

## **5.4 FIRE SAFETY**

### **5.4.1 Overview**

Fire safety and protection are matters of vital importance concerning everyone in the hospital.

The best form of protection from fire is its prevention.

Although every possible measure may have been taken to make the hospital buildings as safe as possible, no place can be completely free from fire hazards.

A careless employee, a thoughtless visitor, a confused or disoriented patient can inadvertently set off a fire.

Initially, it may appear to be insignificant but it is important to remember that every big fire starts from a small one.

An effective fire safety programme calls for an understanding of the hospital fire plan and the active participation of every employee at all times.

There is no better protection against fire than constant visit to detect fire hazards, prompt action to eliminate unsafe conditions and a high degree of preparedness to fight fire.

Panic and confusion are the greatest hazards of fire. They can be countered only by sufficient preparedness.

### **5.4.2 General Fire Information**

Every employee should know how a fire is caused how it can be prevented, and where the alarm boxes and extinguishers are located.

He or she should also learn the fire-fighting procedure before a fire actually occurs.

For a fire to sustain itself, three elements – heat, fuel and oxygen – should be present.

Fire is a chemical reaction, which occurs when a material (fuel) rapidly combines itself with oxygen in the presence of heat to produce a flame.

If any of these elements is taken away, the fire will fizzle out. This principle is the basis for fire extinguishing.

Most fires can be classified into 3 general types. Let us call them Class A, B and C. Class A fire occurs in ordinary combustible materials such as wood, paper, cloth, etc.

The best way to put out such a fire is by dousing it with water and thereby reducing the temperature of the burning material below its ignition point.

Class B fire occurs in flammable liquids and greases like oil, petrol, alcohol, etc.

It is best handled by the blanketing technique, which tends to keep oxygen from the fire and thereby suppress contribution.

Water should never be used. It will only spread this type of fire.

Class C fire occurs in electrical equipment such as motor, wiring, switches, panels, etc. This is a

combination of the previous two types.

Because of the hazards of electrical short circuit, a non-conducting extinguishing agent should be used to put out this type of fire.

Again, water should never be used on an electrical fire.

The person using water on an electric fire may receive an electric shock.

The fire protection system in hospitals basically consists of a static water supply source within the building.

Connected to this are first aid hose reels and landing or hydrant valves with hoses at every floor levels, preferably housed in an M.S. hose cabinet with glazed door and strategically placed.

If the building is a high-rise one, there should be a wet riser serving 1000 sq. meters of the floor area to which the hose reels and hydrant valves are connected.

The required pressure in the line should be provided with suitable capacity pump.

It is necessary to have one working pump and another as standby in case of power failure while fire-fighting.

In addition to wet riser system, some unmanned areas require sprinklers.

Portable fire-fighting extinguishers of the type and capacity suitable for specific areas of application should also be provided in strategic location.

The fire-detection system consists mainly of smoke and heat detectors that sense fire at an early stage and give off an alarm so that the fire can be controlled at an initial stage itself.

Smoke and heat-detection devices are wired in series and terminated in control panels located in areas manned 24 hours of the day.

Apart from these detectors, break-glass units and hooters are also provided at strategic points.

When there is a fire, the nearest break-glass unit should be activated by breaking the glass.

This automatically sets off the alarm so that precautionary methods such as evacuation of the area can be undertaken.

#### **5.4.3 Basic Responsibilities of Every Employee**

- Be completely familiar with the hospital fire safety programme and the departmental fire plan.
- Be alert and observe the hospital with a critical eye, and report all dire hazards to the authorities concerned.
- Not smoke in prohibited areas or anywhere if the entire hospital is declared a non-smoking area.
- Know the location of fire alarm boxes and be familiar with the operating with its operating instructions, use and signals.

- Know the location of fire-fighting equipment and be acquainted with its operating instructions and use.
- Know the location of fire exits and assist the supervisor or head of the department in keeping them clear at all times.
- Report to the supervisor if he (she) notices any defect in stairway doors, which should remain closed and in operational condition at all times.
- Participate in all fire drills and other training or practice sessions as well as know his (her) assigned duties in the hospital's fire plan and evacuation.

#### **5.4.4 What to do in case of Fire**

If you discover a fire in your area, observe the following points:

**i) Use code:** do not panic, run, yell or use the word "Fire". Use the code: Doctor Red or CodeRed.

**ii) Evacuate:** Remove persons from immediate danger of smoke and fire. Only persons in immediate danger need be relocated in areas on the same floor but away from the fire. If the fire is in the patient room(s), remove the patient(s) and close the door behind you.

**iii) Sound Alarm:** Sound the fire alarm from the nearest fire alarm box. This will notify the telephone operator and fellow hospital employees of the situation. The alarm box will set off a series of sounds or hoots.

**iv) Dial Telephone Operator:** Give the location – the floor, wing, area, etc. – and the extent of fire.

This is important because the telephone operator should be very sure of these details before calling up the fire department.

The telephone operator will immediately write the location down.

The telephone operator will announce Doctor Red on the public address system followed by the location of the fire three times.

This announcement will be repeated every 30 seconds for a period of two minutes.

