



National Center for  
Healthy Housing

# Fact Sheet

July 2008

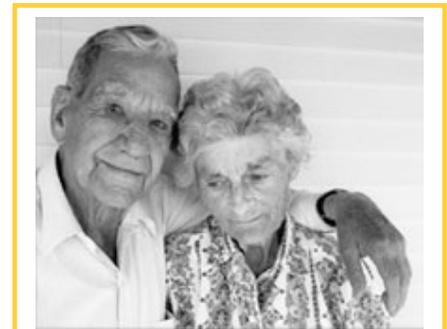


## Background on the Importance of Healthy Housing for Older Adults Prepared by the National Center for Healthy Housing

### Overview

By the year 2030, it is estimated that more than 70 million Americans (and 960 million people worldwide) will be age 65 or older. This aging population is expected to constitute approximately 20% of the U.S. population at that time. Despite these projected figures, little is known about many of the potential environmental exposures and linked adverse health effects facing this population. Aging-related changes in behaviors can alter exposure patterns. Older adults may be at increased risk for some of the environmental hazards to which they are exposed. Certain subpopulations of the elderly may be more susceptible to environmental exposures due to differences in health status, physiological changes, medications, diet, physical activity, and genetics. Additional susceptibilities may be incurred due to accumulated lifetime exposures to contaminants or from the effects of previous exposures.

This document provides a brief summary of several key ways that housing impacts the health of older adults.



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### Heat Waves and Older Adults

Older adults are among those most at risk during extreme heat events. In 1995 a heat wave in Chicago killed more than 700 people, with almost three-quarters of the victims 65 and older.<sup>1</sup> With age, the body's cooling mechanisms may become impaired, and living alone or being confined to a bed can further increase risk.<sup>2</sup> People who live on the top floors of buildings without air conditioning are more likely to be exposed to excessive heat. In addition, because society has become reliant on climate control systems, windows are often not maintained in operable condition. When climate control systems fail and there are no operable windows, the results can be devastating, as was the case with the 2003 heat wave in France. Many homes worldwide do not have fans for cooling.<sup>3</sup> A working air conditioner is the strongest protection against heat-related death.<sup>4</sup> Heat reduction

<sup>1</sup> Semenza J.C., Rubin C.H., Falter K.H., et al. "Heat-Related Deaths During the July 1995 Heat Wave in Chicago." *New Eng Journal of Medicine*. 1996;335(2):84-90

<sup>2</sup> Environmental Protection Agency. "Aging Initiative – It's Too Darn Hot: Planning for Excessive Heat Events." See <http://www.epa.gov/aging/resources/factsheets/itdhpfehe/index.htm>

<sup>3</sup> Center for Disease Control and Prevention. *Healthy Housing Reference Manual*: Chapter 2. See <http://www.cdc.gov/nceh/publications/books/housing/cha02.htm>

<sup>4</sup> Naughton M.P., Henderson A., Mirabelli M.C., et al. "Heat-related mortality during a 1999 heat wave in Chicago." *American Journal of Preventative Medicine*. 2002;22(4):221-7.

strategies, such as using reflective “cool roofs,” light-colored pavements, and planting shade trees, have numerous benefits.

### **Asthma / Respiratory Illness and Older Adults**

The prevalence of asthma may be similar in older and younger adults, but the number of older adults dying from asthma is 14 times higher compared to those 18-35 years of age.<sup>5</sup> Many older persons spend up to 90% of their time indoors, often at home. Common indoor environmental hazards that may trigger chronic obstructive pulmonary disease and asthma attacks include tobacco smoke, animal dander, dust, and pollen. Other sources of environmental triggers include combustion products, pressed wood, pesticides, and household cleaners.<sup>6</sup> Heavy traffic and high air pollution levels near residences are associated with poorly controlled asthma in elderly.<sup>7</sup>

The following interventions are recommended to reduce asthma attacks and chronic obstructive pulmonary disease (COPD) among older adults: Avoiding environmental tobacco smoke; avoiding or limiting the use of wood-burning stoves and fireplaces; fixing water leaks promptly to prevent mold; frequent washing of bedding; keeping pets out of bedrooms; reducing dust mite exposure by use of protective mattress and pillow covers; and use of Integrated Pest Management strategies such as barriers, baits, and traps rather than foggers and sprays to eliminate cockroaches. In addition, keeping gas appliances properly adjusted and installing and using exhaust fans can reduce combustion sources of contaminants in the home.

Another contributor to respiratory illness is the radioactive gas, radon. Radon is the second leading cause of lung cancer, resulting in 15,000 to 22,000 cases per year.<sup>8</sup> Radon is an invisible, odorless, and tasteless gas that leaks from the ground and permeates the air we breathe. Radon usually exits at very low levels outdoors but can exit at higher concentrations indoors. Radon can enter homes through cracks in floors, walls, and foundations; from building materials; and from water obtained from wells that contain radon. People can get more information about getting their homes tested by calling their state radon contact.<sup>9</sup>

### **Diabetes**

Diabetes is among the top ten leading causes of death in the U.S. for men and women age 65 years and older. People living with diabetes are considered at high risk for adverse health effects from exposure to harmful particles or air pollution found both indoors and outdoors. Breathing in harmful particles from air pollutants (for example, smoke, vehicle exhaust, industrial emissions, and haze from burning fossil fuels) may increase the risk of heart attack and stroke. The same intervention strategies described above for reducing asthma triggers is applicable for reducing environmental exposures linked to diabetes.

