

AIR QUALITY – A THREAT TO PATIENTS AND STAFF

According to the Environmental Protection Agency (EPA), indoor air has higher levels of pollutants than outdoor air, and consequently can pose environmentally related health problems. Health care facilities must take particular care of indoor air quality; many of those in the hospital are especially susceptible to air quality problems, such as immunosuppressed, elderly or chemotherapy patients, and those being treated in bone marrow, neonatal or burn units. Hospitals also face unique risks regarding air quality:

- ◆ The risk of spread of infectious diseases and other biological hazards
- ◆ Chemical hazards
- ◆ Ventilation requirements

SICK BUILDING SYNDROME (SBS)

When a substantial number of a facility's occupants experience health and comfort troubles related to working indoors, the outbreak is referred to as sick building syndrome. The reported symptoms do not follow the patterns of any particular illnesses, are often difficult to trace to any specific source and relief from the symptoms tends to occur when leaving the facility. Employees may experience headaches, eye, nose and throat irritation, dry or itchy skin, fatigue, dizziness, nausea and loss of concentration.

BUILDING-RELATED ILLNESSES (BRI)

A facility is characterized with BRI when a relatively small number of occupants experience health problems. The symptoms associated with BRIs are similar to those of SBS and are often accompanied by physical signs identified by a physician or laboratory test. Sufferers of BRI may also experience upper respiratory irritation, skin irritations, chills, fever, cough, chest tightness, congestion, sneezing, runny nose, muscle aches and pneumonia. These symptoms may be caused by the following conditions brought on by indoor air pollutants: asthma, hypersensitivity pneumonitis, multiple chemical sensitivity and Legionnaires' disease.

CONTRIBUTING FACTORS

There are numerous concerns regarding health care facility air quality. The following are some that can be controlled by the facility.

USE OF MERCURY

Mercury is a bioaccumulative, persistent, toxic substance that threatens the health of humans. It is found in many health care settings, including pathology labs, patient areas, and clinical procedure and medicines. It is found in blood pressure monitors, dental amalgam, thermometers or thermostats, esophageal dilators, Cantor tubes and Miller Abbott tubes, and histology fixatives and stains.

Mercury evaporates, and can be inhaled. Even a few drops of metallic mercury, when released into an enclosed space, can raise air concentrations of mercury to levels that are harmful to health. If mercury is not handled and disposed of properly, mercury can pose a serious health threat to staff and patients. There are mercury-free alternatives for almost all of these items. Your efforts can make a big difference.

POLYVINYL CHLORIDE (PVC)

PVC is used in common plastic products like IV bags, surgical tubing and other medical supplies. If products containing PVC are incinerated on site, they produce a potent carcinogen called dioxin, which interferes with normal reproduction and development even at low doses.

LATEX

Latex protein molecules can bind with cornstarch powder on the outside and inside of gloves and be inhaled by staff and patients in a large area. Many health care workers and patients have a latex allergy, and inhaling the substance puts them at risk of an allergic reaction, which can range from skin irritations to breathing problems.

VENTILATION SYSTEMS

Biological contaminants including bacteria, mold and viruses can breed in stagnant water that can accumulate in ducts, humidifiers and drain pans of ventilation systems, increasing the risk of infection in all areas of the facility.

Proper maintenance of these systems and use of HEPA filters is fundamental to preventing the spread of disease. Without maintenance, filters become overloaded, allowing irritants and microbes to circulate in the air. A thorough inspection of your ventilation system should verify the following:

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- ◆ Outdoor air supply dampers are opened as they were originally designed and remain unobstructed.
- ◆ Fan belts are properly operating, in good condition and replaced when necessary.
- ◆ Equipment parts are lubricated.
- ◆ Motors are properly functioning and in good operating condition.
- ◆ Diffusers are open and unobstructed for adequate air mixing.
- ◆ The system is properly balanced.
- ◆ Filters are properly installed and replaced at specific intervals.
- ◆ Damaged components are replaced or repaired.
- ◆ Condensate pans are properly drained and are in good condition.
- ◆ Carbon dioxide levels are under 1000 ppm, which is the maximum recommended level by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
- ◆ Ways to Reduce Your Risk
 - ◆ Reduce or eliminate the presence of dangerous chemicals in your facility by purchasing products that do not contain them or handling them in the proper manner.

- ◆ Use mercury-free instruments and supplies
- ◆ Avoid PVC and do not incinerate PVC-containing materials
- ◆ Use latex-free or powder-free gloves
- ◆ Focus on your ventilation systems. Ensure that the fresh air supply and air pressure are sufficient for each part of the facility. Make proper maintenance of these systems a priority.
- ◆ Develop a training and communication program aimed at increasing the general awareness of the impacts of these irritants, and a protocol for use and disposal.
- ◆ Avoid overcrowding staff and patients in one area, and make sure the amount of fresh air in the room is appropriate for the average number of occupants.
- ◆ Clean and disinfect all surfaces regularly where irritants and moisture can collect.

Contact INSURICA for more information about risk management and loss prevention strategies for health care facilities.

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