Positive pressure ventilation systems are used in protective areas of the hospital that require the highest level of cleanliness; for example, operating theatres, sterile storage areas, and rooms for immunocompromised patients. Positive pressure ventilation ensures that air is directed out of the area, minimizing the likelihood that microorganisms are introduced into the environment.

Hospitals identify and follow local and national laws and regulations and professional standards regarding the use and maintenance of positive pressure ventilation systems.

Proper water and steam temperatures are required to prevent the growth of microorganisms and to successfully carry out cleaning, disinfection, and sterilization procedures. Hospital leaders consult local and national laws and regulations, as well as professional guidelines, to determine appropriate water and steam temperatures to minimize the likelihood of infection transmission through water. In addition, hospital leaders ensure that water and steam reach the necessary temperatures for the proper duration to effectively carry out any cleaning, disinfection, or sterilization process; for example, proper water temperature for dishwashing and steam temperatures for autoclaving.

The hospital operates and maintains airflow, ventilation systems, and humidity controls to maintain indoor air quality. This includes maintaining heating, ventilating, and air-conditioning (HVAC) systems in a manner that minimizes infection risks to patients, staff, and visitors. Airborne contaminants can be spread through exhaust, through general ventilation, and during cleaning. Maintenance of airflow and ventilation systems can minimize this risk. Operation and maintenance are completed in accordance with local and national laws and regulations and professional guidelines and include proper maintenance of inlets, outlets, fans, filters, diffusers, ductwork, humidifiers, and so on.

Measurable Elements of FMS.08.04

1. The hospital operates and maintains negative and positive pressure ventilation systems in accordance with local and national laws and regulations and professional standards.
2. The hospital operates and maintains temperature controls for water, steam, and others in accordance with local and national laws and regulations and professional standards.
3. The hospital operates and maintains airflow, ventilation systems, and humidity controls in a manner that minimizes infection risk in the hospital in accordance with local and national laws and regulations and professional guidelines.

Emergency and Disaster Management

Standard FMS.09.00

The hospital develops, maintains, and evaluates an emergency management program to respond to internal and external emergencies and disasters that have the potential of occurring within the hospital and community.

Intent of FMS.09.00

Community emergencies and disasters may directly involve the hospital, such as damage to patient care areas as a result of an earthquake, tsunami, or terrorist attack that keeps staff from coming to work. To plan, prepare, and respond effectively to emergencies and disasters, the hospital develops and implements an emergency and disaster management program.

The development of the program begins by identifying the types of emergencies and disasters that are likely to occur in the hospital's region (for example, earthquakes, typhoons, floods, landslides, explosions) and the impact these emergencies and disasters would have on the hospital. For example, a hurricane or tsunami is more likely to occur in areas where the ocean is near; however, facility damage or mass casualties as a result

of war or a terrorist attack could potentially occur in any hospital. The program should address all six critical elements:

- Communication
- Resources and assets
- Safety and security
- Staff responsibilities
- Utilities management
- Patient clinical and support activities

Hospitals play a significant role in the community during emergencies and disasters. In order for hospitals to maintain operations during and after emergencies and disasters, it is important to evaluate and identify the structural and nonstructural limitations of the hospital's buildings. Determining how buildings will respond to the emergencies and disasters that are likely to occur in the region is an important aspect in developing evacuation plans and identifying priority areas for building improvements.

An evaluation of structural elements includes the type of building design and materials as well as components of the building's load-bearing system, including the foundation, columns, beams, walls, floor slabs, and so on. The building's location is also considered part of the structural elements (for example, risks related to proximity to other buildings, location in a hazard zone such as a floodplain, and other issues). An evaluation of nonstructural elements includes architectural elements that are not load-bearing (such as the roof, ceilings, windows, and doors); emergency access and exit routes to and from the hospital; critical systems (such as electricity, plumbing, waste management, and fire protection); medical and laboratory equipment; and other nonstructural elements that are crucial for the safe operation of the hospital. An evaluation of structural and nonstructural elements allows the hospital to identify vulnerabilities and develop plans for addressing these vulnerabilities and improving hospital safety and preparedness.

