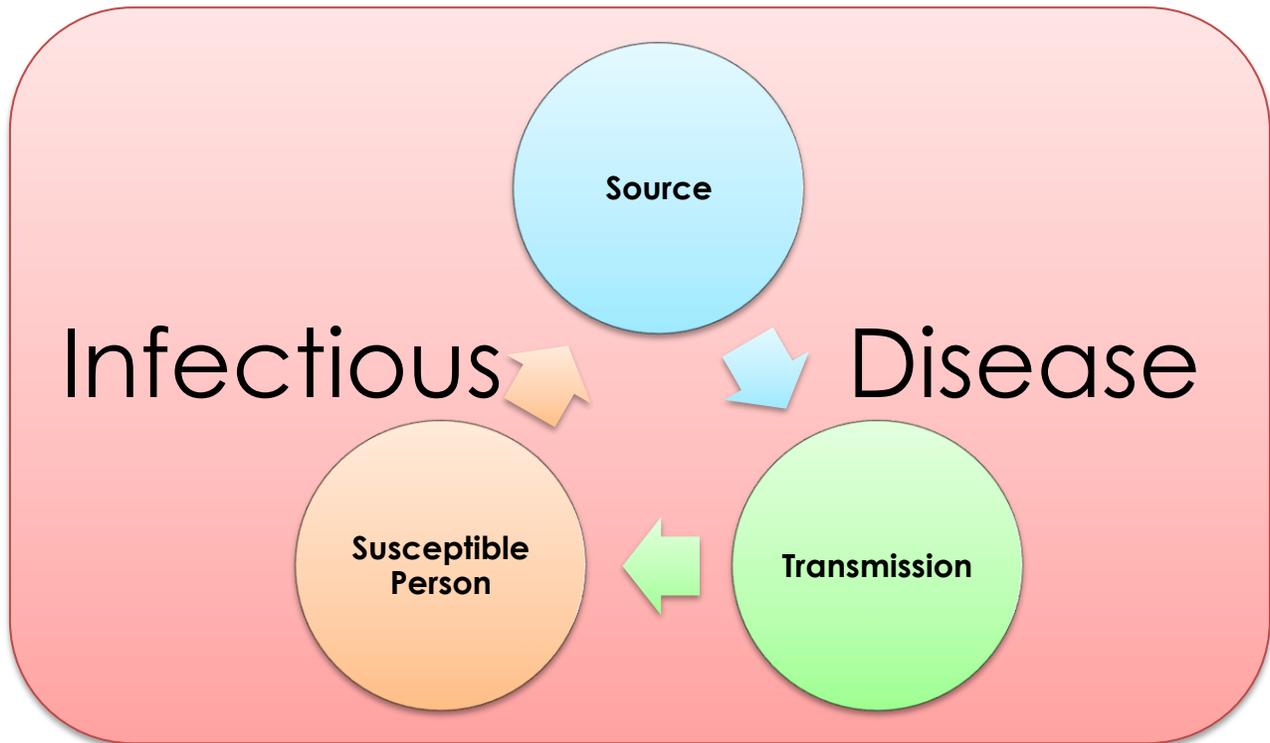


## Decision Path for Infection Control Measures

Three things are necessary for an infection/disease to occur:



