CHEST News Release

AMERICAN COLLEGE OF CHEST PHYSICIANS

EMBARGOED UNTIL APRIL 12
5 PM EASTERN

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OFFICE SPIROMETRY SIGNIFICANTLY IMPROVES EARLY DETECTION OF COPD

Spirometry in Primary Care Setting Doubles the Number of 'Known' Cases of COPD

(NORTHBROOK, IL, April 12, 2004) – Spirometry testing in a primary care setting significantly improves early identification of chronic obstructive pulmonary disease (COPD), says a study published in the April issue of *CHEST*, the peer-reviewed journal of the American College of Chest Physicians. The study found that by using spirometry, the gold standard for diagnosing COPD, primary care physicians nearly doubled the number of "known" COPD cases. In addition, of all newly diagnosed cases of COPD, 42 percent would have remained undetected without the use of spirometry. COPD, which includes the conditions of chronic bronchitis and emphysema, is characterized by obstruction of airflow and gradual loss of lung function that is irreversible.

"Although there is no cure for COPD, early detection is important for effective disease management," said Johan Buffels, MD, Katholieke University, Leuven, Belgium. "A predominant number of patients with early stage COPD receive initial medical care through primary care physicians; however, many remain undiagnosed because their physicians do not regularly screen for the disease. Without the use of spirometry by primary care physicians, nearly half of our patients with COPD will remain undiagnosed."

In the study known as the DIDASCO project, researchers from Katholieke University compared the effectiveness and accuracy of office spirometry and a screening questionnaire as used by primary care physicians to detect early stages of COPD. Primary care physicians, trained in the use of spirometry and the management of COPD and asthma, screened a total of 3,408 patients between the ages of 35 and 70 over a 12-week period. Of the patients screened, 250 were currently

using bronchodilators and/or inhaled steroids, indicating a "known" condition of either asthma or COPD. The remaining 3,158 patients completed a screening questionnaire that identified 728 patients as having signs or symptoms suggesting a condition of COPD. Spirometry tests were obtained from 703 of the symptomatic patients and 10 percent of asymptomatic patients. Among the group with symptoms, researchers confirmed 126 patients with formerly unknown airflow obstruction, as compared to the extrapolated number of 90 cases in the group without symptoms. The screening questionnaire was found to be insufficient for the detection of COPD, failing to identify 42 percent of all new cases of obstructive lung disease.

"Mild or moderate COPD often has few or no symptoms. Therefore, screening only patients with symptoms of COPD may result in missing an important number of people with obstructive lung disease," said Dr. Buffels. "As shown in our study, office spirometry nearly doubled the number of known cases of COPD in our target patient population, which reinforces the need for spirometry testing in general physician practice."

The majority of newly diagnosed patients presented with mild to moderate COPD. Of newly diagnosed patients, 45 percent were women, as compared to 15 percent among "known" COPD patients. The percentage of current smokers in the newly diagnosed group (48 percent) exceeded the number of smokers in the group with normal lung function (28 percent).

"COPD is the fourth leading cause of death in the United States, claiming the lives of over 117,000 Americans each year, yet COPD continues to be widely underdiagnosed in the primary care setting, " said Richard S. Irwin, MD, FCCP, President of the American College of Chest Physicians. "Primary care physicians play a key role in the detection of COPD and should be encouraged to learn the technique of spirometry and incorporate the screening method into regular practice."

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CHEST News Release

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EMBARGOED UNTIL MONDAY, MAY 10
5 PM EASTERN

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CHRONIC RESPIRATORY SYMPTOMS PREVALENT AMONG ALASKA NATIVES

Geography May Influence Respiratory Conditions in YK Delta Alaska Native Children

(NORTHBROOK, IL, May 10, 2004) – Chronic respiratory symptoms are prominent among Alaska Native children in the Yukon-Kuskokwim delta (YK delta) region of Alaska, with symptoms varying greatly within the geographic location.

In a study published in the May issue of *CHEST*, the peer-reviewed journal of the American College of Chest Physicians, 40 percent of Alaska Native (AN) and American Indian (AI) children in the YK delta region of Alaska experienced chronic respiratory symptoms, including chronic productive cough, asthma, and asthma-like symptoms. The study also found that respiratory symptoms varied dramatically by location within the YK delta, with children from rural villages experiencing a lower incidence of asthma-like symptoms and a higher prevalence of chronic productive cough than children from the nearby town of Bethel.

