Practical Solutions for Infectious Disease Private Practitioners: Action Plan for the Effective Management of an Extended Care Facility Outbreak

Brian P. Harting, M.D.

Metro Infectious Disease Consultants, Burr Ridge, IL, USA; hartingafc@gmail.comm

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Introduction

Among the many hats an Infectious Disease physician wears, the role as expert in the management of infection prevention in extended care facilities (ECF) can be an incredibly valuable one. However, receiving a call about a potential infection outbreak during a busy day could spell potential disaster. Regardless of the type of infection, a disciplined management approach to an ECF outbreak will help reduce number new infections and associated complications. This will lead to fewer patient complications and will allow an ECF to continue to provide expected patient care services, including physical therapy, wound care and memory care. An action plan will efficiently focus all providers on the steps need to control an ECF outbreak.

We have employed a standard action plan that a director of nursing can implement under the guidance of an Infectious Disease physician. It can be adjusted based on the type of infection or infestation affecting the ECF. The action plan assigns specific roles to stakeholders for management of the outbreak. These roles include responsibility of determining onset and end of the outbreak, collection and management of surveillance data and education of staff regarding specific symptomatology, isolation precautions and cleaning measures. This article will review seasonal and sporadic infection outbreaks. I will not discuss the developing practices for COVID-19 infection prevention in the ECF setting; however, as COVID-19 control practices becomes more available, one could use the action plan described below for future outbreaks.

The Action Plan

When ECF staff raise concern about a possible outbreak, communication between the DON and the Infectious Disease physician can take place even through a phone call. The discussion should cover why an outbreak likely and what is needed to investigate further. The Action Plan template will provide a framework for the discussion. Individuals will highlight roles and tasks they will perform and then continue communication as these tasks are planned and completed. A formal meeting at the ECF is not necessary as all stakeholders will have a clear, written document of what is expected and by whom.

Key components/role of an outbreak management action plan are:

- Who calls it an outbreak;
- Who contacts and communicates with public health department;
- Who performs and analyzes surveillance data;
- Who calls the end of the outbreak;
- Who determines specific patient care actions,
    - Timing of isolation,
    - Pre- and post-exposure prophylaxis.

Figure One

Example of an action plan for a norovirus outbreak:

- Infectious Disease physician determines outbreak: Two or more confirmed norovirus cases occurring in a unit with initial dates of onset within 48 h of each other.
- Director of nursing (DON) places suspected patients on contact isolation based on available guidelines: Contact isolation until no symptoms for 48 h.
- Daily symptom sheets added to each unit and reviewed by DON or infection prevention nurse. Monitor for:
    - 1. Diarrhea: three or more loose stools in a 24 h period when the occurrence is not readily explained by other known pre-disposing medical factors, and
    - 2. Vomiting: two or more episodes of vomiting in a 24 h period when the occurrence is not readily explained by other known pre-disposing medical factors.

Public health department contacted by DON or infection prevention nurse

- DON or infection prevention nurse reviews enhanced cleaning with environmental services—bleach only;
- In-service for handwashing and contact isolation for all staff—DON or infection prevention nursing with aid of Infectious Disease physician;
- Limit group activities as directed by DON;
- Symptomatic patients eat in room;
- Infectious Disease physician reviews rates of symptomatic patients and determines end of outbreak: No new cases for 2 incubation periods (96 h).

Not all outbreaks will be managed in the same way. For seasonal influenza, one positive case with an additional resident with influenza-like symptoms indicate that there is a ECF outbreak [1]. Norovirus testing may prove difficult to obtain early as symptoms can be short lived, so an outbreak definition may rely on a small number of proven infection and the number of suspected cases based on gastrointestinal symptoms alone [2]. Routine skin scraping may not be available for scabies. For this reason, each action plan will be unique for an outbreak.

The pace with which infection progresses from asymptomatic to symptomatic may also affect the pace with which one can control an outbreak. Norovirus is a short-lived illness with a relatively short incubation. Effective identification and isolation of patients can lead to rapid control of an outbreak. The challenge with norovirus is the low number of viral particles needed to spread infection and asymptomatic shedding for a week after symptom resolution [3]. Patients infested with scabies may go run recognized for several weeks to months while they continue to infest other residents and staff. In turn, these residents and care staff, who are asymptomatically infected for weeks before symptoms, may then indolently, but effectively, infect other residents unknowingly [4]. Therefore, control of a scabies outbreak may take several months.

