Treatment of Rhinitis & Sinusitis

Kevin T. Kavanagh, M.D., F.A.C.S.

For more information go to www.entusa.com
Types of Rhinitis

- Acute Rhinitis
- Vasomotor Rhinitis
- Intrinsic or Hyperplastic Rhinitis
- Allergic Rhinitis

More about nasal allergies go to: http://www.entusa.com/nasal-allergies.htm
Symptoms

- Nasal Obstruction
- Nasal Drainage--Type
- Itchy Watery Eyes
- Facial Pressure & Pain
- Sneezing
- Asthma

More about nasal allergies go to: http://www.entusa.com/nasal-allergies.htm

For more information go to www.entusa.com
Acute Rhinitis

- Febrile, Purulent Nasal Drainage
- Allergy Tests Negative
- IgE Negative
- Family History Positive
  (Every One Gets This)

More about nasal allergies go to:
http://www.entusa.com/nasal-allergies.htm

For more information go to www.entusa.com
Acute Sinusitis – “Cold”

- **Pathogens.**
  - Haemophilus influenzae
  - Streptococcus pyogenes
  - Streptococcus pneumonia
  - Anaerobic Organisms

More about nasal colds & sinusitis go to: http://www.entusa.com/colds_sinus.htm

For more information go to www.entusa.com
Chronic & Recurrent Sinusitis

- Treat with antibiotics for three to four weeks.
- High incidence of $\beta$-Lactamase producing bacteria.
  - Augmentin
  - Ceftin
  - Clindamycin
  - Cipro
- Moisturizer & Decongestant.
- Do not use an antihistamine--Dryness.

More about nasal colds & sinusitis go to:
http://www.entusa.com/colds_sinus.htm

For more information go to www.entusa.com
Vasomotor Rhinitis

- Afebrile, Clear Nasal Drainage
- Allergy Tests Negative
- IgE Negative
- Family History Negative

More about colds & sinusitis go to: http://www.entusa.com/colds_sinus.htm

For more information go to www.entusa.com
Vasomotor Rhinitis - Treatment

- Astelin Nasal Spray has been shown to be effective

- Antihistamines and nasal steroids do not give symptomatic relief in most patients.

For more information go to www.entusa.com
Hyperplastic Rhinitis

- Hyperplastic Rhinitis is also known as:
  - Intrinsic Rhinitis
  - Eosinophilic Nonallergic Rhinitis
  - Allergic Fungal Sinusitis

More about nasal allergies go to: http://www.entusa.com/nasal-allergies.htm

For more information go to www.entusa.com
Hyperplastic Rhinitis

- Afebrile, Clear Nasal Drainage, Polyps
- Allergy Tests Negative
- IgE Positive
- Family History Positive

Video of Surgical Removal of Polyps:
http://www.entusa.com/nasal_polyp_surgery.htm

For more information go to www.entusa.com
Hyperplastic Rhinitis

- **Treatment**
  - Surgical debridement of obstructed sinuses to remove fungal debris.
  - Sporonox.
  - Antifungal Nasal Washes.
  - Intranasal steroids

Video of Surgical Removal of Polyps:
http://www.entusa.com/nasal_polyp_surgery.htm

For more information go to www.entusa.com
Allergic Rhinitis

- Afebrile, Clear Nasal Drainage, May Have Polyps
- Allergy Tests Positive
- IgE Positive
- Family History Positive

More about nasal allergies go to:
http://www.entusa.com/nasal-allergies.htm

For more information go to www.entusa.com
Allergic Rhinitis: Symptoms

- **Seasonal Symptoms:**
  - Pollen
    - Bluegrass, Timothy, Ragweed

- **Perennial Symptoms:**
  - Household allergens
    - dust mites, molds, feathers, animal dander.

- **Sensitive to Chemical Irritants:**

More about nasal allergies go to:
http://www.entusa.com/nasal-allergies.htm

For more information go to www.entusa.com
Allergic Rhinitis – Aspirin Triad

- Aspirin Triad
  - Nasal Polyposis
  - Allergic Sinusitis
  - Asthma
- Risk of Status Asthmaticus if Takes Aspirin

Video of Surgical Removal of Polyps:
http://www.entusa.com/nasal_polyp_surgery.htm

For more information go to www.entusa.com

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Allergic Rhinitis: Seasonal

- Ideal for medical therapy
  - Antihistamines/Decongestants
  - Nasal Steroids
  - Cromolyn Sodium
  - Singular
- Allergy Desensitization

More about nasal allergies go to: http://www.entusa.com/nasal-allergies.htm

For more information go to www.entusa.com
Allergic Rhinitis: Perennial

- Animals outside.
- No Smoking in the house.
- Molds are found in:
  - Houseplants
  - Basements
  - Showers
  - Humidifiers (also increases house mites)
- Minimize use of rugs.

