°C (250°F) and 106 kPa (15lb/in^2) pressure. (Do not begin timing until the autoclave reaches the desired temperature and pressure. If you forget to start timing the procedure, start timing at the point at which you realize this.)

Note: The units of pressure marked on an autoclave's pressure gauge may be different on different machines. The following amounts (which are approximately equivalent) are the desired pressure for autoclaving:

15 lb/in^2 (15 pounds per square inch)
106 kPa (106 kilopascals)
1 atm (1 atmosphere)
1 kgf/cm^2 (1 kilogram of force per square centimeter)
776 torr
1 bar
776 mm Hg (776 millimeters of mercury)

Step 6

If the autoclave is automatic, the heat will shut off and the pressure will begin to fall once the sterilization cycle is complete. If the autoclave is not automatic, turn off the heat or remove the autoclave from the heat source after 30 minutes if items are wrapped, 20 minutes if items are unwrapped. Wait until the pressure gauge reads "zero" to open the autoclave. Open the lid or door to allow the remaining steam to escape. Leave instrument packs or items in the autoclave until they dry completely (which could take up to 30 minutes).

Note: Items must be removed dry: damp packs will draw microorganisms from the environment and should be considered contaminated.

Step 7

Remove the packs, drums, or unwrapped items from the autoclave (use sterile pickups for handling unwrapped items). To prevent condensation, place packs or drums on a surface padded with paper or fabric until they are cool. Do not store packs, drums, or unwrapped items before they reach room temperature (which may take several hours).

Step 8

Store items properly as follows:

- *Wrapped items.* Under optimal storage conditions and with minimal handling, properly wrapped items can be considered sterile as long as they remain intact and dry. For optimal storage, place sterile packs in closed cabinets in areas that are not heavily trafficked, have moderate temperature, and are dry or of low humidity. When in doubt about the sterility of a pack, consider it contaminated and resterilize the items.
- *Unwrapped items.* Use unwrapped items immediately after removal from the autoclave or keep them in a covered, dry, sterile container for up to one week.

Pressure-cooker-type autoclaves

Pressure-cooker-type autoclaves are common (especially in rural areas) and often do not come with instructions. The following can be used as instructions:

- **Put water in the bottom of the autoclave (up to the ridge located on the inner wall).**
- **Place items in the autoclave and arrange them loosely, so that the steam can circulate around them.**
- **Place the autoclave over the heat source (e.g., electric stove, kerosene burner) and turn to high heat. Once steam is emitted from the pressure valve, begin timing the sterilization cycle. (For this type of autoclave, 20 minutes is suggested, regardless of whether items are wrapped or unwrapped.)**
- **Turn the heat down, but make sure that steam continues to come out of the pressure valve. This will reduce the amount of fuel used.**
- **After 20 minutes, remove the autoclave from the heat source, open the pressure valve to release the steam, and allow the autoclave to cool for 15–30 minutes before opening it.**

Each time you prepare to use the autoclave, check the gaskets, gauges, and pressure and safety valves for defects. Clean the chamber and cover regularly.

Autoclave maintenance

If you use steam sterilization at your facility, the autoclave should be checked each time it is used to make sure that it is functioning properly. If any repairs are necessary, they should be made before the autoclave is used again. If the autoclave is faulty, sterilization will not be achieved. The autoclave is not working correctly:

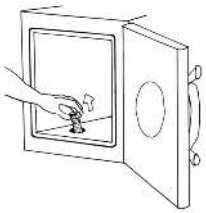
- If steam comes out of the safety valve instead of the pressure valve. If this happens, the pressure valve must be cleaned and inspected.
- If steam comes out from under the lid or around the door. If this happens, the gasket must be cleaned and dried or replaced.

Routine maintenance should become standard procedure. (Follow the manufacturer's instructions whenever possible, since autoclave maintenance varies depending on the type of autoclave used.)

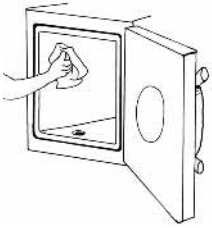
General Guidelines for Routine Maintenance that Are Likely to Apply to Many Autoclaves

Daily

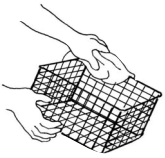
- Remove the outlet screen, and clean with detergent and a brush under running water.



- Clean the chamber using a cloth. Do *not* use abrasive cleansers or steel wool; they will scratch the surface and increase corrosion.

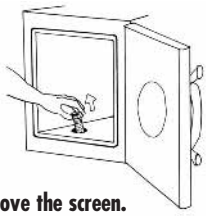


- Clean the door or lid gaskets with a cloth and check for defects. Replace defective gaskets.
- Clean the shelves in the autoclave or the basket or cart that holds packs (including the wheels of the cart) with detergent and a cloth.



Weekly

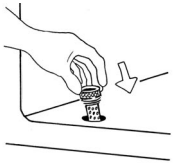
Check the manufacturer's instructions for maintenance of the exhaust line. If the instructions are unavailable, flush the exhaust line or chamber drain to keep it free of material that may interfere with air and steam leaving the chamber, as follows:



1 Remove the screen.

2 Pour 1 liter of detergent and hot water solution down the drain with a funnel.

3 Pour 1 liter of hot water down the drain to rinse out the detergent solution.



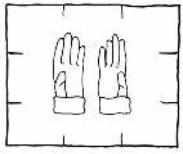
4 Replace the screen.

Steam sterilization of surgical gloves

Gloves may be powdered before steam sterilization to prevent them from sticking together and to make them easier to put on. However, powder has been shown to lead to inflammatory reactions in clients (with subsequent granuloma or adhesion formation) and may cause increased development of latex allergies or dermatitis in health care workers. If powder is used, use only absorbable powders, such as starch. (Do not use talcum powder, which is nonabsorbable.) To reduce the risk of inflammatory reactions in clients, staff should rinse gloved hands with sterile water or saline solution after putting on powdered gloves and before handling instruments or performing a clinical procedure.

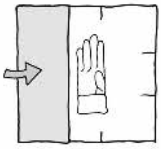
Wrapping gloves before steam sterilization helps decrease the likelihood that they will become contaminated before use. Use paper, newsprint, or muslin or cotton fabric. Do not use canvas. Wrap gloves with a cuff so that they can be easily put on without contaminating them. Do not roll gloves into balls before sterilization (this makes it difficult for steam to reach all surfaces of the gloves, making sterilization ineffective).

Steps of Wrapping Gloves for Steam Sterilization



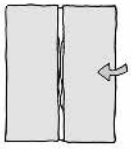
Step 1

Place one pair of gloves in the center of the wrapper. The wrapper should be positioned so that the flat edges—not the points—are at the top, bottom, and sides.



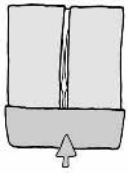
Step 2

Fold the left section to the center.



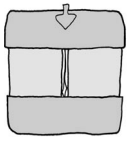
Step 3

Fold the right section to the center.



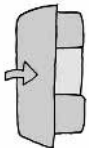
Step 4

Fold the bottom section halfway to the center (one-quarter of the way up).



Step 5

Fold the top section halfway to the center (one-quarter of the way down).



Step 6

Fold the packet in half vertically, either from left to right or from right to left.

Step 7

Mark on the outside of the wrapper the end at which the gloves' cuffs are positioned. (This will help ensure that the gloves will be in the correct position when the provider opens the pack to put them on.)

2. Dry-heat sterilization (electric oven)

Dry-heat sterilization requires high heat for a specific period of time. For sterilization to be achieved, a constant supply of electricity is necessary. Because of the high temperatures, only glass or metal objects can be sterilized by dry heat. Do not use this method for other items, such as surgical gloves, which may melt or burn.

It is important to know whether you are using an autoclave (steam sterilizer) or a dry-heat oven, since different procedures are used with each. Remember that a dry-heat oven does not use water or have pressure gauges.