Calling the Outbreak

When an ECF resident has symptoms concerning for an acute gastrointestinal illness, an Influenza or COVID-like illness or scabies, members of the ECF staff may recognize the potential of a communicable disease spreading through the facility. It will take a person in a management position to take steps to respond to a potential outbreak with necessary resources. There are many factors that could put undue pressure on a manager of an ECF to identify a group of infections as an outbreak. An outbreak may affect movement of patients within an ECF, thus affecting physical and occupational therapy or leading to isolation. An outbreak may necessitate stopping admissions to an ECF. In the end, however, early and effective control of an outbreak will help patients within facility as well as potentially shortening an outbreak that could be damaging to a facilities capacity to operate. An Infectious Disease professional, who has knowledge of local infection rates for influenza in the community and surrounding hospitals, would prove to be the ideal stakeholder to help define the start of an ECF outbreak. Local and national definitions for outbreaks may update frequently. A predetermined, clearly outlined role of the ID physician as expert in guideline interpretation will lead to open dialogue between physician and ECF management.

Calling Public Health Officials

A fear of some administrators is involvement of public health officials as an outbreak is identified. Having public health officials come to a facility can produce a certain stigma. However, in our experience, contacting public health officials about an outbreak early in the course, while demonstrating an organized approach to management with the use of an action plan, will avoid unnecessary public health involvement as well as provide more effective and collaborative help when it is needed. We have the ECF management contact public health officials with the details of the action plan. They are in a better position to provide updates and respond to any requests from public health offices. The clinical competence demonstrated by a clear action typically leads to more check ins from public health departments and fewer, unnecessary investigations.

Limiting Patient Care Activities

It may be necessary to limit patient movement to physical and occupational therapy, shared dining and other group activities. There are solutions to providing some of these services: PT and OT can come to the room and dinner can be served and supervised, if needed, in the room. The decision to limit patient admissions is more contentious. Further, the guidelines are often unclear guidelines as to when to close an ECF to admissions and for how long. It is, thus, important for the ID physician and ECF management outline closure and opening parameters collaboratively.

Surveillance

Symptom surveillance will identify when disease activity has slowed or if other units in an ECF may be affected by a local outbreak. DON and, if available, infection prevention nursing, create and monitor disease activity sheets based on infection-specific symptoms. These sheets will list name and location of patients with outbreak infection-specific symptoms and any testing results. Nursing staff will be in-serviced about the signs and symptoms definitions. The Infectious Disease physicians can help interpret surveillance data and adjust infection control measures as needed.

Infection Prevention Measures

For seasonal and sporadic outbreaks, outside of pandemic situations, infection control measures are often clearly defined by type of isolation measure necessary. Within the action plan, the ID physician and nursing leadership should define when a patient should be placed in and out of isolation. Clear guidelines will help nursing understand the infectious disease characteristics of each organism. Within the activity of defining infection prevention measures, the ID physician and nursing leadership can develop educational in-services for nursing, physical and occupational therapy and environmental cleaning staff.

Treatments

One may incorporate post-exposure treatments during influenza and scabies outbreaks. Chemoprophylaxis during influenza outbreaks, regardless of vaccination status, may reduce attack rates for ECF residents and may shorten duration of ECF outbreaks [1,5]. For scabies, residents and patient care providers who take ivermectin or topical permethrin during a scabies outbreak will reduce the likelihood of asymptomatic carriage and eventual symptomatic infestation [6,7]. Influenza vaccination may reduce morbidity and mortality in high risk ECF cohorts [5]. These interventions can be costly initially, but will pay dividends in terms of patient care improvement.

Calling the End of an Outbreak

It is important to define parameters for what constitutes the end of an outbreak in the initial Action Plan. Incubation of the infectious organism prior symptom onset may provide a good target for surveillance. In the norovirus example, if there are no gastrointestinal symptoms over a 96 h period, it would be unlikely that further residents will develop new symptoms, and those who are currently on isolation may finish the prescribed time in isolation. Absence of Influenza-like symptoms may be followed for a longer time. Symptom surveillance for scabies may go on for months, but this type of outbreak is less likely to impact admission policy and general patient activities.

Conclusion

We find ECF outbreak action plans improve communication throughout and ECF outbreak and lead to more efficient management. ECF outbreaks will happen, even under the best circumstances. Infectious Disease practitioners can be a valuable leader in the response to ECF outbreaks. Physicians who help formulate these plans will find their expertise used more effectively and their time spent more judiciously.

Conflicts of Interest: The author declares no conflict of interest.

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