JUNE 2023

Eco-Healthy Child Care®
www.cehn.org/ehcc

AIR QUALITY

ECO-HEALTHY CHILD CARE® HELPS EARLY CHILDHOOD LEARNING ENVIRONMENTS TO BE AS HEALTHY, SAFE AND GREEN AS POSSIBLE BY REDUCING CHILDREN'S EXPOSURE TO TOXIC CHEMICALS.

HEALTH CONCERNS

Air quality significantly impacts children's health. The health impacts associated with poor indoor and outdoor air include: **decreased lung size and function, acute respiratory illnesses (such as: asthma and bronchitis), emphysema, and even some types of cancer**. **Children are particularly vulnerable to air pollution because their lungs are still developing and they breathe more air per pound of body weight than adults.**

INDOOR AIR POLLUTION

Levels are often 2-5 times greater than outdoor levels as a result of indoor contaminants, and inadequate air filtration, and ventilation. **Common indoor air contaminants are tobacco smoke (including e-cigarettes or "vaping"); mold and mildew; dust mites and cockroaches; volatile organic compounds (VOCs) such as: formaldehyde, benzene, and toluene; flame retardants; fragrance chemicals such as phthalates; and pet dander, sweat, and urine.** Poor indoor air quality (IAQ) can harm academic performance and learning and increase child and staff absenteeism. You can make changes to improve indoor air quality by reducing chemicals and particles and keeping your facility dry and clean.

OUTDOOR AIR POLLUTION

Comes from a variety of sources, including: cars, buses, trucks, ships, trains, wildfires, industry, and activities such as smoking or campfires. Traffic pollutants include possible harmful chemicals in gasoline and diesel exhaust and fine particulate matter. Child care facilities may be exposed to harmful levels of pollutants if they are located less than 500 feet from major roadways or close to heavy bus traffic. **Children have higher exposures to air pollution because they spend, on average, more time outdoors than adults. Fortunately, there are many ways to reduce or eliminate sources of air contaminants and improve air quality in child care settings.**

TIPS TO IMPROVE VENTILATION

Ventilation means bringing in fresh outdoor air into the building to dilute indoor air that contains contaminants. Buildings can be ventilated naturally by opening doors and screened windows or mechanically, by using heating, ventilation and air conditioning (HVAC) systems that bring in outdoor air and distribute it through ducts.

Natural Ventilation: open screened windows and doors. Avoid these actions when outdoor air pollution is high or when it makes your home or facility too cold, hot, or humid. To improve natural ventilation you can open more than one window or door at a time. Opening windows or doors at opposite sides of a home while keeping internal doors open will increase cross-ventilation which will further improve your air quality.

HVAC Systems: 1) service annually by a professional company; 2) change filters according to the manual and keep a log; 3) upgrade the filter to a "MERV" 13 or higher rating; 4) look to see if HVAC dampers open and close; and 5) check to see if dampers are clear or clogged with debris.

Consider using portable air cleaners. These can be used to supplement natural and mechanical ventilation systems. Choose air cleaners that have a high efficiency particle air filter (HEPA).

TIPS TO KEEP YOUR FACILITY DRY

Prevent mold growth by controlling moisture--keep the relative humidity below 60%. Buy a hygrometer to help monitor indoor humidity. If you notice damp or earthy odors in your facility, consider using the National Institutes of Occupational Safety and Health guide "Mold and Dampness Assessment Tool" to determine if you need remediation for mold.

TIPS TO KEEP YOUR FACILITY DRY CONT.

Certain building materials and furnishing release chemicals (off-gassing) more easily during damp conditions.

Fix leaks, clean up spills quickly and use fans that vent to the outdoors in the kitchen, bathroom and laundry area.

For major water leaks hire a professional company to ensure drying within 24-48 hours. **Avoid wall to wall carpeting**. If carpeting gets wet, and remains wet for longer than 48 hours, consider removing carpet completely.

TIPS TO REDUCE CHEMICALS EXPOSURES

Do not use scented or unscented candles, artificial air fresheners or products with fragrances. These products contain multiple harmful chemicals including phthalates and solvents. Choose "fragrance-free" instead of "unscented" as the "unscented" label indicates that other chemicals were added to mask smells. Even naturally derived essential oils and incense can be harmful to human health and the environment.

Ensure all solvents, adhesives, paints, and art supplies are stored in a well-ventilated area. Products should be sealed tightly and stored in their original containers, out of the reach of children. Dispose of anything that is not being used by taking it to a hazardous waste facility. To find one nearest you, visit www.search.earth911.com.

Remove classroom pets. Pets' sweat, urine, dander, fur and feathers can trigger allergic and asthmatic reactions. While reptiles and amphibians may not trigger these reactions, they carry bacteria called salmonella which can cause serious illness in children. If a pet cannot be removed from the facility, regular cleaning of the cage, thorough wet-dusting, mopping, and vacuuming with a HEPA filtered vacuum is essential.

When it comes time to paint, make sure to use "no-VOC" or "low-VOC" paints. Allow 24 hours of ventilation before re-entering the area after painting. Make sure painting happens when children are not present.

Prevent Carbon Monoxide (CO) exposure. Purchase and install a carbon monoxide detector. Gas stoves (stove top and ovens) can be a significant source of carbon monoxide. Ensure adequate ventilation when using gas stoves. Be sure your stove hood vents to the outdoors.

