Nasal obstruction
Is one of the most common complaints observed by physicians in the primary care setting.
It is a symptom, not a diagnosis, and a multitude of medical and anatomical conditions can result in nasal obstruction.
Patients often complain of headache, shortness of breath, and a sensation of fullness in the face.
The causes of nasal obstruction may be structural or systemic.
Structural causes include tissue changes, trauma, and congenital disorders.
Systemic causes involve physiologic and pathologic changes.

Structural changes that cause obstruction
A variety of structural changes can contribute to nasal obstruction, notably those that alter the nasal tissues. Such alterations may be caused by trauma to the nose or by congenital disorders.

Septal anomalies
The septum is particularly exposed to structural changes that may result in nasal obstruction.

Deviated septum:
Nasal obstruction resulting from a deviated septum is usually caused by trauma or growth disturbances.
Septal deformities may be cartilaginous or bony, or both. Nasal trauma typically results from falls, contact sports, weight lifting, or car crashes (usually involving bicyclists or pedestrians).
The nasal bones are the facial bones most commonly fractured. The result - is often unilateral nasal obstruction on the side of insult.
Child abuse also must be considered when younger patients present with deviated septum.
Patients may report various conditions, including a history of sinusitis, allergic rhinitis, obstructive sleep apnea, recent nasal trauma, or complications from previous nasal surgery. They often relay symptoms of unilateral or bilateral nasal airway obstruction that is not relieved by decongestants or nasal corticosteroid sprays.
On initial examination, external nasal deviation may be evident, or the columella and septum may be deflected off the midline.
A CT scan may be obtained if concomitant disorders (such as polyps and chronic sinusitis) are suspected.
Perforated septum:
Paradoxically, nasal septal perforation creates the sensation of nasal obstruction because airflow around the perforation is not smooth and laminar, but turbulent. There are multiple causes of septal perforation. While local trauma (most commonly due to nose picking) is a primary cause of septal perforation, cocaine use is emerging as a major factor. If nasal trauma, surgery, or cocaine use is not in the patient's history, laboratory tests and biopsy may be needed to rule out other causes of perforation.

The diagnosis of septal perforation is often based on physical examination findings. Patients often present with symptoms such as excessive nasal crusting (which may be foul-smelling), congestion or obstruction, epistaxis, infection, or nasal "whistling" sounds during inspiration, or a combination of these. Once septal perforation is identified, the patient should be referred to an otolaryngologist to confirm the diagnosis.

Possible causes of septal perforation

- **Trauma**
  - Digital (nose picking)
  - Postsurgical (septal surgery)
  - Septal cauterization (electrical, chemical [silver nitrate])
  - Septal abscess
  - Necrosis from cocaine use
  - Sharp injury

- **Infection or inflammation**
  - Syphilis
  - Leprosy
  - Tuberculosis
  - Wegener's granulomatosis
  - Lupus erythematosus
  - Relapsing polychondritis
  - Heavy metal poisoning

- **Neoplasm**

- **Idiopathic**

**Hematoma and abscess:**
Hematoma and abscess are collections of blood and pus between the nasal mucosa and septal cartilage.
The most common causes are nasal septal surgery and nasal trauma, such as that resulting from participation in contact sports. The dominant symptom is nasal obstruction, which is often bilateral. The physician may observe septal swelling that extends to the lateral nasal wall. Infected hematoma leads to abscess formation, and the patient may complain of pain and fever. Immediate surgical drainage is indicated to prevent necrosis of the septum and subsequent nasal deformity.

**Nasal valve collapse**
The nasal valve is responsible for more than two thirds of the airflow resistance produced by the nose. Because the septum is intimately associated with the nasal valve, the most common cause of nasal valve collapse is probably septal deviation. Aging and nasal valve scarring after rhinologic surgery are two other common causes.

**Turbinate hypertrophy**
Enlargement of the turbinate can be idiopathic or caused by a combination of long-standing allergic rhinitis, inflammation (eg. rhinitis caused by the common cold), and long-term use of over-the-counter vasoconstrictive nasal sprays. Turbinates that exhibit either bony hypertrophy or hypertrophy from soft-tissue engorgement lose their ability to expand and shrink and therefore result in nasal obstruction.

