

5.5 ALARM SYSTEM

A hospital, more than any other institution, is exposed to emergencies and life-threatening situations – from medical emergencies like cardiac arrest, accidents, casualties and disasters to dangers arising from fire and bomb threat.

It has to be all the more alert to these situations because nowhere else are such a large number of helpless people concentrated in one place and are so utterly dependent on other people for their safety and health.

Build-in safeguards and preparedness are the essence of all safety programmes. The alarm system is one such programme.

1) Fire alarm

Every hospital must have a fire alarm system, which should be a part of the hospital's electrical system.

Wherever possible, it should be designed to transmit an alarm signal directly to the telephone operator so that she can contact the fire department and notify the hospital personnel without any loss of time.

The fire alarm system can be automatic or it can be operated manually.

Smoke and fire detection devices are installed in the patient rooms and other high-risk areas in the heating and ventilating ducts between the floors.

These actuate the fire alarm system.

On activation, the system sounds alarms throughout the premises or zones, including distinctive visual and audible alarm signals at the respective nurses' station.

To indicate the location of fire, there is an indicator light outside every room. This is activated when there is a fire in the room.

In the automatic system, smoke detectors not only activate the fire alarm signals, but also close smoke doors and simultaneously shut off fans in the central air handling system.

If the fire alarm system is not automatic, then anyone noticing or hearing the fire signal should immediately inform the telephone operator who, in turn, will call the fire department, and notify the hospital personnel.

2) Medical Gas Alarm

In the centralized medical gas system, oxygen and nitrogen oxide which are stored in bulk in the manifold room are distributed to other areas of the hospital such as the operating rooms, ICUs and patient rooms through pipelines.

Compressed air and vacuum (suction) are supplied through pipes to certain areas. Two kinds of alarm are incorporated into the medical gas system.

One monitors the pressure of various gases at different areas of the distribution system.

If abnormal pressure is sensed, the system sets off an alarm – the green signal goes off and the red warning signal glows with audible alarm until the line pressure returns to normal.

The second alarm is called the remote signal lamp which is generally only visible.

The lamp lights up when either of the banks of cylinders becomes empty. The remote signal lamp is only a warning signal.

No immediate action is necessary because when one bank is empty, the other takes over and supplies the gas without interruption.

The alarm should be located in the medical gas user areas such as the operating rooms and patient floors as well as the main working area where the medical gas system is maintained.

However, these areas especially the maintenance area, may not be manned all the time.

Secondary signals should therefore be installed in places like the telephone operator's room, security office and the like where a 24-hour attendance is assured.

3) Blood Bank Alarm

Most hospitals use specially crafted refrigerators – a cold room or walk-in cooler is ideal- to store whole blood in the blood bank.

These refrigerator are set to a particular temperature to maintain blood in good condition and are provided with an alarm.

The alarm, which is both audible and visual goes off whenever it senses high temperature or a drop in voltage.

If the blood bank or the laboratory of which it is a part is not manned round the clock, the alarm signals should be located both in the blood bank and in a place that has 24-hour attendance.

4) Narcotics Alarm

Narcotics are stored in locked and be in the cabinets in nurses' stations as well as in the pharmacy.

There are restricted drugs, which are constantly stolen by persons addicted to them.

Some hospitals install a signal system that illuminates a light bulb that is visible from the nurses' station and the corridors whenever the narcotics cabinet door is opened.

5) Cold Room and Walk-in Cooler Alarm

Many hospitals have walk-in coolers or cold rooms in their food service department and laboratory.

They have been instances of the staff of the food service department getting accidentally locked up overnight inside the walk-in coolers.

There should be an alarm button that can be used in such an emergency with a distinguishable audible and visual alarm indicator in a prominent area where there is a 24-hour personnel coverage.

6) Voltage Fluctuation Alarm

In any hospital where sensitive and expensive equipment worth crores of rupees is used, stabilized voltage is essential.

Motors are usually designed to withstand only a 10% fluctuation in voltage supply. Beyond this limit, the motor will get damaged unless it is disconnected.

Low voltage poses the biggest threat to electrical system and equipment. Diagnostic equipment often gives erroneous readings in low voltage conditions.

There are certain areas and sensitive equipment that do not tolerate excessive low or high voltage.

Such areas or equipment may be fitted with a simple voltage-sensitive alarm along with a voltmeter.

The alarm can be set at any desired point.

7) Elevator Alarm

Many hospitals have more than one passenger and bed-cum-passenger elevators, which are in continuous operation.

Whenever there is an electric power failure, elevators with their passengers get stranded, often in between floors.

In order to rescue the stranded passengers, a panic or emergency push button is provided in each elevator.

When it is pressed, a battery-operated alarm installed in the electric room or the security room, which is manned round the clock, is actuated to alert people about the rescue operation.

