

Quality and Productivity Commission
27th Annual Productivity and Quality Awards Program
"Saluting County Excellence"

20.0

2013 APPLICATION

Title of Project (Limited to 50 characters, including spaces, using Arial 12 point font):

NAME OF PROJECT: REDUCTION OF HEALTHCARE-ASSOCIATED INFECTIONS

DATE OF IMPLEMENTATION/ADOPTION: JANUARY 1, 2010
 (Must have been implemented at least one year - on or before June 30, 2012)

PROJECT STATUS: Ongoing One-time only

HAS YOUR DEPARTMENT PREVIOUSLY SUBMITTED THIS PROJECT? Yes No

EXECUTIVE SUMMARY: Describe the project in 15 lines or less using Arial 12 point font. Summarize the problem, solution, and benefits of the project in a clear and direct manner

1 Reduction of healthcare-associated infection (HAI) is a national public health priority. In
 2 the US, ~2,000,000 HAIs with 99,000 associated deaths occur annually. HAIs are
 3 reportable to national agencies and publically available; awareness among the public
 4 and legislators has increased dramatically. We initiated a multi-disciplinary program to
 5 create Awareness and Action for 1) reducing the number of three common HAIs and 2)
 6 improving hand hygiene compliance. We implemented innovative incentives and
 7 procedures for line staff, unit-based HAI prevention "competitions", hospital-wide HAI
 8 prevention "celebration and awareness weeks", regular face-to-face rounds with staff to
 9 share ideas about how to encourage removal of unneeded medical devices, engaged
 10 administration to perform hand hygiene observation, led multi-disciplinary Task Forces
 11 to centralize progress reporting and feedback, and also obtained independent funding to
 12 partially support this effort. From 1/1/10-12/31/12, we reduced the total number of
 13 predicted HAIs by 68% (including a predicted 7 deaths) and increased hand hygiene
 14 compliance from 34% to 76%, a 124% increase. Prevention of HAIs avoided an
 15 estimated \$2,495,771 in healthcare costs (\$1,247,886/yr), and improved patient safety.

(1) ESTIMATED/ACTUAL ANNUAL COST AVOIDANCE	(2) ESTIMATED/ACTUAL ANNUAL COST SAVINGS	(3) ESTIMATED/ACTUAL ANNUAL REVENUE	(1) + (2) + (3) TOTAL ESTIMATED/ACTUAL BENEFIT	SERVICE ENHANCEMENT PROJECT
\$ 1,247,886	\$ 0	\$ 0	\$1,247,886	

SUBMITTING DEPARTMENT NAME AND COMPLETE ADDRESS Department of Infection Prevention and Control Harbor-UCLA Medical Center – Building F10 1124 West Carson Street, Torrance, CA 90502	TELEPHONE NUMBER 310-781-3646
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PROGRAM MANAGER'S NAME Kenneth Zangwill, MD	DATE 6-7-13	TELEPHONE NUMBER 310-781-3623
		EMAIL kzangwill@labiomed.org

PRODUCTIVITY MANAGER'S NAME AND SIGNATURE (PLEASE CALL (213) 893-0322 IF YOU DO NOT KNOW YOUR PRODUCTIVITY MANAGER'S NAME) Gerardo Pinedo Director of Government Relations & Policy	DATE 6-21-13	TELEPHONE NUMBER (213) 240-7948
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DEPARTMENT HEAD'S NAME AND SIGNATURE MITCHELL H. KATZ, MD DHS DIRECTOR	DATE	TELEPHONE NUMBER (213) 240-8101
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FACT SHEET – LIMITED TO 3 PAGES ONLY: Describe the **Challenge, Solution, and Benefits** of the project, written in plain language. Include a discussion of the technology and linkage to the County Strategic Plan. The description should identify Performance Measures.

CHALLENGE: A healthcare-associated infection (HAI) is an infection a patient develops while in the hospital which was not present at admission. Five percent of all U.S. inpatients contract an HAI, including over 2,000,000 cases and 99,000 deaths/year. Patient morbidity is often debilitating and direct annual medical costs exceed 35 billion dollars. HAI prevention is a high priority issue of the major infectious disease and healthcare epidemiology societies and formal HAI prevention objectives for Healthy People 2020 reflects the commitment of the US Public Health Service to this problem.

