Hospitallization can be a hazardous time for patients. Complications that occur as a result of hospitalization, such as venous thromboembolism, nosocomial infections, and medication errors, result in considerable morbidity and mortality. In this issue of Archives, Salisbury et al suggest that hospital-acquired anemia (HAA) may be yet one more potentially preventable complication associated with hospitalization. Anemia has been associated with worse clinical outcomes in the setting of acute myocardial infarction (AMI). The authors evaluated the association between HAA and blood loss from diagnostic phlebotomy in patients with AMI hospitalized in 57 US hospitals. Increased blood loss from phlebotomy was an independent predictor of HAA. Of particular interest was the finding that the mean phlebotomy volume in patients varied widely across individual hospitals, suggesting that some blood tests may have been simply “routine” and implying that reduction in the variability of care could potentially lead to reductions in HAA.

See related letter

According to a recent report from the Department of Health and Human Services, an estimated 1 in 7 Medicare beneficiaries experienced an adverse event in the hospital, and an additional 13.5% had events causing temporary harm. Of these, 44% were considered preventable and resulted in estimated costs of $4.4 billion in a given year. Adverse events were commonly related to medications (31%), but there were also not insignificant rates of urinary catheter–associated infections (3.9%), vascular catheter–associated infections (3.1%), venous thromboembolic events (3.9%), and health care–associated pneumonia (3.1%). Direct consequences of adverse events included increased hospital length of stay, permanent harm, additional interventions, and death.

Particularly since the publication of the Institute of Medicine report “To Err Is Human: Building a Safer Health System,” there has been increased attention focused on improving the safety of patients during hospitalization. Recent efforts to raise awareness of and motivate hospitals to reduce preventable adverse conditions have included consumer, regulatory, and funding agencies. For example, the National Quality Forum designates a number of conditions “serious reportable events,” commonly referred to as “never events,” including wrong-site surgery and severe hospital-acquired pressure ulcers. The Centers for Medicare and Medicaid Services subsequently announced that it will not reimburse hospitals for the additional costs incurred by some of these conditions.

The increased attention on patient safety has led hospitals to test and implement system-wide interventions, some of which have been found to be effective in reducing the rates of hospital-acquired complications. Institutions effective in improving hospital quality share several key features: an interest in promoting a culture of safety, involvement of local champions and multidisciplinary teams, adopting evidence-based standards of practice, rigorously measuring performance, and improving health system processes and infrastructure, including through the use of technology. Some of these interventions have shown dramatic results. The Michigan Health and Hospital Association Keystone intensive care unit project was a multicenter quality improvement initiative aimed at reducing catheter-associated bloodstream infections and ventilator-associated pneumonia. The project used a multimodal approach, including promoting teamwork and communication, checklists, monitoring with alerts, standardized forms, regular audits with feedback, and collaboration with hospital-based, infection-control practitioners. The intervention resulted in a remarkable 77% and 66% reduction in ventilator-associated pneumonia and bloodstream infection rates, respectively, as well as a subsequent reduction in hospital mortality.

A group of patients particularly vulnerable to hospital-acquired complications is older adults. Elderly individuals face unique challenges in the hospital setting and are at elevated risk for functional decline, falls, immobility and pressure ulcers, and acute delirium during hospitalization. Effective interventions that reduce the adverse consequences of hospitalization in elderly persons have often incorporated team-based and patient-centered strategies. For example, delirium in elderly patients has been
reduced by proactively addressing predisposing risk factors such as dementia, functional impairments, polypharmacy, sensory impairment, and environmental factors. Enhanced emphasis on early mobilization, patient engagement, multidisciplinary teams, and transitional care has formed the basis of geriatric intervention programs and acute care for the elderly units. Other efforts such as “hospital at home” programs offer alternatives to reduce and even prevent hospitalizations. In this issue of Archives, Ricauda et al describe a small randomized controlled trial of 69 patients evaluating a home-based radiology service as part of a large hospital at home program for older adults. Although small, this study demonstrates that such a program is feasible. Moreover, no patients in the group randomized to receive radiology at home developed delirium, compared with 17% of patients in the control group.

With the increasing evidence that health care system interventions can reduce or prevent many hospital-acquired complications, efforts to implement effective strategies to make medical care safer and more effective are crucial. As Salisbury et al highlight in their study, HAA could potentially be considered a hazard of hospitalization. Investigations on how to modify this risk (e.g., through reducing unnecessary phlebotomy or reducing the volume of blood obtained during a hospitalization) could provide important insights into how to reduce anemia in the hospital and improve the value and appropriateness of care. It is also essential to support further efforts to research alternatives to hospitalization and improve outcomes across the continuum of care. Improving the quality, efficacy, and value of health care is an ever more high-priority issue for hospitals, and efforts in this direction will hopefully make care better and safer for our patients.

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