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### Chronic Bronchitis

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# Chronic Bronchitis

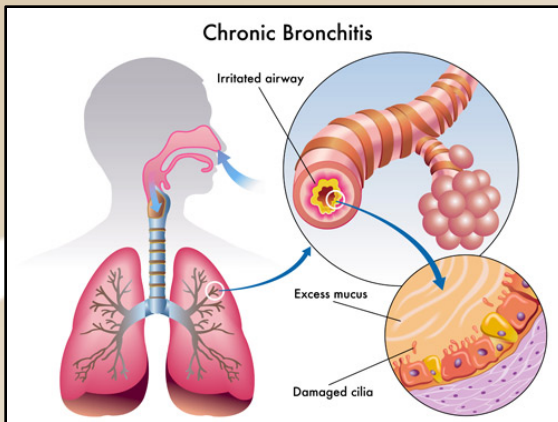
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## Introduction

Difficulty breathing, increased coughing with mucus production, and supplemental oxygen use are all symptoms that people who suffer with chronic bronchitis, deal with on a daily basis. Chronic bronchitis which is often used under the umbrella term chronic obstructive pulmonary disease (COPD), is describe as an inflammatory disease of the mucous membranes of the bronchi (Higginson, 2010). According to the Centers for Disease Control and Prevention (CDC), 8.7 million Americans were diagnosed and 664 deaths secondary to bronchial complications in year 2014 (2016).

Women are almost twice as likely to be diagnosed with chronic bronchitis as men (Pelkonen, Notkola, Laatikainen, & Koskela, 2014). In 2011, 3.3 million men were diagnosed with chronic bronchitis compared to 6.8 million women (CDC, 2016). Bronchitis is one of the most prevalent seen chronic disorders in primary care outpatient setting. Given current statistics, the prevalence of chronic bronchitis is so high, hence why this topic was chosen.



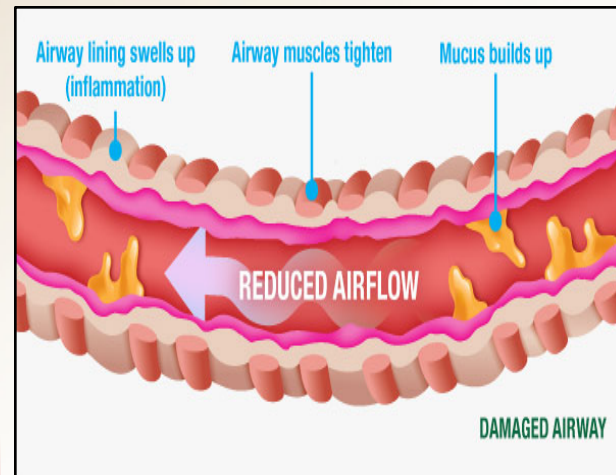
(Image retrieved from [https://edc2.healthtap.com/ht-staging/user\\_answer/reference\\_image/2537/large/Bronchitis.jpeg?1386670574](https://edc2.healthtap.com/ht-staging/user_answer/reference_image/2537/large/Bronchitis.jpeg?1386670574))

## Signs and Symptoms

- As a healthcare provider, a complete history must be obtained, including information on exposure to toxic substances and smoking (Higginson, 2010).
- Symptoms of chronic bronchitis include the following:
  - Cougha
  - Increased production of mucus
  - Dyspnea
  - Wheezing
  - Fatigue
  - Fever and chills
  - Chest discomfort
  - Sings of global hypoxemia (Higginson, 2010; Iyer & Kaiser, 2013)