Patients with this condition often present with complaints of continuous nasal obstruction unrelieved by nose drops, antihistamines, or allergic desensitization. Examination with a nasal speculum reveals enlargement of the inferior turbinate. Treatment consists of alleviating symptoms with a steroid nasal spray and antihistamines for allergies, discontinuing habitual use of over-the-counter vasoconstrictive nasal sprays, and implementing various office-based surgical procedures to shrink the turbinates.

**Adenoid hypertrophy**
Adenoid hypertrophy is more common in children than adults. The condition occurs when excessive adenoid tissue blocks the nasopharynx and results in complaints of snoring, nasal obstruction, nasal drainage, and infections. In children, the condition is often congenital and can be expected to regress over time. Chronic nasal infections and drainage that do not respond to antibiotics and adenoid hypertrophy that contributes to sleep apnea symptoms are treated with
adenoidectomy.

**Nasal polyps (CRS with NP)**

These polyps often manifest as persistent obstruction of one or both nostrils. They are clear, grapelike, inflammatory swellings of the nasal and sinus linings. Polyps are benign, can be unilateral or bilateral, and are more often seen in adults than in children. By far the most common cause of polyps is eosinophilic inflammation, followed by chronic sinus infection. In addition to causing nasal blockage, polyps may obstruct the sinus openings and contribute to the development of sinus infection. They are atypical in children, and their occurrence in a patient younger than 16 years may indicate cystic fibrosis.

A rare and specific type of nasal polyp is the choanal polyp. This benign lesion is single and unilateral and usually arises from the medial wall of the maxillary sinus. Most choanal polyps present in teenagers and young adults.

**Nasal polyps - treatment**

- Initial treatment with steroid nasal sprays/oral GCS
- Surgical removal of the polyp is often necessary
- After surgery – intranasal GCS should be continued

**Neoplasm**

Unilateral epistaxis should alert the physician to the possibility of neoplasm. Inverted papilloma, which is a histologically benign lesion, is locally invasive and may produce bone erosion.

Other neoplastic lesions that produce nasal obstruction include sarcoma, lymphoma, and juvenile nasopharyngeal angiofibroma.

Primary malignant tumors in the nasal cavity, which are relatively rare, are unilateral and are generally squamous cell carcinoma.

**Foreign bodies:**

- Nasal obstruction caused by foreign bodies is most commonly seen in patients aged 6 months to 5 years. Diagnosis rests on a history of persistent unilateral nasal
obstruction and discharge, especially when the discharge is bloody and accompanied by an offensive odor.

- Ipsilateral serous otitis media often accompanies the nasal obstruction when the foreign material has been present for any length of time.
- Nasal radiography is recommended if direct visualization of the object is unfeasible.

**Systemic changes that cause obstruction**
Myriad systemic changes may result in nasal obstruction, and possible **physiologic and pathologic** factors should be considered in patients who present with nasal obstruction.

**Physiologic changes**
*Nasal obstruction triggered by physiologic changes is a common complaint in the primary care setting. This type of obstruction is often successfully treated with nasal steroid sprays.*

**Nasal cycle:**
- The typical nasal cycle involves swelling and then shrinkage of the linings of each side of the nose. The exact nature of this alternation is unclear, but the cycle has a periodicity varying from 1 to 4 hours and is found in 80% of the population. Patients often complain that both sides of the nose "take turns" getting stuffy. Nasal steroid sprays are helpful in these situations.

**Positional obstruction:**
- Positional nasal obstruction is a normal physiologic occurrence when the dependent side of the nose becomes obstructed with congestion of the turbinate. Nasal steroid sprays may offer relief.

**Pathologic changes**
*A number of pathologic changes, ranging from fluctuating hormone levels to response to certain medications and different type of rhinitis, can lay the groundwork for development of nasal obstruction.*

**Metabolic and endocrine alterations:**
Pregnancy, the menstrual cycle, use of oral contraceptives, hypothyroidism, and diabetes are associated with nasal mucosal engorgement and obstruction. Vitamin A deficiency can cause keratinization of the nasal mucosa. Careful history taking and physical examination are often required for initial evaluation. Nasal medications are usually avoided to prevent obstetrical problems. Saline nasal sprays can be helpful.

**Rhinitis ........**
Rhinitis

is an inflammation of the nasal mucosa that produces symptoms such as sneezing, congestion or runny nose, and itching of the nose

Classification of Rhinitis

RHINITIS: ALLERGIC and NON-ALLERGIC

Allergic rhinitis

Allergic rhinitis is caused by substances that trigger allergies, called allergens. Specific allergens can be found both outdoors and indoors. When allergic rhinitis is caused by common outdoor allergens—such as airborne tree, grass and weed pollens or mold—it is often referred to as seasonal allergies, or "hay fever." The time and duration of the different pollen and mold seasons can vary, depending on where you live in the country.