More about nasal allergies go to:
http://www.entusa.com/nasal-allergies.htm

For more information go to www.entusa.com
Perennial Symptoms

- House Mites (fecal allergen):
  - Live off of skin flakes
  - Wash bed linen in 140° H₂O
  - Water bed and plastic pillow liner
  - Also some products will kill the mites or
  - denature the fecal allergen.

- Electric HEPA Air Filters.

More about preventing allergies go to:
http://www.entusa.com/allergy_prevention.htm

For more information go to www.entusa.com
Smoker’s Rhinitis

- Chronic Rhinitis
- Resistant to medications and surgery.
- Hypertonic saline rinses help.
- Quitting smoking may worsen symptoms if goblet cell activity and secretions recover without recovery in ciliary clearance.

More about smoking & rhinitis go to: http://www.entusa.com/smoking.htm
# Medical Treatment

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Vasomotor</th>
<th>Hyperplastic</th>
<th>Allergic</th>
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<tbody>
<tr>
<td>Antihistamines</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
</tr>
<tr>
<td>Decongestants</td>
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<td>Fair</td>
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<tr>
<td>Nasal Steroids</td>
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<td>Mast Cell Stabilizers</td>
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</tr>
<tr>
<td>Surgery</td>
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<td>Good</td>
<td>Fair</td>
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<tr>
<td>Leukotriene Inhibitors</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
</tr>
</tbody>
</table>
Decongestants

- Good for use in a “Cold” & Allergy
- Improves Airway.
- Does not improve, Nasal Drainage, Itching or Sneezing.

More about nasal colds & sinusitis go to: http://www.entusa.com/colds_sinus.htm

For more information go to www.entusa.com
Decongestants-Complications

- Do not use in hypertensive patients or patients with a cardiac arrhythmia.
  - Makes no sense to be on Beta-Blockers and then give the patient a decongestant.

- Diabetics--Decreases insulin requirements.

- Taking MAO Inhibitors or Antiparkinson medications.

More about nasal colds & sinusitis go to: http://www.entusa.com/colds_sinus.htm

For more information go to www.entusa.com
Moisturizers

- Use in “Cold” or URI
  - Robitussin
  - Entex LA

More about nasal colds & sinusitis go to: http://www.entusa.com/colds_sinus.htm

For more information go to www.entusa.com
Antihistamines-Complications

- Drys Secretions--Do not want to use in a URI.
- Sedation.
- Urinary Retention.
- Impotence.

More about nasal allergies go to: http://www.entusa.com/nasal-allergies.htm
For more information go to www.entusa.com
Antihistamines-Nonsedating

- Zyrtec (Cetirizine)––some patients experience mild sedation. Once a day dosage.
  - May use in Asthmatic Patients.
- Works on both early and late phase reactions.
- No hepatic metabolism, thus no adaptation.

More about nasal allergies go to:
http://www.entusa.com/nasal-allergies.htm

For more information go to www.entusa.com
Antihistamines-Nonsedating

- Allegra (fexofenadine)--no anticholinergic effects. Twice a day dosage.
  - Use in asthmatic patients.
  - Use in patients with prostatic hypertrophy.
  - No sedative effects.
  - No anticholinergic, antidopaminergic or alpha-adrenergic effects.

More about nasal allergies go to: http://www.entusa.com/nasal-allergies.htm

For more information go to www.entusa.com
Antihistamines—Nonsedating

- First Non-sedating antihistamine to be available over the counter.
- Claritin (Loratadine)—many studies indicate this is a weak antihistamine but is now available over the counter.
- However, it is now available over the counter and can be obtained by patients without a prescription.
- Has sedative effects in higher doses.

