Ambulatory Care Risk, Quality, & Safety Guidance

Infection Prevention & Control

Executive Summary

Although ambulatory providers see 300 times as many patients as hospitals each year, most patient safety efforts focus on the hospital setting, including infection prevention initiatives. Yet the opportunity for infection is greater in ambulatory care due to the number of patients served (Sokol and Neerukonda). Significant infection control lapses have been reported for outpatient settings over the past decade. For example, data from the Centers for Disease Control and Prevention (CDC) indicates that about 90% of bloodborne pathogen outbreaks, such as outbreaks of hepatitis B virus (HBV), hepatitis C virus, and HIV, are associated with unsafe injection practices in outpatient settings (Freedman). Because the infection risk in ambulatory settings is the same as in hospitals, CDC recommends that ambulatory facilities follow similar infection prevention procedures as those required in hospitals. (Rutala “Guideline”) Physician offices may be held liable for infections that patients acquire while receiving health services from the practice if the infection can be traced to a lapse in infection control practices. This Guidance Article provides an overview of infection prevention and control in the office setting. Strategies are provided to reduce infection-related liability by being able to demonstrate that the office has effective policies and procedures in place to prevent and manage infections.

Microorganisms that cause infections can be spread in the physician office through direct or indirect contact. Transmission can occur when a provider or staff member touches an infected patient (direct contact) or a contaminated object (indirect contact) and then touches themselves, another patient, or an object in the office. Airborne transmission occurs when infected droplets enter the body via the respiratory route. It can occur even if two individuals simply share the same air in a waiting room, but coughing and sneezing facilitate transmission.

Vehicles that can transmit infection include sharps, reused devices and equipment, and multiuse drug vials. (CPSO)

Healthcare organizations should monitor personnel adherence to infection prevention practices (e.g., hand hygiene, standard precautions) to identify areas in need of improvement and provide training when necessary. Organizations should designate personnel who will regularly restock infection control supplies (e.g., gloves, gowns, face masks) and replenish dispensers of alcohol-based hand rub and soap. (Siegel et al.).

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Mandatory Disease Reporting

Healthcare providers, including physicians, nurses, and other personnel, are subject to mandatory state and local reporting laws for infectious and noninfectious diseases, such as HIV, cancer, and foodborne illness. For a list of the specific infections and conditions that must be reported, providers may contact their local and state health departments. Failure to report may subject a provider to criminal and/or civil penalties or professional disciplinary action.

Infection Prevention Practices

Standard Precautions

Standard precautions are a group of infection prevention practices that healthcare personnel should always adhere to in order to prevent the spread of infections. These precautions apply to all patients, regardless of suspected or confirmed infection status, in any setting in which healthcare is delivered. Standard precautions are intended to protect patients by ensuring that healthcare personnel do not carry infectious agents to patients on their hands or via equipment used during patient care. Standard precautions include the following (Siegel et al.):

- Hand hygiene
- Appropriate use of personal protective equipment (PPE)
- Safe injection practices and keeping up to date with immunizations
- Safe handling and cleaning of equipment or surfaces in the patient environment
- Respiratory hygiene/cough etiquette

These topics are discussed in more detail below. Information on preventing and managing occupational exposure to bloodborne pathogens like HIV in compliance with requirements from the Occupational Safety and Health Administration (OSHA) is available in the Guidance Articles Bloodborne Pathogen Standard and Minimizing Bloodborne Pathogen Exposure. Additional information is available in the Guidance Article Hand Hygiene.

Transmission-Based Precautions

Transmission-based precautions are used when a patient is known or suspected to be infected with a highly transmissible or epidemiologically important pathogen, but standard precautions alone are not sufficient to prevent transmission. Depending on the infectious agent, three types of transmission-based precautions may be used (contact precautions, droplet precautions, or airborne precautions); however, transmission-based precautions are always used in addition to (not instead of) standard precautions. This Guidance Article discusses general recommendations for preventing infections in the office environment. Explicit precautions that are recommended for specific infections and conditions are available in guidelines developed by the Healthcare Infection Control Practices Advisory Committee (HICPAC), a federal advisory committee to CDC.

