



Short of Breath: A Winter's Tale of Asthma, COPD & Homelessness

What do tobacco, trucks and cockroaches have in common? To Health Care for the Homeless providers, the answer is obvious—they trigger or exacerbate asthma, emphysema and chronic bronchitis in susceptible individuals, and help to account for the disproportionately high prevalence of these chronic lung diseases among impoverished people who are without a home.



Asthma is a chronic inflammatory disease of the airways that has been on the rise for the past 40 years throughout the industrialized world.^{1,2} In the United States, the incidence of asthma has

increased by 75% since the 1980's, with no plateau in sight.³ Prevalence rates are significantly higher among the urban poor, and higher still for homeless people. Heightened exposure to environmental pollutants and other allergens elevates their risk of developing asthma.^{1,2} Restricted access to appropriate treatment increases their morbidity.^{4,5}

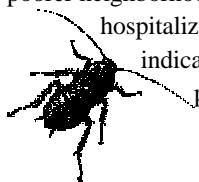
Ongoing, untreated bronchial inflammation in children can lead to asthma and chronic obstructive pulmonary disease (COPD) in adults—a condition characterized by chronic bronchitis and emphysema, most commonly seen in heavy smokers.⁶ Although the pathogenesis of COPD remains uncertain, experts agree that tobacco use is by far the most important risk factor, and smoking cessation is the best way to change the course of the disease.⁶ The high prevalence of smoking among homeless people compounds their risk for airways reactivity, an element of both asthma and COPD.⁶

Cold weather, crowded shelters, increased exposure to respiratory infections and reduced activity—all are factors that contribute to exacerbations of chronic lung disease in winter. The following articles offer practical tips for homeless service providers, clients and advocates to prevent and ameliorate these debilitating conditions. Clinicians quoted here call for education, appropriate treatment, and environmental controls—that all may breathe fresh air. ■



Pediatric Asthma: An Urban Epidemic

A homeless child is three to six times more likely to have asthma than the average American child. Nationwide, 20% of homeless children have asthma compared to 7% of all US children.⁵ Several cities have reported rates as high as 30% or more.³ A 1998 study in New York City found that nearly 40% of homeless children in shelters suffered from asthma, and that over 90% of those with persistent asthma did not receive appropriate medical care.³ Children living in poorer neighborhoods have higher rates of hospitalization for asthma—often an indicator of inadequate preventive care.⁴



PATHOGENESIS There is a genetic predisposition to asthma that is activated by certain environmental 'triggers' including cigarette smoke, diesel exhaust, dust mites and cockroach feces, explains **Dr. Shawn Bowen**, a pediatrician with the Childhood Asthma Initiative at The New York Children's Health Project, Montefiore Medical Center, in the Bronx. To reach homeless children who need his help, Dr. Bowen visits shelters in a large, blue mobile health van.

"Shelters tend to be located in the most environmentally polluted parts of town, which also have the highest rates of asthma," observes **Dr. Scott Schroeder**, a pediatric pul-

monologist at Montefiore to whom the most intractable cases are referred. "Part of the clinician's task is to try to reduce the allergen load and curb maternal smoking," he says. "If a mother smokes while she has a growing fetus, her child has twice the risk of developing asthma." Smoking during pregnancy is strongly linked to low birthweight (LBW), affecting 17% of children born to homeless women—twice the rate of children nationally.⁵ LBW may also make asthmatic children more susceptible to the air pollutant ozone.⁷ Second-hand smoke further narrows children's airways, notes Schroeder, and is associated with a 50% increase in a child's average number of winter colds, common triggers of childhood asthma.

Wheezing caused by respiratory infections, particularly the common respiratory syncytial virus (RSV), may be mistaken for asthma in children under age six, most of whom do not go on to develop chronic asthma,⁸ says pediatrician **Peter Sherman, MD**, Medical Director of the HCH project at Montefiore. “But if several episodes of wheezing occur in babies under a year old, diagnose it as asthma and treat it accordingly,” he advises. “If RSV is suspected in premature infants, consult a specialist.”