Steps of Dry-Heat Sterilization

Step 1

Decontaminate, clean, and dry all items to be sterilized.

Step 2

Either 1) wrap the items using foil, double-layered cotton, or muslin fabric; 2) put unwrapped items on a tray or shelf; or 3) place items in a metal, lidded container.

Note: **Because dry-heat sterilization works by raising the temperature of the entire item to the designated temperature, it is not necessary to open or unlock hinged instruments or other items or to disassemble those with sliding or multiple parts. In addition, instruments and other items can be placed in closed containers.**

Step 3

Place items in the oven and heat to the correct temperature (the oven must contain a thermometer or temperature gauge). Use the following list to determine the time required to sterilize items at different temperatures. Do not begin timing until the oven reaches the desired temperature, and do not open the oven once timing has begun. (Use a timer or make sure to record the time.) If you forget to start timing the procedure, start timing at the point at which you realize this.

Temperature	Time
170°C (340°F)	1 hour
160°C (320°F)	2 hours
150°C (300°F)	2.5 hours
140°C (285°F)	3 hours

Note: **This list shows the amount of time that items must be kept at the desired temperature to ensure that sterilization is achieved. Keep in mind that the total cycle time—including heating the oven to the correct temperature, sterilization, and cooling—is usually twice as long as the time noted here. Because dry heat can dull sharp instruments and needles, these items should not be sterilized at temperatures higher than 160°C.**

Step 4

Leave items in the oven to cool. When they are cool, remove items and use or store immediately. (Use sterile pickups to remove unwrapped items.)

continued on page 40

Steps of dry-heat sterilization continued

Step 5

Store items properly, as follows:

- ***Wrapped items.*** **Under optimal storage conditions and with minimal handling, properly wrapped items can be considered sterile as long as they remain intact and dry. For optimal storage, place sterile packs in closed cabinets in areas that are not heavily trafficked, have a moderate temperature, and are dry or of low humidity. When in doubt about the sterility of a pack, consider it contaminated and resterilize the items.**
- ***Unwrapped items.*** **Use unwrapped items immediately after removal from the oven or keep them in a covered, dry, sterile container for up to one week.**

Maintenance of ovens

If you use dry-heat sterilization at your facility, routine maintenance is important to ensure that the oven is functioning properly. If the oven does not reach the correct temperature, sterilization will not be achieved. Be sure to:

- Keep the oven clean.
- Check that the temperature gauge is working correctly on a regular basis—every few weeks is sufficient—by putting a thermometer in the oven and comparing the temperature reading with the one on the gauge.

3. Chemical ("cold") sterilization

Chemical sterilization is used for items that are heat sensitive or when methods that require heat are unavailable. Items are sterilized by soaking them in an appropriate chemical solution (such as one containing glutaraldehyde) and rinsing them in sterile water.

Cidex, which contains glutaraldehyde, is a commonly available solution used for sterilization. Other products containing glutaraldehyde or other chemical sterilants may be locally available, but you should make sure that the solution you want to use is appropriate for sterilization. Remember that:

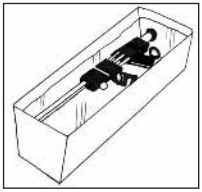
- Glutaraldehyde is irritating to the skin, eyes, and respiratory tract. When using it, wear gloves, limit your exposure time, and keep the area well ventilated.
- The length of time that commercially available glutaraldehyde solutions can be used varies, usually from 14–30 days. Always follow the manufacturer's instructions regarding proper storage temperatures and expiration date. Solutions should be replaced anytime they become cloudy.
- Formaldehyde is potentially cancer causing and extremely irritating to the skin, eyes, nose, and respiratory tract. Therefore, routine use of formaldehyde for sterilizing instruments and other items is *not* recommended.

Steps of Chemical Sterilization

Step 1

Decontaminate, clean, and thoroughly dry all instruments and other items to be sterilized. Water from wet instruments and other items dilutes the chemical solution, thereby reducing its effectiveness.

Step 2



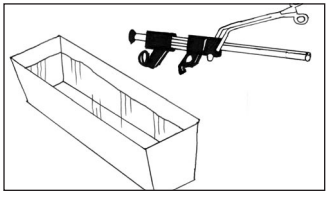
Prepare the glutaraldehyde or other chemical solution by following the manufacturer's instructions or use a solution that was prepared previously, as long as it is clear (not cloudy) and has not expired. (Most commercially available glutaraldehyde solutions can be used for at least two weeks after preparation; follow the manufacturer's instructions. Ideally, an indicator strip should be used each time the solution is to be used to determine if the solution is still effective.) After preparing the solution, put it in a clean container with a lid. Always mark the container with the date the solution was prepared and the date it expires.

Step 3

Open all hinged instruments and other items and disassemble those with sliding or multiple parts; the solution must contact all surfaces in order for sterilization to be achieved. Completely submerge all instruments and other items in the solution; all parts of the instruments and other items should be under the surface of the solution. Place any bowls and containers upright, not upside down, and fill with the solution.

Step 4

Follow the manufacturer's instructions regarding the time necessary for sterilization to be achieved. In general, if the solution contains glutaraldehyde, cover the container, and allow the instruments and other items to soak for at least 10 hours. Do not add or remove any instruments or other items once timing has begun.



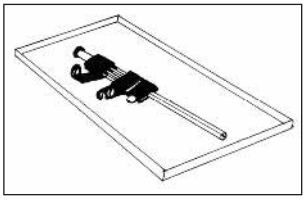
Step 5

Remove the instruments and other items from the solution using large, sterile pickups (lifters, cheatle forceps).

Step 6

Rinse thoroughly with sterile water to remove the residue that chemical sterilants leave on instruments and other items; this residue is toxic to skin and tissues. *Note:* Boiled water is not sterile, because boiling does not guarantee that bacterial endospores have been killed. Therefore, rinsing with boiled water can contaminate sterilized instruments and other items.

Step 7



Proper storage is as important as the sterilization process itself. Place the instruments and other items on a sterile tray or in a sterile container and allow to air-dry before use or storage. Use the instruments and other items immediately or keep in a covered, dry, sterile container and use within one week.

Monitoring the effectiveness of sterilization

There are three ways to monitor the effectiveness of sterilization:

1. **Mechanical indicators.** These indicators, which are part of the sterilization equipment (the autoclave or dry-heat oven), record and allow you to observe time, temperature, and/or pressure readings during the sterilization cycle.

2. **Chemical indicators.** These include:
   - Tape with lines that change color when the intended temperature is reached
   - Pellets in glass tubes that melt, indicating that the intended temperature and time have been reached
   - Indicator strips that show that the intended combination of temperature, time (and, in an autoclave, steam) has been achieved
   - Indicator strips that show that sterilization chemicals are still effective

3. **Biological indicators.** These indicators use heat-resistant bacterial endospores to demonstrate whether or not sterilization has been achieved. (If the bacterial endospores have been killed after sterilization, you can assume that all other microorganisms have been killed as well.) The advantage of this method is that it directly measures the effectiveness of sterilization. The disadvantage is that this indicator is not immediate, as are mechanical and chemical indicators. Bacterial culture results are needed before sterilization effectiveness can be determined.

Recommended monitoring system:

- Record all information (temperature, time, pressure, or all three, depending on the method being used) in a log each time you perform sterilization, and review the log after each load. (Some sterilization equipment has a built-in recording chart that will do this for you.)
- For methods that require heat or steam, place heat- and steam-sensitive indicators on the inside and outside of each pack.
- Perform testing with biological indicators weekly (or monthly, if testing weekly is not possible).
- If using chemicals, use an indicator strip to determine whether the solution is still effective before performing sterilization and replace the solution if necessary.