Allergic rhinitis may also be triggered by common indoor allergens such as animal dander, indoor mold, or the droppings of cockroaches or house dust mites—microscopic creatures found in the home. When this is the case, these allergies are called perennial allergies, because symptoms may last year-round.

Allergic rhinitis

• AR is a global health problem affecting 5 to 50 % of the population
• Its prevalence is increasing.
• Although it is not usually a severe disease, rhinitis alters social life and affects school performance and work productivity.
• Costs incurred by rhinitis are substantial.
• Implementation of guidelines improves the condition of patients with allergic rhinitis.

Rhinitis and quality of life perennial rhinitis
• 35% of patients experienced sleep disorders
• In 70% of patients, there was an impact on their professional life
• In 90% of patients, there was an impact on their personal life

**seasonal rhinitis**
more than 70% of patients experienced mood and sleep disorders during the pollen season

**Allergic Rhinitis:**
• US prevalence: 40 million people, including 19 million employed adults
• Associated costs: $4.5 billion in direct costs per year
• Impact: 3.8 million lost work and school days

**What are the different types of allergic rhinitis?**
Traditionally there are two types of allergic rhinitis:
• **seasonal** - occurs particularly during pollen seasons (pollen)
• **perennial** - occurs throughout the year (dust mites, mold, animal dander)

**Classification of allergic rhinitis - ARIA**
**NOW:** The classification of allergic rhinitis is based on the ARIA guidelines (Allergic Rhinitis and its Impact on Asthma)

It takes into account both the symptoms of the disease and quality of life. Based on chronology and severity, this system distinction between “intermittent” and “persistent” disease and between “mild” or “moderate to severe” disease:

**Moderate-severe**
**one or more items**
  • abnormal sleep
  • impairment of daily activities, sport, leisure
  • abnormal work and school
  • troublesome symptoms

**ARIA guidelines for classification of allergic rhinitis**
**Timing of symptoms**
**Intermittent**
Symptoms present for:
• **less than 4 days per week, or**
• less than 4 weeks at a time

Persistent
Symptoms present for:
• more than 4 days per week, and
• more than 4 weeks at a time

Severity and quality of life
Mild
• no impairment of sleep, daily activities, leisure or sport, school or work.
• no troublesome symptoms

Moderate to severe
One or more of the following are present:
• impairment of sleep
• impairment of daily activities, leisure or sport
• impairment of school or work
• troublesome symptoms

ARIA = Allergic Rhinitis and its Impact on Asthma. (Bousquet J, Van Cauwenberge P, Khaltaev N. et al.)

Allergic rhinitis:
Allergic rhinitis is an antibody-mediated histaminic effect produced by exposure to allergens. Nasal obstruction results from vascular dilation, glandular secretions, and smooth-muscle contraction. Nasal mucosa may appear pale and boggy in the early stages and congested, hyperemic, and granular in more chronic conditions..

AR Symptoms
• Runny nose,
• Nasal congestion (stuffy nose )
• Sneezing
• Itching in the nose, eyes, mouth, throat, ears
• Red, watery eyes (tearing eyes )
• Impaired smell
• Sinus pressure
• Postnasal drip and cough
• Sore throat
• Headache
• Wheezing
• Dark circles under your eyes
• Cross-reactivity allergy to certain fruits

Physical examination -
may reveal pale, swollen, nasal mucosa, nasal discharge and infraorbital congestion ("allergic shiners"), but can be relatively unremarkable unless the patient is seen when symptoms are prominent. At such times, subtotal or complete nasal obstruction may be present, along with signs of conjunctivitis.

The diagnosis of AR requires
• (1) positive history,
• (2) demonstration of IgE-mediated reaction to inhalant allergens by skin prick tests (SPT) or in vitro (– specific IgE) testing, and
• (3) correlation between history and test (2) findings.

The history of the person's symptoms is important in diagnosing allergic rhinitis, including whether the symptoms vary according to time of day or the season; exposure to pets or other allergens; and diet changes. Immediate hypersensitivity skin testing (SPT) is recommended as the preferred diagnostic study, as it is associated with reduced cost, is more sensitive, and entails no delay in obtaining results. Skin testing is the most common method of allergy testing.

