Climate Change and the Asthma Educator

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The Role of the Asthma Educator Related to Climate Change

- Information
- Education
- Explanation
- Advocacy

Counseling

- Prevention
  - Prenatal counseling
  - Postnatal recommendations
- Avoidance
  - Identify potential triggers
  - Teach avoidance measures of avoidable triggers
Air Pollution

- Increased airway assault
- Worsening asthma symptoms
- Lack of awareness when air quality is bad
- Lack of understanding of what can be done

<table>
<thead>
<tr>
<th>AQI</th>
<th>COLOR</th>
<th>VALUE</th>
<th>MEANING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>Green</td>
<td>0-50</td>
<td>AQ is satisfactory and air pollution poses little or no risk</td>
</tr>
<tr>
<td>Moderate</td>
<td>Yellow</td>
<td>51-100</td>
<td>AQ is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution</td>
</tr>
<tr>
<td>Unhealthy for sensitive groups</td>
<td>Orange</td>
<td>101-150</td>
<td>Members of sensitive groups may experience health effects. The general public is not likely to be affected</td>
</tr>
<tr>
<td>Unhealthy</td>
<td>Red</td>
<td>152-200</td>
<td>Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effect</td>
</tr>
<tr>
<td>Very unhealthy</td>
<td>Purple</td>
<td>201-300</td>
<td>Health alert: everyone may experience more serious health effects</td>
</tr>
<tr>
<td>Hazardous</td>
<td>Maroon</td>
<td>301-500</td>
<td>Health warning or emergency conditions. The entire population is more likely to be affected</td>
</tr>
<tr>
<td>AIR QUALITY</td>
<td>OUTDOOR RECOMMENDATIONS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green</td>
<td>Great day to be active outside.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yellow</td>
<td>Good day to be active outside. Students who are unusually sensitive to air pollution could have symptoms.*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orange</td>
<td>It’s okay to active outside for short activities such as recess and physical education. Longer activities such as athletic practice take more breaks and do less intense activities. Watch for symptoms and take action as needed. * Students with asthma should follow their asthma action plan and keep their quick-relief medicine handy.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red</td>
<td>For all outdoor activities take more breaks and do less intensive activities. Consider moving longer or more intense activities indoors or rescheduling them to another day or time. Watch for symptoms and take action as needed. * Students with asthma should follow their asthma action plan and keep their quick-relief medicine handy.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purple</td>
<td>Move all activities indoors or reschedule them to another day.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Even children without asthma could experience asthma like symptoms

**Teach Patients and Families**

- How to get air quality information
  - [www.airnow.gov/](http://www.airnow.gov/)
  - App Air Quality Now
  - EPA website
- Know what precautions to take if air quality is not “Good”
Air Quality Alerts

- [https://airnow.gov/index.cfm?action=aqibasics.aqi](https://airnow.gov/index.cfm?action=aqibasics.aqi)
- [https://www.airnow.gov/index.cfm?action=flag_program.index](https://www.airnow.gov/index.cfm?action=flag_program.index)
Allergy Triggers

- Know what patient is sensitive to BEFORE counseling avoidance
  - Skin testing
  - Serum IgE
- Start with most effective measures
- Keep cost to patient/family in mind when making recommendations

Allergens

- Dust Mites
- Mold
- Cockroaches
- Animal dander
- Changing seasons for pollens
Appliances: Recommendations

RECOMMENDED
- Vacuum cleaners – HEPA preferred
- Air Conditioning - helps reduce humidity and filters larger allergens if appropriate filter used
- Dehumidifier – reduces humidity which has positive effect on reducing mold and dust mites
- Room (HEPA) air filters – only remove airborne allergens; limited efficacy

NOT SUPPORTED
- Air duct cleaning
- Ozone generating air filters
- Humidifiers
- Indoor air quality inspections
Teaching Points

- Importance of annual vaccine for EVERYONE in family
- Injection does NOT give you the flu
- Might still get flu but will be less severe
- Can prevent complications of flu
- Stress hand washing, covering the cough, etc.

CDC Report on Vector Borne Diseases

- “Wide varieties of pathogens have evolved to exploit vector transmission, including some viruses, bacteria, rickettsia, protozoa, and helminths.”
- Between 2004 and 2016 reported cases of diseases from mosquito, tick and flea bites has more than tripled
- Nine new germs spread by mosquitoes and ticks have been discovered or introduced since 2004
Environmental Issues

- Changes in climate can provide a more fertile environment for disease carrying insects
- The general public is unaware of this increased risk and what steps to take to prevent disease

Teaching Points

- Remove possible breeding grounds
- Check children and pets for ticks
- Be aware of S/S of insect borne diseases
- Appropriate use of insect repellants to reduce risk

- [www.cdc.vitalsigns/vector-borne](http://www.cdc.vitalsigns/vector-borne)
- [www.cdc.gov/mmrw](http://www.cdc.gov/mmrw)
Wildfires

- Particles from smoke tend to be very small, (0.4 – 0.7 micrometers) these particles are within the fine particle PM2.5 fraction and can be inhaled into the deepest recesses of the lung
- May represent a greater health concern than larger particles
- Another pollutant of concern during smoke events is carbon monoxide
- Carbon monoxide levels are highest during the smoldering stages of a fire, especially in very close proximity to the fire
- The smoldering phase of a fire can sometimes result in very high particle emissions due to less complete combustion than when flames are present

Wildfires

- Wildfires expose populations to a number of environmental hazards and also hazards such as psychological stress.
- Short-term exposures (i.e., days to weeks) to fine particles are linked with increased premature mortality and aggravation of pre-existing respiratory and cardiovascular disease
- Children, pregnant women, and elderly are also especially vulnerable to smoke exposure

https://www3.epa.gov/airnow/wildfire_may2016.pdf
Teaching Points

- Limit outside activities
- Scarves or bandanas (wet or dry) won’t help
- Particulate masks (N-95 or P-100 respirators) will help but must fit correctly
- Inside don’t use wood or gas fireplaces, gas stoves or other appliances, even candles
- Don’t vacuum

- https://www.airnow.gov/index.cfm?action=smoke.index

Climate Change and Mental Health

- Extreme weather events can trigger PTSD, major depressive disorder, anxiety, depression, complicated grief, survivor guilt, vicarious trauma, recovery fatigue, substance abuse and suicidal ideation
- Gradual changes can change natural landscapes, disrupt food and water resources, change agricultural conditions and give rise to financial and relationship stress
- Climate change augments existing inequalities putting the most marginalized at the greatest risk

Possible Areas of Research

• Does longer influenza season require booster
• Can Probiotics be of benefit
• Determining the efficacy of avoidance measures
  ▪ Environmental
  ▪ Insects, etc.
• Evaluating school interventions
• Providing education beyond your clinic setting
• What is the relationship between climate change and mental health?
• What interventions are most effective at avoiding consequences of wildfires?
• What can be done to minimize wildfires?