Contact precautions. Contact precautions are used to prevent the transmission of infectious agents that are spread by direct or indirect contact. They also apply when excessive wound drainage, fecal incontinence, or other discharges from the body may increase the risk for environmental contamination or transmission. HICPAC recommends prioritizing patients with conditions that may facilitate transmission (e.g., uncontrolled drainage, fecal incontinence) for placement in exam rooms. The organization should use disposable noncritical equipment (e.g., blood pressure cuffs) or, if disposable equipment is not available, have staff clean and disinfect equipment before using it on other patients.

Droplet precautions. Droplet precautions are intended to prevent transmission of pathogens through close respiratory or mucous membrane contact with respiratory secretions. When droplet precautions are needed, personnel should wear a mask to prevent transmission from an infected patient. HICPAC recommends prioritizing patients with excessive cough and sputum production for placement in single-patient rooms.

Airborne precautions. Airborne precautions are used for patients known or suspected to be infected with tuberculosis (TB) or other agents that remain infectious over long distances when suspended in the air. Personnel should wear a fit-tested, National Institute for Occupational Safety and Healthy (NIOSH) approved N95 or more protective respirator when caring for a patient who has or is suspected of having infectious pulmonary or laryngeal TB or smallpox. Although airborne precautions are also recommended for preventing transmission of measles and chickenpox, typically, only immune personnel provide care to patients with either disease. (Siegel et al.)

Using Personal Protective Equipment

PPE. The HICPAC guideline provides recommendations for the use of PPE, such as the following:

- Gloves. Personnel should wear clean nonsterile gloves when it can be reasonably anticipated that they may come in contact with blood or other potentially infectious material, mucous membranes, nonintact skin, or potentially contaminated intact skin (e.g., in the case of incontinence). Personnel should change gloves between patients.
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**Gowns.** Personnel should wear gowns when contact with blood, body fluids, secretions, or excretions is anticipated or when caring for a patient with uncontained secretions or excretions. Gowns should not be reused.

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**Masks, goggles, and face shields.** Personnel should wear PPE for the mouth, nose, and eyes during procedures or patient care activities in which splashes or sprays of blood, body fluids, secretions, or excretions are likely.

### MDROs and Antimicrobial Stewardship

Once a growing concern for healthcare providers, the rates of both community-onset and hospital-onset methicillin-resistant Staphylococcus aureus (MRSA) bacteremia have been decreasing. One study found that the proportion of community-onset skin and skin structure infections due to MRSA peaked at 62% in 2006 before decreasing annually to 52% in 2010. (Landrum et al.) However, while the prevalence of MRSA infection is decreasing, physician practices still must be able to identify MRSA, implement methods to reduce MRSA transmission, and be familiar with treatment options. Medical offices can help control the spread of community-acquired MRSA by doing the following (Sampathkumar):

- Promoting hand hygiene
- Maintaining a high degree of suspicion for MRSA as an etiologic agent when treating skin and soft tissue infections (Draining lesions should be kept covered, and return to team sports should be limited until the lesion has healed or can be adequately covered.)
- Knowing local rates of community-acquired MRSA (Public health departments are a source of such data.)
- Emphasizing to patients with MRSA the importance of personal hygiene
- Discouraging the sharing of personal items, such as towels and razors
- Discouraging mobile phone use by providers for examination purposes, as some have been shown to harbor MRSA and other bacteria

To address concerns about healthcare-associated MDROs, CDC recommends targeting antibiotic prescribing with as much specificity as possible rather than relying broad spectrum antibiotics, which represents good antimicrobial stewardship. Antimicrobial stewardship requires that prescribers use the right antibiotic, at the right dose, at the right time, and for the right duration. However, improper use of antibiotics is common. A study found that as many as 80% of antibiotics prescribed during pediatric acute respiratory tract visits were contrary to CDC guidelines. For the more part, they were prescribed because of parents’ expectations. Another study of pediatric care found that physicians prescribe antibiotics 62% of the time if they perceive that parents expect them and 7% of the time if they feel parents do not expect them. (CDC “Fast Facts”)