ORAL ALLERGY SYNDROME
The oral allergy syndrome (OAS) is caused by 'cross-reactivity' between proteins found in fresh foods (fruit, vegetables and nuts) and pollen (usually birch and grass pollen)
Swelling or itching of lips, mouth tongue or throat follows immediately after contact with certain foods. It occurs in hay fever sufferers and also in people who are allergic to rubber latex.
For example, patient allergic to birch pollen may have an allergic reaction to the apple or carrot.
A clear sign of this is the occurrence of an itchy throat after eating an apple or sneezing when peeling vegetables. This occurs because of similarities in the proteins of the
pollen and the food. There are many cross-reacting substances.

**Differential Diagnosis of Allergic Rhinitis**

- Vasomotor/Irritant Rhinitis
- Chronic Sinusitis
- Nonallergic rhinitis with eosinophilia
- Gustatory rhinitis
- Atrophic Rhinitis
- Rhinitis Medicamentosa
- Rhinitis associated with Drugs (e.g., antihypertensive agents, oral contraceptives)
- Rhinitis associated with systemic disease (e.g., Hypothyroidism, Wegener’s Granulomatosis, Sjögren’s Syndrome)
- Structural Factors (Septal Deviation, Nasal Polyps, Nasopharyngeal Carcinoma)

**Allergic RHINITIS - Treatment**

- The goal of treatment is to reduce allergy symptoms caused by the inflammation of affected tissues. The best "treatment" is to avoid what causes your allergic symptoms in the first place.

  > The most effective way to treat allergic rhinitis is to avoid the offending allergen. Since this can sometimes be difficult or impossible, other treatments are available.

**Treatment may include:**

**Medications**

- **Antihistamines** – stop or reduce the production of histamine. They are usually taken as pills.
- **Topical Corticosteroids** – nasal sprays that decrease swelling in the nasal passages.
- **Decongestants** – decrease congestion by constricting blood vessels. They can be taken as pills or as a nasal spray.
- **Mast Cell Inhibitors** – nasal sprays that interfere with the chemical reactions
leading to histamine release.

- **Leukotriene receptor antagonists**
- **Anti-IgE therapy**

**Immunotherapy**

Injections of very small amounts of selected allergens are gradually increased over weeks, months, or even years. The goal is to make your body's immune system less sensitive to those particular allergens.

- Instead of subcutaneous injections, it may be possible to perform immunotherapy by placing allergens under the tongue (sublingual).

- **1st generation (usually short-acting) antihistamines**, often relieve mild to moderate symptoms, but can cause drowsiness. A pediatrician should be consulted before using these medicines in children, as they may affect learning.

- **2nd generation (usually longer-acting) antihistamines** cause less drowsiness, can be equally effective, and usually do not interfere with learning. These medications include fexofenadine, desloratadine, levocetirizine, loratadine and cetirizine.

- **Nasal corticosteroid sprays** are very effective and safe for people with symptoms not relieved by antihistamines alone. These prescription medications include fluticasone, budesonide, mometasone, and triamcinolone.

- **Decongestants** may also be helpful in reducing symptoms such as nasal congestion, but should not be used for long periods.

- **Cromolyn sodium** is still available as a nasal spray for treating hay fever. Eye drop versions of cromolyn sodium and antihistamines are available for itchy, bloodshot eyes (acting on the level of placebo, but very safe).

- **Immunotherapy** is recommended if the allergen cannot be avoided and if symptoms are hard to control. This includes regular injections of the allergen, given in increasing doses (each dose is slightly larger than the previous dose) that may help the body adjust to the antigen.

**Mild intermittent rhinitis**

**ARIA Options (not in preferred order)**
- oral or intranasal anti-H1
- intranasal decongestants
- oral decongestants (not in children)

Moderate-severe intermittent rhinitis
Mild persistent rhinitis
ARIA
Options - in preferred order
intranasal CS
- oral or intranasal anti-H1
- oral anti-H1 + decongestant
- (chromones)
Patient should be re-assessed after 2-4 wks

Moderate-severe persistent rhinitis
ARIA
Step-wise approach
- intranasal CS as a first line treatment
  - if major blockage: add short course of oral CS or decongestant
Re-assess after 2-4 weeks
  - if symptoms present add:
    - oral anti-H1 (± decongestants)
    - ipratropium

