

**University of
Colorado Denver**
School of Medicine



For immediate release

Media contacts: University of Colorado Denver School of Medicine
Jim Spencer, 303 724-5377, 720-346-4242,
jim.spencer@ucdenver.edu

Massachusetts General Hospital
Sue McGreevey 617 724-5377, smcgreevey@partners.org

Vitamin D deficiency may increase risk of colds, flu

Large-scale study supports potential role in boosting immune system, more research needed

AURORA, Colo./BOSTON (Feb. 23, 2009) – Vitamin D may be an important way to arm the immune system against disorders like the common cold, report investigators from the University of Colorado Denver (UC Denver) School of Medicine, Massachusetts General Hospital (MGH) and Children’s Hospital Boston.

In the largest and most nationally representative study of the association between vitamin D and respiratory infections, people with the lowest blood vitamin D levels reported having significantly more recent colds or cases of the flu. The risks were even higher for those with chronic respiratory disorders, such as asthma and emphysema. The report appears in the February 23 *Archives of Internal Medicine*.

“The findings of our study support an important role for vitamin D in prevention of common respiratory infections, such as colds and the flu,” says Adit Ginde, MD, MPH, UC Denver Division of Emergency Medicine and lead author of the study. “Individuals with common lung diseases, such as asthma or emphysema, may be particularly susceptible to respiratory infections from vitamin D deficiency.”

While vitamin C has been used for the prevention of colds and other respiratory disorders for decades, little scientific evidence supports its effectiveness. In contrast, in recent years evidence has accumulated that vitamin D – most commonly associated with the development and maintenance of strong bones – may also play a key role in the immune system. Circumstantial evidence has implicated the wintertime deficiency of vitamin D, which the body produces in response to sunlight, in the seasonal increase in colds and flu; and small studies have suggested an association between low blood levels of vitamin D and a higher risk of respiratory infections.

The current study analyzed data from the Third National Health and Nutrition Examination Survey (NHANES III), conducted by the National Center for Health Statistics. Participants were interviewed in their homes regarding their health and nutrition, and most participants also received a physical examination that included collection of blood and other samples for laboratory analysis. The research team analyzed blood levels of 25-hydroxyvitamin D (25OHD) – the best measure of vitamin D status – from almost 19,000 adult and adolescent NHANES III participants, selected to be representative of the overall U.S. population.

Study participants with the lowest vitamin D blood levels – less than 10 ng per milliliter of blood – were about 40 percent more likely to report having a recent respiratory infection than were those with vitamin D levels of 30 or higher. The association was present in all seasons and even stronger among participants with a history of asthma or chronic obstructive pulmonary disease (COPD), including emphysema. Asthma patients with the lowest vitamin D levels were five times more likely to have had a recent

respiratory infection; while among COPD patients, respiratory infections were twice as common among those with vitamin D deficiency.

“A respiratory infection in someone with otherwise healthy lungs usually causes a few days of relatively mild symptoms,” explains Carlos Camargo, MD, DrPH, MGH Department of Emergency Medicine and senior author of the study. “But respiratory infections in individuals with an underlying lung disease can cause serious attacks of asthma or COPD that may require urgent office visits, emergency department visits or hospitalizations. So the impact of preventing infections in these patients could be very large.”

The authors stress that the study’s results need to be confirmed in clinical trials before vitamin D can be recommended to prevent colds and flu. “We are planning clinical trials to test the effectiveness of vitamin D to boost immunity and fight respiratory infection, with a focus on individuals with asthma and COPD, as well as children and older adults – groups that are at higher risk for more severe illness,” Ginde says. “While it’s too early to make any definitive recommendations, many Americans also need more vitamin D for its bone and general health benefits. Clinicians and laypeople should stay tuned as this exciting area of research continues to expand.”

Ginde is an assistant professor of Surgery at UC Denver School of Medicine, and Camargo is an associate professor of Medicine at Harvard Medical School. Jonathan Mansbach, MD, of Children’s Hospital Boston is a co-author of the *Archives of Internal Medicine* report. The study was supported by grants from the National Institutes of Health, the National Heart, Lung and Blood Institute, and the MGH Center for D-receptor Activation Research.

The University of Colorado Denver School of Medicine (<http://www.uchsc.edu/som/>) faculty work to advance science and improve care as the physicians, educators and scientists at University of Colorado Hospital, The Children’s Hospital, Denver Health, National Jewish Health, and the Denver Veterans Affairs Medical Center. Degrees

offered by the UC Denver School of Medicine include doctor of medicine, doctor of physical therapy, and masters of physician assistant studies. The School is part of the University of Colorado Denver (<http://www.uchsc.edu/>), one of three campuses in the University of Colorado system.

Massachusetts General Hospital (<http://www.massgeneral.org/>), established in 1811, is the original and largest teaching hospital of Harvard Medical School. The MGH conducts the largest hospital-based research program in the United States, with an annual research budget of more than \$500 million and major research centers in AIDS, cardiovascular research, cancer, computational and integrative biology, cutaneous biology, human genetics, medical imaging, neurodegenerative disorders, regenerative medicine, systems biology, transplantation biology and photomedicine.

Children's Hospital Boston is home to the world's largest research enterprise based at a pediatric medical center, where its discoveries have benefited both children and adults since 1869. More than 500 scientists, including eight members of the National Academy of Sciences, 11 members of the Institute of Medicine and 13 members of the Howard Hughes Medical Institute comprise Children's research community. Founded as a 20-bed hospital for children, Children's Hospital Boston today is a 397-bed comprehensive center for pediatric and adolescent health care grounded in the values of excellence in patient care and sensitivity to the complex needs and diversity of children and families. Children's also is the primary pediatric teaching affiliate of Harvard Medical School. For more information about the hospital and its research visit:

www.childrenshospital.org/newsroom.