Infection Control in the Gastroenterology Office Setting

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LEARNING OBJECTIVES

To learn how to apply basic principles of infection prevention to the gastroenterologist’s medical office, including standard precautions, basic principles of office space utilization, and patient education about the prevention of infection. The content provides background for specific written infection control policies for medical practices including employee health and vaccination policy, OSHA standards and procedures, and comprehensive waste management.

INTRODUCTION

Preventing the spread of infection is an important part of medical practice in all health care settings. Gastroenterologists, like all health care providers, must take responsibility for preventing transmission of infectious disease in their outpatient offices. New and evolving viral pathogens such as MERS-CoV (Middle East respiratory syndrome coronavirus), Zika Virus, and genetically “shifted” influenza virus continue to emerge and, as with older, well established illnesses such as Ebola, are breaking out of their geographic boundaries to establish new “hot zones” throughout the world. Increasingly resistant strains of bacterial pathogens including methicillin-resistant Staphylococcus aureus (MRSA) and multi-drug resistant tuberculosis as well as transmissible pathogens germane to the gastroenterologist: vancomycin-resistant enterococcus, Clostridium difficile, and other enteric pathogens are on the rise. The emergence of these and other etiologic agents demonstrate the critical importance for population-based infection control applicable to all settings where people seek health care. Because a very small number of our patients specifically seek attention for airborne illness, and since the outpatient volume of our practices is typically lower than primary care providers, we may be less aware of steps that should be taken for infection control in our offices. This is of particular concern during periods of local or regional epidemics unrelated to the primary reason for gastroenterology referral.

BASIC PRINCIPLES OF INFECTION CONTROL

Standard Precautions and Transmission Based Precautions

Standard precautions are used for all patients in all healthcare settings all of the time regardless of presumed infectious status or diagnosis. Transmission-based precautions are used for specific patients and take into account the mode of transmission: airborne, droplet, contact, combinations or all modes simultaneously. The “tools” we employ in both situations include routine use of hand hygiene, personal protective equipment and basic office design in order to minimize the risk of communicable disease transmission from patient-to-healthcare worker, healthcare worker-to-patient and patient-to-patient. These precautions apply to blood, body fluids and secretions and non-intact skin or mucous membranes. Additional precautions include respiratory hygiene and safe injection practices (one needle, one syringe, one patient).
**Hand Hygiene**

Hand hygiene is performed in one of two ways: the use of alcohol-based hand rubs (ABHR) or soap and water. If hands are visibly soiled then soap and water are used to remove the visible material. Hand hygiene is the single most important way to mitigate infection transmission in any setting. Some form of hand hygiene should be performed at the following times:

- Upon first arrival and before leaving the workplace
- Before and after any direct contact with a patient. (direct contact refers to the provider’s hands contacting the patient’s skin or body)
- Before performing any invasive procedures
- After contact with any potentially contaminated items.
- Immediately after removing gloves or other body barriers such as gowns.
- After contact with any body fluids, secretions, blood, or wounds.
- Before preparing, handling, serving, or eating food, smoking, or whenever hands are visibly soiled.
- After performing any personal functions such as blowing the nose or using the toilet.

ABHRs contain various concentrations of alcohol and are effective in reducing transient bacterial colonization and should be available in offices to all health care providers at the point of care. This is especially important when access to sinks limits use of soap and water. Alcohol based hand rubs are more effective in decreasing the number of bacteria, are less irritating and require less time than using soap and water. Alcohol based hand rubs are available in different forms: gel, foam or liquid. After application, the hands should be rubbed until the product is completely dry, which could take 15-20 seconds. When soap and water are used, rub hands together vigorously for at least 15 seconds covering all surfaces of the hands and fingers; turn off the water faucet with a paper towel to avoid recontamination of hands.

If hands are visibly soiled, then they should be washed with soap and warm water. A surgical scrub with either antiseptic soap or ABHR is indicated before performing an invasive procedure, but plain soap is adequate for routine hand washing. There is no need to use antibacterial soaps in routine care. Patients in the hospital with *Clostridium difficile* (CDI) are placed on contact precautions, and although soap and water are recommended preferentially in outbreak settings, the CDC does not recommend routine use of soap and water over alcohol-based hand rubs outside of those settings. In the office setting, hand hygiene with either an alcohol based hand rub or soap and water is considered acceptable, even if patients with CDI are anticipated. We recommend soap and water as the preferred approach.

