During his visit to NASA in 1962, President Kennedy reportedly stopped a janitor carrying a broom and said “Hi, I’m Jack Kennedy. What are you doing?” The janitor’s profound response (as noted above) captures the essence of what it truly means to be part of a team devoted to achieving a mutual goal. Achieving bold objectives requires a multidisciplinary team approach with commitment from leadership and grassroots staff alike—the entire hierarchy of an organization must work toward a common goal.

Whether it is manning a space flight or optimizing care for patients in the intensive care unit (ICU), a strategic approach that starts with goal setting and engages the whole team in the process of achieving these goals is likely to result in success. In health care, eliminating central line–associated bloodstream infections (CLABSIs) is one such objective that will significantly affect patient care in the ICU. CLABSIs cause significant morbidity and mortality, with increased health care costs. Fortunately, the recent trend in health care has been that of near-zero tolerance toward health care–associated infections (HAIs), including CLABSIs. Regardless of whether this trend resulted from or was caused by increased vigilance by various governing agencies in health care toward these infections, evidence...
suggests that near-zero tolerance is a reasonable expectation. Consideration must be given to the fact that the majority of CLABSIs are preventable, but a minority of them are identified as infections solely because of the highly sensitive surveillance definition used by the Centers for Disease Control and Prevention. These infections may not be preventable unless the contributing factors simultaneously are addressed, such as blood culture contamination or the inappropriate ordering of blood cultures. Multiple studies in a variety of patient populations have offered guidance on the prevention of CLABSIs. The methods used by these institutions vary, from focusing on a central line insertion checklist or bundle to environmental decontamination or hand hygiene; however, the commonality of all these studies—whether implicitly stated or not—is the inclusion of a multidisciplinary team with a defined goal of preventing CLABSIs.

**Introducing a Team Approach**

Eliminating CLABSIs requires hospitals to take several fundamental steps. First and foremost, the hospital and unit administration must embrace this goal, which can help institutions obtain the resources needed for procedural and cultural changes and also makes hospital administration more visible to the unit staff (and vice versa). This will provide incentive to improve at the unit level, especially if the process involves positive reinforcement strategies. The role of hospital administrators in quality improvement projects has been scarcely described in the literature, but the involvement of high-level hospital or health-system executives in eliminating HAIs can have far-reaching effects. The financial constraints being placed on hospitals by the governing bodies of health care, such as the Centers for Medicare & Medicaid Services, may actually help encourage administrative leaders to become excited about the prospect of reducing these infections. Goal setting may best be introduced through a gradual introduction of each benchmark and, upon achieving each goal, ICU staff and other key players in the process should be offered positive reinforcement.

The second step is to identify particular key players and then to form a team and assign them well-defined responsibilities related to process improvements, particularly in the ICU. Multiple disciplines are intimately involved in the care of patients in the ICU, so a methodical, multidisciplinary approach that addresses systemic issues may work better than an approach where multiple disciplines operate independently within silos. This is true regardless of the fact that they are working toward a common goal. Hospital leadership must coalesce the team through setting goals and encouraging all of the key players to buy into the idea that it is a critical step in the process. A typical multidisciplinary team of key players for process improvements may include the ICU medical director or the physician in charge of the unit, along with the nurse manager, the clinical nurse educator, and the clinical pharmacist. A physician can serve as both an educator and a portal to disseminate information about infections and performing process measures to all medical staff working on the unit. The nurse manager can serve a similar role for the nursing staff. A clinical nurse educator, if available, can monitor staff performance by auditing bundle elements and investigating the primary cause for each CLABSI, subsequently educating nursing and medical staff as needed. The critical care pharmacist may emphasize the conversion of IV medications to enteric forms, or at least conversions to less sclerotic forms that do not require central access, which reduces the need for central lines on a daily basis. As a result, achieving buy-in from grassroots staff and unit leaders is equally important to obtaining buy-in from hospital administrators for a performance improvement project.

