2014 Gage Awards

Reference #	7492460
Status	Complete
Name of hospital or health system	Cook County Health and Hospitals System
Name of project	Healthy Lungs Initiative Clinical Tobacco Control Program
CEO name	Ramanathan Raju, MD, MBA
CEO approval	Check here to confirm that your CEO approves of this project being submitted for a 2014 Gage Award
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Within which of the two categories does your application best align?	Population Health

1. Provide a brief description of the project. (This section should resemble an abstract for a poster presentation or an abstract for a peer reviewed journal. Include an objective, data sources, study design, findings, and conclusions.)	The goal of the Cook County Health and Hospitals System (CCHHS) Healthy Lungs Initiative (HLI) Clinical Tobacco Control Program is to provide access to multidisciplinary cessation services during routine patient care. In designing HLI, we understood that CCHHS, which has one the highest proportions of uninsured and African-American patients among essential hospitals, had a special opportunity to address a vulnerable smoking population. HLI was launched in 2008, funded by a county tobacco tax allocation, and guided by Healthy People objectives to increase (1) tobacco screening and counseling in healthcare settings, (2) cessation attempts and success, and (3) smoke-free homes. Elimination of primary and secondhand tobacco exposure greatly improves health outcomes. Demographic factors distinguish disparities in access to evidence-based practices, smoking-attributable mortality, and home smoking exposure. African-Americans, the uninsured and Medicaid recipients, and people living in poverty have very low rates of cessation. The HLI team includes clinical content experts, information technology specialists, and a partnership with a local non-profit public health association. We designed the program using the Chronic Care Model. We based our protocols on the Public Health Service guideline, and incorporated findings of systematic reviews, lessons from key clinical studies, and public health recommendations for smoke-free homes. We developed patient education materials and trained and maintain a staff of 7-14 multilingual health educators. Each educator electronically records their clinical encounters, including core tobacco data. Through November 2013, HLI had 11,899 inpatient, 24,992 individual outpatient (primary, specialty, and urgent/episodic care), and 9,942 group contacts with smokers at CCHHS and safety net partners. We assessed sustained cessation (at least 12-months quit) for CCHHS smokers with repeat HLI contacts. By using comparable follow-up intervals between visits to the National Health Interview Study (NHIS) protocol, we compared the HLI cessation rates to contemporaneous U.S. population rates. We also assessed predictors of cessation, number of cigarettes among continuing smokers, and adoption of smoke-free homes. We demonstrated cessation rates above the US population, overall (9.3% vs. 6.6%), and for each NHIS grouping of gender, age, race/ethnicity, insurance status, and medical care contact. Independent baseline predictors of cessation included Latino ethnicity, light smoking, reporting a smoke-free home, inpatient encounter, and additional HLI encounters. For continuing smokers, the average number of cigarettes per day decreased from 9.6 to 8.5 ($p<0.001$). The proportion of baseline smokers living in a smoke-free home increased from 34.3% to 42.4% ($p<0.001$).

	In spite of the risk for very poor cessation outcomes for the CCHHS population, the program's cessation rates are well above the national average. We found additional educator contacts to be an independent predictor of cessation, indicative of a positive program effect. HLI is a model clinical tobacco control program for essential hospitals and safety net health systems.
1A. Attachment, if applicable (Applicable examples include a peer reviewed journal article, other content published in the literature, or a presentation at a national meeting)	OutcomesforaPublicHospitalSystemTobaccoCessationProgramManuscriptwithFigures.pdf (370k)