Elevator operators or maintenance crew then manually which down the elevator car from the machine room to the next floor to rescue the stranded passengers.

Modern elevators have a levelling feature that automatically takes the elevator car to the next floor level in case of power failure.

8) Security Alarm

Certain sensitive areas of the hospital like the cashier's office, the psychiatric ward, bank extension counter and pharmacy which are prone to theft and burglary or where patients suddenly become violent need to summon immediate help from security personnel.

Some hospitals provide alarm systems in these areas. The alarm may be of two kinds.

One is an automatic alarm like the one used in strong rooms of banks or jewellery shops which goes off when someone tries to break in.

The other is similar to the one used by bank tellers.

The device is activated by the employee to summon security or police help.

9) Patient Emergency Alarm

Various new features are now available that can be incorporated into the conventional nurse call system to meet emergency situations in the patient rooms.

If the nurse does not respond to the patient's call immediately, the system makes the light outside the patient's room and on the nurse call panel in the nurse station blink.

If there is still no response, the blinking of lights and the beep signals from the bleeper on the panel gradually keep increasing in frequency.

An additional feature that can also be fitted into the nurse call system is the panic button in the patient toilet that the patient can activate by using a pull cord in case of emergency.

10) Code Blue Alarm

Code blue is a term used in hospitals to announce or signal an emergency of a serious nature such as a cardiac arrest.

In some hospitals, in all patient rooms and other strategic location, there are independent buttons – not a part of the nurse call system – named Code Blue which when activated emit distinguishable emergency alarm signals both at nurse's station and at the telephone operator's room.

While the nurse attends to the patient instantly, the telephone operator goes on the public address instantly, the telephone operator goes on the public address system announcing Code Blue three times giving the location of the emergency.

In such hospitals, there is a written procedure to deal with such situations and pre-appointed Code Blue team which respond to the call instantly.

The members of the team are trained to deal with medical emergencies including cardiac arrest.

5.5.1 SAFETY IN HOSPITAL

5.5.2 Overview

The word safety in its purest sense means freedom from injury, risk or harm. The management of any hospital has a twofold responsibilities regarding safety.

1. To make the workplace and the environment safe by creating safe conditions.
2. To establish, communicate to all concerned and enforce safety rules.

Everyone has to work as a team and share the responsibilities of safeguarding the patients, visitors and the hospital personnel.

Safety awareness is of paramount importance for the success of hospital's safety programme.

Every task that we perform, whether at workplace or at home, entails some risk of personnel injury.

Our ability to work safely is directly related to our knowledge of the hazards associated with the work. Therefore, knowledge of work-related risks is essential.

Some departments of the hospital are more risk-prone and hazardous than others.

The laboratories, nursing floors, laundry and kitchen call for special instructions and elaborate safety rules.

Ignorance about the risks associated with the workspace and negligence may endanger the lives of employees and turn them into a liability to the hospital and their families.

Accidents do not happen by themselves; they are caused. These causative factors are more human than environmental.

Merely controlling environmental factors does not prevent accidents. The hidden causes of accidents should also be taken into account.

Hospital Safety Rules

General Safety Rules

1. The only correct way to do a job in the hospital is the safe way. Urgency is not a justifiable excuse for neglecting safety.
2. Know your job thoroughly. When in doubt, do not indulge in guess work; ask your supervisor.
3. Do not handle or observe machinery, tools and equipment without authorization.
4. Be alert and observe keenly. Report immediately any fault equipment, unsafe conditions or acts, and defective or broken equipment. Do not try amateur repairs.
5. Stay physically and emotionally fit for your work by maintaining good health and a proper diet. Abstain from alcoholic drinks. Take sufficient rest and practise cleanliness.
6. Personnel hygiene is important. Wash your hands often. In many areas of the hospital, this is necessary.
7. Prevent the spread of infection and contagious disease. Cooperate with the hospital infection control committee by observing established procedures. When you are ill with an infectious disease, report to the doctor immediately and stay at home.
8. Wear proper uniforms or clothing for your job. Neither too tight nor too loose. Jewellery and high-heeled footwear may be hazardous.
9. Walk, not run, particularly when you are carrying delicate, breakable articles or instruments. Be extra cautious at the corridor intersections, in front of swinging doors, at blind corners and in congested areas.
10. If you see some foreign material, loose wire, oil spill, etc. on the floor that may cause an accident, make sure it is removed at once.

11. Never indulge in horseplay or practical jokes involving fire, acid, water, compressed air and other potentially dangerous things.
12. Pay attention to all warning boards. For example, smoking in an area where oxygen is being administered or oxygen cylinders are stored.
13. Be familiar with your work procedure. All departments have written work procedures that include safety practices at work and handling equipments.
14. Always remember to use handrails on stairways or ramps.
15. When you want to reach overhead objects, always use a good ladder. Do not climb on chairs or boxes.