In case of failure:

If monitoring indicates a failure in sterilization, immediately attempt to determine the cause of the failure. First, check that equipment is being used correctly. If correct use of equipment has been documented and monitoring still indicates a failure in sterilization, discontinue use of the equipment and have it serviced. Any items processed in the faulty equipment should be considered nonsterile and must be processed again when the equipment is functioning.

Special considerations

Special considerations must be taken when sterilizing liquids, gloves, reusable needles and syringes, linens, and the instruments used during manual vacuum aspiration.

Liquids

Liquids (such as water used to rinse items after chemical sterilization) can be sterilized only by steam sterilization, not by dry-heat or chemical sterilization. Special procedures must be followed to safely and properly sterilize liquids.

Liquids must be sterilized separately from other items, such as instruments or linens. Place liquids in heat-resistant glass (e.g., Pyrex) bottles with self-sealing caps, and autoclave them at the same temperature and pressure used for other items. The time necessary to autoclave liquids depends on many factors, the most important of which is the volume of liquid being autoclaved. In general:

75–100 mL = 20 minutes
250–500 mL = 25 minutes
1000 mL = 30 minutes
1500 mL = 35 minutes
2000 mL = 40 minutes

Once sterilization is complete, the chamber pressure must be released slowly—over a period of at least 10–15 minutes. Rapid release will cause liquids to boil violently, which may cause the caps to blow off or the bottles to burst. Open the autoclave door slightly and allow liquids to cool for approximately 30 minutes before removal.

Surgical gloves

Whenever possible, use disposable surgical gloves that arrive from the manufacturer in a sterile package and are thrown away after one use. Gloves are difficult to process, and processing may make gloves brittle or introduce tiny tears or holes. When surgical gloves must be processed, steam sterilization must be used. Gloves will melt in dry-heat ovens, and chemical sterilization is impractical because of the difficulty in rinsing off chemical residue. If possible, wrap gloves before sterilization (see page 38).

Reusable needles and syringes

Whenever possible, use disposable needles and syringes, since these items are difficult to process correctly. If these items must be reprocessed, use the following instructions. (**Note:** Chemical sterilization is not recommended, since it is difficult to adequately rinse off chemical residue, which may interact with or inactivate the solution being injected).

- **For steam sterilization:** Flush needles with boiled water just before wrapping. (A small amount of water is needed to steam-sterilize items with lumens or small openings.)
- **For dry-heat sterilization:** Because high temperatures can dull sharp edges, reusable needles should not be sterilized at temperatures higher than 160˚C (320˚F). Plastic syringes will melt at this temperature and should not be processed with dry heat.

Linens (gowns and surgical drapes)
Only steam sterilization should be used for these items. Many fabrics burn at the high temperatures used for dry heat, and the quantity of sterile water that would be needed and the high risk of contamination during drying make chemical sterilization impractical. Packs containing gowns, drapes, and other linens should not be more than 30 x 30 x 50 cm (12 x 12 x 20 in.) or 5 kg (12 lb.) to allow steam to penetrate the items adequately. Place packs containing linens on their sides to make it easier for the steam to penetrate. (It is easier for steam to go through folds than through flat, compressed surfaces.)

Instruments used during MVA
It is best to chemically sterilize the cannula, but sterilization of the syringe after decontamination and proper cleaning is not necessary (it does not come in contact with the client and is used only as a source of vacuum and as a receptacle for blood and tissue). Sterilization may decrease the life of the syringe, since sterilization damages the syringe over time. If your facility requires sterilization of the syringe, it may be sterilized using chemicals. (Neither the cannula nor the syringe can withstand steam or dry-heat sterilization: the syringe value will be destroyed, and the cannula will melt.)

Soak the cannula and syringe in a chemical solution such as glutaraldehyde. (If available, ethylene oxide gas may be used.) Be sure that all parts of the syringe are completely submerged and that the barrel is filled with the solution. Be sure that the cannula is completely submerged and filled with the solution.

Using high-level disinfection

HLD eliminates bacteria, viruses, fungi, and parasites, but does not reliably kill all bacterial endospores, which cause diseases such as tetanus and gas gangrene. Because sterilization kills all microorganisms, including bacterial endospores, it is preferable for instruments and other items that will come in contact with the bloodstream or tissues under the skin. When sterilization is not available or feasible, HLD is the only acceptable alternative to sterilization for these items. HLD is also suitable for items

that will come in contact with broken skin or intact mucous membranes.

Note: Flaming (holding an item in a flame) is not an effective method of HLD because it does not effectively kill all microorganisms.

The effectiveness of HLD depends on the amount and type of microorganisms, organic material (blood, other fluids, tissues), and other matter (such as dirt) present on the item and the amount of protection the item gives the microorganisms (such as whether the item has grooves or other areas in which microorganisms can hide). Therefore it is important to thoroughly clean instruments and other items before HLD:

- To reduce the number of microorganisms
- To eliminate fluids or tissue remains
- To remove contaminants that can collect in joints, grooves, and teeth of items.

There are three methods of HLD: boiling, chemical HLD, and steaming. You should have more than one method of sterilization or HLD available to use as a backup for when your equipment breaks down, supplies run low, or electricity is unavailable. Many facilities use a method of HLD as a backup to their primary method of sterilization.

1. HLD by boiling

Boiling is a simple method of HLD that can be performed in any location that has access to clean water and a heat source. Using this method, instruments and other items are placed in a pot or boiler and the water is heated to boiling for 20 minutes.

Note: A white, scaly deposit may be left on items that have been boiled frequently and on the pot or boiler itself. These are lime deposits caused by lime salts in the water. To minimize lime deposits:

- Add some vinegar to the water to remove deposits on the items or the inside of the boiler.
- Boil the water for 10 minutes to precipitate the lime (to make it come out of the water and settle on the bottom or sides of the boiler instead of on the items being boiled) before the items are added.
- Use the same water throughout the day, adding only enough to keep the items below the surface.
- Drain and clean out the boiler at the end of each day.

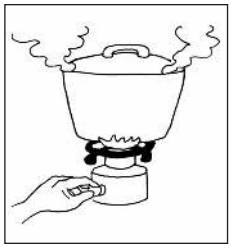
Steps of HLD by Boiling

Step 1
Decontaminate and clean all instruments and other items to be high-level disinfected.

Step 2
Open all hinged instruments and other items and disassemble those with sliding or multiple parts. Place any bowls and containers upright, not upside-down, and fill with water. Because water must touch all surfaces for HLD to be achieved, completely submerge all instruments and other items in the water in the pot or boiler.

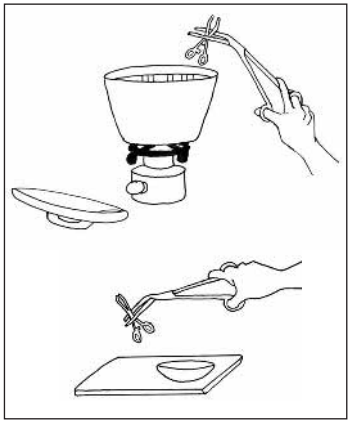
Step 3
Cover the pot or close the lid on the boiler and bring the water to a gentle, rolling boil.

Step 4
When the water comes to a rolling boil, start timing for 20 minutes. Use a timer or make sure to record the time that boiling begins. From this point on, do not add or remove any additional water, instruments, or other items.



Step 5
Lower the heat to keep the water at a gentle, rolling boil; too vigorous a boil will cause the water to evaporate and may damage the instruments and other items if they bounce around the container and hit the sidewalls and other instruments or items. The lower heat also saves fuel/electricity.

Step 6
After 20 minutes, remove the instruments and other items using dry, high-level disinfected pickups (lifters, cheatle forceps). Place the instruments and other items on a high-level disinfected tray or in a high-level disinfected container, away from insects and dust and in a low-traffic area. Allow to air-dry before use or storage. Never leave boiled instruments and other items in water that has stopped boiling; they can become contaminated as the water cools down.



Step 7
Use instruments and other items immediately or keep in a covered, dry, high-level disinfected container and use within one week.