UNDER-TREATMENT Recommended treatment for asthma depends on the level of severity and persistence of the disease.¹ “Often asthma is not diagnosed at its true level of severity, resulting in under-treatment, multiple trips to the emergency department, and unnecessary hospitalizations,” observes Dr. Bowen. “Lacking a medical home, homeless kids typically rely on hospital ERs, which stabilize them after asthma attacks but don’t offer appropriate medications to control chronic illness.” It isn’t unusual for these children to receive serial prescriptions for prednisone, he says, which can have many adverse side effects when taken for a prolonged period of time. Lack of appropriate anti-inflammatory



medication (e.g., daily-inhaled steroids) results in frequent asthma exacerbations and, over time, permanent airway narrowing and obstruction.

Bowen recommends using “step-down” therapy where possible—begin with the strongest medications needed and gradually decrease dosage as patients improve. His primary concern is the disruption of peoples’ lives caused by uncontrolled asthma, which interferes with sleep and educational performance, raises already high stress levels for homeless families, and threatens children’s emotional health.⁵

RECOMMENDATIONS Montefiore pediatricians contend that the HCH clinician’s most important goals in asthma care are to reduce morbidity, prevent excessive emergency room use and unnecessary hospitalization, reduce the repeated use of prednisone, and minimize family disruption. Here’s how:

- **Become familiar with the National Heart, Lung and Blood Institute guidelines** for appropriate asthma treatment.¹
- **Develop an asthma action plan** in partnership with the patient.
- **Establish a model of care and** teach asthma control strategies in shelters.
- **Test patients’ judgment** about how to take prescribed medications properly.
- **Teach patients to use “rescue prednisone”** after consulting their physician on the telephone, as an alternative to going to the ER.

ASTHMA CONTROL IN SHELTERS

1. Put allergen-impermeable mattress covers on shelter beds; wash sheets weekly in water over 140°F to kill dust mites.
2. Encourage parents to wear a poncho when smoking and remove it afterwards. Promote access to smoking cessation programs.
3. Stop leaking faucets. Keep humidity below 50% to reduce proliferation of vermin & molds.
4. Don’t allow eating in sleeping areas. Move head of bed 6 inches from wall to avoid cockroaches.
5. Be sure all dishes are cleaned, dried and put away after use; that all food is stored in air-tight containers.

*Scott Schroeder, MD
New York Children’s Health Project*

- **Persist in follow up.** Help patients buy into appropriate treatment.
- **Find a medical home for every child.** Educate parents to know what good care is and to ask for it.
- **Partner with drug companies** and other corporations to defray the cost of more expensive treatments.

Even the best care in the world won’t solve the epidemiological problem of asthma, Dr. Schroeder reminds us. “As a society, we don’t have the intestinal fortitude to clean up our environment. Those who live in highly polluted environments are at highest risk for asthma. The ultimate preventive medicine is pollution control. Otherwise, we’re just pumping kids full of medications.” ■

Coping with COPD in Homeless Adults

Chronic obstructive pulmonary disease (COPD) is the fourth leading cause of death in the United States, affecting over 16 million people.⁶ It occurs at a rate six times higher among homeless people than among persons who are housed.⁹ Most COPD patients have been heavy cigarette smokers, and many continue to smoke despite their respiratory impairment. Some also have asthma. Primary treatment goals are to minimize the effects of reversible lung damage and improve quality of life.⁶

TREATMENT CHALLENGES COPD is one of the most common conditions seen in homeless adults who come to the Stout Street Clinic in Denver, Colorado, because so many of them are smokers, reports **Jenny Scanlon, FNP**. But it is rarely an isolated medical problem for these clients, she says. “That makes treatment a real challenge. Mental illness and substance abuse often interfere with treatment adherence, as do the loss or theft of medications—a common occurrence for persons who sleep outside or in shelters.”