HAI occurrence stems from a combination of interwoven events and circumstances. Risk factors for patients include long hospital stays, ICU admission, and the use of medical devices such as central venous catheters and endotracheal tubes (used to provide artificial lung ventilation), among others. A large proportion of patients have at least one of these risk factors. Environmental risk factors including poor hand hygiene among healthcare providers (germs readily pass from person-to-person via the hands) and other conditions that lead to patient crowding and/or mitigate against good environmental cleaning and patient care flow.

Because so many different issues increase the likelihood of an HAI, prevention is a complicated and significant challenge. It is well-known that HAI prevention programs require solutions to infrastructural barriers and behavioral issues inherent to healthcare systems. For example, the risk of a patient acquiring a central-line associated HAI increases with each day that line is in place. Healthcare providers, however, are not very good at reliably assessing the need for such a line from day to day. Keeping the line is convenient for a variety of reasons and motivation to remove them is often blunted. Similarly, poor hand hygiene compliance is an issue that is a matter of personal responsibility. Examples such as these begin to illustrate why prevention of HAIs is a challenging endeavor for those charged to do it. At Harbor-UCLA, the Department of Infection Prevention and Control has the primary responsibility for HAI prevention.

SOLUTION: The objectives of our program were to 1) improve healthcare staff awareness of the need to prevent HAIs; 2) solicit and implement innovative strategies to minimize their occurrence; and 3) achieve and maintain improvements over time. The Performance Measures were occurrence of central-line associated HAIs, ventilator-associated HAI, *C. difficile* diarrhea, and hand hygiene compliance. Importantly, our program was meant to serve our patients, not fulfill a regulatory mandate. It was hospital administration’s belief that any decrease in HAIs would be of benefit, reflect the quality of our patient experience and care, improve job satisfaction and hospital reputation, and also enable cost mitigation. We did not use any new technologies; its success relied on the use of innovative approaches, more efficient use of proven

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procedures, increased situational awareness of our staff, and Administration leadership as to expectations. The intervention involved raising Awareness and taking Action.

Our solution was guided by the belief that motivating staff to prevent HAIs requires a sense of individual value and contribution, constructive feedback, and clear expectation from leadership with action, not just words. Behavioral research shows that this approach can effectively increase productivity in many work environments. Top-down memos and policies are necessary, but not effective instruments of change in a dynamic hospital environment. Our approach, therefore, provided overlapping messages, targeted towards individuals, provided in different environments, and with repetition over time.

For Awareness, we conducted active and broad educational campaigns including face-to-face meetings with various staff groups (e.g. respiratory therapy, nursing units, etc). These sessions often also utilized a “train the trainer” approach wherein a small group is educated by our Department and then empowered to teach a much larger one. We instituted a revolving screen saver program with new, timely, and simple HAI prevention messaging often using pictures of individuals known to staff. We also attempted to “carpet bomb” - and with repetition – healthcare staff with short lectures and more formal educational activities (e.g. Grand Rounds) on HAI prevention strategies.

We conducted three HAI awareness “weeks” (“National Hand Hygiene Week!” and “International Infection Prevention Week!”), although they were not necessarily national or international at the time. Our belief was that a bit of levity can engage more interest. These weeks included education, hand culturing of staff to show how dirty their hands really were, free giveaways, use of a “rolling sink” to demonstrate good practices, and other activities. We also led 2 high profile and good-natured hand hygiene competitions. The winning teams received hospital-wide recognition and lunch with the CEO.

For Action, we instituted several changes in medical practice. These included 1) use of the “CLABSI (central line-associated bloodstream infection) bundle” by clinicians every time a central line is inserted; realtime checks and procedures used with line placement, which also empowers any individual to stop the procedure if something is amiss; 2) online entry of line insertion to allow for better monitoring and more accurate HAI reporting; 3) chlorhexidine disinfectant mouth wash for ventilated patients; 4) chlorhexidine body baths for all ICU patients to decrease skin germ colonization; 5) diluted bleach for final cleaning of all rooms after patient discharge (the most effective disinfectant); 6) a reminder system wherein every time healthcare personnel use the computer for patient care - a full screen “Alert” appears if the patient has one of 3 specific dangerous germs that cause HAIs; and 6) a “progressive discipline” policy for hand hygiene compliance (up to termination for repeat offenders).

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We also instituted Central Line Leadership rounds twice monthly attended by clinicians, nurses, and importantly, administration. Herein, we check the medical chart for documentation that physicians assess the need for these lines (daily) and also engage staff to solicit ideas on how to improve the situation. All information is presented in various venues, including the CLABSI and Hand Hygiene Task Forces.