Tips for HLD by Boiling:

- ☛ **Items must be completely covered with water. Open all hinged instruments and disassemble items with sliding or multiple parts.**
- ☛ **Always boil for 20 minutes. Start timing when the water reaches a rolling boil.**
- ☛ **Do not add or remove anything once boiling begins.**

2. Chemical HLD

Chemical HLD is used for heat-sensitive items, like laparoscopes, or when a heat source is not available. Chemical HLD is different from chemical sterilization because:

- Either glutaraldehyde or chlorine may be used for HLD. (Chlorine cannot be used for sterilization.)
- The soaking time is shorter for HLD.
- HLD items may be rinsed with boiled water. (Sterilized items must be rinsed with *sterile* water.)

About Disinfectants

Disinfectants are used to kill microorganisms on inanimate objects; they should not be used on skin or mucous membranes. Disinfectants are used in three ways:

- **During decontamination: A disinfectant is used as the solution for decontamination.**
- **During chemical HLD and sterilization: Certain disinfectants can be used to sterilize or high-level disinfect instruments and other items.**
- **During housekeeping: Disinfectants are used to make the disinfectant cleaning solution used to clean high-risk areas.**

There are two types of disinfectants:

1. ***High-level disinfectants* are used for instrument processing. Some (such as glutaraldehyde) are chemical sterilants and, given sufficient time, will destroy bacterial endospores.**
2. ***Low-level disinfectants* are used for cleaning surfaces, such as floors and countertops. These should not be used for instrument processing. Low-level disinfectants, such as phenols (carbolic acid—e.g., Phenol, Lysol) and quaternary ammonium compounds (such as benzalkonium chloride—e.g., Zephiran), are suitable for cleaning, but most products have few advantages over using chlorine/detergent solutions, which are less expensive and often more readily available.**

Properties of chemicals used for HLD

In most settings, the only chemicals appropriate for HLD are chlorine and glutaraldehyde:

- *Chlorine* is available in liquid (sodium hypochlorite), powder (calcium hypochlorite or chlorinated lime), and tablet (sodium dichloroisocyanurate) form. Chlorine can be used for disinfection, decontamination (by soaking for 10 minutes), and HLD (by soaking for 20 minutes), but should not be used on endoscopic equipment. Because chlorine leaves a residue, rinse items thoroughly with boiled water after HLD. Chlor-ine can be corrosive to metals with prolonged contact and can be irritating to the skin, eyes, and respiratory tract. A new solution should be prepared daily (or whenever it becomes heavily contaminated).
- *Glutaraldehyde (e.g., Cidex)* is commonly used for processing equipment, such as laparoscopes, that cannot be heat sterilized. It can be used for HLD (by soaking for 20 minutes) and sterilization (by soaking for 10 hours*). Because glutaraldehyde leaves a residue, rinse items thoroughly with boiled water after HLD and with sterile water after sterilization. Glutaraldehyde can be irritating to the skin, eyes, and respiratory tract.

During HLD do *not* use:

- Hydrogen peroxide (6%), which has not been as well studied as other disinfectants. The 3% solution is suitable for disinfecting surfaces.
- Formaldehyde, which is potentially cancer causing and extremely irritating to the skin, eyes, and respiratory tract.
- Alcohol (60%–90% ethyl or isopropyl), which does not kill all viruses. However, alcohol can be used to disinfect thermometers and stethoscopes, although they should not remain soaking in an alcohol solution.
- Iodophors (e.g., Betadine), which are antiseptic preparations and not suitable for disinfection because of their low levels of iodine.
- Sporicidin, which is a glutaraldehyde-based product that has been shown to be ineffective.
- Carbolic acid (e.g., Lysol, Phenol), which is a low-level disinfectant.
- Chlorhexidine gluconate with cetrimide (e.g., Savlon), chlorhexidine gluconate (e.g., Hibitane, Hibiscrub), or chloroxylenol (e.g., Dettol), which are all antiseptics.

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* Note: Times apply to use of Cidex only; times for sterilization with other products may vary. Follow the manufacturer's instructions.

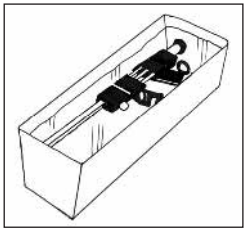
Steps of HLD Using Chemicals

Step 1

Decontaminate, clean, and thoroughly dry items. (Water from wet items dilutes the chemical solution, reducing its effectiveness.)

Step 2

When using glutaraldehyde: Prepare the solution as per the manufacturer's instructions or use a prepared solution, so long as it is clear (not cloudy) and has not expired. (Most glutaraldehyde solutions can be used for at least two weeks; follow the manufacturer's instructions. Ideally, use an indicator strip to determine whether the solution is effective.) After preparing the solution, put it in a clean container with a lid. Mark the container with the date the solution was prepared and the date it expires.



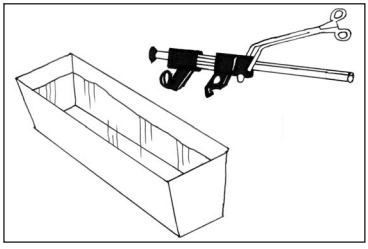
When using a chlorine solution: Follow the instructions on pages 26–27. Fresh solution should be made each day (or sooner, if the solution becomes dirty). Put the solution in a clean container with a lid.

Step 3

Open all hinged instruments and disassemble those with sliding or multiple parts (the solution must contact all surfaces in order for HLD to be achieved). Completely submerge all items so that all parts are under the surface. Place bowls and containers upright, not upside down, and fill with the solution.

Step 4

Cover the container, and allow the items to soak for 20 minutes. Do not add or remove items once timing has begun.

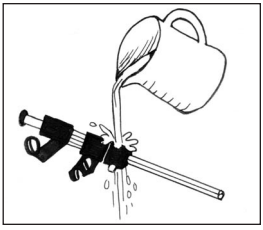


Step 5

Remove the items from the solution using dry, HLD pick-ups (lifters, cheatle forceps).

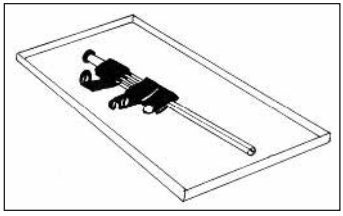
Step 6

Rinse thoroughly with boiled water to remove chemical residue, which is toxic to skin and tissues.



Step 7

Place the items on an HLD tray or in an HLD container and allow to air-dry before use or storage. Use items immediately or keep in a covered, dry, HLD container and use within one week.



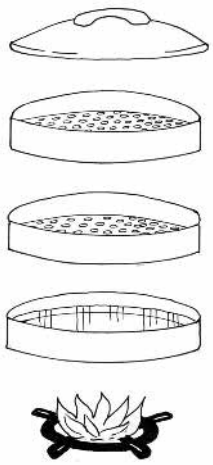
Tips for Chemical HLD:

- **Items must be completely covered with solution. Open all hinged instruments and disassemble items with sliding or multiple parts.**
- **Soak for 20 minutes. If you forget to start timing, start at the point at which you remember.**
- **Do not add or remove anything once timing begins.**
- **Rinse items thoroughly with boiled water.**

3. HLD by steaming

Items are steamed in a steamer containing one to three tiers. Steaming is the best method of HLD for gloves, and is a useful method of HLD for the cannulae used during manual vacuum aspiration. HLD of gloves by other methods is less appropriate because: 1) boiling is not recommended, since it is difficult to dry gloves properly without contaminating them. If it is necessary to HLD gloves by boiling, the gloves may be worn wet; 2) using chemicals is impractical since it is difficult to adequately rinse off the chemical residue. Whenever possible, use disposable gloves rather than reusable ones, since gloves are difficult to process.

