Integrating public health and primary care can both improve quality of care for a population and lower health costs. Both components of the health system share a common goal of health improvement, have similar funding streams and resources, and share many partnerships. If aligned, public health and primary care working together could achieve lasting, substantial improvements in individual and population health in the United States. State and territorial health agencies can make a significant impact in this area by decoding the key elements for successful integration, which can then be shared with others to promote further integration efforts, increase healthcare quality, lower costs, and improve overall population health.

The Connecticut Department of Public Health (CDPH) collaborated with local health departments, multiple healthcare organizations, and health insurance providers to establish an evidence-based home visitation program focused on indoor asthma triggers and education about asthma as a chronic illness. Asthma Indoor Risk Strategies (also known as “Putting on AIRS”) is a statewide program that covers a variety of community settings, from urban to suburban to rural, with a focus on patients with asthma who rely on emergency rooms as a primary source of healthcare.

BACKGROUND
Asthma affects an estimated 18.7 million adults and 7 million children in the United States.1 About nine people die from asthma every day.2 There is no cure, but individuals can prevent attacks with proper self-management, medical care, and trigger avoidance. Americans spend up to 90 percent of their time indoors, and indoor allergens play a significant role in triggering asthma attacks.3

OVERVIEW OF THE INTEGRATION EFFORT
In 1999, the Ledge Light Health District teamed up with the Connecticut Department of Social Services and Lawrence + Memorial Hospital to pilot test a program to reduce the number of school and work absences, emergency department visits, and urgent care visits to primary care providers because of asthma. Putting on AIRS, a program of the New London County Asthma Action Partnership was designed to promote asthma attack prevention methods to individuals with asthma in New London, Connecticut.

Physicians from Lawrence + Memorial and representatives from the Connecticut Department of Social Services took the lead on referring patients to the program. With input from the physicians and nurses, CDPH developed patient education and home assessment materials. These materials included educational brochures such as “Helping Your Child Manage Asthma: A Parent Handbook,” “What Everyone Should Know About Asthma,” and “Controlling Asthma and Allergies in Your Home.” Materials also included an asthma action plan and fact
sheets on medications that can be tailored to each participant. With support from CDC and EPA, the Putting on AIRS program has expanded beyond New London County and is now statewide.

The Putting on AIRS program serves diverse populations in seven funded asthma regions in Connecticut. Participants include children, adults, or families who are referred from healthcare providers, school health services, or insurers, as well as self-referrals. This program involves the collaborative efforts of regional public health departments, school health services, and primary care. In addition, the AIRS program also partners with the state department of education, school nurses, day cares, interested citizens and the American Lung Association. It is free to anyone regardless of income or insurance status. One local health department in each region takes the lead to expand the program to other health departments within their respective region. Local health department staff provide patient education and a home environmental assessment. A nurse, health educator, or respiratory therapist, who may also be a certified asthma educator, conducts the education session, reviews medications and administration techniques, and provides phone support and followup after the initial visit.

Putting on AIRS referrals are sent to a program coordinator at the local public health department. Prior to the initial home visit, a nurse administers a questionnaire to the participant via telephone. The same nurse accompanies a registered sanitarian/environmental health specialist to the home. The sanitarian conducts an environmental assessment of the home, identifying asthma triggers and making recommendations to reduce or eliminate exposure. The nurse reviews the assessment results and shares them with the patient. Before leaving, staff provide the participant with a folder of educational information as well as a tailored action plan and medication fact sheet.

From this point on, the nurse conducts followup with the participant at two-week, three-month, and six-month intervals. Results from the home assessment are used to develop an action plan that outlines low or no-cost options to reduce or eliminate the trigger sources. Two weeks after the initial visit, the nurse follows up, either in person or by telephone, to evaluate the participant’s progress in implementing the recommendations suggested on the In-Home Evaluation Summary and to answer any questions regarding asthma management.

After three months, the nurse contacts the participant to review progress in implementing the care plan recommendations. If progress is not occurring, another visit is encouraged. Otherwise, the nurse collects data regarding self-reported missed days from school or work due to asthma, rescue inhaler use, symptom frequency, and asthma-related emergency room visits and physician visits.

At the six-month mark, the nurse makes a final follow-up call to determine if additional support or answers to questions are needed. The nurse collects final data regarding self-reported missed days from school or work due to asthma, rescue inhaler use, symptom frequencies, and asthma-related emergency room visits and physician visits. If applicable, data are shared with the family, school nurse, and physician. The information is also returned to a regional coordinator for data entry. Results from the home assessment inform a final environmental summary care plan that outlines low or no-cost options to reduce or eliminate asthma trigger sources.

RESULTS/BENEFITS
Data analysis from the first year indicated that only 20 percent of participants in the Putting on AIRS program met the criteria for well-controlled asthma, 16 percent for not-well-controlled asthma, and 64
percent for very poorly controlled asthma. At the six-month followup, the mean number of asthma-related unscheduled acute care visits, days absent from school/work, and rescue inhaler use decreased by 87 percent, 82 percent, and 74 percent respectively. The percent of participants with very poorly controlled asthma decreased from 64 percent to 13 percent at the six-month followup. All changes were statistically significant at p < 0.05. A net savings of $26,720 per 100 participants was estimated at the six-month followup due to decreases in unscheduled acute care visits for adults and children.

INFRASTRUCTURE TO SUPPORT COLLABORATION AND SUSTAINABILITY

With grant funding from CDC and EPA, CDPH has been able to expand Putting on AIRS throughout the state. To manage its growth, as noted previously, Putting on AIRS works directly with one local health department in each region. The chosen department takes the lead on expanding the program to other health departments and forming partnerships within their respective region.

The coordination between healthcare and public health is a key component of the success of this intervention. Communication among members of regional health departments and partnerships with other community services agencies is also critical to avoid duplication of services.

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