Conjunctivitis + rhinitis
ARIA
Options (not in preferred order)
- oral or ocular anti-H1
- ocular chromones
- saline
Do not use ocular CS without care and eye examination

Criteria for immunotherapy in allergic rhinitis

*Indications*
- A history indicating that exposure to a particular allergen precipitates symptoms and contributes to illness
- Documented sensitivity to the clinically relevant aeroallergen
- Future exposure to the allergen is unavoidable or only partially reducible
- An effective allergen extract is available
- Poor response to previous pharmacotherapy for allergic rhinitis

*Patient-centred factors*
- Ability to give informed consent
- Ability to commit to time for immunotherapy

*Contraindications*
• Unstable asthma symptoms
• Concomitant illness — immunotherapy is contraindicated in severe pulmonary and cardiovascular disease and should not be initiated in patients with autoimmune disease or malignancy
• Pregnancy — initiation of immunotherapy during pregnancy is not recommended because of the risk to the fetus of a systemic allergic reaction
• Taking β-blockers

Preventive measures for avoiding allergic rhinitis include:

• environmental controls, such as air conditioning, during pollen season
• avoiding areas where there is heavy dust, mites, molds
• avoiding pets

ARIA Recommendations
1- Patients with persistent rhinitis should be evaluated for asthma
2- Patients with persistent asthma should be evaluated for rhinitis
3- A strategy should combine the treatment of upper and lower airways in terms of efficacy and safety

Nonallergic rhinitis

Non-allergic rhinitis is triggered by certain factors, such as: strong smells, pollution, particulate matter in the air, smoke or other irritants. These substances differ from allergens in that they do not produce a reaction in an individual’s immune system. Symptoms of rhinitis can also be triggered by temperature and atmospheric changes. Non-allergic rhinitis usually afflicts adults and causes year-round symptoms, especially nasal congestion or “stuffiness” and headaches. If the rhinitis sufferer also has a very runny nose, the condition is often referred to as vasomotor rhinitis. Often medications cannot completely relieve symptoms, but decongestants, nasal steroids or other drugs may be prescribed to try to treat symptoms. Interestingly, regular exercise can also be helpful.
Symptoms of non-allergic rhinitis may also occur as a result of pregnancy, thyroid disorders or as a side effect of certain medications. When the symptoms are traced to a deficiency of thyroid hormone, thyroid medication can help.

**Types of Nonallergic Rhinitis**

- Vasomotor rhinitis (irritant rhinitis)
- Rhinitis medicamentosa (local decongestants) and other drug-induced rhinitis
- Atrophic rhinitis
- Gustatory
- Hormonal
- Infectious (neutrophilic rhinosinusitis)
- Nonallergic rhinitis with eosinophilia syndrome
- Occupational
- Structural rhinitis
- Idiopathic rhinitis (primary vasomotor instability)

**Causes of nonallergic rhinitis include:**

- fumes
- odors
- temperature
- atmospheric changes
- smoke
- other irritants

**Reactions from nonallergic rhinitis include:**
● sneezing
● congestion
● runny nose
● itchy nose, throat, eyes, and ears

**Vasomotor (irritant) rhinitis:**
● Excessive engorgement of the nasal mucosa and profuse, watery rhinorrhea secondary to autonomic dysfunction.
● It is characterized by cholinergic discharge.
● The disorder is triggered by chemical irritants, changes in weather or humidity, and stress.
● The obstruction is of greater degree and duration than that associated with the typical congestion-decongestion reflex and occurs in the absence of allergy.
● Ipratropium bromide nasal spray can be helpful in controlling rhinorrhea.

**Eosinophilic nonallergic rhinitis**
**NARES (nonallergic rhinitis with eosinophilia syndrome)**

Is named after the blood cell—the eosinophil—which distinguishes it from the other forms of nonallergic rhinitis. This type of rhinitis behaves like allergic rhinitis in that it causes frequent, recurrent bouts of sneezing, runny nose and nasal blockage.

Allergy skin tests are negative with this type of rhinitis, and nasal polyps, are a common complication.