Repeated and improper antibiotic uses are the primary causes of drug-resistant bacteria. Taking antibiotics generally eliminates most bacteria that are sensitive to that drug, but some resistant bacteria may remain and reproduce, creating generations of resistant organisms. (CDC “Antibiotic Resistance”)

To prevent the spread of antibiotic resistance, physicians should do the following (CDC “Antibiotic Resistance”):

- Only prescribe antibiotic therapy when it is likely to benefit the patient
- Use an agent targeting the likely pathogens
- Use the antibiotic for the appropriate dose and duration

CDC also offers treatment guidelines for upper respiratory tract infections, patient-friendly educational materials, and continuing education opportunities related to safe antibiotic use as part of its “Get Smart: Know When Antibiotics Work” resource page.

### Administrative Practices

Physicians should be able to detect, treat, and manage infection within their offices, as the vast majority of patients who are infected with respiratory illnesses go to primary care practices rather than emergency departments. Physicians also need to focus on secondary infection control, which involves ensuring that patients do not develop infections as a result of surgical or other procedures. Appropriate follow-up with patients about their symptoms and understanding of self-care instructions can help reduce the risk of a secondary infection for which a provider may be held liable.

General recommendations for providers to prevent the transmission of respiratory pathogens in their offices include the following (Friedman and Petersen):

- If a patient may have an airborne-transmissible illness, try to schedule his or her appointment for later in the day, following “well” visits. Have the patient enter the office through an alternate entrance, if possible.
- Upon the arrival of any patient who may have an airborne-transmissible illness, avoid having him or her wait in the waiting room—instead, provide a surgical mask and escort the patient to an examination room.
- Keep the door of the examination room closed. If the patient is suspected of having TB, providers and staff...
who care for the patient should wear an N95 particulate respirator. (See the Guidance Article Environmental Safety for more on TB infection control.)

— After the patient leaves the office, ensure that any surfaces that have been contaminated by the patient’s blood or body fluids are disinfected.

— Office staff should also be trained on waiting room procedures for managing patients with suspected respiratory infections during orientation and should receive periodic (e.g., annual) refresher training to ensure familiarity with the procedures. (CDC “Prevention”)

The American Academy of Pediatrics (AAP) has published recommendations on respiratory hygiene and cough etiquette, including the following, to minimize transmission of influenza and other pathogens that affect the respiratory tract (AAP):

— Post signs at entrances asking patients and visitors to inform staff upon registration for care if they have a respiratory tract infection and to practice respiratory hygiene and cough etiquette.

— Include on the signs the components of respiratory hygiene and cough etiquette, such as the following:
  - Cover the nose and mouth when coughing or sneezing; cough or sneeze into the elbow, not the hand.
  - Use tissues for respiratory secretions, and dispose of them in a trash container as soon as possible.
  - Perform hand hygiene after touching respiratory tract secretions or contaminated objects.
  - Wear a mask while in common reception or waiting areas (ask staff for assistance in obtaining a mask).

Office staff should actively educate patients and visitors about proper respiratory hygiene and cough etiquette. In addition, alcohol-based handrub, including instructions for proper use, should be readily available for patients and visitors (but inaccessible to children), and no-touch waste receptacles should be provided in waiting areas. Practices can limit transmission of infectious agents by designing waiting areas as multiple smaller rooms if possible, avoiding crowding, shortening waiting times, and minimizing the sharing of toys. Pathogenic bacteria have been isolated from toys in ambulatory waiting areas, and contaminated bath toys have been associated with an outbreak of Pseudomonas aeruginosa infection in one hospital. Therefore, practices may suggest that parents bring their child’s personal books and toys to the visit to minimize sharing of toys. Toys provided by the practice in reception and waiting areas should be disposable or washable. (AAP) Additional guidance is available from an AAP policy statement.