**Strength in Numbers**

A team approach in ICUs is not a new concept, however. In fact, many hospitals feature daily multidisciplinary team rounds in the ICU. Multidisciplinary approaches for fundamental areas of ICU care, such as sedation management and ventilator weaning, consistently have been shown to outperform those of individual disciplines or practitioner-based protocols. Although there have not been elaborate descriptions of such an approach in the literature on CLABSIs, the efficacy of multidisciplinary leadership at the unit level has been proven. One striking shortcoming—even in studies that describe team approaches—is the integration of infection preventionists and/or epidemiologists into ICU teams. The integration of clinical epidemiology into the ICU team offers several advantages. First and foremost is maintaining enthusiasm toward the goal among executives and unit staff by providing real-time data and timely feedback about CLABSIs. This allows for the identification of missed opportunities shortly after an infection is detected, which promotes improved recall or the ability to correct factors that may have contributed to the event.

Leveraging the expertise of clinical epidemiologists also may prove useful in building process improvement strategies for CLABSIs and other HAIs. Clinical epidemiologists may have a role as moderators to facilitate smooth team functioning during difficult decision-making sessions that arise during process improvements. Organizational data transparency is equally important to goal setting during this process. This transparency is essential to promote the organizational culture shifts necessary to sustain success with CLABSIs.

Sustaining “near-zero” is more challenging than getting to “zero,” unless a culture of safety is integrated into the system. Transparency is an important component of this journey toward success; real-time feedback is a critical process to maintain the drive to carry on with performance improvements. As a unit approaches predetermined milestones or continues on extended CLABSI-free streaks, it is easy to imagine that individuals will develop an attitude where they do not want to
be the person who ends that streak. Interventions such as “time-from-event” signs, which are common in the manufacturing sector, now are becoming commonplace in the health care sector as hospitals encourage both staff and patients to become more aware of the goals set forth for CLABSIs.

There may be factors unrelated to bundle elements that play a role in the incidence of CLABSIs. Although many studies have shown that physician and nurse compliance with line bundles can greatly reduce infection rates, few studies have documented the complete eradication of line infections using only this intervention. The strength of the multidisciplinary approach is its ability to intervene on issues that may be contributing to the development of CLABSIs and that are not addressed by adherence to the central line insertion and maintenance bundle. The inclusion of infection prevention experts once again provides the ability to investigate and intervene on other factors contributing to CLABSIs. This will enable the team to identify and correct ancillary factors that may be contributing to infections. For example, hospital rooms have been implicated as a potential reservoir for the transmission of resistant organisms from one patient to another. An investigation may offer opportunities to identify areas of improvement regarding environmental cleaning processes, which subsequently can lead to the inclusion of environmental services into process improvements.15

Discussion

The multidisciplinary approach is, in essence, about changing the culture of a unit. Culture change is vital to sustain success, rather than temporarily targeting process measures to achieve a desirable outcome. Similar to landing a man on the moon, the elimination of CLABSIs and other HAIs is a difficult struggle in health care, but it is possible with the persistence of each individual team member. It also requires constant focus to sustain success once the benchmark of near-zero CLABSIs has been achieved. As tempting as it may be to transition on to the next problem once this milestone has been reached, it will become the team’s responsibility to ensure that measures are in place to maintain the best practices that were optimized during the process improvement project. Such an effort should be viewed as a program that will last indefinitely with minimal resources, since the process already has been integrated into the system. Without this assurance, it is feasible that rates of CLABSIs and HAIs may revert to pre-project baseline levels once the project is completed. Thus, it is extremely important to change the culture toward retaining these improvements by making sure that best practices become second nature to the unit’s medical and nursing staff before letting go of the reigns. In institutions where there is frequent turnover of medical and/or nursing staff, a plan for periodic assessments of activities related to bundle elements, along with periodic education, may help retain the project’s success.

In summary, a multidisciplinary leadership team that includes unusual yet critical players—such as clinical epidemiologists/infection preventionists and hospital administration—in addition to ICU physicians, nurses, and pharmacy staff, will provide a well-rounded and resourceful approach to reducing CLABSIs and other HAIs in the ICU. It is important to focus on processes aimed at sustaining the desirable outcomes rather than merely achieving them.

References


Drs. Exline and Sopirala reported no relevant conflicts of interest.