### **Falls**

Every 18 seconds, an older adult is treated in an emergency department for a fall, and every 35 minutes someone in this population dies as a result of their injuries. In Europe, accidental falls were ranked the highest among the

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<sup>5</sup> Diette G.B., Krishnan G.A., Dominici F., Haponik E., Skinner E.A., Steinwachs D., Wu A.W. “Asthma in Older Patients.” *Archives of Internal Medicine*. 2002;162:1123-1132.

<sup>6</sup> Environmental Protection Agency. “Aging Initiative – Age Healthier, Breathe Easier.” See <http://www.epa.gov/aging/resources/factsheets/ahbe/index.htm>

<sup>7</sup> Meng Y.Y., Wilhelm M., Rull R.P., English P., Ritz B. “Traffic and outdoor air pollution levels near residences and poorly controlled asthma in adults.” *Annals of Allergy, Asthma Immunology*. 2007 May; 98(5):455-63

<sup>8</sup> National Cancer Institute. “Radon and Cancer: Questions and Answers.” See <http://www.cancer.gov/cancerTopics/factsheet/Risk/radon>

<sup>9</sup> Environmental Protection Agency. “Radon.” See <http://www.epa.gov/radon/>

five top causes of unintentional injury-related mortality among older adults.<sup>10</sup> Although one in three older adults falls each year in the United States, falls are not an inevitable part of aging. There are proven strategies that can reduce falls and help older adults live better and longer.

The following home-based interventions have demonstrated efficacy: improving the lighting in a home; removing trip hazards and securing small throw rugs with double-sided tape; putting cabinetry where it can be reached easily without using a step stool; installing grab bars next to toilets and in the tub or shower; using non-slip mats in the bathtub and on shower floors; and installing lights and double sets of handrails on all staircases.

### **Walkable Green Space**

Studies show that living in areas with walkable green spaces positively influenced the longevity of urban senior citizens independent of their age, sex, marital status, baseline functional status, and socioeconomic status.<sup>11</sup> Greenery-filled public areas that are nearby and easy to walk in should be further emphasized in urban planning for the development and redevelopment of densely populated areas in a megacity. Close collaboration should be undertaken among the health, construction, civil engineering, planning, and other concerned sectors in the context of the healthy urban policy, so as to promote the health of senior citizens.<sup>12</sup>

Studies also show that providing easy access to green space by laying out more green areas close to apartment houses could make for more restorative environments. Outdoor areas providing environments free from demands and stress and that are available as part of everyday life could have significant positive effects on the health of older people. For example, in a large-scale, five-year follow-up cohort study of older people, perceived access to walkable green space was found to predict longevity, even after controlling for age, socioeconomic status, gender, and marital status.<sup>13</sup>

### **Conclusion**

Housing conditions impact the health of older adults in numerous ways. This document highlights several of the key issues. During extreme heat occurrences, older adults residing in houses lacking working air conditioning or heat reduction strategies are placed at a higher risk of dying as a result of heat waves. With older adults spending most of their time indoors, mostly at home, they are exposed to higher quantities of environmental hazards such as animal dander, dust, pollen, pesticides, and household products which can trigger chronic obstructive pulmonary disease and asthma attacks. Older adults diagnosed with asthma are more likely to die from it than younger adults. This stresses the need to reduce asthma triggers. Among older adults, falls usually occur in the house and are the leading cause of hospital admissions, fractures, and injury death. Prevention strategies include improving lighting, installing handrails and grab bars, making items easier to reach, and securing or removing items that could cause older adults to trip or slip while walking. Taking simple precautions can reduce the negative effects that housing conditions have on the health and safety of older adults.

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<sup>10</sup> Petridou et al. "The Evolution of Unintentional Injury Mortality Among Elderly in Europe." *Journal of Aging and Health*, 2008 March; 20(2):159-82

<sup>11</sup> Takano T., Nakamura K., Watanabe M. "Urban residential environments and senior citizens' longevity in mega city areas: the importance of walkable green spaces." *Journal of Epidemiology and Community Health*, 2002;56:913-918

<sup>12</sup> Takano T., Nakamura K., Watanabe M. "Urban residential environments and senior citizens' longevity in mega city areas: the importance of walkable green spaces." *Journal of Epidemiology and Community Health*, 2002;56:913-918

<sup>13</sup> Kaplan S, Kaplan R. "Health, Supportive Environments, and the Reasonable Person Model." *American Journal of Public Health*, Sep 2003; 93: 1484 - 1489.