

Infection Prevention and Control in Clinics:

Is There a Minimum Standard?

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Introduction

With the impending introduction of the Healthcare Services Act (HCSA), governance and oversight of healthcare facilities will likely be strengthened. It is thus timely to review again the role of infection prevention and control in the ambulatory care setting. In lieu of increasing healthcare costs, there has been a concerted effort to move more services from a hospital-based setting to the outpatient (ambulatory care) setting. In the past, this took the form of outpatient dialysis services, day surgery and provision of maintenance chemotherapy to oncology patients. This shift to the outpatient setting has continued to expand to include multi-specialty day surgery centres with en-suite radiological services and comprehensive cancer centres that offer outpatient blood transfusion services and even the ability to commence same-day-visit induction chemotherapy. Clearly, the infection prevention and control requirements in these larger outpatient facilities will be very different from a neighbourhood family physician clinic with one to two practitioners.

In this short article, we will focus on how small family physician or medical specialist clinics can incorporate and integrate good infection prevention and control practices.

Start at first contact

Infection prevention and control must be made a priority in clinic policies. Prevention efforts should start upon the

receipt of a request (via telephone or email) for a clinic appointment. Initial triage should be performed and this will assist the clinic staff in scheduling patients with possible infectious agents. Appropriate scheduling of patients' appointments may help to mitigate risks of transmission; eg, patients who report fever, rash, open wounds or acute respiratory symptoms should, as far as possible, be scheduled at different time slots from patients who come semi-electively for their regular diabetes and hypertension follow-up. For walk-in patients without an appointment, this triage must be done at first contact during the initial patient assessment.

Standard precautions for all

The clinic waiting area is an area where infections may be transmitted. The implementation of "standard precautions" forms the foundation for preventing ongoing transmission of infectious agents during the outpatient visit. Clear written instructions formalised into a policy allow the clinic manager to allocate sufficient resources to ensure that the requirements are adequately met. A summary of the "standard precautions" is as follows:^{1,2}

Hand hygiene

Hand hygiene is key to infection prevention and is also a vital intervention in the clinic setting. The five moments of hand hygiene must

be emphasised and are as follows:

- Before patient contact
- Before an aseptic task
- After body fluid exposure/risk
- After patient contact
- After contact with patient surroundings

Alcohol-based hand rubs are the preferred method of hand decontamination to achieve increased compliance with hand hygiene practices. It takes less time and causes less irritation to hands. If hands are visibly soiled with bodily fluids (eg, blood or after care with patients with known or suspected infectious enteric pathogens such as *Clostridium difficile*), hand washing with soap and water would be preferred.³ If soap and water is used, hand lotions should be made available to reduce dermal irritation to hands.

Personal protective equipment (PPE)

PPE should be worn to protect the healthcare worker (HCW) from exposure to or contact with infectious agents. This is based on the potential for exposure to blood, bodily fluids or infectious agents and can include surgical masks, N95 masks, eye shields, gowns and gloves, where appropriate. Proper use of PPE can include:

- Use of gloves in situations or procedures involving contact with bodily fluids including blood, mucous membranes or non-intact skin;

- Use of mouth, nose and eye protection (such as face shields and goggles) during procedures that are likely to generate splashes or sprays;
- Use of N95 masks when airborne organisms are suspected (eg, *Mycobacterium tuberculosis*); and
- Use of surgical masks when reviewing patients with respiratory symptoms.

Hand hygiene is the final step after removal of PPE and should be emphasised not just before but also after the use of PPE.

Respiratory hygiene and cough etiquette

This is targeted at patients and accompanying visitors who may have an undiagnosed respiratory infection. Once again, it highlights the importance of prompt infection prevention measures at the first point of contact. Visual alerts should be utilised within the clinic to remind patients and accompanying visitors to cover their mouths and noses when coughing or sneezing, use and dispose of tissues, and perform hand hygiene after contact with respiratory secretions. In light of ongoing respiratory viral epidemics (such as H7N9 and MERS-CoV), patients who have significant travel history should be placed as far away as possible from other patients or, where possible, in separate waiting areas.

Safe management of sharps and waste

Procedures practised within the ambulatory care situation should be performed with the appropriate PPE and in an aseptic manner. All sharps and waste should be disposed of in appropriately labelled biohazard sharps boxes at the point of use. These containers should be closable, puncture-resistant and leakproof. Contaminated supplies or equipment should not be kept in close proximity to areas used for preparation of medication.³

Environmental cleansing and spills management

Clinics should establish policies and procedures for routine cleaning and disinfection of the premises. Regular environmental cleansing should be performed and this involves the removal of visible contamination on device/ environmental surfaces through the use

of antiseptic wipes. Cleaning of high-touch surfaces must be emphasised. HCWs should be appropriately trained in such procedures as well as the cleaning and decontamination of blood and other potentially infectious materials that are “spilled” onto work surfaces or floors of the clinic (eg, using disinfectant tablets with the appropriate dilutions).