"There is limited documentation of these conditions among Alaska Natives and American Indians, so our study is helpful for parents, physicians, and leaders in these communities in understanding the degree to which these conditions are present among AN/AI youth," said Toby C. Lewis, MD, MPH, University of Michigan School of Medicine, Ann Arbor, MI, who conducted the research with colleagues while at the University of Washington, Seattle, WA. "Health policy makers can also use this information to help develop culturally appropriate educational messages and intervention programs to address childhood respiratory illness in these communities."

Researchers affiliated with the University of Washington and the YK Delta Regional Hospital in Bethel determined how prevalent asthma and chronic respiratory symptoms were among AN/AI children in Alaska by studying a sample population of middle school students in the YK delta region of Alaska. Students in grades 6 to 9 from Bethel and two rural villages completed an asthma and allergy survey after watching an accompanying asthma video. A question was added to the basic survey to

identify children who had frequent productive cough. Of the 466 completed surveys, 377 students identified themselves as AN/AI, from which 40 percent reported chronic respiratory symptoms of some kind and 60 percent reported no symptoms. Of those AN/AI students with symptoms, 7.4 percent reported being physician-diagnosed with asthma, 11. 4 percent reported asthma-like symptoms in the last year, and 21.5 percent were categorized as having chronic productive cough without asthma or asthma-like symptoms.

Geographic location within the YK delta was significantly associated with certain respiratory problems. Productive cough was nearly three times as prevalent in village students than students living in town. Conversely, students living in town were more than two times as likely to suffer from asthma and asthma-like symptoms than students in villages. Overall, students with respiratory symptoms were more likely than asymptomatic students to report respiratory-related sleep difficulties and activity limitations.

"The reasons for variation in respiratory conditions within the YK delta are not clear," said Dr. Lewis. "There is a well-established, unified health-care system across the region, and, therefore, we do not think these differences are due to lack of access to health care or differences in diagnostic practices. Rather, we suspect there may be differences in environmental conditions that either increase risk or are protective for the children, and that these conditions vary within the region."

Dr. Lewis notes that chronic productive cough has not been well-studied in the general population and may be an underappreciated form of chronic respiratory symptoms in children. "Other reports are beginning to emerge from Australia and New Zealand of native children having difficulties with chronic productive cough. This seems to be an issue that extends beyond Alaska."

"More than five million children in the United States are currently diagnosed with asthma, and asthma rates continue to increase each year," said Paul A. Kvale, MD, FCCP, President-Elect of the American College of Chest Physicians. "With a better understanding of how asthma affects specific populations, such as Alaska Natives, we may gain insight into how asthma can be more effectively managed and prevented."

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EARLY CHILDHOOD EAR INFECTIONS LINKED TO ASTHMA

Parents' Education Level May Influence Reporting of Ear Infections in Children

(NORTHBROOK, IL, May 10, 2004) – Children with recurrent ear infections may have an increased risk of developing asthma, says a study published in the May issue of *CHEST*, the peer-reviewed journal of the American College of Chest Physicians. Study results showed that children with a history of multiple ear infections were twice as likely to suffer from asthma than children with no prior history of ear infections. Researchers also found that parents with higher education levels reported significantly more ear infections in their children than did parents with lower education levels.

"The prevalence of ear infections has increased significantly over the years, paralleling the rise in asthma rates. Our study confirms the association between the two conditions, showing that ear infections in early childhood may lead to asthma later in life," said lead researcher Kamal Eldeirawi, Division of Epidemiology and Biostatistics, School of Public Health, University of Illinois at Chicago, Chicago, IL. "It is possible that specific viruses or bacteria that cause recurrent ear infections may play a major role in the development of asthma. It also is possible that antibiotics that are commonly used to treat ear infections increase the risk of asthma, but more research is needed in this area."

In a cross-sectional study, researchers from the University of Illinois at Chicago utilized data from the Third National Health and Nutrition Examination Survey conducted from 1988 to 1994 to examine the association of ear infections with the lifetime prevalence of asthma or the prevalence of wheezing in the past year. The study population included 7,538 children aged 2 to 11 years with complete medical history of asthma, wheezing, and ear infections, as well as data on age, sex, and ethnicity, and parental education level and history of tobacco use. Study results indicated that the rate of ear infections in children was significantly associated with an increased risk of asthma and

wheezing. Furthermore, as the number of ear infections increased, so did the likelihood of having asthma and experiencing wheezing in the past year. Children with three or more ear infections during their lifetime were twice as likely to have asthma than those children without ear infections. Wheezing also was significantly associated with a lifetime history of ear infections in children without asthma.

