Implementing Best Practices in Pressure Ulcer Care: The Role of Continuous Quality Improvement

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Pressure ulcers are a common problem among nursing home residents that contribute significantly to the morbidity and mortality of care. Increasingly, evidence suggests that many of these pressure ulcers can be prevented, and the treatment of existing pressure ulcers improved, through the implementation of best practices. These best practices in the prevention and treatment of pressure ulcers have been identified and widely disseminated among clinicians practicing in nursing homes. Yet dissemination does not ensure adoption, particularly for something as complex as pressure ulcer care in nursing homes where successful methods for implementing best practices have not been consistently identified. The adoption of best practices and the corresponding reduction in pressure ulcer rates, though, is a priority that has been identified by diverse national organizations including the Department of Health and Human Services as part of its Healthy People 2010 initiative and the Strategic Framework Board for the National Quality Measurement and Reporting System.

Industrial models of quality improvement, known as continuous quality improvement (CQI) or total quality management, are being advocated as an important mechanism for promoting the implementation of best practices in medical care. A number of studies have now specifically evaluated the impact of CQI on pressure ulcer care in nursing homes. However, whether CQI can lead to the implementation of best practices for pressure ulcers remains controversial. We now review this evidence and its implications for clinicians practicing in nursing homes.

BEST PRACTICES IN PRESSURE ULCER CARE

Best practices are those processes of care that are believed to be consistently associated with improved patient outcomes. Best practices are often identified through randomized clinical trials that, when properly performed, provide the strongest evidence regarding the efficacy of a particular care process. In the absence of randomized clinical trials, identification of best practices often relies on observational studies that are subject to numerous biases, or to expert opinion, which is often wrong.

A number of clinical practice guidelines have been published that describe best practices in pressure ulcer care. In the early 1990s, the Agency for Health Care Policy and Research (AHCPR, now known as the Agency for Healthcare Research and Quality) published 2 guidelines related to pressure ulcer care. Subsequently, the American Medical Directors Association published their guideline that is specific for pressure ulcer care in nursing homes. More recent guidelines include those published by the Wound Ostomy & Continence Nurses Society and the Consortium for Spinal Cord Medicine. These guidelines have been supplemented by a number of systematic reviews. The Cochrane collaboration has published reviews on topics including use of support surfaces and nutritional supplements, while a recent JAMA article reviewed 59 randomized clinical trials on the prevention of pressure ulcers.

These guidelines and reviews have been limited, though, in that many practices recommended in the guidelines have not been adequately evaluated by randomized clinical trials. For example, in the AHCPR guidelines, only 4 recommended practices received a rating of “A” indicating that it was supported by at least 2 randomized clinical trials. The JAMA review identified only 2 studies addressing the important area of repositioning strategies. Additionally, when randomized clinical trials have been performed, they have generally been of poor quality. This suggests that what we currently consider best practices in pressure ulcer care may yet need revision as new studies are performed. Moreover, the link between these recommended practices and pressure ulcer rates is not firmly established.

Although we know much about best practices in pressure ulcer care, it is clear that they are often not being implemented in actual clinical practice. In 1 study at 35 Department of Veterans Affairs (VA) nursing homes, 15 guideline-recommended practices for pressure ulcer prevention were performed only 41% of the time. Similarly, among 29 northeastern nursing homes subject to a quality improvement intervention, many recommended processes of care were performed less than 50% of the time at baseline. This failure in implementation probably explains much of the unacceptably high rate of pressure ulcer development.
BARRIERS TO IMPLEMENTING BEST PRACTICES

Why then aren’t best practices being implemented in nursing homes? It is important to recognize at the outset that pressure ulcer prevention and treatment is extremely complex. High-quality pressure ulcer care has 2 major characteristics. First, it is highly collaborative. No single individual, no matter how clinically astute, is able to ensure the consistent delivery of quality care. Instead, many individuals and disciplines, including nurses, nursing aides, physicians, physical therapists, and nutritionists must work together. Such a high degree of collaboration places a premium on communication. Second, quality care is highly routinized. A key best practice in pressure ulcer care is ensuring that patients are repositioned every 2 hours. In a nursing home with 50 at-risk patients, this translates to thousands of repositionings that must be performed without fail each week. Unless methods are in place to ensure that such practices are consistently performed, failures are inevitable.