2. Describe the methods use in this project. Include where, why, and how the project was accomplished.	The Chronic Care Model informed the HLI tobacco control program design. The model elements include (1) self-management support: cessation assistance education and written materials; (2) clinical information system: a program database to manage, evaluate, and improve the program and interface with the CCHHS electronic medical record (EMR); (3) delivery system design: integrating health educators into each clinical site's workflow; (4) decision support: for physician prescription of cessation medications through educator-clinician communication and an HLI intranet site; and (5) accessing community resources: electronic referral of outpatient smokers to the state telephone Quitline for follow-up. We used the 5A Model (Ask, Advise, Assess, Assist, Arrange) of the cessation guideline, creating unique protocols for inpatients and outpatients drawn from evidence-based best practices. We wrote cessation plans appropriate to patient literacy levels that emphasize behavior change strategies, recommend smoke-free homes, and address cessation medications. The protocols are tailored to patients' circumstances and maximize the time and intensity of service within the context of routine care. We work closely with information technology specialists to develop, maintain, and access data from a secure web-based database in which the educators record each encounter and core tobacco data. The database pulls demographics from the health system registration fields and has logic rules to write a standardized EMR note that includes, when appropriate, nicotine replacement dose and duration. The database is used to track productivity and supports program evaluation. To administer the program, we partnered with the Respiratory Health Association (RHA), a highly regarded regional public health association. RHA developed additional safety net venues for our program with primary care and substance use treatment providers. The project team works with clinical leaders throughout CCHHS to strengthen HLI service integration. We developed the educators' unique area of expertise to deliver structured, high-intensity counseling and education focused on behavior change skills and building confidence. Bachelor's and Master's level individuals with backgrounds in counseling, education, and public health were hired as health educators. Their training in smoking cessation, which we developed, includes didactics, "shadowing" of experienced program educators, and observation of educator-patient interactions by program leadership. To deepen the educator skills, our bi-weekly team meetings focus on continuing education and program improvement, with literature updates, case discussions, and review and recalibration of interventions components. The Clinical Director, who has a public health and counseling background, provides ongoing supervision and attentively supports the educator team.

	The educators work in multiple high volume sites. At present, they staff the two CCHHS hospitals, seven CCHHS primary care clinics, specialty care clinics for which tobacco is an important risk (for example, pulmonary medicine, cardiology, head and neck cancer), urgent/episodic care, where patients may have limited established access to preventive care, and three substance use treatment programs.

3. Describe the results of the project. What data was used to support improvement results?	HLI educators classify smokers as Current (any past week smoking), Recent Quit (up to one year), and Remote Quit (one year or more). Among baseline smokers with repeat contacts, we can use follow-up Remote Quit designation to determine the self-reported sustained cessation rate. Sustained cessation, our primary outcome, is the most durable patient-level smoking cessation program outcome. For comparison, two recent NHIS analyses address U.S. population self-reported six-month sustained cessation rates: 6.2% (2001-2010) and 6.6% (2005-2009). The 2001-2010 analysis demonstrated cessation disparities, with low rates for demographic groups most common at CCHHS: ages 45-64, 4.7%; African-Americans, 3.3%; uninsured, 3.6%, and Medicaid recipients, 4.6%. The 2006-2009 analysis reported a 7.2% cessation rate for individuals with any preceding year medical contact. In order to closely replicate the NHIS methods, we developed an “analytic cohort” by selecting baseline Current Smokers from the HLI database who had an HLI contact after 12-18 months. This follow-up window results in initiation of cessation during the same timeframe as the NHIS assessment, with the HLI definition of sustained cessation definition being more stringent than the NHIS (12 vs. 6 month quit). 755 individuals, with initial HLI contact September 2008-February 2011, met the case definition for inclusion in the analytic cohort. 70% were age 45-64, 69% were African-American, 70% were uninsured, and 13% were on Medicaid. The cessation rate was 9.3%. For each demographic group of gender, age, race/ethnicity, and insurance status, HLI cessation rates are greater than for NHIS. For those with only the baseline HLI contact, the cessation rate was 7.4%, and 11.9% for those with additional intervening contacts. In a multivariate model, additional educator contact independently predicted cessation (OR 1.70, 95% CI 1.01–2.85). Other independent predictors of cessation included Latino ethnicity, light smoking, reporting a smoke-free home, and inpatient encounter. For continuing smokers, the average number of cigarettes per day decreased from 9.6 to 8.5 ($p<0.001$). The proportion of baseline smokers living in a smoke-free home increased from 34.3% to 42.4% ($p<0.001$). A complementary analysis for the Asthma Clinic, where clinic procedures routinely expose patients to HLI asthma education (thereby minimizing referral bias) examined 548 patients with HLI contacts separated by at least 180 days (mean 413 days). The rate of smoking declined from 29.0% to 23.9% ($p=0.06$). A comparison of Recent Quit rates at baseline (when Recent Quit precedes HLI exposure) to follow-up (when Recent Quit is subsequent to HLI exposure) showed an increase from 2.2% to 4.0% ($p=0.04$). Patients reporting smoke-free homes increased from 73.4% to 79.2% ($p=0.03$), with all

	designations of smoking status showing increases in smoke-free homes. In a series of qualitative interviews in the Asthma Clinic, the program received positive patient feedback on the content and interactions with educators.
3A. Attachment, if applicable (Only graphically displayed data such as charts will be accepted. Data should include baseline and improvement data)	GageApplicationData.pdf (356k)