## Pathophysiology

- A form of chronic obstructive pulmonary disease (COPD), bronchitis may be classified as acute or chronic. Chronic bronchitis is characterized by over production of mucous in the bronchi accompanied by a recurrent cough last for three months of the year and occur for at least twice consecutive years (Corhay, Vincken, Schlessner, Bossuyt, & Imschoot, 2013).
- According to Kim & Criner (2013), mucous metaplasia is the pathological foundation of chronic bronchitis. "It is a process in which mucus is overproduced in response to inflammatory response caused by, overproduction and hypersecretion by goblet cells and decreased elimination of mucus" (pg. 229).
- Mucus overproduction is caused by, "cigarette smoke exposure, acute or chronic viral infection, bacterial infection or inflammatory cell activation of mucin gene transcription via activation of the epidermal growth factor receptor, leading to overproduction of mucus and hypersecretion from increased degranulation of neutrophil-mediated elastase. Due to mucous hypersecretion, patients have difficulty in clearing secretions because of poor ciliary function, distal airway occlusion, and ineffective cough secondary to respiratory muscle weakness and reduced peak expiratory flow" (Kim & Criner, 2013, pg. 229).
  - ImMucous metaplasia causes airflow obstruction by several mechanisms such as, "Increased mucous hypersecretion causes luminal occlusion, epithelial layer thickening encroaches on the airway lumen, and increased mucus alters airway surface tension." (Kim & Criner, 2013, pg. 230)
- Over time patient experiences abnormal ventilation perfusion ratios, hypoxemia, hypoventilation, and right sided heart failure (Martin & Harrison, 2015)



(Image retrieved from <https://www.spiriva.com/img/content/reduced-airflow.jpg>)

## Significance of Pathophysiology

Understanding the pathophysiology of chronic bronchitis will help health care provider understand the progression and manifestation of the disease, hence will help diagnose and appropriately treat preventing further progression and complications.



(Image retrieved from [http://img.webmd.com/dtmcms/live/webmd/consumer\\_assets/site\\_images/articles/health\\_tools/bronchitis\\_slideshow/webmd\\_composite\\_image\\_of\\_bronchitis.jpg](http://img.webmd.com/dtmcms/live/webmd/consumer_assets/site_images/articles/health_tools/bronchitis_slideshow/webmd_composite_image_of_bronchitis.jpg))

## Implications for Nursing

Treatment for chronic bronchitis includes combination approach such as:

- Smoking cessation and avoiding second hand smoke (Corhay et al, 2013)
- Mucolytic therapy is prescribed to improve their symptoms related to sputum production (Martin & Harrison, 2015, pg. 1107).
- An antibiotic treatment recommended if there is change in sputum quantity or quality (Corhay et al, 2013)
  - Studies indicate that "five-day therapy antibiotic regimens with telithromycin 800mg once daily, amoxicillin-clavulanate 2000/125 mg twice daily, clarithromycin ER 1000 mg once daily or various cephalosporins, macrolides and fluoroquinolones are as effective as 7-10 days in treating patients with chronic bronchitis exacerbation" (Bashlian, Sun, Dorsen, 2012, pg. 538).
  - Long-term use of low dose azithromycin has shown to improve quality of life and decrease frequency of exacerbations (Martin & Harrison, 2015).
- Inhaled bronchodilator therapy and corticosteroid treatment (Kaufman, 2010)
- Oxygen to treat hypoxia (Higginson, 2010)

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## Conclusion

Over ten million Americans reported a physician diagnosis of chronic bronchitis in 2011 with almost 70% of cases occurring in those over 45 years old (CDC, 2016). Overall incidence of chronic bronchitis is increasing in the community. Long-term side effects negatively affect quality of life of patients. Without early detection and effective management of the disease, patient can have many other secondary complications. Since the disease is on the rise, there are many research studies and clinical trials are ongoing to improve patient's quality of life. The RejuvenAir system cryospray treatment is a new therapy currently in clinical trial for challenging symptoms. It is anticipated that this new treatment will be beneficial and improve patient's breathing by freezing and filling off the top layer of cells in the damaged airway, enabling the regrowth of healthy cells (Sarli, 2016). With current and upcoming research findings, hopefully there will be better interventions to manage chronic bronchitis effectively, prevent further progress and secondary complications.

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