It is just as important to identify the probable effects of an emergency or disaster as it is to identify the types of emergencies and disasters likely to occur. This helps in planning the strategies that are needed in the event that the hospital experiences an emergency or disaster. For example, what is the likelihood that a natural disaster, such as an earthquake, will affect water and power? Could an earthquake prevent staff from responding to the disaster, either because roads are blocked or because they or their family members are also victims of the event? In such situations, staff responsibilities for their families and/or personal safety may make it difficult or impossible to be at the hospital responding to an emergency or disaster. Hospitals need to identify and plan for other resources when staff may not be able to come to the hospital to provide and support patient care during an emergency or disaster.

In addition, hospitals need to identify their role within the community. For example, what resources will the hospital be expected to provide to the community in the event that an emergency or disaster occurs, and what communication methods will be used within the community?

The emergency and disaster management program is evaluated by an annual test of the full program internally or as part of a communitywide test or testing of critical elements of the program during the year.

If the hospital experiences an actual emergency or disaster, activates its program, and debriefs properly afterward, this situation represents the equivalent to an annual test.

Measurable Elements of FMS.09.00

1. Ⓓ The hospital develops, evaluates, and maintains a written emergency and disaster management program that provides processes for the following:
   - Determining the type, likelihood, and consequences of hazards, threats, and events (*See also* GHI.05.00, ME 2)
   - Identifying the structural and nonstructural vulnerabilities of the hospital's patient care environments and how the hospital will perform in the event of an emergency or disaster
   - Planning for alternative sources of power and water in emergencies and disasters
   - Determining the hospital's role in such events
   - Determining communication strategies for events
   - Managing resources during events, including alternative sources (*See also* FMS.08.01, ME 1)
   - Managing clinical activities during an event, including alternative care sites
   - Identifying and assigning staff roles and responsibilities during an event (including contract staff, vendors, and others identified by the hospital) (*See also* GHI.05.00, ME 4)
   - Managing emergencies and disasters when personal responsibilities of staff conflict with the hospital's responsibility for providing patient care
2. Ⓓ The hospital identifies major internal and external emergencies and/or disasters such as community emergencies, and natural or other disasters that pose significant risks of occurring, taking into consideration the hospital's geographic location. (*See also* GHI.05.00, ME 2)
3. Ⓓ The hospital identifies and conducts annual evaluation of critical elements of the emergency and disaster management program. At a minimum, critical elements include the following:
   - Type, likelihood, and consequences of hazards, threats, and events
   - Structural and nonstructural vulnerabilities of the hospital's patient care environments and how the hospital will perform in the event of an emergency or disaster (*See also* GHI.05.00, ME 3)
   - Alternative sources of power and water in emergencies and disasters
4. Follow-up actions identified from testing and debriefing are developed and implemented.

Standard FMS.09.01

The hospital implements and evaluates an emergency management program to respond to the presentation of global communicable diseases.

Intent of FMS.09.01

In addition to community emergencies and disasters that may be unique based on the hospital's geographic location, the hospital also requires an emergency management program for global communicable diseases. The globalization of society has increased the likelihood of the rapid spread of communicable diseases from one country to another as seen during the COVID-19 pandemic. During the COVID-19 pandemic, hospitals were faced with an unprecedented high demand for health care services and had to quickly implement an emergency management program to address the COVID-19 crisis. To respond effectively to the presentation of global communicable diseases, the hospital develops a program to manage these emerging infectious diseases.

The World Health Organization (WHO) has identified the importance of detecting communicable disease outbreaks early and stopping the mortality, spread, and potential impact. An essential element in detecting and limiting the spread of infection is communications—with local and regional governmental agencies or university centers of excellence participating in worldwide surveillance activities that identify and track globally emerging infections. Examples of organizations participating in surveillance activities include the UK Public Health Laboratory Service, the French Pasteur Institutes, the Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET), and the US Centers for Disease Control and Prevention (CDC). In addition, organizations need to connect with the epidemiology department of their local public health agencies when available.