4. Describe what happened as a result of the project. Was the improvement related to the intervention? Can the project be duplicated by other organizations?	The clinical content of HLI is well-described in the medical literature, and there are strong grounds to devote a portion of tobacco taxes to cessation programming. There is a rich evidence base for clinical tobacco cessation; the key elements of tobacco guideline, initially published in 2000, are enduring through updates. Yet health systems are slow to develop systematic approaches to smoking cessation. Where they exist, the interventions are often brief, focused on quitline referrals, and include written recommendations, such as discharge instructions. None of these take full advantage of the clinical opportunities within healthcare encounters. For essential hospitals, there are additional concerns. To function close to the “top” of the guideline, as HLI does, requires significant staff development. Yet, resources are often constrained. We provide care to patients with risk for very poor cessation outcomes, for whom there is potential for “hardening” of cessation. We are unaware of data showing whether clinical cessation interventions increase smoke-free homes. Strengthening the evidence base describing successful program development and outcomes is likely to help essential hospitals establish and maintain programs. We have used the innovative HLI experience to demonstrate compelling evidence of benefit. To this end, we have written a paper that is in peer-review (attachment #1). For the HLI analytic cohort, we focus on comparison with NHIS Medicaid recipients. Medicaid recipients have economic disadvantage yet receive healthcare, making them the single best NHIS sub-group for comparison to HLI. The HLI overall quit rate of 9.3% (95% CI 7.3%-11.6%) is double the NHIS Medicaid population cessation of 4.6% (95% CI 2.7%-6.5%), again with ours a more stringent definition. Each key HLI sub-group is above the NHIS Medicaid cessation rate. The finding that additional HLI contact independently predicted cessation supports a direct HLI effect. The Asthma Clinic data analysis takes a complementary approach, with similar findings. The smoking rate dropped and there was a 1.8X increase in cessation initiation as measured by the Recent Quit rate. In both the analytic cohort and the Asthma Clinic, we saw increases in the reporting of smoke-free homes. This is a valuable public health goal, especially for persons with chronic illness such as asthma, and supports smokers’ cessation efforts. The qualitative interviews indicate that patients received the intended content and are satisfied with the educators. These analyses provide consistent evidence of HLI’s robust effect. While maintaining a clinical focus, HLI routinely supports CCHHS and community initiatives; annually promoting the Great American Smoke-Out, providing education at CCHHS cancer survivorship programs, promoting tobacco-free living for the workforces of Cook County and community partners, and staffing health fairs. We

	believe that HLI and CCHHS influence social norms – promoting the desire, efficacy, and expectation for cessation and reduced environmental tobacco exposure.
5. Describe how patients, families, and if appropriate, community was included in the work.	We have communicated program outcomes to CCHHS governance and administration, presenting to the board's Quality and Patient Safety Committee. We presented at professional meetings, including the Chicago Asthma Consortium, the Ottawa Conference on Tobacco or Health, and the American Public Health Association. The program is a resource for the professional education activities at CCHHS. We broadly communicate public health messages. In some settings, the educators screen for tobacco use (over 76,000 additional contacts), imparting the program's messages and materials through the community of our patients. When family is present in clinical venues, with the patient's permission, educators engage them to support the patient's quit attempt. Educators may also provide cessation education to visitors who smoke, encouraging them to create smoke-free homes. Recently, we faced a dilemma responding to e-cigarette use, a clear concern for tobacco control. Our educators asked patients to describe their motivation and experience with e-cigarettes, and at team meetings, shared patient stories. Our e-cigarette handout was then written to acknowledge patients' varied motivations for using e-cigarettes. Importantly, we engage smokers in the training of educators. They consent to have program supervisors observe educator-patient interactions, and regularly provide feedback on their experience at the conclusion of these interventions. Recently, when asked what he had learned from an intervention, a patient responded, "I learned that you think smoking is important." We believe our program conveys the importance of tobacco as a health issue, helps patients quit, and changes social norms in the communities served by our essential hospital.
5A. Attachment, if applicable (Applicable attachments include documents created for patients, families, or community members or by them as a result of the project)	EducationalHandouts.pdf (666k)
Last Update	2013-12-16 06:31:09
Start Time	2013-12-16 05:40:28
Finish Time	2013-12-16 06:31:09