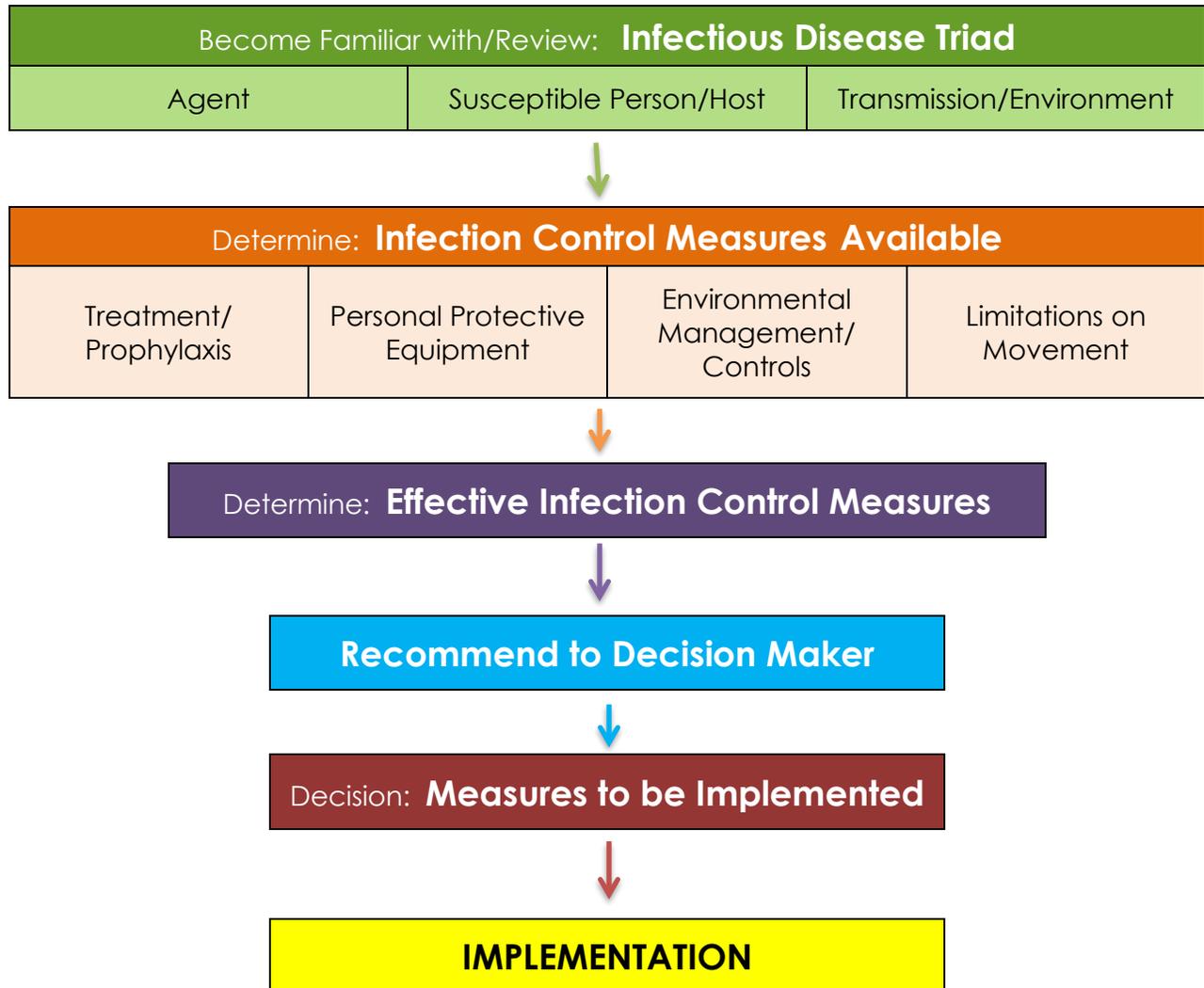
Community Containment (infection control) Measures for an infectious disease will be focused on what can be done to interrupt/remove at least one of those “things” to decrease the spread/continuation of a disease in the simplest and most effective way. Decisions about how to protect the public will be based on scientific data, ethical considerations, consideration of the public’s perspective on the protective measures, and the impact on society. It is not possible to fully delineate triggers for the implementation of community containment measures. These “triggers” may become apparent early in a disease outbreak, pandemic or during subsequent waves. The implementation of community containment measures will vary with the outbreak characteristics and the circumstances of the time.

The decision to implement any community containment measure is complicated and considerations should include, but not limited to:

- Number of cases and exposed persons.
- Morbidity and mortality.
- Epidemiology of the disease.
- Movement in and out of the community.
- Resources.
- Need for urgent public health action.

## Decision Path for Infection Control Measures

### DECISION PATH FOR INFECTION CONTROL MEASURES\*



**Become Familiar with/review the Infectious Disease Triad.** Reviewing what is known about the agent/disease from past history, will be helpful in determining how it is spread, who is most susceptible, how it is transmitted, incubation period, effective treatment, and what has been successful in preventing and/or mitigating the spread.

**Determine the Infection Control Measures Available.** While there are generally multiple infection control measures available, not every infection control measure is effective in limiting disease spread. The infection control measures listed below are a few examples of what might be part of the conversation for determining the infection disease control measures available. This list is not all inclusive.

- Treatment and/or Prophylaxis.

## Decision Path for Infection Control Measures

- Is there a treatment to “cure”, or decrease the intensity of the disease?
- Is there a vaccine available?
- Personal Protective Equipment.
  - Are there any “barriers”, such as N-95 masks, gloves, face shields, etc, that would decrease the risk of disease spread?
- Environmental Management/Controls.
  - Special cleaning instructions campaigns
  - Personal hygiene campaigns?
  - Removal of standing water campaigns?
  - Limiting the use of public, or private, water sources
  - Spraying for mosquitoes and/or spreading of larvicides.
- Limitation of Movement.
  - Would crowd avoidance be affective? Reverse “Snow Days”? Social distancing?
  - Would quarantine/isolation of the exposed/ill be affective?

**Determine Effective Infection Control Measures.** Once the available infection control measures are known, the decision as to which infection control measures would be the most effective must be determined.