**Medications:** topical nasal corticosteroids provide the best relief for many patients

**DRUG-INDUCED RHINITIS**

**Rhinitis medicamentosa:**
● Prolonged use of topical nasal decongestants may result in rebound congestion of the nasal mucosa. This congestion may encourage further use of the decongestant, which may exacerbate nasal obstruction.
● Rhinitis medicamentosa occurs when non-prescription topical
decongestants—over-the-counter nose sprays—are used in excess, often for more than 3 - 7 consecutive days. This form of rhinitis causes severe nasal congestion and is best treated by stopping use of the offending nasal spray. This often leads to temporary severe congestion, which can be helped by topical or oral corticosteroids.

- Some other drugs could lead also to rhinitis/nasal obstruction

- **NSAIDs (intolerance to aspirin and other NSAIDs) – eosinophilic inflammation**

**Drugs and chemicals that may cause nasal obstruction**

**Atrophic rhinitis**
- Atrophy of the nasal mucosa and turbinates is seen in atrophic rhinitis. The etiology of the disease is largely unknown. Its symptoms are characterized, paradoxically, by nasal obstruction caused by turbulent airflow and malodorous crusts in the nasal passages.

- Primary
- Secondary

**Infectious rhinitis:**
- **Viral rhinitis** (the common cold) is one of the most frequent causes of nasal obstruction. Symptoms include clear, watery rhinorrhea; malaise; sore throat; and sneezing. Rhinoviruses, respiratory syncytial virus, parainfluenza and influenza viruses, and adenoviruses are among the viruses most commonly identified.

- **Bacterial rhinitis** may begin spontaneously or as a sequela to viral rhinitis. Its distinguishing feature is mucopurulent nasal discharge. Bacteria most often implicated in bacterial rhinitis are *Streptococcus pneumoniae*, group A beta-hemolytic streptococci, and *Haemophilus influenzae*.

- **Fungal rhinitis** is most often found in immunocompromised patients who have an underlying systemic disorder such as leukemia or diabetes. Species of *Candida*, *Aspergillus*, *Nocardia*, *Cryptococcus*, and *Phycomycetes* are most often implicated.

**Structural rhinitis**
- is caused by structural abnormalities in the nasal septum. These abnormalities can be the result of an injury, such as a broken nose, or something that the person was
Structural rhinitis may produce year-round congestion that usually affects one side of the nose more than the other. Surgery can aid in correcting this abnormality.

**Nonallergic rhinitis – treatment options**

The preventive measure for avoiding nonallergic rhinitis is avoiding the primary cause.

Treatments for nonallergic rhinitis, as determined by physician and based on patient's condition, may include:

- oral medications
- inhaled medications
- immunotherapy
- surgery for some conditions

Refer your patient to an allergy specialist if:

- the patient requests it or wishes to identify triggers or obtain further information on the role of allergy in allergic rhinitis, and the GP considers it appropriate

- treatment with an antihistamine and an intranasal corticosteroid (INCS) has not controlled symptoms

- the patient has severe allergic comorbidities such as eczema and food allergies, or troublesome or poorly controlled asthma

- complications such as resistant obstruction, anosmia, sinus disease, ear problems (hearing loss), persistent purulent drainage, or behavioural effects are present

- symptoms are persistent and/or severe and/or unresponsive
• the patient's quality of life is being seriously affected

Refer your patient to an ENT specialist if:

• the patient has constant unilateral obstruction
• complications such as resistant obstruction, anosmia, sinus disease, ear problems, persistent purulent discharge are present
• the patient has polyps, especially, if polyps are unresponsive to initial INCS therapy

Prevention
*The following strategies may help prevent allergic rhinitis:*

• Stay inside during the morning hours, when pollen counts are highest.
• Avoid outside activities during the time of year when the trees, flowers, or molds to which you are allergic are blooming.
• Keep the windows of your house and car closed to keep pollen out.
• Use an air conditioner to reduce indoor humidity during the warmer months. This will prevent mold and mildew growth.
• Clean your air conditioner's filters regularly.
• Consider running an air purifier in your home, especially in your bedroom.
• Use vacuum cleaners and air conditioners with HEPA filters to trap allergens.
• Decrease or avoid outdoor activities on hot summer days, when ozone levels may exacerbate allergies.
• Cover pillows and mattresses with vinyl covers to reduce your exposure to dust mites.
• Wash bedding weekly in very hot water.
• Use fewer dust-collecting items such as curtains, bed skirts, carpeting, and stuffed animals, especially in your bedroom or in rooms where you spend most of your time.
• If you can't avoid having a furry pet, vacuum frequently. Try to keep your pet out of bedrooms and other rooms with carpets.