A subsidiary of the Colorado Coalition for the Homeless, this busy HCH project is fortunate to have free access to all standard medications and a pulmonology consult at Denver Health Medical Center, the city/county public hospital. But because the clinic is underfunded and short on staff, clients often have to wait all day to be seen. Conflicting subsistence priorities sometimes make this impossible for them. As a result, COPD patients may appear only when they are completely out of medication, with serious exacerbations.

“Patient education is key in minimizing COPD exacerbations,” says Scanlon. “We talk with people about the importance of taking medications consistently, explain how to use inhalers properly, and ask clients to demonstrate their use at every visit. We also do our best to optimize nutrition, tell patients to stay hydrated to break up chronic bronchitis, help them choose to be treated for substance abuse, and do what we can to get them housed,” adds Scanlon. “One of our biggest challenges is finding a place where homeless people with

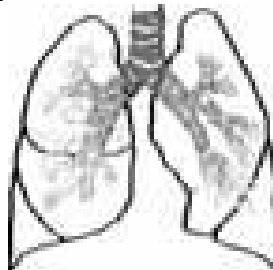
advanced COPD can receive continuous oxygen therapy. Once they qualify for disability assistance, clients can usually afford a place to stay; but even though all hypoxic patients meet SSI eligibility criteria in Colorado, there is often a significant lag time before they are enrolled. We end up using medical respite beds for oxygen therapy, sometimes for months at a time.”

EXPERT ADVICE Philip Corsello, MD, pulmonologist at National Jewish Hospital, a renowned respiratory care center in Denver, offers the following advice to clinicians who are struggling to help homeless persons cope with COPD:

Antibiotics “I strongly favor the use of antibiotics for COPD exacerbations that are characterized by increased cough and a change in sputum amount and color. There is good evidence that antibiotics shorten both the duration and intensity of the illness.¹⁰ Broad-spectrum antibiotics such as amoxicillin, tetracyclines or sulfonamides are just as effective as more expensive drugs for patients with simple COPD (<4 exacerbations per year, no comorbid illness and mild-moderate airways obstruction). In patients with complicated COPD (>age 65, FEV₁<50% of predicted, or >4 exacerbations per year) and/or suspected antimicrobial resistance, more vigorous antibiotic therapy is required.”¹⁰

Steroids “I don’t recommend the use of (anti-inflammatory) corticosteroids for patients with stable COPD, unless there is thought to be an asthmatic component to the disease—suggested by either a history of antecedent asthma, a marked bronchodilator effect or observed wheezing. A pulmonary function test isn’t necessary to confirm asthma. Only 12%–15% of persons with COPD benefit from long term inhaled or systemic steroids, and sustained benefits have rarely been demonstrated for persons with pure COPD without asthma.¹¹ Adverse side effects of systemic steroids (osteoporosis or steroid myopathy) mitigate against their long term use; but systemic steroids can reduce the severity and duration of acute exacerbations.”¹¹

Bronchodilators “Combivent is effective for moderate-severe cases, but is expensive. Its components, albuterol and ipratropium/Atrovent, can be used separately at less than half the cost but without the convenience, which could affect adherence. With either option, these drugs should be taken four times daily. Albuterol can be prescribed as needed in addition to Combivent without toxic effect. There is good evidence that the long-acting bronchodilator salmeterol is also helpful in treating COPD. Taken morning and evening, it lasts 8–12 hours. Expect a new drug (tiotropium) to be released within a year or so. An improvement on Atrovent, it has a duration of 24–36 hours that will allow for once a day dosing and, almost certainly, will result in improved adherence.”



MDIs vs SVNs “Small Volume Nebulizers (SVNs) aren’t necessary for the vast majority of COPD patients, and are expensive. There is evidence that they are seldom more effective than properly used Metered Dosed Inhalers (MDIs). Teaching patients to use MDIs correctly is time well spent. Spacers make current propellant inhalers easier to use for 90% of patients. Good spacers cost about \$10, but last a long time.”