Patients and family members should also be reminded of the importance of proper hand hygiene. Patients should be encouraged to clean hands upon entering a physician’s office, and ABHRs should be available for their use as well. At a minimum, we recommend having infection control information concerning proper hand washing for patients and visitors in the waiting area of the office, and encourage information concerning specific major outbreaks, such as CDI. The information is virtually the same as for health care professionals.
The Use of Gloves

Gloves are not required when a provider’s contact is limited to a patient’s intact skin, and their use is not a substitute for hand hygiene. Clean non-sterile gloves should be used if there is contact with any body fluids, blood, secretions, mucous membranes, wounds, or non-intact skin. Gloves should also be used to handle any visibly soiled items, especially if it is soiled with blood or other body fluids. Gloves should be worn when the health care provider has open skin lesions on their hands, and open skin lesions or wounds on the health care provider’s hands should be fully covered by a clean dressing. If possible, healthcare providers with wounds should avoid contacting patients until they are healed.

Use of Facial Protection

Masks, eye protection, and face shields are worn to protect the mucous membranes of the eyes, nose, or mouth during procedures and any patient activity likely to generate splashes of body fluid or if droplet or airborne transmission unrelated to the procedure is a potential concern. Mask type is selected for intended use. A fluid resistant surgical or procedural mask should be worn to protect the mucous membranes from splashes or droplet transmission. Eye protection with safety glasses is recommended during endoscopic procedures, including anoscopy, and during hemorrhoid banding, needle aspirations, or any procedure that could result in facial exposure to a patient’s body fluids.

The procedure for wearing facial or eye protection includes the following:

- Perform hand hygiene before putting on and after removing the facial mask or safety glasses/
- The mask should fit snugly over the face, and it should fully cover the nose, mouth, and chin.
- The metallic wire clip of the mask should be fixed securely over the bridge of the nose.
- All strings of the mask should be tied or ear loops placed around the ears properly. The mask should not dangle around the neck.
- Change a mask if it becomes moist or soiled.
- Prescription eyeglasses are not considered adequate eye protection.
- Safety glasses should include side-shields for splash protection.

Use of Gowns

In the office setting, routine use of gowns is not necessary. Fluid resistant gowns are used to prevent contamination of skin or soiling of clothing during procedures or patient care when splashing or spraying of body fluids is likely to occur. We recommend the use of gowns when performing office-based procedures such as hemorrhoid bandings, anoscopy, or sigmoidoscopy, where there is a higher potential for exposure to a patient’s feces.
Personal Clothing and Reusable Medical Equipment

Several infection control policies apply to reusable equipment and personal clothing. Shoe covers are recommended when performing procedures that involve potential splashes or spills of secretions or body fluids. Stethoscopes should be wiped with alcohol-based cleaner after contact with patients, as should blood-pressure cuffs, thermometers, flashlights, and other equipment. Neckties or loose articles of clothing should be secured during close contact with patients, and white lab coats should be cleaned regularly.

GI PATHOGENS

Standard precautions are used for most GI pathogens including *Ascaris lumbricoides*, *Campylobacter*, *Cryptosporidium*, *Enterobius vermicularis*, *E. coli*, *Giardia lamblia*, hookworm, noroviruses, *Salmonella*, *Shigella*, *Vibrio*, whipworm and *Yersinia* as well as viral hepatitis. Although, viral hepatitis does not represent a special case and is prevented through universal precautions, communication between providers and staff is always advised when patients with known infectious illness are being seen in the office. *Clostridium difficile* represents a particular challenge as discussed above. We recommend soap and water as the preferred method for hand hygiene when caring for patients with CDI.

EMERGING PATHOGENS

The largest Ebola outbreak occurred during 2014 in West Africa. People traveling from that area posed a risk for harboring Ebola virus. People with a risk of exposure to Ebola virus are being closely monitored by state and local health departments. In the event of illness they are directed to specific designated facilities. Hence it is unlikely that a patient with Ebola viral disease will arrive unannounced to an outpatient setting. In the extraordinarily rare event that this does occur, the most important 3 steps are Identify, Isolate and Inform. Identification of a patient involves asking if within the last 21 days they have traveled to a country that has widespread transmission of Ebola virus (Guinea, Liberia or Sierra Leone) or if they have come in contact with somebody who has had known Ebola viral disease. If it appears that the patient may be at risk of having Ebola viral disease, isolate the patient. Avoid any kind of unnecessary direct contact. Don all appropriate personal protective equipment. Notify the Health Department to help arrange for the patient to be transferred to a facility that can further evaluate the patient. It has been documented that Ebola is capable of persistence in certain tissues such as in the eye and genito-urinary tract. Exposure to these may pose a transmission threat from survivors of the acute illness as well as individuals with subclinical disease. Hence, a careful travel history must still be taken and appropriate blood and body fluid precautions should still be applied. Zika, a flavivirus endemic in South America which can have a rather mild clinical expression has been shown to be capable of inducing devastating congenital effects in infants born to infected women. It too is capable of persistence after clinical recovery and may pose serious blood and body fluid transmission risks. Appropriate infection control measures are still being evaluated for this emerging disease.
TRANSMISSION-BASED PRECAUTIONS