Protecting staff

Employment screening

In view of the risk of exposure of transmissible infectious diseases, all staff should be advised to receive immunisations to protect themselves from vaccine-preventable diseases. These include hepatitis B, measles, mumps, rubella, varicella and respiratory illnesses, such as pertussis and influenza.^{4,5} Up-to-date staff immunisation records should be kept for all staff and be readily available in the event of an exposure to a transmissible disease. The Ministry of Health (MOH) has published a circular on its recommendations for immunisation of healthcare workers in December 2014.⁶

Personnel illness

HCWs who fall ill pose a risk of infection transmission to other personnel, patients or visitors at the clinic. There should be written policies with regard to the exclusion of staff with possible transmissible infections and the necessary infection prevention measures that need to be undertaken. In particular, if immunocompromised patients attend the clinic, all contact with ill HCWs should be avoided or minimised. Appropriate PPE should also be utilised by personnel not requiring exclusion from work.

Additional measures

Patients with active infections

Triage areas and waiting rooms in clinics are areas where transmission of infection can occur. This is especially important when patients have respiratory symptoms. As such, respiratory etiquette will need to be reinforced.

For patients with open wounds, it is important that the wounds are covered and the areas that they have come into contact with (work surfaces, equipment, etc) should be wiped clean with the

appropriate antiseptic agents. Clean practices during dressing changes should be reinforced. This includes stringent hand hygiene; using sterile materials such as single-use devices, where possible, or appropriately cleaned and reprocessed devices and equipment; using a no-touch technique; and maintaining a clean field. It is important to maintain staff proficiencies in these procedures.

Clinic staff should also be educated about modes of infection transmission and the clinic manager must ensure the ready availability of surgical masks, N95 masks, gloves, gowns, disposable tissues and hand hygiene supplies.

Patients colonised with drug resistant bacteria

There are currently no standard recommendations for patients colonised with drug resistant bacteria (MRSA, VRE and CRE) in the ambulatory care setting. However, a practical approach would involve identification of these known colonised patients through a thorough review of their medical records or through initial triage at first contact. In conjunction with standard asepsis, contact precautions should also be implemented. Strict hand hygiene before and after attending to patients and cleaning of medical equipment that came into contact with the patient is also crucial. If possible, such patients should be seen at the end of the clinic session/day and cleaning of the premises done thereafter.

Outbreak management

To state the obvious, Singapore is a travel hub and the large inflow of business and leisure travellers imposes the risk of importation of infections and the resultant transmission of an outbreak organism(s). Appropriate triage needs to be performed for patients presenting with fever coupled with respiratory symptoms or rash. Patients and visitors will then need to be screened for the appropriate travel and exposure history; depending on the current active outbreaks, case definitions may vary. Medical personnel need to be kept updated about ongoing outbreaks and adjust their triage accordingly. Close attention should be paid to MOH circulars that detail these outbreaks

or exposures. As stated in the first few paragraphs, infection prevention and control should start at first contact. Appropriate scheduling of patients during their initial contact and applying standard precautions will help to mitigate transmission risks. Patients fitting the appropriate case definitions for a high-risk "outbreak infection" should be referred to the designated referral centres for further assessment, and "suspect" cases will need to be notified to MOH for their investigations.

Medico-legal implications

Healthcare-associated or nosocomial infections within the hospital setting are well-documented concerns that are associated with significant morbidity, mortality and increased healthcare costs. Transmission of infection within the ambulatory care setting, although reported, is not as well quantified.

Suffice to say that controlling the spread of infection is rarely dependent on one factor and requires a combination of good preventive care at many stages, that is, a "package" of measures is necessary. The trend is to have a set of clear written policies on infection prevention and control that all staff can follow and comply with. Even with written policies, transmission of infection can still occur and in the hospital setting, occurrence of nosocomial infections does not necessarily indicate poor medical care. In addition to the need for the individual healthcare workers' compliance to the institution policies, there are numerous patient factors that determine the risk of healthcare-associated infections.

Even with clear written policies, when the clinic is full of patients in the waiting area and staff are busy with triage, patient assessment, documentation and minor procedures, how frequent is compliance to infection prevention expected? For example, how many missed occasions of the five moments of hand hygiene are "acceptable" for a family physician in solo practice who sees more than 60 outpatients per day? Furthermore, while non-compliant behaviour is a risk factor for transmission of infection, drawing a causal link to the acquisition of infection within

the clinic is a different matter. Was it a lapse in infection control practices or a previously undetected infection or colonisation in the patient leading later to patient "acquisition" of an infection? This is the perennial "chicken and egg" problem. It is quite evident that no simple or single answer will be adequate to address this conundrum and that adds to the outstanding controversies in infection prevention and control within the outpatient setting.

Conclusion

Infection prevention and control measures in the clinic must be made a priority and must be integral to the clinic operations. We hope that this article has provided simple and logical measures which can be incorporated to help reduce transmission risks in the clinic setting. It is important that a "package" of measures must be in place to reduce infection transmission within the clinic. Staff education and compliance with these measures are critical to the success of infection prevention and control in your clinic. ♦

References

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Important components of Infection Control and Prevention in clinics

1. Start IPC at first patient contact

2. Standard IPC precautions for all

- a. Hand hygiene
- b. Personal protective equipment
- c. Respiratory hygiene and cough etiquette
- d. Safe management of sharps and waste
- e. Environmental cleaning and spills management

3. Protecting staff

- a. Employment screening
- b. Personnel illness

4. Outbreak management

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