Two-Tiered Steamer



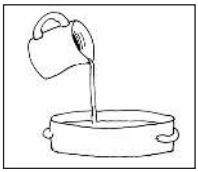
A tiered steamer, like the one shown here, can be used in a wide variety of settings.

Steps of HLD by Steaming

These steps should be followed for steaming gloves and MVA cannulae. Gloves are mentioned and shown in the illustrations as an example.

Step 1

Decontaminate and clean gloves to be high-level disinfected.

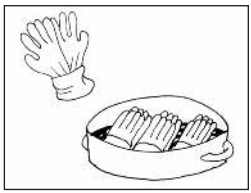


Step 2

Place water in the bottom tray (which has no holes).

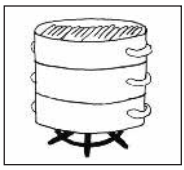
Step 3

Fold back the cuffs of the gloves in pairs and place the gloves in the tray(s) with holes. The number of gloves that will fit in each tray depends on the size of the tray (usually 5–15 pairs). If more than one layer of gloves is being steamed, loosely layer the gloves in a crisscross design. Gloves should not be packed tightly in the tray(s).



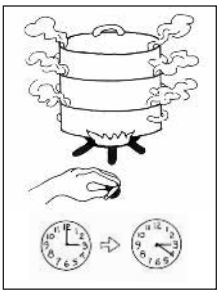
Step 4

Stack the tray(s) of gloves on top of the bottom tray.



Step 5

Place the lid on the top tray and bring the water to a boil. When steam comes out between the trays, the water is boiling. Reduce the heat, but maintain the water at a rolling boil (steam should continue to come out between the trays). High heat wastes fuel and causes the water to evaporate more quickly.

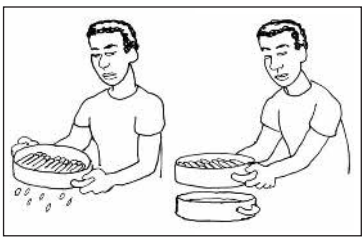


Step 6

Steam the gloves for 20 minutes. Use a timer or make sure to record the time.

Step 7

Remove each tray of gloves, shake off the excess water, and place the tray(s) on a second tray that does not have holes or contain water (a second bottom tray). (Do not place the tray containing the gloves directly on the countertop, since this may contaminate the gloves; remember, there are holes in the bottom of the tray.)



Step 8

Use the gloves immediately or allow them to dry for 4–6 hours (drying may be difficult in areas of high humidity).

Step 9

Store the gloves in a covered tray or put them in a high-level disinfected container and use within one week.

Special considerations

Special considerations must be taken when performing HLD on reusable needles and syringes, linens, and the instruments used during MVA.

Reusable needles and syringes

Whenever possible, use disposable needles and syringes rather than reusable ones, since these items are difficult to process correctly. Chemical HLD is not recommended for these items, since it is difficult to adequately rinse off the chemical residue, which may interact with or inactivate the solution being injected. Boiling is acceptable for these items.

Linens (gowns and surgical drapes)

HLD is impractical for these items; only steam sterilization should be used.

Instruments used during MVA

The cannula must be sterilized or high-level disinfected, but further processing of the syringe after decontamination and proper cleaning is not necessary because it does not come in contact with the client and is used only as a source of vacuum and as a receptacle for blood and tissue. Sterilization and HLD may actually decrease the life of the syringe, since these processes damage the syringe over time. If your facility requires processing of the syringe, use chemical HLD and be sure that the syringe is completely submerged and the barrel filled with the solution.

HLD through boiling, chemicals, or steaming may be used for the cannula. Research has shown that the cannula does not need to be submerged in the water for boiling to be effective; however, the boiler must be kept covered during processing.

Step 4 Storage

Items should be used or properly stored immediately after processing so that they do not become contaminated. Proper storage is as important as proper decontamination, cleaning, and sterilization or HLD. If items are not stored properly, all the effort and supplies used to properly process them will have been wasted, and the items may be contaminated.

Specific instructions for proper storage depend on whether sterilization or HLD has been performed, the method used, and whether the items are wrapped or unwrapped. (In this booklet, any method-specific instructions for storage have been noted as the last step in the sterilization or HLD process.)

Note: No matter what method is used, do not store instruments or other items (such as scalpel blades and suture needles) in solutions: always

store them dry. Microorganisms can live and multiply in both antiseptic and disinfectant solutions, and items left soaking in contaminated solutions can lead to infections in clients. In addition, antiseptic solutions should *not* be used to process objects.

Remember: If an item comes in contact with persons, surfaces, dust particles, insects, or any item that is not sterile or HLD, the item must be considered to be contaminated. Because of the high risk of contamination, unwrapped sterile or HLD items should be used immediately or kept in a covered, sterile or HLD container for no longer than one week after processing.

Storage of wrapped, sterile items

The length of time a wrapped, sterile item is considered sterile depends on whether or not a contaminating event occurs—not necessarily on how long the item has been stored. The shelf life of a wrapped item is affected by a number of factors, including:

- The type of packing material used
- The number of times the pack is handled
- The number of people who handle the pack
- The cleanliness, humidity, and temperature of the storage area
- Whether the packs are stored on open or closed shelves
- Whether dust covers (such as sealed plastic bags) are used

For optimal storage, place sterile packs in closed cabinets in areas that are not heavily trafficked, have moderate temperatures, and are dry or of low humidity. Under optimal storage conditions and with minimal handling, properly wrapped items can be considered sterile as long as they remain intact and dry.

Storage time and the handling of sterile packs should be kept to a minimum, since the likelihood of contamination increases over time and with increased handling. When in doubt about the sterility of a pack, consider it to be contaminated and resterilize the item before use.

Organizing an area for instrument processing

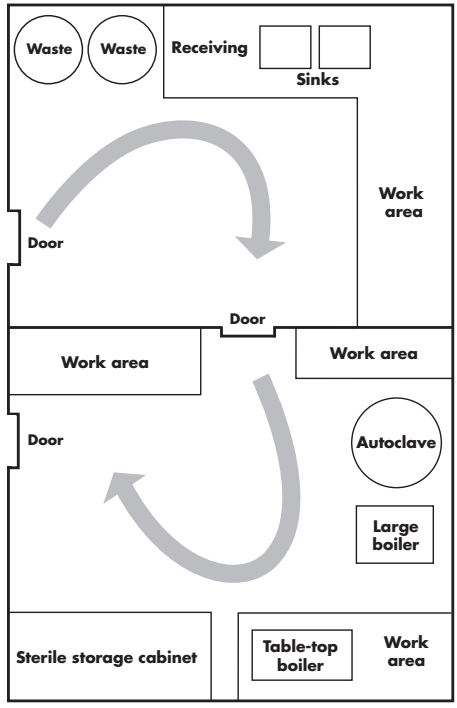
Remember, the objectives of processing are:

- To remove as many microorganisms as possible so that microorganisms are not transmitted to clients during clinical procedures
- To reduce the risk of infection to staff by eliminating harmful microorganisms on items that have been in contact with a client's fluids or tissues during clinical procedures

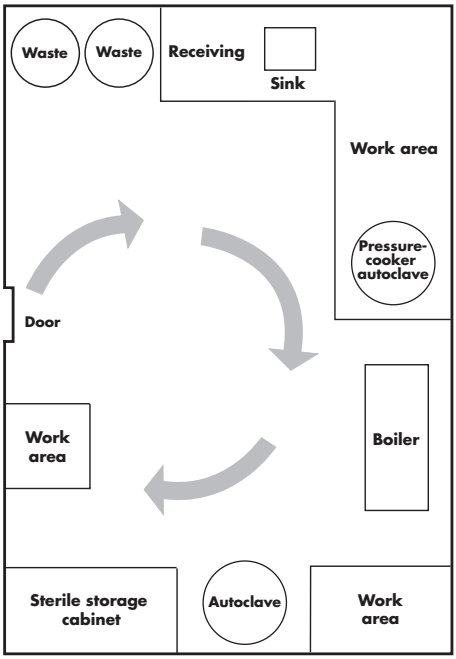
When processing items, activity patterns should be established so that soiled items never cross paths with clean, sterile, or HLD items.