Practices can expect to learn about outbreaks of new infectious strains of disease that will require that they prepare for the increased infection risk. For example, the World Health Organization (WHO) has received reports of a new avian influenza (H7N9) virus infecting people in China. As of May 8, 2013, a total of 131 H7N9 human infections, including 32 deaths, were reported to WHO, with no cases detected in the United States at that time. WHO recommends that U.S.-based clinicians consider H7N9 virus infection in recent travelers from China who exhibit signs and symptoms consistent with influenza. Individuals with H7N9 virus infection (whether laboratory-confirmed, probable, or under investigation) should receive antiviral treatment with oral oseltamivir or inhaled zanamivir as early as possible. (WHO)

Additionally, reports of cases of the novel coronavirus (which is similar to severe acute respiratory syndrome) known as MERS-CoV include 55 confirmed infections, 31 of which were fatal. The cases have been linked to Saudi Arabia, Qatar, Jordan, and the United Arab Emirates. Infections among close contacts of cases, including healthcare personnel and family members, “provide clear evidence of human-to-human transmission,” according to CDC, which recommends that MERS-CoV be considered in people who develop severe acute lower respiratory illness within 14 days of traveling from the Arabian Peninsula or nearby areas. The virus should also be considered for close contacts of symptomatic travelers. (CDC “Update”)

Another recent outbreak of pertussis in 2012 prompted CDC to expand its vaccination recommendations for all ages and pregnant women (CDC “2013”).

In the case of novel strains of flulike viruses and highly contagious illnesses such as TB, healthcare personnel should adhere to airborne precautions in addition to standard precautions. Healthcare personnel who are wearing a face mask to limit microorganism transmission should be reminded that if they care for patients under airborne precautions (e.g., an H7N9 suspected or confirmed patient), the clinician would need to increase their level of protection by changing to a fit-tested disposable N95 filtering face piece respirator (without an exhalation valve) or other respirator providing equivalent or higher aerosol protection. The individual should not wear both a face mask and respirator at the same time. When respirator use is no longer needed, the individual should put a face mask back on as needed. (CDC “Interim”)

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The American Academy of Family Physicians urges physicians to be prepared for an infectious disease outbreak; it is recommended that physicians develop a written office preparedness plan and make it available to everyone in the office. The plan should address a number of issues, including the following (Mackett):

- Education and training (see Potential Topics for Staff Education and Training)
- Systems to triage, manage, and treat patients
- Procurement and availability of equipment and supplies
- Communication with office staff, patients, and consultants
- Coordination with local and state public health authorities
- Business continuity/recovery
- Cleaning and disinfection procedures (see Cleaning the Office Environment below)

Preparedness for an outbreak begins at the point of access. For patients who call to schedule sick visits, simple triage information can be collected over the telephone. Staff can ask questions regarding symptoms and history of recent travel or exposure to someone with chickenpox or a significant respiratory illness before scheduling appointments. (CPSO) Triage procedures should be provided to and reviewed with office staff, who should have guidelines for handling calls from the “worried well” in addition to those seeking sick appointments.

Although most ambulatory care settings are not designed for implementation of all transmission-based precautions that are recommended for hospitals, CDC’s guide to infection prevention in outpatient settings states that “specific syndromes involving diagnostic uncertainty (e.g., diarrhea, febrile respiratory illness, febrile rash) are routinely encountered in ambulatory settings and deserve appropriate triage.” It states that ambulatory care settings should develop and implement systems for early detection and management of potentially infectious patients at initial points of entry. (CDC “Guide”)

General recommendations for physician offices on how to reduce the spread of the flu and flulike viruses include the following (Elliott “H1N1”; CDC “Vaccine”):

- Develop plans for vaccinating both patients and staff members annually with the current seasonal influenza vaccine. (Note that each season’s flu vaccine may contain different strains of flulike viruses considered to be prevalent during that season and that immunity decreases over time. Thus, CDC advises annual flu vaccination. Guidance on selecting appropriate seasonal vaccines from CDC is available on its website.
- Implement strategies for managing patients with suspected or confirmed respiratory infections to reduce the risk of transmission to other patients and healthcare personnel.
- Adopt a lenient sick leave policy for staff members who might be sick or who might have to care for a family member.

Specific activities medical offices can engage in to assess and improve their responses to pandemic influenza have been identified in a pandemic influenza planning checklist.