This complexity of pressure ulcer care is compounded by a number of additional barriers to the implementation of best practices. There is a tremendous knowledge deficit regarding pressure ulcer care. For example, among family physicians, many of whom attended in nursing homes, 70% felt that they had not been adequately trained in pressure ulcers and their mean score on a knowledge test was 74%. There are many competing priorities to providing quality pressure ulcer care in nursing homes. Typically, it only requires a single sick patient to disrupt the routine and prevent best practices from occurring. Among all staff, there is also likely to be tremendous resistance to changing practices. The common response to efforts at change is “but this is how we have always done it.” Staff must be willing to accept new innovations in pressure ulcer care.

Failures in management also constitute important barriers to care. Management often has not created a culture emphasizing teamwork and innovation, characteristics likely to be necessary for implementing new practices. Clear expectations as to appropriate care are often not expressed, leaving staff with little guidance. Even if staff are interested in changing practices, the lack of a well-developed quality improvement infrastructure will impede these efforts. This quality improvement infrastructure should include many of the techniques of CQI. Finally, many nursing homes lack a safety focus in which pressure ulcers are viewed by staff as a medical error caused by underlying system failures. Rather than trying to understand where the system failed, the focus is often to seek out someone to blame. This “culture of blame” will result in defensive behavior by staff and could limit efforts to improve care. These barriers will need to be overcome if best practices are to be successfully implemented.

CQI AS A METHOD FOR IMPLEMENTING BEST PRACTICES

CQI is now widely advocated as a method for improving care. However, what constitutes CQI is not always clear and the term is used at least 3 different ways in the literature. The term is used at least 3 different ways in the literature. First, CQI is a management philosophy of creating entire organizations that constantly strive to improve products and services. For an organization to actually adopt such an approach to care requires a major change in its culture, something that requires at least 3 to 5 years to accomplish. Second, CQI refers to a method employed in solving process problems. This method, known as the plan-do-study-act (PDSA) cycle, is composed of many small experiments initiated by staff to determine what can lead to better care. Through an ongoing process of planning a change to address a problem, doing the plan, studying the effects of the plan, and then acting on the results of the study, care should continuously improve. Third, CQI often refers to specific experiments to change the process of care. Typically, such experiments are composed of a combination of interventions incorporating staff education with audits and feedback on performance.

It is important to recognize that the focus of CQI is on process improvement. It is assumed that improved process will result in improved outcomes in terms of lower pressure ulcer rates. However, as discussed above, the link between many currently recommended processes and outcomes has not been well established, which could raise questions as to the ability of CQI to improve pressure ulcer rates. CQI, through, through repeated PDSA cycles, provides a mechanism to test what processes lead to better outcomes. This emphasizes the need to measure pressure ulcer rates when implementing process improvement through CQI.

Many CQI efforts now build on the approaches advocated in the Institute for Healthcare Improvement (IHI) Breakthrough Series. Key features include the identification of staff members to lead efforts at change, staff education on quality-improvement practices, the initiation of small projects composed of PDSA cycles, structured mentoring by quality improvement experts, the routine use of audit and feedback, and the shared learning of what works among all facilities involved in the process of improving care.

Although CQI is widely accepted as a useful method for implementing best practices, the evidence supporting this is limited. In large part, this reflects the difficulty in conducting appropriate clinical studies. Randomized clinical trials of CQI as a management philosophy are impossible to conduct because of the long time frame required and the fact that CQI will only succeed among those facilities that already “buy” into it. More commonly used are studies evaluating CQI as specific process changes using before-after and observational methodologies that tend to be less scientifically rigorous. A literature review of 55 published CQI interventions found that most of the studies that used a before-after design demonstrated improvements in care. However, no significant improvements were noted in the 3 studies using a more rigorous randomized design.

DOES CQI IMPROVE PRESSURE ULCER CARE?

