

Asthma

Description of the Disability

Asthma is a chronic, inflammatory disease of the respiratory system. Individuals with asthma get attacks, or “bronchospasms”, in which the air passages of the lungs suddenly narrow and may become blocked. Breathing becomes difficult or impossible. Fortunately, these episodes are temporary and the air passages will usually open up again with treatment or spontaneously. Over the long term, if not treated, asthma can lead to permanent changes in the air passages, but this is uncommon.

No one knows why particular people become susceptible to asthma attacks. One theory is that asthma is a developmental problem with the immune system, but that has not been proven. The attacks themselves usually happen because of some environmental trigger, and each person with asthma has a different set of triggers. Common triggers include exercise, allergic responses to specific substances (foods, dust, pet hair, feathers, mold, etc.), cold air, industrial chemicals, and cigarette smoke. A viral infection, such as a cold, can trigger asthma attacks. In some individuals, stress can be a trigger.

Attacks may come on suddenly (within a few seconds) or may gradually build up over several hours or days. During an attack, the person has difficulty breathing and difficulty talking. They may wheeze when they breathe, or they may not. They may cough repeatedly. Their neck muscles may tighten up. Their lips and fingernails may turn blue. Their heart rate will go up, and they may break out in a sweat. In extreme situations, with no medical treatment, the person could pass out or die.

Several things contribute to the blocking of the airways during an attack, including excess mucus secretion, tightening of the smooth muscle lining the airways, a buildup of fluid in the tissues, and deposits of proteins such as collagen along the airways. Following recovery from an asthma attack, an individual may have a "Second Wave" attack, in which the air passages swell more slowly, even if the initial trigger is gone. The second wave attack can be as serious or more serious than the initial attack. Like the initial attacks, second wave attacks usually respond to treatment, but hospitalization may be necessary in severe cases.

Incidence Statistics

- 12-14 million people in the US have asthma, 4 million of those are younger than 18 years old
- African Americans are at higher risk for asthma
- 1.5 million people die from asthma each year

- Incidence of asthma and deaths due to asthma have increased in recent decades, despite improving air quality
- Half of all children who develop asthma "out grow" the symptoms by age 15, but symptoms can return at any age
- 15% of all adult asthma cases are due to work-place exposure to known airborne lung sensitizers and irritants
- 80% of people with asthma have exercise as a trigger
- Asthma is sometimes associated with a stuffy nose, eczema, and gastroesophageal reflux

Common Treatments, Medications, and Side Effects

Treatment for asthma involves developing an Asthma Management Plan (AMP) or Asthma Action Plan (AAP), which usually includes prevention, early intervention, and crisis management. Prevention strategies will vary depending on the individual's triggers, the daily, monthly, and seasonal patterns of the asthma attacks, and other risk factors. Prevention may involve exercise strategies, nutrition, avoidance of triggers, monitoring and preventive medication. Early intervention will involve monitoring and preventive medication. Crisis management may involve a physician's care or hospitalization.

Medication may be delivered through an inhaler (a pocket-sized cylinder of pressurized medicine released into the mouth as a mist as the person breaths in), a nebulizer (a small vaporizer that creates a mist of water and medicine which the person breaths in through a tube), syrup, or pills. Preventive medication might be taken once or twice a day when asthma symptoms are absent. Interventive drugs might be taken daily or several times a day as needed when asthma symptoms begin to show up.

The most common medications for asthma include **anti-inflammatory drugs** such as corticosteroids, and **bronchodilators** such as beta2-agonists and anticholinergics. See Drug entries for side effects. It should be noted that the use of short-acting beta2-agonists (albuterol, bitolterol, fenoterol, terbutaline, others) from an inhaler can cause short-term jitters immediately after use. Individuals may experience muscle tremors, agitation, a racing heartbeat, headache, and irritability for a few minutes or hours afterwards.

Even though strenuous exercise is a common trigger for asthma, physicians do NOT recommend individuals with asthma avoid exercise. Instead, exercise is encouraged for general health and improved breathing capacity. Asthma attacks due to exercise can be avoided by taking extra time to warm up before exercise and cool down afterwards.