It is ideal to have separate rooms—one for receiving and cleaning items and another for sterilization, HLD, and storage. However, in many settings, this is not possible. When only one room is available for processing, it should be arranged so that activities and objects flow in an organized fashion from receiving to storage. It is necessary to have at least one sink in processing areas (though having two sinks is preferred), sufficient countertop space for receiving dirty items and for drying and packaging clean items, and storage space (preferably closed cabinets).

Separate Rooms for Processing Instruments and Other Items



Single Room for Processing Instruments and Other Items



Tips for Organizing a Processing Area:

- Educate staff about the need to keep clean and sterile/HLD items from coming into contact with soiled items.
- Designate and label processing areas, particularly when only one room is available.
- Enclose processing rooms to minimize dust and eliminate insects.
- If possible, ensure access to two sinks or basins with a clean water supply (one sink for cleaning, one for rinsing).
- Store clean, sterile, and HLD instruments and other items on shelves with doors to minimize the amount of dust and debris falling onto the packaging.
- Avoid using cardboard boxes for storage, as they can harbor insects and shed dust and debris.
- Remove supplies from all shipping cartons and boxes before bringing them into an operating theater, procedure room, or clean work area.

Housekeeping and Waste Disposal

The general cleanliness and hygiene of a facility are vital to the health and safety of staff, clients, visitors, and the community at large. Good housekeeping and waste disposal practices are the foundation of good infection prevention. Housekeeping and waste disposal staff are at a high risk of infection because they are exposed to blood, other body fluids, used sharps, and other contaminated objects as a routine part of their jobs.

General housekeeping guidelines

Although certain areas of the clinic require special housekeeping procedures, the following list applies to all parts of the clinic:

- Develop and post cleaning schedules where all housekeeping staff can see them. Make sure that cleaning schedules are closely maintained.
- Wear gloves (preferably thick utility gloves) when cleaning.
- To reduce the spread of dust and microorganisms, use a damp or wet mop or cloth for walls, floors, and surfaces instead of dry-dusting or sweeping .
- Scrubbing is the most effective way to remove dirt and microorganisms. Scrubbing should be a part of every cleaning procedure.
- Wash surfaces from top to bottom so that debris falls to the floor and is cleaned up last. Clean the highest fixtures first and work downward—for example, clean ceiling lamps, then shelves, then tables, and then the floor.
- Change cleaning solutions whenever they appear to be dirty. A solution is less likely to kill infectious microorganisms if it is heavily soiled.

Cleaning solutions

Three types of cleaning solutions are used during housekeeping at a health facility. It is essential that housekeeping staff understand the different types of cleaning agents and how each should be used:

1. Plain detergent and water

This is used for low-risk areas and general cleaning tasks. Detergents remove dirt and organic material and dissolve or suspend grease, oil, and other matter for easy removal by scrubbing.

2. Disinfectant (0.5% chlorine solution)

Disinfectants rapidly kill or inactivate infectious microorganisms during the cleaning process. Disinfectants are used to clean up spills of blood or other body fluids.

3. Disinfectant cleaning solution

This solution, which contains a disinfectant, detergent, and water, is used for cleaning areas that may be contaminated with infectious materials (such as operating theaters, procedure rooms, latrines, and sluice rooms). The solution must contain both a disinfectant and a detergent. Disin-fectants rapidly kill or inactivate infectious microorganisms during the cleaning process, while detergents remove dirt and organic material, which cannot be done by water or disinfectants alone.

> ***Caution:***
>
> **Chlorine solutions should never be mixed with cleaning products that contain ammonia, ammonium chloride, or phosphoric acid. Combining these chemicals will result in the release of a chlorine gas, which can cause nausea, eye irritation, tearing, headache, and shortness of breath. These symptoms may last for several hours. If you are exposed to an unpleasantly strong odor following the mixing of a chlorine solution with a cleaning product, leave the room or area immediately until the fumes have cleared completely.**

In most settings, a 0.5% chlorine solution made from locally available bleach is the cheapest disinfectant, but alternatives include commercial disinfectants that contain 5% carbolic acid (such as Phenol or Lysol) or quaternary ammonium compounds. For information about how to make a 0.5% chlorine solution, see pages 26–27.

To make a disinfectant cleaning solution:
Prepare a 0.5% chlorine solution following the instructions on page 27 (or obtain any disinfectant that contains 5% carbolic acid, such as Phenol or Lysol, or quaternary ammonium compounds). Add some detergent and mix. Continue adding detergent until the solution is mildly sudsy.

Cleaning procedures for different clinic areas

Low-risk areas (waiting rooms, administrative areas)

These are the areas that are usually not contaminated with infectious microorganisms, and the risk of infection is minimal. Routine cleaning—the kind of cleaning you would do in your home—is usually good enough for these areas. In general, clean these areas once a week (or whenever they appear to be dirty) with a cloth or mop dampened with detergent and water. Vacuum carpeted areas once a week and shampoo as needed. In unusual circumstances in which contamination occurs in these areas, use the appropriate practices described below.

Toilets, latrines, and sluice rooms

These areas are usually heavily contaminated and should be cleaned daily—or more often if traffic in your facility is high. Use different supplies to clean these areas than the supplies you use for cleaning client-care areas.

Cleaning Schedule: Toilets, Latrines, and Sluice Rooms

Task	Schedule
Clean walls	Wipe with a disinfectant cleaning solution each day (or more often, if necessary).
Clean ceilings	Wipe with a disinfectant solution each week (or more often, if necessary).
Clean counters and other surfaces	Wipe with a cloth saturated with a disinfectant cleaning solution each day (or more often, if necessary).
Clean floors	Use a mop and a disinfectant cleaning solution each day (or more often, if necessary).
Clean sinks and toilets/latrines	Scrub with a disinfectant cleaning solution and rinse with clean water each day (or more often, if necessary).
Empty waste containers	Each day (or more often, if necessary)
Clean waste containers	Scrub to remove soil or organic material with a disinfectant cleaning solution each day (or more often, if necessary).

Client-care areas (operating theaters, procedure rooms, laboratories, areas where instruments are cleaned and processed)

These areas must be cleaned with special care using a disinfectant cleaning solution. In these areas, there is a greater potential for contamination with infectious materials and more of a concern about potential infection transmission to both clients and clinic staff.

Cleaning Schedule: Client-Care Areas

At the beginning of each day	Clean horizontal surfaces—operating/procedure tables, examination couches, chairs, trolley tops or Mayo stands, lamps, counters, and office furniture—with a cloth dampened with water, and clean floors with a mop dampened with water to remove dust and lint that have accumulated overnight.
Between clients	• Clean operating/procedure tables, examination couches, trolley tops or Mayo stands, counters, lamps, and any other potentially contaminated surfaces in operating theaters and procedure rooms with a cloth dampened with a disinfectant cleaning solution. Alternatively, spray the solution onto the surfaces, using a spray bottle, and wipe with a cloth dampened with water. • Clean spills of blood or other body fluids with a 0.5% chlorine solution immediately. • Clean visibly soiled areas of the floor, walls, or ceiling with a mop or cloth dampened with a disinfectant cleaning solution. • Put waste in a leakproof container, and empty the container when it is ¾ full.
At the end of each clinic session or day	• Wipe down all surfaces—including counters, tables, sinks, lights, door handles/plates, and walls—with a cloth dampened with a disinfectant cleaning solution or spray the solution onto the surface using a spray bottle and wipe them down. Remember to wipe from top to bottom. Pay particular attention to operating/procedure tables, making sure to clean the sides, base, and legs thoroughly. Rinse sinks with clean water after cleaning. • Clean the floors with a mop soaked in a disinfectant cleaning solution. • Check sharps-disposal containers and remove and replace them if they are ¾ full. • Remove medical or hazardous chemical waste, making sure to burn or bury it as soon as possible to limit contact with potentially infectious waste. (This is covered in detail on pages 62–68.) • Wash waste containers with a disinfectant cleaning solution and rinse with water.
Each week	• Clean ceilings with a mop dampened with a disinfectant cleaning solution.