The rate of ear infections increased with parental education level, with parents completing more than 12 years of education reporting the most ear infections (76.54 percent) in their children and parents with less than seven years education reporting the least ear infections (54.23 percent). Overall, 72 percent of children included in the study had at least one ear infection in their lifetime, 9.24 percent were diagnosed with asthma, and 19 percent had a history of wheezing in the past year. The prevalence of asthma was significantly higher in male children (10.55 percent) than female children (7.87 percent), and varied by age group, with the highest asthma rate reported for children 6 to 8 years and the lowest for children 2 to 3 years. Participants with a parental history of asthma or hay fever experienced a higher rate of asthma than did those without parental history of asthma.

"Parents with higher education levels may be more likely to enroll their children in daycare, and daycare attendance has often been linked to recurrent ear infections," said Eldeirawi. "In addition, well-educated parents may have better access to health care and, therefore, may be more knowledgeable about ear infections and, thus, more likely to report ear infections." Researchers caution that additional long-term follow-up studies are needed to confirm the relationship between childhood ear infections and prevalence of asthma.

"Determining the relationship between ear infections and asthma may help to identify or even anticipate health problems in children, while enabling physicians to provide more effective treatments for these conditions," said Richard S. Irwin, MD, FCCP, President of the American College of Chest Physicians.

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ASTHMA PROGRAM MAY IMPROVE STUDENT GRADES, DECREASE ABSENCES

(NORTHBROOK, IL, May 10, 2004) – Detroit public school children living with asthma may have fewer absences and improve their grades with the help of a new comprehensive asthma program.

In a study published in the May issue of CHEST, the peer-reviewed journal of the American College of Chest Physicians, Detroit children with asthma participating in a school-based asthma program had 34 percent fewer absences than children with asthma not enrolled in the program. Children in the program also received significantly higher science grades and experienced fewer daytime symptoms than students with asthma not involved in the program.

"Asthma and its symptoms can greatly impact the school life of a child," said Noreen M. Clark, PhD, University of Michigan School of Public Health, Ann Arbor, MI. "Our new asthma program shows that by involving the child, parents, and school system in asthma management, children with asthma can experience substantial physical and academic benefits."

Researchers from the University of Michigan Medical School and School of Public Health, and Henry Ford Health System, Detroit, MI, introduced an interventional asthma program into 14 Detroit elementary schools with the intention of evaluating the program's effects on symptom management and school attendance and performance. Participating schools were randomly selected to either receive the program or serve as the study control group with the option of receiving the program at a later date. A total of 835 students with asthma (98 percent African-American), grades 2 to 5, were included in the study, with 416 students receiving the asthma program and 419 students in the control group. The program was implemented over a period of 24 months and involved asthma education for students with asthma and their classmates, asthma education and management

training for school personnel and parents, and communication to the asthmatic child's physician encouraging the completion of an asthma action plan for the child.

At the completion of the program, parents reported that children in the treatment group had 34 percent fewer asthma-related absences than children in the control group. However, school absence records, which do not account for the cause of absences, showed no significant difference in absences between the groups. In addition, science grades for treatment children were significantly higher than grades for control children, while all other academic grades remained similar between the groups. Results were based on school records and parent and caregiver interviews at the beginning of the program and at 12 and 24 months after intervention.

"Our intervention techniques included age-appropriate lessons related to physiology and lung function, which may have helped to improve science grades for treatment children," said Dr. Clark. "It also is possible that the deductive nature of the program activities may have enhanced the ability of the children to address science problems in general."

In regard to asthma symptoms, children in the treatment group experienced 17 percent fewer days with asthma symptoms than the control group. In addition, children in the treatment group with persistent asthma had 15 percent fewer nighttime symptoms than the control group; however, children in the treatment group with mild periodic asthma showed a 40 percent increase in nighttime symptoms. Results also showed that parents whose children were participating in the program took additional and more frequent steps to manage their child's asthma than parents of children in the control group.

"Asthma symptoms that are mild and sporadic may be less noticeable to family members," said Dr. Clark. "Families involved in the asthma program may have been more aware of their child's nighttime symptoms and therefore more likely to report them."