### Cleaning the Office Environment

Cleaning and disinfection in the office is important because microorganisms can survive for extended periods on environmental surfaces. Items as innocuous as stethoscopes can harbor infectious organisms and so they should be disinfected regularly and thoroughly. As part of its infection prevention and control program, a medical office should maintain policies and procedures for cleaning the office environment.

The cleaning and disinfection policy should specify areas to be cleaned and disinfected, frequency of cleaning, cleaning and disinfection materials that will be used, who will be assigned cleaning duties, and material-specific cleaning procedures and techniques. High-traffic areas that need to be cleaned several times per day (e.g., doorknobs, light switches, public telephones) should be included in the cleaning plan. (Zurich Insurance)

Healthcare organizations must use disinfectants registered by the U.S. Environmental Protection Agency (EPA) that are labeled for use in healthcare settings. Daily disinfection of surfaces using a low-level disinfectant, such as a quaternary ammonium compound, is recommended. For cleaning, which is necessary to remove particulate matter, a cleaner/disinfectant product that contains detergents or surfactants should be diluted according to the manufacturer’s instructions and used. Items in physician offices that warrant cleaning and disinfection include scales, examination tables, waiting room furniture, and reusable medical equipment that does not require more thorough disinfection or sterilization. (CPSO)

The Association of periOperative Registered Nurses (AORN) recommends that healthcare organizations use professional laundering services to wash healthcare workers’ uniforms. However, recognizing that some organizations have decided not to use these services in an effort to save money, AORN provides guidance on safely handling and laundering healthcare uniforms at home (see Laundering Staff Uniforms.).

General guidelines for cleaning surfaces on which blood or body fluids have spilled include donning gloves, using moistened...
cloths or paper towels to absorb the fluids, then spraying the surface with the cleaner/disinfectant; the cleaner/disinfectant should be left on the surface for as long as the product instructions specify before the surface is wiped again. Proper disposal of contaminated cloths, paper towels, diapers, and incontinence and sanitary pads should be addressed in the organization’s policies for contaminated waste.

When cleaning the office, a general rule is to clean from the cleanest area to the dirtiest area and from top to bottom. For noncarpeted floors, the use of a clean mop head and fresh bucket of cleaner/disinfectant solution is acceptable (CPSO), but disposable mops and buckets are ideal (Elliott “Infection”). Because string mops can easily spread microbial contamination, some organizations prefer to use microfiber or other synthetic materials. In one study, a microfiber mop demonstrated superior microbial removal compared with conventional string mops when used with a detergent cleaner (94% versus 68%). (Rutala “Guideline”)

Although not prohibited, carpeting poses challenges that vinyl flooring does not—impediment of wheelchair mobility, faster growth of microorganisms, the need for disposal if a hazardous chemical is spilled on it, and challenges related to cleaning infectious spills. Therefore, carpeting is not recommended for use in patient care areas, hallways, or areas where blood or body fluids may contaminate it or where chemicals may be spilled on it. (Siegel et al.)

**Computer Keyboards**

Microbial contamination of computer keyboards is prevalent in patient care areas, such as nursing stations and patient examination rooms. Contaminated keyboards can transfer pathogens to the hands of providers and office staff, who can then infect patients. Common disinfectant wipes (e.g., alcohol-based wipes, chlorine-based wipes) safely and effectively remove or inactivate 95% to 100% of pathogens on computer keyboards; thus, it is recommended that computer keyboards, including keyboard covers, be disinfected daily or whenever visibly soiled (e.g., with blood). In addition, providers, staff, and patients should take care to not touch keyboards with contaminated hands and to perform hand hygiene after contact with keyboards. (Rutala et al. “Bacterial”) For more information on cleaning computer hardware, see Cleaning and Disinfecting Computers.

**Mobile Devices, including Cell Phones and Tablets**

Cell phones and other mobile devices present a risk of cross-contamination. Education may be needed to remind individuals about how frequently these devices are touched and, therefore, how important hand hygiene and device decontamination can be.