The impact of CQI on pressure ulcer care has been addressed in a number of studies in recent years. As with other evaluations of CQI, most reports describe before-after studies. We describe here the results of several such studies, as well as...
practices were more satisfied and thought they were doing recommended processes of care or the rate of pressure ulcer quality-improvement implementation and performance on guideline adoption. However, there was no association between associated with greater staff satisfaction and reported guideline-adoption practices. Use of quality-improvement practices, in turn, was associated with management. The intervention included staff training, monitoring of care, and the use of incentives for staff members. Initial improvements in pressure ulcer rates were seen, with a significant decline in incidence rates of stage 2 and higher stage ulcers from 15.7% to 9.3%. These changes were not sustained postintervention when the rate increased to 13.1% with the termination of the quality-improvement initiative.

More ambitious was the Northeast Pressure Ulcer Project, undertaken by the Centers for Medicare and Medicaid Services. Twenty-nine nursing homes in New Jersey, Pennsylvania, and Rhode Island were recruited and provided training following the IHI Breakthrough Series collaborative. Nine of 12 process measures showed significant improvements following the intervention. For example, addressing risk factors in the care plan increased from 48% to 60% and the proper use of overlays in at-risk residents increased from 75% to 90%. No information was provided on 2 critical aspects: the impact of the intervention on pressure ulcer rates and whether the improvements were sustained.

Observational Studies

Observational studies have the advantage of being able to efficiently look at a large number of nursing homes. In one study of 35 VA nursing homes, organizational culture and extent of quality-improvement implementation were measured through employee surveys and related to outcomes including staff satisfaction, staff-reported guideline adoption, performance on guideline-recommended practices as documented in the medical record, and risk-adjusted rates of pressure ulcer development. Those nursing homes that had an organizational culture emphasizing innovation and teamwork were more likely to have adopted quality-improvement practices. Use of quality-improvement practices, in turn, was associated with greater staff satisfaction and reported guideline adoption. However, there was no association between quality-improvement implementation and performance on recommended processes of care or the rate of pressure ulcer development. Employees doing more quality-improvement practices were more satisfied and thought they were doing better, but actual improvements in processes or outcomes could not be demonstrated.

Before-After Studies

Many quality-improvement interventions have been described in single nursing homes. For example, in a 77-bed long-term care facility in Iowa that had received numerous citations by state regulators, an intervention was devised that consisted of introducing new management, developing new policies and procedures, educating staff, and performing audits and feedback on care. The intervention demonstrated an initial improvement in pressure ulcer incidence and time to ulcer development. However, the improvements could not be sustained when management changed. Similarly, a 136-bed Pennsylvania nursing home with a history of high rates of pressure ulcers developed an intervention to empower management. The intervention included staff training, monitoring of care, and the use of incentives for staff members. Initial improvements in pressure ulcer rates were seen, with a significant decline in incidence rates of stage 2 and higher stage ulcers from 15.7% to 9.3%. These changes were not sustained postintervention when the rate increased to 13.1% with the termination of the quality-improvement initiative.

Randomized Clinical Trials

A randomized clinical trial can provide the best evidence regarding the efficacy of CQI. In a study of 87 Missouri nursing homes, facilities were randomized to either a control group, a group receiving education on quality improvement along with feedback on performance, or a group receiving the education/feedback along with access to expert clinical consultation from advanced practice nurses. Outcome measures included change in performance on a range of Minimum Data Set quality indicators including pressure ulcer prevalence rates. Overall, there was no significant benefit from the intervention. However, among the 10 nursing homes that made extensive use of the expert clinical consultation, a nonsignificant trend in improvements was seen for several outcomes including pressure ulcers with a decline in the median rate from 6.5% to 2.8% (P = .08). Thus, improvements were only seen in those nursing homes willing and/or able to take advantage of these innovations in practice.

REDESIGNING NURSING HOME CARE

Shortell et al have argued that without an appropriate organizational culture, only small, temporary improvements will be possible. The above data are consistent with this view and suggest that while short-term improvements are possible, sustainable improvements in pressure ulcer care will necessitate care system redesign to bring evidence-based practice into the routines of day-to-day practice. Such a comprehensive transformation of care delivery goes beyond individual clinical decision making by providers. It requires the development of new “ways of working” within our nursing facilities. While several clinical models have been proposed for promoting best practices in health care, Rogers’ diffusion of innovation model

The Medicare Quality Improvement Organization (QIO) Program has been working with select nursing homes in all 50 states. Among the services provided were dissemination of information on best practices and multicontact educational interventions. In the 1380 nursing homes that elected to work with the QIO on pressure ulcers, the prevalence rate decreased by 0.8%. In contrast, the rate increased by 0.2% in the 11,075 nursing homes not working with their QIO. However, since the intervention nursing homes’ baseline rate was 1.7% higher, despite this improvement, their pressure ulcer rate remained higher than nursing homes not working with their QIO.