Cleaning up spills

Clean up spills of potentially infectious fluids immediately. Besides preventing the spread of infection, prompt removal also prevents accidents.

When cleaning up spills:

- Always wear gloves.
- If the spill is small, wipe it with a cloth that has been saturated with a disinfectant (0.5% chlorine) solution.
- If the spill is large, cover (flood) the area with a disinfectant (0.5% chlorine) solution, mop up the solution, and then clean the area with a disinfectant cleaning solution.
- Do not simply place a cloth over the spill for cleaning up later; someone could easily slip and fall on it and be injured.

> ***Remember:***
>
> **Contaminated equipment spreads, rather than reduces, microorganisms in the environment. Supplies and equipment used for cleaning also need to be cleaned. Equipment (such as mops, buckets, and cloths) should be decontaminated with a disinfectant (0.5% chlorine) solution, cleaned in detergent and water, rinsed in clean water, and dried before reuse.**

Ineffective practices

Two housekeeping practices—fumigation and the use of ultraviolet (UV) light—are common in many health facilities, particularly in some parts of the developing world, but should be eliminated. These practices are time-consuming, waste valuable resources, and do not decrease the risk of infection in your facility.

1. Fumigation (also called "disinfectant fogging")

Fumigation with formalin, formaldehyde, or paraformaldehyde is an ineffective method of reducing the risk of infection. It is a perfect example of a practice that is not based on scientific findings.

Besides being ineffective, these agents are toxic and irritating to the eyes and mucous membranes. Fumigation is time-consuming and makes rooms unavailable for use, often leading to disruption of services or unnecessary inconvenience to clients and staff. Thorough cleaning with a disinfectant cleaning solution and scrubbing should be used instead of fumigation.

2. Ultraviolet (UV) light

In general, this is neither practical nor cost-effective. In the largest and best-designed scientific study on this topic, no decrease was shown in the surgical-site infection rate when UV light was used. Although UV light does have some uses in specialized sites (such as tissue culture laboratories), UV light is unsatisfactory for general use in health care facilities because:

- The killing ability of UV light decreases sharply: 1) if relative humidity is greater than 60%–70%; 2) if dust is present (in the air, on surfaces, or on the bulb itself); and 3) with increasing distance from the lamp.
- UV light does not penetrate most substances (including fluids and organic matter, such as mucous) and will therefore kill only microorganisms directly on the surface that are exposed to the UV light.
- The intensity of UV light needed to effectively kill microorganisms is damaging to humans. Prolonged exposure can lead to eye or skin irritation.
- UV lighting fixtures are expensive to install and maintain. Regular servicing, including removing dust from the bulbs, is required.

Cleaning by scrubbing with a disinfectant cleaning solution is the most efficient and cost-effective way to clean potentially contaminated areas in your facility.

Handling and disposal of medical waste

All staff have a responsibility to dispose of waste in a manner that poses minimal hazard to clients, visitors, other health care workers, and the community. Anyone who handles contaminated waste—from the time it is thrown out by a service provider to even after it reaches the site of final disposal—is at risk of infection or injury.

Proper disposal:

- Minimizes the spread of infections and reduces the risk of accidental injury to staff, clients, visitors, and the local community
- Helps provide an aesthetically pleasing atmosphere
- Reduces odors
- Attracts fewer insects and animals
- Reduces the likelihood of contamination of the soil or ground water with chemicals or microorganisms

A large percentage of staff (including nurses, midwives, nursing aides, and cleaning and maintenance staff) report having experienced waste-related injuries and infections. Sharps pose the greatest risk and can cause injury and transmission of serious infections, including HIV and

hepatitis B. If possible, all staff at risk of waste-related injury should be vaccinated against hepatitis B.

Improper disposal of waste is also one of the greatest threats to members of the community. In many low-resource settings, scavenging of medical waste is a significant problem. Not only are scavengers at risk of injury and infection themselves, but this practice can also put clients and the local community at risk when scavenged waste, such as syringes and needles, is reused.

Three kinds of waste

There are three kinds of waste generally found in health facilities: general waste, medical waste, and hazardous chemical waste. It is important to dispose of all kinds of waste properly, but improper disposal of medical and hazardous chemical waste poses the most immediate health risk to the community.

1 General waste

Nonhazardous waste that poses no risk of injury or infections. This is similar in nature to household trash. Examples include paper, boxes, packaging materials, bottles, plastic containers, and food-related trash.

2 Medical waste

Material generated in the diagnosis, treatment, or immunization of clients, including:

- Blood, blood products, and other body fluids, as well as materials containing fresh or dried blood or body fluids, such as bandages and surgical sponges
- Organic waste such as human tissue, body parts, placentas, and products of conception
- Sharps (used or unused), including hypodermic and suture needles, scalpel blades, blood tubes, pipettes, and other glass items that have been in contact with potentially infectious materials (such as glass slides and coverslips)

3 Hazardous chemical waste

Chemical waste that is potentially toxic or poisonous, including cleaning products, disinfectants, cytotoxic drugs, and radioactive compounds.

Note: Although both medical and chemical waste pose dangers, the focus of this booklet is on disposal of potentially infectious medical waste.

Disposal of cytotoxic drugs and radioactive waste requires special consideration outside the scope of this booklet: if your facility uses these materials, consult local experts for guidance on appropriate handling and disposal.

Creating a waste-management plan

Every health facility—whether a large hospital, a doctor's office, or a small health post—should develop a medical waste-management plan and should designate a staff member to coordinate the management of medical waste.

There are four components to a waste-management plan:

1. Sorting: Separating waste by type at the place where it is generated
2. Handling: Collecting and transporting waste within the facility
3. Interim storage: Storing waste within the facility until it can be disposed of
4. Final disposal: Eliminating solid medical waste, liquid medical waste, sharps, and hazardous chemical waste from the health facility

1. Sorting

Only a small percentage of the waste generated by a health care facility is medical waste that must be handled specially to reduce the risk of infections or injury.

Sorting the waste at the point where it is generated can conserve resources by greatly reducing the amount of waste that needs special handling. Poor separation leads to large amounts of trash that must be handled specially—which can overwhelm the disposal system, lead to improper disposal of medical waste, and put everyone at risk.

Sorting sharps

Needles and other sharps pose the greatest risk of

Tips for Sorting Waste:

Medical and general waste should be put in the appropriate waste containers. To help the staff use containers correctly:

- **Always keep separate containers in convenient places wherever both general and medical waste are generated.**
- **Use colored plastic containers, painted drums, or easily readable labels to help distinguish between general and medical waste containers. For example, paint the containers used for medical waste red or use red plastic bags, if available.**
- **Place sharps containers in convenient places so that staff do not have to walk across the room (or farther) carrying used sharps.**

injury, and should be disposed of in special sharps containers, such as heavy cardboard boxes, tin cans with lids, or plastic bottles. (For more information on the proper handling of sharps, see pages 21–22.)

2. Handling

Staff should handle medical waste as little as possible before storage and disposal. The more waste is handled, the greater the chance for accidents. Special care must be taken when handling used needles and other sharps, which pose the greatest risk of accidental injury and infection.

Emptying waste containers

Waste containers that are too full also present opportunities for accidents. Waste should be removed from operating theaters, procedure rooms, and sluice rooms before the containers become completely full. At the very least, these containers should be emptied once a day. Dispose of sharps containers when they are ¾ full. (When sharps-disposal containers become too full, people may push sharps into the container, causing injury.)