For example, one study, which evaluated the microbial contamination of 183 mobile phones owned by healthcare workers at a secondary referral hospital in July 2010, isolated a total of 179 culture-positive specimens, of which, 17 MRSA specimens and 20 Escherichia coli specimens producing extended-spectrum beta-lactamase were identified, among other pathogens. To reduce the risk of infection, the researchers recommended educating staff about this problem. While it may not always be feasible, restricting or banning the use of mobile phones in the clinical setting can help reduce infection risks. Additionally, they observed that restricting the use of mobile phones in the clinical setting, regularly cleaning the devices with wipes containing antiseptics, and strict hand hygiene before and after the use of mobile phones may reduce the risk of contamination. (Ustun and Cihangiroglu)

Disinfecting a smartphone may not be as simple as wiping it down. While some literature suggests using alcohol or alcohol wipes to disinfect traditional cell phones (Visvanathan et al.), smartphone users need to be careful not to use products that could degrade the display screen. Apple, for example, recommends against using alcohol, ammonia, and a variety of other cleaning products on iPhones or iPads (Apple). While there are currently no formal guidelines on cleaning mobile phones without damaging them, one study showed that wiping phones with a 70% ethanol alcohol pad eradicated all microorganisms on mobile phones, including MRSA. (Sumritivanicha et al.)

**Reprocessing Medical Devices**

Some medical devices are meant to be reused but require reprocessing after each use in order to prevent the spread of infection between patients. Also, some single-use devices (SUDs) may be reprocessed due to the high cost of disposable items. However, patient safety must remain the foremost concern when SUDs are reprocessed. Workers should always wear appropriate PPE during cleaning, disinfection, and reprocessing. Because U.S. Food and Drug Administration (FDA) regulations on SUD reuse classify entities that reprocess SUDs (reprocessors) as original equipment manufacturers, such entities are required to meet the same quality and safety requirements as manufacturers. Reprocessors are also subject to federal requirements for medical device reporting. Physician practices...
that perform their own SUD reprocessing are thus subject to the same requirements as manufacturers and have dual reporting responsibilities, including responsibility to report a broader range of adverse events (AORN). Therefore, many physician practices either contract with a third-party reprocessor or use SUDs only once.

The universally accepted guide for disinfection and sterilization is the Spaulding classification. The system defines instruments as critical, semicritical, and noncritical based on their risk of causing infection.

High-level disinfectants and liquid chemical sterilants should not be used on noncritical surfaces and instruments. Minimally, noncritical patient care devices must be disinfected when visibly soiled and on a regular basis (such as after use on each patient or once daily or once weekly). (Rutala “Guideline”)

Federal law requires that users follow all applicable label instructions on cleaning and disinfecting products. Otherwise, the user assumes liability for any injuries resulting from off-label use and is potentially subject to enforcement action under the Federal Insecticide, Fungicide, and Rodenticide Act, which regulates the use of antimicrobials. Extending the contact time past the manufacturer-recommended duration is not advised, because the increased exposure could damage delicate instruments, such as flexible endoscopes. Enzymatic cleaners and detergents should be discarded after each use because they are not microbicidal and will not prevent microbial growth within the solution. The concentration of prepared cleaners and detergents should be included in the organization’s environmental cleaning plan. (Rutala “Guideline”)

**Steps in Reprocessing**

Physician practices should have policies and procedures for reprocessing medical instruments. The steps involved in reprocessing of medical devices are as follows:

**Decontamination.** Decontamination is perhaps the most important stage in medical device reprocessing. If gross contamination is not removed first through adequate cleaning, germicides used later will be unable to reach surfaces and thus fail to achieve sterilization or disinfection. The cleaning process and agent should be chosen according to manufacturer’s instructions, and cleaning should be completed as soon as possible to prevent gross contamination from drying on the device, which would make cleaning more difficult. Staff should wear gloves and other appropriate PPE during device cleaning and decontamination. Cleaning items (e.g., brushes, cloth) should be disposable or, if they are not disposable, they should be thoroughly cleaned and either high-level disinfected or sterilized after each use. (Rutala “Guideline”)

**Disinfection.** After thorough cleaning and rinsing, items may be disinfected using a compatible high-, medium-, or low-level disinfectant at an appropriate concentration for an adequate amount of time. Examples of disinfectants include glutaraldehyde (high level), isopropyl alcohol (medium level), and quaternary ammonium compounds (low level).