More about nasal allergies go to: http://www.entusa.com/nasal-allergies.htm

For more information go to www.entusa.com
## Zyrtec vs. Claritin

<table>
<thead>
<tr>
<th>Source</th>
<th>Zyrtec</th>
<th>Claritin</th>
<th>Placebo</th>
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<tbody>
<tr>
<td>Simons, 1990</td>
<td>0.022</td>
<td>0.081</td>
<td>0.142</td>
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<td>Wheal Areas</td>
<td></td>
<td></td>
<td></td>
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<td>Meltzer, 1996</td>
<td>73.6%</td>
<td>56.5%</td>
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<tr>
<td>“Improved”</td>
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</tr>
<tr>
<td>Martinez, 1992</td>
<td>50.9%</td>
<td>34.6%</td>
<td></td>
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<tr>
<td>Wheal Reduction</td>
<td></td>
<td></td>
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<tr>
<td>Day, 1997</td>
<td>65.2%</td>
<td>31.8%</td>
<td>27.3%</td>
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<tr>
<td>Sx Relief</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day, 1998</td>
<td>36.7%</td>
<td>15.4%</td>
<td>12.0%</td>
</tr>
<tr>
<td>TSC</td>
<td></td>
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</tbody>
</table>

Cetirizine (Zyrtec), 2.5 mg was as potent in inhibiting the skin reactivity to histamine as loratadine (Claritin), 10 mg.

--Rihoux, 1990

For more information go to [www.entusa.com](http://www.entusa.com)
Claritin vs. Chlorpheniramine (CTM)

10 mg Loratadine (Clartin) given bid (20mg/day) equivalent to 12 mg CTM given bid. Roman, Annals of Allergy 1986  Sponsored by Schering-Plough Corp.

For more information go to www.entusa.com
Antihistamines-Nonsedating

- Astelin (Azelastrine)--Nose spray & Oral
- Inhibits secretions, serotonin, leukotrienes, and histamine.
- Bad Taste & Mild Sedation in Oral Forms.

More about nasal allergies go to: http://www.entusa.com/nasal-allergies.htm

For more information go to www.entusa.com
Intranasal Sprays

- Decongestants--Only a short course in acute rhinitis or sinusitis.
- Cromolyn Sodium--Only in Allergic Rhinitis.
- Antihistamine.
- Anticholinergic.
- Steroid--Better long term efficacy than Cromolyn Sodium.

More about nasal allergies go to: http://www.entusa.com/nasal-allergies.htm

For more information go to www.entusa.com
Rhinitis Medicamentosa

- Chronic Nose Spray Use--Over 5 or more days
- Treatment: Use Intranasal Steroid--Vancenase or Beconase (Patients like TID dosage)

More about nasal colds & sinusitis go to: http://www.entusa.com/colds_sinus.htm

For more information go to www.entusa.com
Nose Spray: Cromolyn Sodium

- Reduces degranulation of Mast cells. Best results if started before pollen exposure.
- Very Safe.
  - Used in patients with mucosal thinning or bleeding.
- Ideally should be used six times a day.
- Over the counter drug.

More about nasal allergies go to:
thttp://www.entusa.com/nasal-allergies.htm

For more information go to www.entusa.com

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Nose Spray: Anticholinergic

- Atrovent Nasal Spray:
  - Use to Dry Secretions and Nasal Drainage.
  - Use in Vasomotor Rhinitis and Allergic Rhinitis.
  - DO NOT USE IN ASTHMA
Nose Spray: Steroid

- Will improve Asthma: (Bronchial steroids are first line of treatment for asthma.)
- May cause septal perforation--especially if prior nasal surgery.
- Monitor patient every three months.
- Nasonex: Is reported to have little if any propensity to thin the nasal mucosa.

More about nasal allergies go to: http://www.entusa.com/nasal-allergies.htm

For more information go to www.entusa.com
Nasal Septal Perforation

- Symptoms Include: Whistling, bleeding, collapse of nose and crusting.
- Treatment: Moisturizers, septal button, surgical closure. Surgical closure has a high failure rate.

More about nose bleeds go to: http://www.entusa.com/epistaxis.htm

For more information go to www.entusa.com
Intranasal Steroids in Children

- Flonase FDA approved for use ages 4 and older. Has low systemic blood levels.
- Beconase, Vancenase, Rhinocort, Nasacort FDA approved age 6 yrs and older.
- Nasonex FDA approved for use age 12 and older. Has the lowest systemic blood levels
- Although some clinicians use them in younger children with close follow-up.

More about nasal allergies go to: http://www.entusa.com/nasal-allergies.htm

For more information go to www.entusa.com
Nasosteroids - Bioavailability

- The nasal steroids with the least bioavailability are Nasonex and Flonase. These steroids should probably be the first choice in children.