BENEFITS: We used published guidelines for defining HAI and for estimating its economic burden. Our team lowered the number of HAIs by over 68% (145 serious infections avoided) and raised hand hygiene compliance from 34% to 76% (124% increase). This resulted in avoidance of >\$2,495,000 in direct medical costs (>\$1,247,000/year). This effort directly benefits our patients, staff, hospital, and the LA County Dept of Health Services (LAC DHS). Most importantly, avoiding potential life-threatening infections in patients is paramount to our County’s mission of providing high-quality, patient-centered, cost-effective health care.

Our results are a credible marker for improved care and heightened patient safety. In an era when public reporting of HAIs is mandated and more importantly, scrutinized by patients and regulators, actual information to support a claim of a higher level of care quality is always desired. Although difficult to measure, satisfaction among staff has also certainly been positively affected. Our staff knows that accrediting and regulatory bodies cite US hospitals on deficiencies in HAI prevention efforts. To clearly show important reduction of HAIs is welcomed and the successes feed upon itself. For example, certain of our ICUs have had zero central-line ass’d HAIs for many months, sometimes even 1-2 years. “Countdown from last CLABSI” signs are posted and (particularly) the nurses take great pride. This is evident through discussions with our Department and within continuing HAI-related Task Force meetings.

In addition to the substantial direct medical costs avoided by the hospital, indirectly some revenues may accrue as well. Beginning 10/1/08 the Centers for Medicare and Medicaid Services began denying payment for central-line associated HAIs. Thus, for an individual patient who avoids an HAI and is discharged more quickly, that patient’s (now) available bed space can be filled, potentially, with a different patient with a reimbursable diagnosis.

The benefits are clear for the LAC DHS as well. Its hospitals are often grouped together for comparison to other hospitals in the State or elsewhere. Any improvement in HAI prevention or patient safety is of interest to the public and reflects well on LAC DHS. Increasingly, the reputation of the healthcare system, as with individual hospitals, is based in part on publically reported data, such as occurrence of HAIs.

LINKAGE TO THE COUNTY STRATEGIC PLAN (DETAIL IS REQUIRED FOR COUNTY DEPARTMENTS): Our project utilized several core Plan Values: We used a team/collaborative approach to accomplish our primary objective of servicing customers (patients) by enriching their lives through effective service (fewer HAIs) which required operational effectiveness.

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COST AVOIDANCE, COST SAVINGS, AND REVENUE GENERATED (ESTIMATED BENEFIT): If you are claiming cost benefits, include a calculation on this page. You must include an explanation of the County cost savings, cost avoidance or new revenue that matches the numbers in the box. Remember to keep your supporting documentation.

Cost Avoidance: Costs that are eliminated or not incurred as a result of program outcomes.

Cost Savings: A reduction or lessening of expenditures as a result of program outcomes.

Revenue: Increases in existing revenue streams or new revenue sources to the County as a result of program outcomes.

(1) ACTUAL/ESTIMATED ANNUAL COST AVOIDANCE	(2) ACTUAL/ESTIMATED ANNUAL COST SAVINGS	(3) ACTUAL/ESTIMATED ANNUAL REVENUE	(1) + (2) + (3) TOTAL ANNUAL ACTUAL/ESTIMATED BENEFIT	SERVICE ENHANCEMENT PROJECT
\$1,247,886	\$ 0	\$ 0	\$ 1,247,886	<input type="checkbox"/>

ANNUAL= 12 MONTHS ONLY

The project prevented 11 central-line associated line infections (CLABSI, national data: \$29,160/incident case, had it occurred), 41 ventilator-associated pneumonia infections (VAP, national data: \$28,508/incident case), 13 cases of MRSA bloodstream infection (MRSA, medical literature \$21,251/incident case), and 80 cases of *C. difficile* diarrhea (national data: \$9124/incident case):

CLABSI: 11 cases x \$29,160 = \$320,760 avoided

+

VAP: 41 cases x \$28,508 = \$1,168,828 avoided

+

MRSA: 13 cases x \$21,251 = \$276,263 avoided

+

C. difficile: 80 cases x \$9124 = \$729,920 avoided

TOTAL = \$2,495,771 avoided over 2 years

Annual cost avoidance: \$2,495,771 divided by 2 years = **\$1,247,886 avoided/year**