- Treatment and/or Prophylaxis. If there is treat/prophylaxis available:
  - Is this treatment available in sufficient amount? Or available to those who are at highest risk?
- Personal Protective Equipment.
  - If there are “barriers” that would decrease the disease spread, is there enough for everyone? Only first responders? Those at high-risk for complications/death?
- Environmental Management/Controls.
  - Would special cleaning instructions to destroy the agent?
  - Would personal hygiene, like: frequent hand washing campaigns be affective? “Cover your cough” campaigns?
  - Would removal of standing water prevent the growth of the agent, or its vector?
  - Is limiting the use of public, or private, water sources feasible?
- Limitation of Movement.
  - Would the population follow crowd avoidance, social distancing, and/or quarantine recommendations?

**Recommend to Decision Maker.** The recommendations should be presented to the decision makers. The more restrictive the infective control measures are, the more likely that the decision to implement them will require involvement of more partners,

Implementing Instruction: Contain:

## Decision Path for Infection Control Measures

such as: Portsmouth City and Scioto County board of health, law enforcement, judicial agencies, county commissioners.

For an agent that is an emerging infectious disease, information may be limited and may be an ongoing review of information as it becomes available.

**Decision: Measures to be Implemented** Depending on the restrictiveness of the infection control measures, recommendations to implement measures may include only the Health Commissioner and the Director of Nursing, or include Board of Health, City/County elected officials, and Event Organizer, such as: school superintendent, festival organizations, etc.

**IMPLEMENTATION.** This includes the action needed to successfully apply the infection control measures. The health department may be able to provide the activities needed to implement the measures, or the activities may include legal orders (involuntary quarantine), or partner agreements (cancellation of large gatherings).

\*The decision path could also be utilized for agents other than infectious disease, such as: chemical contaminants.

### Definitions:

Agent: microorganism that actually causes the disease in question. An agent could be some form of bacteria, virus, fungus, or parasite. Originally, it has been referred to an infectious microorganism, or pathogen: a virus, bacterium, parasite, or other microbe.

Over time, the concept of agent has been broadened to include chemical and physical causes of disease or injury. These include chemical contaminants, as well as physical forces (such as repetitive mechanical forces associated with carpal tunnel syndrome).

Infectious Disease Triad: A traditional model of infectious disease causation, known as the Epidemiologic Triad, consists of an external agent, a host and an environment in which host and agent are brought together, causing the disease to occur in the host. A vector, an organism which transmits infection by conveying the pathogen from one host to another without causing disease itself, may be part of the infectious process.

Limitations on Movement: pertains to a public health response to an outbreak of a communicable disease where a form of quarantine, isolation, and/or cordon sanitaire is implemented. The implementation can be through voluntary or mandatory means. It can be simply "social distancing" and avoiding crowds, or ill individuals.

Personal Protective Equipment: protective clothing, helmets, goggles, face mask, or other garments or equipment designed to protect the wearer's body from injury or infection. The hazards addressed by protective equipment include physical, electrical, heat, chemicals, biohazards, and airborne particulate matter.

Source: Places where infectious agents (germs) live (e.g., dirt, surfaces, human skin, human respiratory tract, vectors).

Susceptible Person with a way for germs to enter the body. Someone who is not vaccinated or otherwise immune, or a person with a weakened immune system who

## Decision Path for Infection Control Measures

has a way for the germs to enter the body. For an infection to occur, germs must enter a susceptible person's body and invade tissues, multiply, and cause a reaction.

An individual who can get the disease. A variety of factors intrinsic to the host, sometimes called risk factors, can influence an individual's exposure, susceptibility, or response to a causative agent. Opportunities for exposure are often influenced by behaviors such as sexual practices, hygiene, and other personal choices as well as by age and sex. Susceptibility and response to an agent are influenced by factors such as genetic composition, nutritional and immunologic status, anatomic structure, presence of disease or medications, and psychological makeup.

Transmission: a way germs are moved to the susceptible person

- Contact moves germs by touch. For example, hands become contaminated by touching germs present on flat surfaces, equipment, commonly touched surfaces (grocery cart bars) and then carry the germs on their hands and spread to a susceptible person.
- Sprays and splashes occur when an infected person coughs or sneezes, creating droplets which carry germs short distances (within approximately 6 feet). These germs can land on a susceptible person's eyes, nose, mouth, flat surfaces and can cause infection.
- Inhalation occurs when germs are aerosolized in tiny particles that survive on air currents over great distances and time and reach a susceptible person. Airborne transmission can occur when infected patients cough, talk, or sneeze germs into the air.
- Puncture injuries (cuts, bites, skin tears, needle sticks) can lead to infections when bloodborne pathogens enter a person through a skin break.

Treatment/ Prophylaxis: The use of an agent, procedure, or regimen, such as a drug, surgery, or activity, in an attempt to cure, mitigate, or prevent a disease, condition, or injury.

Environmental Management/Controls: seeks to change the environment in order to prevent or minimize the agent's propagation and human contact with the agents/pathogen by destroying, altering, or removing sources that provide habitats for the agent's growth.