To avoid panic among patients and visitors, emergencies in the hospital are announced using codes, for example, "Doctor Red" for fire.

The operator will also notify important officials like the CEO, or the person in charge at that time, the telephone operator will notify the fire department and summon help.

**v) Shut off Ventilating Fans, etc.:** On notification, the engineering department will shut off all ventilating fans, oxygen, gas, electric power to the affected area and if necessary, to any adjoining area threatened by fire.

**vi) Prevent Smoke or Fire Gases from Spreading to Other Floors:** There is a great danger of people dying of suffocation even on the floors far removed from where the fire has broken out.

**vii) Avoid Using the Elevators:** walk down the stairs.

**viii) Establish a Control Centre:** The CEO or a senior officer will take charge.

#### **5.4.5 At the Scene of Fire**

- Seal off the area of fire. Close windows and all patient room doors. Place wet blankets or towels along the door edges to prevent leakage of smoke. This is an effective fire- fighting technique.
- Fight the fire with appropriate fire extinguishers. Use carbon dioxide liquid fires. Use fire extinguishers if the fire is small and fire hose if it is large.
- Supervisor of the area will take charge.
- The Doctor Red Alert Team will go to the scene of fire. The team leader will direct operations as they pertain to the actual fire situation.
- When the fire department personnel arrive, they will be in complete charge.
- Personnel on the general floor and other patient care areas will remain with their patients at all times until properly relieved.
- There should be written procedures for evacuation of patients and on who can make that decision.
- In case you are trapped and are unable to leave your room do the following:
  - Feel the door. If warm, do not open.
  - Place wet towels, bedding or blankets under the door(s).
  - Stay low on the floor where smoke and heat are the least and the air clearer.
  - Go to the window and open it.
  - Attract the attention of fire fighters by hanging a sheet or blanket outside the window.
  - Stay at the window for rescue.
- All clear signal should be given by a responsible person, and Code Green announced after the fire is controlled.

#### **5.4.6 The Time to know what to do is Before a Fire Occurs, Not After**

Regardless of whether it comes under the purview of fire regulations or not, every hospital should be provided with a fire protection system considering the damage fire can cause to life and property.

In addition, provision must be made for the following:

- There should be an effective fire safety programme for the hospital.
- There should be written policies as well as a procedure manual covering all contingencies arising from fire.

- Every department should have a departmental fire plan and a fire procedure manual outlining every employee's role in the plan.
- There should be a pre-appointed standing Doctor Red Alert Team to direct all fire- fighting operations.
- There should be written procedures to evacuate patients in case the fire becomes widespread. The procedure should specify who should decide on evacuation as well as procedures, methods and the order of precedence to be followed for evacuation.
- Simulated fire drills, which are an essential part of an effective fire prevention programme, should be conducted periodically. These drills help ensure that all personnel understand their roles in the fire safety programme and perform their assigned tasks well. Fire drills should be conducted in a realistic manner.

#### 5.4.7 Summary

##### **If the fire is in your area:**

- Remove persons from immediate danger.
  - Activate fire alarm.
  - Alert personnel calmly. Never use the word Fire. Use the code Doctor Red or Code Red.
  - Dial the telephone operator. Give exact location and extent of fire.
  - Seal off the affected area. Close all windows and room doors in the area. Use wet blankets to confine smoke.
  - Unless lives are at stake, do not attempt to re-enter if the fire has gone out of control. Wait for help to arrive.
  - Shut off all equipment, gas, etc. which may compound the risk.
  - Fight the fire. Use a proper extinguisher.
  - Follow your department's specific fire plan and procedures.
10. Set up a fire control area.
  11. Take a head count of patients and staff.
  12. Post staff at the elevator.
  13. Prepare for evacuation of patients or other duties as prescribed in the department fire rules.
  14. Establish contact with the engineering, security, etc.
  15. Establish and maintain communication with the control centre, and inform it about staffing needs.
  16. Relinquish control when the fire department personnel arrive at the scene.

17. When the fire is completely put off, send an All Clear message to the control centre.

This should be agreed to by the fire department personnel if they are present.

**If the fire is not in your area:**

1. Stop what you are doing.
2. Report to your department head or supervisor.
3. Continue your duties within your department if instructed by your supervisor.
4. Take a head count of patients and staff.
5. Shut off equipment, gas, etc. which might aggravate the risk. Check with the supervisor before shutting off oxygen.
6. If you are in the patient care area, communicate with the patients and reassure them.
7. Send staff to the control centre or the assignment area, if required.
8. Be prepared to assist in evacuating patient, if necessary.
9. Post staff at the elevator.
10. Maintain a stand by alert for any eventuality.

**Do not:**

1. Panic.
2. Run or shout in the corridors.
3. Use the word Fire: refer to it as Doctor Red.
4. Use elevators unless you are already on your way down.
5. Leave your department unless permitted or directed by your supervisor.

Within a reasonable time after the fire is extinguished, head(s) of department(s) where the fire had broken out should write a fire incident report and send it to the administration.

The engineer should assess the damage caused by the fire, make an estimate of the loss suffered by the hospital and send a report to the CEO.