People with asthma are at increased risk, indirectly, for osteoporosis. Long-term use of corticosteroids (in an inhaler, for example) can reduce the intake of calcium by the body. In addition, avoidance of exercise, particularly weight training exercise, can reduce the strength of the body's bones (seen entry on physical inactivity). And finally, for a time, some individuals believed that calcium in foods could act as a dietary trigger for asthma and actively avoided

dietary calcium. Research has shown that dietary calcium is not a trigger and there is no reason to avoid it.

Treatment for asthma may also be accompanied by more general treatment for allergies.

Medical terms associated with asthma

- PEF - Peak Expiratory Flow - a measurement of how well the person can breath.
- Spirometer - a device for measuring PEF by having the person blow into a tube connected to a meter
- Aeroallergens - airborne particles or fumes that trigger allergy or asthma attacks
- Sensitizers - chemicals or substances that may not trigger asthma but which, through long term exposure, may lead to allergies and asthma
- Atopy - an inherited tendency to develop allergies, but not necessarily a specific allergy. For instance, members of a family may all have allergies, but some may be allergic to grass, others to pollen, and others to dust. They have a common atopy, but not a common allergy.

Possible Functional Issues

- Need for gradual warm-up prior to and after strenuous activity
- Need to avoid exposure to colds and other viral infections
- Sensitivity to low-quality air
- Sensitivity to industrial chemicals
- Sensitivity to animal dander and dust
- Sensitivity to cold air or hot, humid air
- Sensitivity to cigarette smoke
- Sensitivity to other triggers
- Sleepiness, if asthma attacks happen at night
- Temporary jitters following inhaler use (difficulty sitting still, concentrating, etc.)

Initial Interview Considerations

Initial Questions

- What are the triggers for their asthma attacks?
- How often, in general, do they have attacks?

- How much warning to they usually get that an attack is coming?
- What is their plan for early intervention and for crisis management of asthma attacks? What do they do when the attack is severe?
- When was the last time they had a major crisis? What happened?
- What if any side effects to their medication are there?
- What kind of short-term reaction do they have to using their inhaler? Would the reaction get in the way of completing a task?
- How do they feel about work that involves meeting the public? Would that be a problem for them? Would exposure to possible colds be a concern for them?
- How active are they? What sorts of things do they do out in the community on an average weekend?
- What kinds of exercise or strenuous work are they able to do?
- How often does the asthma interfere with being able to hold a conversation (not counting during major attacks)?
- Is cold air an important trigger for them?
- What kinds of colognes, perfumes, hairspray, or similar products are they sensitive to?

Interview Accommodations (if any)

- Allergy & Asthma Network: Mothers of Asthmatics, www.aanma.org
- American Lung Association: www.lungusa.org
- Asthma In America Survey Project: www.asthmainamerica.com
- Australia's National Asthma Campaign Asthma Management Handbook: www.nationalasthma.org.au/amh/amhcont.htm

Possible Accommodations and Assistive Technology

- Air conditioned work area (reduces pollen, smoke, etc.)
- Room air filter
- Dust mask
- Extra time to warm up before strenuous exercise
- Flex time to allow for flare-ups and attacks

Career Planning Issues

- Coworkers and employers should have instructions for helping with a major attack
- Positions meeting the public may expose the person to colds and viral infections that may trigger attacks
- Work outside is possible, but flex time accommodations may be needed for days when air-pollution levels are high
- Learning skills, problem-solving skills, and cognition should not be affected
- Social skills and work history should not be affected
- Coordination, fine motor skills, and strength should not be affected

Emerging Issues

- Awareness, preventive measures - especially in schools
- Treatment
- Causes/prevention

Additional Information Resources

- Allergy & Asthma Network: Mothers of Asthmatics, www.aanma.org
- American Lung Association: www.lungusa.org
- Asthma In America Survey Project: www.asthmainamerica.com
- Australia's National Asthma Campaign Asthma Management Handbook: www.nationalasthma.org.au/amh/amhcont.htm