The VA experience with a quality improvement program for improving pressure ulcer care in nursing homes is also illustrative. In the early 1990s, pressure ulcer prevention was the subject of the first system-wide quality measure. Risk-adjusted rates of ulcer development were disseminated to all nursing homes and those with poor performance were offered assistance. In response to this initiative, the risk-adjusted rate of pressure ulcer development in the entire VA declined from 4.5% to 3.3%, a 27% reduction. However, in the mid-1990s, the VA began to focus on other quality measures, particularly those related to outpatient performance. Concomitantly, the pressure ulcer rate increased back to its original level. The improvements could not be sustained.
has undergone the most empiric testing by a variety of disciplines.28–33 According to this model, diffusion of an innovation, such as rate and extent of best practices adoption, is influenced by the nature of the innovation (eg, evidence-based practice guidelines) and the manner in which it is communicated (communication process) to members (nurses, physicians) of a social system (health care organizations; nursing facilities). Viewing best practices in pressure ulcer care as the innovation, this model provides a useful framework for identifying the factors within an organization that are crucial to successful implementation.

Efforts to incorporate evidence-based pressure ulcer care should address each of the 4 areas that influence the rate and extent of adoption of new “ways of working.” These include the characteristics of the innovation (eg, credibility and adaptability of the evidence-based pressure ulcer care guideline), the users of the practice innovation (eg, openness of physicians and nurses to innovation, perceived importance, perceived organizational support), the methods of communicating the practice (eg, staff education, change champion, core adoption team), and the social system in which it is being adopted (eg, policies and standards of the organization or patient care unit, leadership support, expectations for job performance, authority to change practice). The manner in which each of these areas of influence are addressed within an organization will determine the extent to which best practices are embraced and permanently entrenched in care delivery.

DEVELOPING A PROGRAM FOR IMPROVING PRESSURE ULCER CARE

Most nursing home medical directors do not possess the skills necessary to lead an organization through the extensive process necessary for such organizational change. However, this does not imply that medical directors should remain passive when confronting the problem of pressure ulcers. There are a number of actions that may be taken that help set the stage for future organizational change and may lead to improved pressure ulcer outcomes.

Medical directors should help promote the development of a quality-improvement infrastructure within nursing homes. Administration should constantly emphasize that quality of care is a priority. Measurement of performance and feedback should be routinely used so that all staff are aware of the pressure ulcer rate. Input should be sought from staff on how to improve care and small quality-improvement projects should be encouraged. Moreover, a patient safety focus should be adopted that encourages the view that pressure ulcers result from system failures. Each time a pressure ulcer develops, especially those that are stage 3 or 4, an analysis should be done to determine what went wrong and how the process of care can be improved. Clear communication among all staff will be required for all these efforts.

Additional staff education is a necessity. Typical lectures and in-services, though, generally have only a minimal impact on changing provider practices. Instead education should be individualized and based on lapses observed during the provision of routine care. Some of this education could be provided by a designated skin care expert or team that should be implemented. A team is generally preferable so that too much institutional knowledge is not lost should one person leave.

Finally, the difficulty in providing highly routinized care needs to be addressed. Prompting methods should be developed to remind staff when regularly scheduled repositionings are due. A turn clock in which all at-risk residents assume the same position at prespecified 2-hour intervals has been advocated as one approach for achieving this.

CONCLUSIONS

CQI can be used to implement best practices in pressure ulcer care and provides a mechanism for ongoing improvement. Evidence suggests that improvements in the process or outcomes of care will result from the use of a variety of CQI practices. The key challenge, though, is sustainability and whether these changes in practice become institutionalized. Success here may depend on changes in organizational culture that are inherent in adopting CQI as a management philosophy and way of doing things. Improved pressure ulcer outcomes may only be seen when we develop new approaches to organizational transformation as well as add to our knowledge of what truly constitutes best practices in pressure ulcer care.

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