More about nasal allergies go to: http://www.entusa.com/nasal-allergies.htm

For more information go to www.entusa.com
Allergy Testing

- **Prick Testing**
  - Well Tolerated
  - Not as accurate, cannot be on Beta Blockers

- **Skin End Point Titration**
  - Gold Standard
  - Uncomfortable, cannot be on Beta Blockers

- **RAST Testing**
  - Good for children, can be on Beta Blockers
  - Not as accurate as SET.
  - Not covered by third party payers

More about nasal allergies go to: [http://www.entusa.com/nasal-allergies.htm](http://www.entusa.com/nasal-allergies.htm)

For more information go to [www.entusa.com](http://www.entusa.com)
Allergy Testing - Prick & SET

- Patients have to be off of all antihistamines for 4 days. Off of non-sedative antihistamines for up to 6 weeks.
- Cannot be on Beta Blockers.

More about nasal allergies go to: http://www.entusa.com/nasal-allergies.htm

For more information go to www.entusa.com
Food Allergies-Types

- **IgE**: Very Severe, do not desensitize or skin test these patients.

- **IgG**: Most Food Allergies are these. Will not be detected by Skin or RAST testing (IgE).

- All Foods are digested thus the substance tested for may not be the allergen produced from the food.

More about food allergies go to: http://www.entusa.com/food_allergy.htm

For more information go to www.entusa.com

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Food Allergies

- Skin Testing. Only Tests for IgE allergies. Thus, unlikely to be useful in detecting food allergies.


- Medicare does not approve payments for food testing.

More about food allergies go to: http://www.entusa.com/food_allergy.htm

For more information go to www.entusa.com
Types of Inhalation Allergies

- All year around – perennials
  household molds, dust mites, cat, dog etc.

- Seasonal - Pollens
  early spring – trees
  late spring – grasses
  Fall – weeds

- Rains makes worse – Molds
- Rains makes better – Pollens

More about nasal allergies go to:
http://www.entusa.com/nasal-allergies.htm

For more information go to www.entusa.com
Allergy Proof Your House

- Indoor molds grow anywhere it is wet. This includes, basements, bathrooms, garages, kitchens and around all plants.

- Getting a dehumidifier and replacing real plants with plastic plants will often help.

More about preventing allergies go to: http://www.entusa.com/allergy_prevention.htm

For more information go to www.entusa.com
Allergy Proof Your House

- A house dust allergy is actually an allergy to fecal material to the dust mite. Taking out carpets and installing wooden or linoleum floors will help, especially in the bedroom where you spend the most time.

- A plastic cover over bedroom pillows and mattress will help to reduce exposure. Bed sheets and linens should be washed in hot water.

More about preventing allergies go to: [http://www.entusa.com/allergy_prevention.htm](http://www.entusa.com/allergy_prevention.htm)

For more information go to [www.entusa.com](http://www.entusa.com)
Allergy Proof Your House

- Keep animals outside.
  Do not sleep with your pets.

- HEPA filtered vacuum can also be helpful

- If you are allergic to outdoor antigens, keep the windows of your house down and install furnace filters, or a free-standing air filter, which will clean the allergens from your house.

More about preventing allergies go to:
http://www.entusa.com/allergy_prevention.htm

For more information go to www.entusa.com

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Surgical Treatment

- Steriod Injection of Turbinate--Associated Blindness
- Turbinectomy
- Cryotherapy
- Endoscopic Sinus Surgery
- Septoplasty

Video of Endoscopic Sinus Surgery
Ethmoidectomy & Maxillary Sinus Osteotomy
http://www.entusa.com/fess_ap_ethmoidectomy.htm

For more information go to www.entusa.com
Surgical Treatment

Patient With Mild Rhinitis

Patient Post-Op ESS


For more information go to www.entusa.com
Surgical Treatment - Septoplasty

View More Nasal Pictures:
http://www.entusa.com/nose_photos.htm

For more information go to www.entusa.com
Red Flags: Unilateral Sinusitis

- Think Carcinoma: Inverting Papilloma, Squamous Cell Carcinoma, Angiofibroma

For more information go to www.entusa.com
Cystic Fibrosis

- May or may not have nasal polyps.
- Any white child with nasal polyps has cystic fibrosis until proven otherwise.
- Almost all have pseudomonas as the bacterial pathogen.
- Order Sweat Chloride Test.

10 Year old white female with an abnormal Sweat chloride test.


For more information go to [www.entusa.com](http://www.entusa.com)
Immunologic Disorders

- Often has small or absent tonsils.

- Order--Immunoglobulin Levels
  - IgE, IgA, IgG, IgM, IgD
  - and IgG Subclass.
  - Pneumovac and check antibody levels.
  - Mumps, Candida Skin Tests.

More about nasal allergies go to: [http://www.entusa.com/nasal-allergies.htm](http://www.entusa.com/nasal-allergies.htm)

For more information go to [www.entusa.com](http://www.entusa.com)