What is indoor air quality and how is it affected by cleaning, sanitizing, and disinfecting?

Indoor Air Quality (IAQ) is a measure of how clean the air is inside the buildings where we live, work, and play. IAQ is influenced by:

- a building's ventilation system (the equipment that moves air in a building)
- whether windows can be opened
- chemicals or microbes (such as mold) that enter the building
- chemicals like cleaning products and art supplies that are used in the building
- chemicals that are created by activities inside the building
- building materials and furniture that produce pollutants like fire retardants and formaldehyde

Some pollutants in indoor air can make us sick. Children are especially vulnerable. Some air pollutant levels in indoor air are two to five times worse than in the air outdoors. Sometimes indoor air can be up to 100 times worse.

- We spend as much as 22 hours a day indoors in our homes, schools, and workplaces.

Common indoor sources of pollutants include:

- Cigarette smoke
- Cleaning, sanitizing, and disinfecting products
- Pesticides
- Burning fuel in gas cook stoves and heaters, and wood-burning stoves and fireplaces, especially when exhaust fans are not used
- Pet dander
- Mold, moisture, and chemicals from water damage
- Asbestos, lead, and radon

IAQ problems are also caused by poor ventilation. Ventilation is when "clean" air (normally outdoor air) is brought indoors and pollutants in indoor air are removed or reduced. Ventilation:

- occurs naturally by opening windows and doors or
- occurs mechanically through properly operating heating, cooling, and ventilation equipment.
  - Mechanical ventilation may provide a mixture of outdoor air and recirculated air.
  - The best mechanical systems provide enough outside air, good air movement, and temperature control.

For more information on ventilation, see "Factsheet: How does ventilation affect infection control for COVID-19?"

When it is hot and humid, the concentration of some pollutants in the air is worse. Outdoor ozone levels are higher in the summer. This leads to higher ozone levels indoors as well. For ozone forecasts in your community, visit http://airnow.gov and click on "Local Forecasts and conditions."

Indoor air pollutants can cause:

- immediate health problems such as asthma attacks, headaches, dry eyes, nasal congestion, nausea, and fatigue.
- long-term health problems such as asthma and cancer. Some indoor air pollutants can also make heart disease worse when people are exposed to them for months or years.

Cleaning, sanitizing and disinfecting products can increase indoor air pollution. They can produce:

- volatile organic compounds (VOCs), which are gases that come from liquids such as aerosol sprays and liquid cleaners. VOCs also come from solvents, glues, and adhesives found in furniture and plywood. They are common indoors.