"As health-care providers, we are constantly striving to find more effective ways of managing asthma in children," said Paul A. Kvale, MD, FCCP, President-Elect of the American College of Chest Physicians. "With a support network of community and school-based asthma programs combined with physician intervention, children with asthma and their families may be better

prepared to manage asthma-related symptoms."

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EMBARGOED UNTIL MONDAY, JUNE 7
5 PM EASTERN

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WEIGHT LOSS MAY HELP OBESE WOMEN BREATHE EASIER

Obese Patients May Be Misdiagnosed With Asthma

(NORTHBROOK, IL, June 7, 2004) – Losing weight may help obese women improve their lung function and exercise capacity but has little effect on asthma severity, a finding that may suggest obese patients can be misdiagnosed with asthma.

In a study published in the June issue of *CHEST*, the peer-reviewed journal of the American College of Chest Physicians, researchers found that lung function and exercise level significantly improved after obese women lost weight and that women who lost the greatest amount of weight experienced the most significant improvements. However, the same women had no significant changes in airway reactivity, a defining feature of asthma, leading researchers to believe that some obese patients may be misdiagnosed with asthma.

"Having extra weight compromises all respiratory muscles, making them work harder and less efficiently. As a result, women who are obese may limit their exercise or activity level due to shortness of breath, and, therefore, may have a more difficult time losing weight," said Shawn D. Aaron, MD, Msc, The Ottawa Hospital, Ottawa, Ontario, Canada. "As women in our study lost weight, less stress was placed on the respiratory system, which ultimately helped them breathe easier and exercise more."

Researchers from The Ottawa Hospital, the University of Ottawa, and the Ottawa Health Research Institute studied how weight reduction in obese women would affect lung function, asthma severity as measured by airway reactivity, and overall quality of life. Fifty-eight women were enrolled in a 6-month weight reduction program, consisting of a strict diet regimen, exercise, counseling, and weekly follow-up appointments. Patients had a mean age of 44 years, mean weight of 254 pounds (115 kg), and mean body mass index of 43.1**,** while 41 percent suffered from asthma**.** Patient assessments were completed prior to treatment, and 3 and 6 months after enrollment, and included a respiratory questionnaire, breathing and airway response tests, and documentation of respiratory symptoms, medication use, diet, exercise, and exposure to allergens and tobacco smoke.

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Upon program completion, patients lost an average of 44 pounds (20 kg) or 17.4 percent of their pretreatment weight, and mean body mass index was reduced to 37.1. For every 10 percent of pretreatment weight lost, patients' forced expiratory vital capacity (FVC), the maximum amount of air exhaled at full lung capacity, improved by five percent. In addition, patients' forced expiratory volume (FEV_1), the amount of air exhaled forcefully in one second, improved by four percent. Patients who lost more than 13 percent of their pretreatment weight had more significant improvements in lung function and exercise level than patients who lost less than 13 percent of initial body weight. Patients who lost more than 20 percent of pretreatment weight experienced the most improvement with a 10 percent increase in overall lung function. In patients with asthma, no relationship was found between weight reduction and changes in asthma severity as measured by airway reactivity, leading researchers to conclude that control of the patients' asthma did not improve with weight loss. In addition, all patients, regardless of weight loss, reported an improvement in their overall quality of life, with the most dramatic change seen in the exercise level of patients.

"Many obese patients are diagnosed with asthma due to their asthma-like symptoms of reduced lung function, wheezing, and shortness of breath, when, in actuality, their symptoms are caused by pressure on the respiratory system due to excess weight," said Dr. Aaron. "In our study, weight loss improved lung function, yet, did not affect asthma, indicating that increased lung function occurred due to stress reduction on the respiratory system, rather than improvements in asthma. It also is possible that some of our patients may have never had asthma, suggesting that other obese patients with asthma may be misdiagnosed." Researchers caution that additional studies are needed to confirm the relationship between obesity and misdiagnosis of asthma.

"Obesity has a significant impact on nearly every system in the body, leading to such conditions as cardiovascular disease, diabetes, cancer, and respiratory complications," said Richard S. Irwin, MD, FCCP, President of the American College of Chest Physicians. "Due to the extent and severity of health implications related to obesity, it is important for health-care providers, regardless of specialty, to encourage obese patients to lose weight and offer resources to support patients through the weight loss process."

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