Oxygen Therapy “HCH clinicians might consider using portable oxygen tanks that could be filled by a large supply tank (“the cow”) in shelters willing to house it. In this way, homeless patients could fill up portable tanks that last 4–8 hours at a time, enabling them to ambulate freely indoors or outside; but it’s uncertain whether these devices would work well for sustained periods of time in severe cold weather.”

Preventive Care “All patients with COPD should receive the influenza vaccine annually and the pneumococcal vaccine every 8–10 years. For these patients, getting the flu or pneumonia is life-threatening.” To minimize the spread of respiratory infections, wash hands frequently and keep shelters well ventilated, advise HCH clinicians. ■

Smoking Cessation: What HCH Projects Are Doing



One year ago, the University of Pittsburgh School of Pharmacy’s Program for Pharmaceutical Care to Underserved Populations surveyed the local homeless population to find out how many were smokers and what their interest was in smoking cessation. HCH Pittsburgh and The Program for Health Care to Underserved Populations collaborated in this project. “We learned that 69% of 275 homeless adults over age 18 were current smokers, compared to 25% of the general US population, and that 88% of these individuals wanted to quit smoking,” reports assistant professor **Sharon Connor, PharmD**. If a

smoking cessation program were available, 76% said they “definitely” or “probably” would participate. This evidence compares with smoking prevalence rates reported in other homeless populations (69%–73%),¹² and contradicts the popular assumption that homeless smokers aren’t highly motivated to quit, she says.

Even if clients are reluctant to quit, it’s important not to give up on them, insists **Carol Jenkins, RN**, of Stout Street Clinic in Denver, especially if they have COPD. “Remind them that it still helps to cut down, even after there is lung damage,” she advises. Rising tobacco costs are an effective deterrent for her patients, who can’t afford to buy as many

cigarettes. HCH clinicians practice one-on-one tobacco counseling at every patient visit and offer free nicotine patches or chewing gum. Zyban/bupropion isn’t used as much because it is more expensive. Clinic staff distribute educational materials and share tips from clients about reducing tobacco use. Although classes are known to make smoking cessation aids more effective, they aren’t accessible for most clients, who are working or scrambling to get a meal when classes are offered. Night or weekend sessions would be better, says Jenkins, but they aren’t available.

HCH Milwaukee’s Recovery Community Support Program offers informal group ther-

apy for substance abuse including smoking cessation. "All participants smoke cigarettes. Most are interested in at least cutting down, if not quitting entirely," says clinical coordinator **Lisa Kadlec, MSW, CICSW**. "We educate them about nicotine and use motivational techniques to promote readiness for change." [See June 2000 issue of *Healing Hands*.]

Case managers handle individual counseling. "Primary care physicians often tell clients to quit smoking and then expect them to do it on their own, but it rarely works," she says. Homeless people can't afford nicotine patches (about \$30 for a two-week supply). Title IX covers only Zyban, which had intolerable psychiatric side effects for one mentally ill patient. Nevertheless, peer support, refresh

ments and program flexibility keep folks coming back to weekly group meetings. "Find out how best to assist your clients with their perceived needs," Kadlec advises. "Meet them where they are."

Insufficient staffing and limited budgets prevent most HCH projects from initiating comprehensive smoking cessation programs. National tobacco settlement money may change that in some states, including New Mexico. Albuquerque HCH has received grant money to implement a two-tiered smoking cessation program, reports **Amalia Torrez, CDA**: screening and brief interventions based on a National Cancer Institute model, and a treatment program based on an American Lung Association model.

Michael Fiore, MD, MPH, directs the Center for Tobacco Research and Intervention at the University of Wisconsin Medical School. He chaired the US Public Health Service panel charged with updating the Smoking Cessation Clinical Practice Guidelines,¹³ released in October. "Tobacco dependence treatment should be part of every clinic visit with every patient," he urges. "As with other chronic diseases, clinicians should take a broad, long-term approach to smoking cessation, assuming periods of relapse. Sustained remission is possible, but patients have to be committed to the process and share responsibility for it. The issue of how to motivate them to do so is a major focus of the guidelines." ■ [Clinical advice contained in these articles should not be construed as recommendations of the National Health Care for the Homeless Council.]