Tips for Handling Waste:

- **Handle medical waste as little as possible.**
- **Remove waste from operating theaters, procedure rooms, and sluice rooms while the containers are still partially empty—or at least once a day.**
- **Never put your hands into a container that holds medical waste.**
- **Do not collect medical waste from client-care areas by emptying it into open carts or wheelbarrows, as this may lead to spills and contamination of the surroundings, may encourage scavenging of waste, and may increase the risk of injury to staff, clients, and visitors.**

3. Interim storage

If possible, final disposal of waste should take place immediately, but it is often more practical to store waste briefly in your facility before final disposal. Interim storage should be short-term—usually waste should be stored only for a few hours before disposal. Waste should never be stored in your facility for more than one or two days.

If it is necessary to store medical waste on-site before final disposal: place waste in a closed area that is minimally accessible to staff, clients, and visitors. As few people as possible should come into contact with stored medical waste.

Remember:

Contaminated medical waste poses serious health threats to the community. Never store medical waste in open containers and never throw waste into an open pile. All containers should have lids to prevent exposure to waste, spillage, or access by insects, rodents, and other animals.

4. *Final disposal*

General waste—like household trash—can be taken to the regular community waste-disposal point for final collection and disposal. This section discusses the final disposal of:

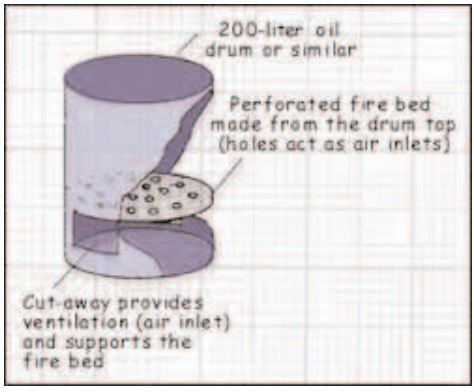
- Solid medical waste
- Liquid medical waste
- Contaminated sharps

Solid medical waste

Always wear heavy utility gloves and shoes when handling or transporting medical waste of any kind. Solid medical waste should be disposed of on the premises if at all possible; this allows staff who understand the risks involved to supervise the disposal process. There are three options for the disposal of solid medical waste: burning waste, burying waste, and transporting waste to an off-site disposal site.

Burning. Burning is the best option, since high temperatures destroy microorganisms and reduce the amount of waste. Burning in an incinerator or oil drum is recommended. Open burning is not recommended because it causes scattering of waste, is dangerous, and is unattractive. However, if open burning must be done, carry the waste to the site just before burning, and burn it in a small, designated area. Remain with the fire until it is completely out.

Building a drum incinerator. In general, a drum incinerator is only useful for small, usually rural, facilities that do not have large quantities of medical waste. If your facility is large, it is more efficient to build or install an incinerator large enough to accommodate all of your facility's waste-disposal needs.

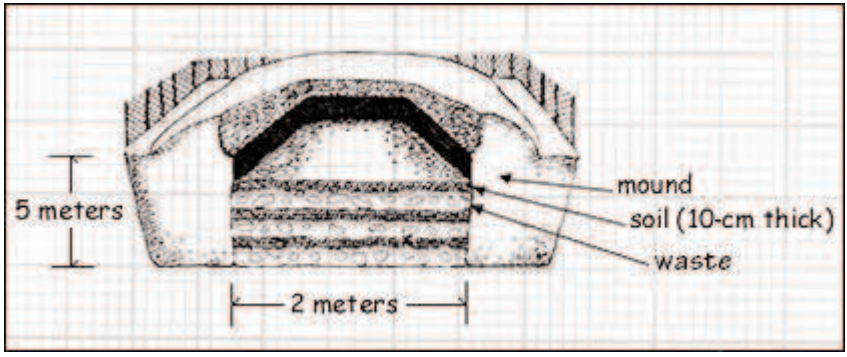


When using your drum incinerator:

- Choose a place that is downwind from the clinic to prevent smoke and odors from coming into the clinic.
- Make sure there are sufficient air inlets on the side of the oil drum and bottom of the fire bed for efficient burning.
- Place the incinerator on hardened earth or a concrete base to prevent grass from catching fire during the burning process.
- Burn only medical waste. Use a regular community disposal site for general waste. This will conserve both time and resources.
- Treat the ash as general waste. Bury or otherwise dispose of it in a designated area.

Medical waste may not burn easily, especially if it is wet. Add kerosene to make the fire hot enough to burn all waste. Be sure to add the kerosene *before* starting the fire—adding kerosene after the fire has started might cause an explosion.

Burying. On-site burial is the next best option. To use burial, you must have space for a pit big enough for all the waste generated at the site. The pit should be surrounded by a fence or wall to limit access to it and to prevent scavenging of waste.



Building and using a waste-burial pit.

- Choose an appropriate site that is at least 50 meters away from any water source to prevent contamination of the water source. The site should have proper drainage, be located downhill from any wells, be free of standing water, and be in an area that does not flood. The site should not be located on land that will be used for agriculture or development.
- Dig a pit 1 to 2 meters wide and 2 to 5 meters deep. The bottom of the pit should be 1.8 meters above the water table. Consult your local water engineer/water authority for information about the location of the water table.

- Fence in the area to keep out animals, scavengers, and children.
- Keep waste covered. Every time waste is added to the pit, cover it with a 10 to 30 cm layer of soil.
- Seal the pit. When the level of waste reaches to within 30 to 50 cm of the surface of the ground, fill the pit with dirt, seal it with concrete, and dig another pit.

Transporting. If neither burning nor burial on-site is possible, the waste must be transported for off-site disposal. If waste will be handled during transport by nonfacility staff (such as municipal trash removers), they must be educated about the cautions and risks regarding medical waste. Transport to an open community dump is the least desirable alternative. Open dumps increase the community's risk of exposure to infectious microorganisms because: 1) they facilitate the spread of infections by flies, rodents, and other animals that come in contact with medical waste; 2) people may easily come in contact with waste in open dump sites—for example, local children may play near the dump site; and 3) they encourage scavenging.

Liquid medical waste

Always wear heavy utility gloves and shoes when handling or transporting liquid medical waste of any kind. When carrying or disposing of liquid medical waste, be careful to avoid splashing the waste on yourself, on others, or on the floor and other surfaces.

- Handle cleaning solutions and disinfectants such as glutaraldehyde in the same way as liquid medical waste.
- Carefully pour liquid waste down a sink, drain, flushable toilet, or latrine. If this is not possible, bury it in a pit along with solid medical waste.
- Before pouring liquid waste down a sink, drain, or toilet, consider where the drain empties. It is hazardous for liquid medical waste to run through open gutters that empty onto the grounds of the facility.
- Rinse the sink, drain, or toilet thoroughly with water to remove residual waste—again avoid splashing. Clean these areas with a disinfectant cleaning solution at the end of each day, or more frequently if heavily used or soiled.
- Decontaminate the container that held the liquid waste by filling it with or soaking it for 10 minutes in a 0.5% chlorine solution before washing.
- Wash your gloved hands after handling liquid waste before removing the gloves.

Sharps

Needlesticks and punctures involving sharps are the number-one cause of waste-related accidents for staff in health facilities. To reduce the risk of needlesticks, do not recap, bend, cut, or break needles or try to remove the needles from the syringe before disposal.

Although burning is the best way to dispose of medical waste, sharps are not destroyed by burning, except in large industrial incinerators. If an industrial incinerator is not available, sharps can be rendered harmless by placing needles, plastic syringes, and scalpel blades in a metal container and then, when the container is three-quarters full, pouring in fuel and igniting and burning it until the fire goes out on its own. When this is done, the plastic syringes will melt and, when cool, become a solid block of plastic, with the sharps embedded within the block. The block can then be buried in the type of burial pit used for solid medical waste. If it is not possible to bury all medical waste on-site, sharps should be given priority for burial, since they pose the biggest risk of injury and infections.

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Index