Airborne

Patients with pulmonary tuberculosis are placed on airborne precautions (negative pressure with minimum 12 air exchanges per hour). Healthcare workers caring for these patients should wear an N-95 respiratory device. If exposure to patients with tuberculosis is likely, the staff must be fit for use of N95 respirators and annually fit tested per OSHA regulations. We recommend that patients with known or suspected pulmonary tuberculosis not be seen in the office setting unless they have been properly evaluated and taken off of airborne precautions by the Health Department officials. This requires a specific policy for the office and training of personal who schedule patients.

Contact Precautions

Contact precautions are used in the hospital setting for patients who have certain microorganisms or specific antibiotic-resistant bacteria. In the office setting place patients who require contact precautions in an exam room as soon as possible.

ENVIRONMENTAL CLEANING

Offices including examination rooms and equipment should be cleaned daily with a low-level disinfectant such as a quaternary ammonium compound. In the event of the spill of blood, vomitus or feces use absorbent material to absorb most of the material, then the area is cleaned using a detergent. The area should then be cleaned with a disinfectant solution. Gloves and other personal protective equipment should be worn during the cleaning process.

Examination tables can be covered with a disposable paper or linen material and changed between patients. The examination table should be cleaned on a daily basis.

OFFICE DESIGN

Several features of office design are an important part of the prevention of the spread of infection. A detailed description of these can be found in the American Institute of Architects Guidelines for the Design and Construction of Health Care Facilities. Several of these concepts are relevant to the design of outpatient gastroenterology clinics. For example, ideally, in new construction (or if remodeling is a consideration) an appropriate triage and isolation room should be considered adjacent to the reception desk. This may be impractical if not impossible in older construction, but with increasing concerns about airborne transmission, it is worth considering even in the gastroenterologist office.
There should be at least one examination room available for each physician. Patient rooms should have a minimum of 80 square feet, and if the room is being used for minor surgical procedures, such as flexible sigmoidoscopy, it should be at least 120 square feet. Sinks should be readily available, i.e. one in each exam room, in the event that a healthcare worker is splashed or contaminated with blood or other bodily fluid. Each room should have a separate counter for documentation. Faucet aerators should not be used because they can harbor infectious bacteria. There should be a room or designated area for clean and sterile supplies, as well as a separate room for the collection, storage or disposal of any soiled materials. (An appropriate waste management system should be in place.)

A bathroom containing a sink should be positioned so that it is easily accessible from all patient care rooms. If an office has more than three examination or treatment rooms a separate bathroom should also serve the waiting area.

Public areas include the reception desk and waiting room. Toys and materials used for patient diversion in the waiting room should be able to withstand regular cleaning with hot water and a detergent. Ideally, waiting areas should be large enough to allow isolation of patients suspected of having infectious illness. Hand hygiene stations should be highly visible and readily available for reception, staff and patients.

Hand held computer tablets, laptops and keyboards that are used by patients in the waiting area should be covered with a waterproof surface so that they can be regularly cleaned and disinfected.

One of the most basic measures taken to reduce the transmission of infection is to avoid crowding in waiting areas and scheduling patients with known or suspected communicable disease when the office is least busy. Patients who are infected with a known communicable disease should be isolated, or triaged immediately into an exam room.

**WRITTEN INFECTION CONTROL POLICY**

Policies for infection prevention should be written, readily available, and regularly updated. It should include matters of employee health, particularly OSHA requirements for blood-borne and airborne pathogens, risk assessment, and waste management (including sharps disposal). Applying OSHA standards usually satisfies state-to-state variations in public health regulation, and will meet the requirements of federal inspectors such as from CMS. Employees should be regularly educated, updated and sign off after review. It is also important to have a mechanism for educating patients so they understand their role in the prevention of infection. This includes encouragement of hand hygiene, isolation (e.g. masks when airborne transmission suspected), and advising registration personnel immediately if they suspect they are infectious.
CONCLUSIONS

Prevention of the transmission of infection is an important part of any medical practice and it applies to subspecialist offices such as gastroenterology. Many of the communicable diseases seen in the office require the use of basic infection control practices. Aging buildings or the outdated design of clinical areas and examination rooms, contributes to the challenge of maintaining the precautions necessary to prevent the spread of infectious diseases. A written office policy regarding the prevention of infection, the education of clinical staff, and education of patients as to their role in the prevention of infection are all important in the practice of outpatient gastroenterology.

SUGGESTED ADDITIONAL READING