SOURCES & RESOURCES:

1. National Heart, Lung and Blood Institute, NIH. Expert Panel Report 2: *Guidelines for the Diagnosis and Management of Asthma*. NIH publication No. 97-4051, July 1997: www.nhlbi.nih.gov/guidelines/asthma.
2. Platts-Mills TAE, et al. Specific and nonspecific obstructive lung disease in childhood: causes of changes in the prevalence of asthma. *Environmental Health Perspectives* August 2000; 108 (suppl. 4): 725-731.
3. Bernstein N. 38% asthma rate found in homeless children. *New York Times*, May 5, 1999: B1, B13; Saltus R. Yearning to breathe free. *Boston Globe*, April 12, 1999: F1-F2.
4. National Center for Health Statistics. *Health, United States, 1998, with Socioeconomic Status and Health Chartbook*. Hyattsville, Maryland, 1998: 47: <http://www.cdc.gov/nchs/products/pubs/pubd/hs/2010/98chtbk.htm>
5. The Institute for Children and Poverty. *Homeless in America: A Children's Story, Part One*, 1999: 15: www.homesforthehomeless.com/LIBRARY.html.
6. Senior RM, Anthonisen NR. Chronic obstructive pulmonary disease (COPD). *Am J Respir Crit Care Med* Apr 1998; 157(4): S139-147: <http://ajrccm.atsjournals.org>; American Lung Assn, Sept 2000: www.lungusa.org/diseases/copd_factsheet.html.
7. Mortimer KM, et al. The effect of ozone on inner-city children with asthma. *Am J Respir Crit Care Med* Nov 2000; 162(5):1838-1845: <http://ajrccm.atsjournals.org>.
8. Chipps B. Respiratory syncytial virus infection and asthma development. American Academy of Allergy, Asthma and Immunology 56th Annual Meeting, March 2000. Full text: www.medscape.com; Steinbach SF. Four controversies in pediatric asthma care. *Contemp Pediatrics* Nov 2000; 17(10):150-152,155-156,159-160,162,164,171.
9. Brickner PW, et al, editors. *Under the Safety Net: The Health and Social Welfare of the Homeless in the United States*. New York: W.W. Norton & Co., Inc., 1990: 74.
10. Adams SG, et al. Antibiotics are associated with lower relapse rates in outpatients with acute exacerbations of COPD. *Chest* May 2000; 117:1345-52[summary: www.aafp.org/afp/20001101/tips/3.html]; Boueri FMV, Make BJ. Current concepts in pharmacologic management of chronic obstructive pulmonary disease. *Seminars in Respir and Crit Care Med* 1999; 20: 279-288.
11. Niewoehner DE, et al. Effect of systemic glucocorticoids on exacerbations of COPD. *N Engl J Med* June 1999; 340:1941-7 [summary : www.aafp.org/htdigsearch/htsearch]; Whittaker AJ, Spiro SG. Inhaled steroid therapy in COPD *Curr Opin Pulm Med* March 2000; 6(2): 104-9.
12. Sachs-Ericsson N, et al. Health problems and service utilization in the homeless. *J Health Care Poor and Underserved* 1999; 10(4): 443-452; Heffron WA, et al. Health and lifestyle issues as risk factors for homelessness. *J Am Board Fam Pract* 1997; 10(1): 6-12.
13. Fiore MC, Bailey WC, Cohen SJ, et al. *Treating Tobacco Use and Dependence*. Quick Reference Guide for Clinicians. Rockville, MD: US Public Health Service, Oct 2000: www.surgeongeneral.gov/tobacco. ■

Communications Committee

Adele O'Sullivan, MD (Chair); Jan Caughlan, LCSW-C; Lisa Cunningham Roberts, MA, NCC; Liz DeLaTorres, BSW; James Dixon, BSW; Karen Holman, MD, MPH; Scott Orman; Linda Ruble, PA-C, ARNP; Pat Post, MPA (Editor)