Never smoke, including e-cigarettes and/ or "vaping", on child care premises, in your car or near or within sight of children. If you do smoke, wear an outer garment that you remove upon entering the building. Wash hands immediately. Consider implementing a no smoking policy.

For tips on how to keep your facility clean go to EHCC's Household Chemicals fact sheet.

HOW TO PROTECT CHILDREN FROM OUTDOOR AIR POLLUTANTS

- Do not allow vehicle idling near child care facilities.
- Maintain a working HVAC system.
- Close windows during heavy traffic.
- Identify your outside air intakes and ensure they are working properly.
- Distance play areas from traffic.
- Check the local air quality index daily.

Consider adopting an anti-idling policy. Car exhaust releases pollutants that are harmful to health (especially to children) and the environment. Pollution from idling vehicles can quickly enter a child care facility.

Check the daily air quality index (AQI), at www.airnow.gov. On Code Orange days (unhealthy for sensitive populations such as children), minimize strenuous outdoor activities or keep children indoors. On days where the air quality index is worse than Code Orange, it is best to keep children inside. In some areas, you can sign up for electronic updates; visit **www.enviroflash.info** to find out more.

CLIMATE CHANGE AND CHILDREN'S HEALTH

Climate change is adversely impacting children's health. Impacts include increases in:

- Risk for heat related illness.
- Certain diseases such as Lyme disease and West Nile, other mosquito-borne illnesses.
- Frequency of natural disasters leading to children losing their lives and homes from wildfires, hurricanes or flooding.
- Asthma and allergies.

Low-income children and children of color are disproportionately impacted by climate change.

CLIMATE CHANGE AND EXTREME HEAT

Extreme heat events in the U.S. are already occurring and will become more common and more severe, as the climate changes. Extreme heat is linked to more deaths than any other weather-related hazard.

Extreme heat events can cause heat-related illnesses such as heatstroke and dehydration. Signs of heat illness include changes in behavior, dizziness, nausea, headache, fast breathing, extreme thirst and decreased urination.

TO REDUCE HEALTH RISKS BEFORE AND DURING EXTREME HEAT EVENTS:

- Train staff to recognize the signs of heat illness and know when it is an emergency.
- Find out about local heat alert systems and subscribe to them.
- Regularly check the latest weather forecasts.
- Make sure air conditioning systems work properly and replace old ones as they are inefficient.
- Use electric fans to provide comfort when air conditioning is not present. Fans should not be used when the temperature is above 90F.
- Ensure that children have a way to stay cool and drink plenty of water.
- Limit outdoor activities, especially during the middle of the day when the sun is hottest.
- Locate nearby places to visit where children can cool off during extreme heat events.

AIR QUALITY RESOURCES

EPA Indoor Air Quality Pages:
www.epa.gov/indoor-air-quality-iaq

Check the Air Quality Index for your community:
www.airnow.gov or *www.enviroflash.info*

American Lung Association:
www.lung.org/clean-air

Eco-Healthy FAQs on Fragrances and Pet Allergens:
www.cehn.org/our-work/eco-healthy-child-care/ehcc-faqs/

American Academy of Pediatrics, Climate Change and Children's Health:
www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/climate-change/Pages/Climate-Change-and-Childrens-Health.aspx

Eco-Healthy Child Care ® 's COVID-19: Healthy Indoor Air Quality in Child Care Facilities:
www.cehn.org/covid19-resources/#child-care-early-learning-settings

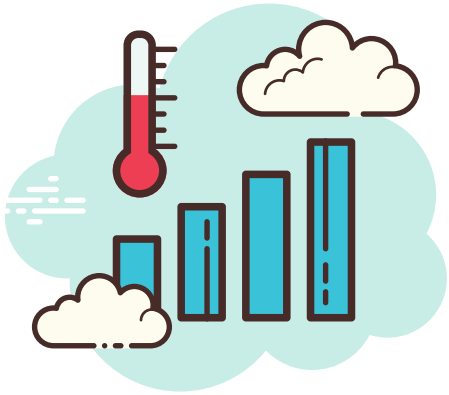
Western States Pediatric Environmental Health Specialty Unit: Children's Health & Wildfires a Family Resource:
https://www.pehsu.net/Children_s_Health_Wildfires.html?fbclid=IwAR0CX7bQTzjDw2MA_eNHxStt-UOZJQrEL4uTflCJLkZiirC-nwExh0MAEuE

CHILDREN AND WILDFIRE SMOKE

Health Effects
Smoke can be present in the outdoor air from a fire, even if it is very far away. When smoke occurs, it is important to reduce children's exposure. Wildfire smoke is a mix of air pollutants including fine particulate matter (PM2.5). Exposure to PM2.5 can cause short-term health effects such as eye, nose, throat, and lung irritation, and shortness of breath. Long-term exposure may be associated with increased rates of chronic bronchitis, reduced lung function, and increased death from lung cancer and heart disease.

What To Do During Wildfires

- Check your local **Air Quality Index (AQI)** on the **www.AirNow.gov** web site to be notified of air quality alerts.
- Keep children indoors with the doors and windows closed.
- If you have an air conditioner, run it with the fresh-air intake closed (recirculate mode).
- Use **portable air cleaners** if you have them.
- Create a **"clean room"** in your child care or home.
- Have children wear an **N95 or KN95 mask**, but only if they are fitted tightly to the face. Use masks only for short periods where children must be outdoors.
- Before being active outdoors, make sure the local air quality report has improved or the air no longer smells or looks smoky.



FOR MORE INFORMATION
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