Physician practices that perform examinations using flexible endoscopes should follow established standards for the reprocessing of endoscopes.

**Inspection.** Before being sterilized or placed in storage, a decontaminated or disinfected device should be inspected for cleanliness and function as well as staining, spotting, corrosion, pitting, burrs, nicks, or cracks. Inspection is frequently the step at which device reprocessing breakdowns occur. Without proper inspection, contamination may go undetected and an item may be inadvertently reused without being sterilized, exposing patients to infection risks.

**Disassembly and packaging.** Instruments, supplies, and devices must be packaged before sterilization to ensure that the item being sterilized is not contaminated. The following guidelines are recommended for placement of items to be sterilized on a tray:

- Distribute items evenly in trays or other containers.
- Place sets in order of use.
- Keep instruments disassembled, open, or unlocked.
- Run distilled water through lumens just before sterilization.
- Wrap disassembled syringe barrels in soft material, such as 4” x 4” gauze.

After inspection, any linens on the tray should be folded so that they will require as little handling as possible during removal. To ensure that the contents become and remain sterile, double-wrap every set. In addition, the packaging must have certain characteristics. In particular, it must allow air and moisture out during sterilization, allow sterilant access to the contaminated item, and prevent the item from becoming contaminated during storage or unwrapping at the point of use. It is recommended that a chemical indicator be placed inside each pack to indicate whether the contents of the pack were exposed to the conditions necessary for sterilization during the sterilizer operating cycle. The package contents should be clearly marked on the outside.

**Sterilization.** Several technologies are available for sterilizing devices. Steam sterilization is generally the preferred method, as it is effective, economical, and fast and poses relatively few risks to workers.
Action Recommendations

- Adhere to local, state, and federal requirements regarding healthcare-associated infection surveillance, reportable diseases, and outbreak reporting.
- Train healthcare personnel on appropriate hand hygiene and standard precautions, emphasizing why they are required during any patient encounter. Monitor personnel adherence to infection prevention practices (e.g., hand hygiene, standard precautions) to identify areas in need of improvement or topics for staff education.
- Ensure that healthcare personnel have access to hand hygiene materials and wear appropriate PPE when handling and reprocessing contaminated equipment or providing patient care.
- Require staff to practice safe injection practices, and monitor adherence.
- Post patient-friendly materials (e.g., posters) in waiting and exam rooms explaining how patients can reduce the risk of transmitting diseases by practicing respiratory hygiene/cough etiquette.
- Carefully control the prescription of antibiotics, prescribing with as much specificity as possible and using the shortest duration and lowest dose necessary.
- Train office staff during orientation on the organization’s policies for managing patients with suspected respiratory infections, and provide periodic (e.g., annual) refresher training to ensure familiarity with the procedures.
- Ensure that all healthcare personnel are aware of the practice’s sick leave policies, including staff who are not directly employed by the practice but provide essential daily services.
- Have healthcare personnel with respiratory infections avoid direct patient contact; if this is not possible, then a face mask should be worn while providing patient care and frequent hand hygiene should be reinforced.
- Ensure that all healthcare personnel are up-to-date on their vaccinations on hire and offer annual influenza vaccination.
- Document the vaccination status of employees and document employees’ vaccine refusal.
- Establish policies and procedures for routine cleaning and disinfection of environmental surfaces, focusing on high-traffic surfaces.
- Select EPA-registered disinfectants or detergents/disinfectants with labels specifying that they are for use in healthcare. Follow manufacturers’ recommendations on the use of cleaners and EPA-registered disinfectants (e.g., amount, dilution, contact time, safe use, disposal), as required by federal law.
- Ensure that reusable medical equipment (e.g., blood glucose meters and other point-of-care devices, surgical instruments, endoscopes) gets cleaned and reprocessed appropriately according to manufacturer’s instructions prior to use on another patient.

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