The article by Dr Marilyn Rantz and colleagues on the impact of the Electronic Medical Record (EMR) in nursing homes is timely as health information technology (HIT) diffuses into the long-term care setting. The authors point out that implementation of bedside EMR in the nursing facility setting is not cost neutral and that increased costs are attributable to ongoing hardware and software expenses, continual technical support for the EMR, and constant staff orientation rather than to increased direct care staffing or increased staff turnover. They suggest that EMR use is associated with improved performance on selected quality indicators and that care can be enhanced even more with on-site consultation by nurses with graduate education in nursing and expertise in gerontology.

Although the prevalence of HIT in the long-term care setting has increased, analysis of data from the 2004 National Nursing Home Survey (NNHS) reveals that the increase has been driven mostly by electronic submission of Minimum Data Set (MDS) reports and billing activities. Aside from these functions, nursing home use of HIT for other activities such as daily care or transfers to the hospital was highly variable in 2004, but considerably higher than in previous National Nursing Home Surveys. Larger facilities and those that were part of a chain used more electronic information system functions than smaller stand-alone facilities. Membership in a chain may foster implementation of HIT because of the increased need for network-wide communication and availability of resources. For example, one large national continuing care retirement community organization that serves more than 20,000 residents on 20 campuses reports that providers successfully implemented HIT for clinical care of residents across multiple skilled nursing and assisted living facilities in 6 states. The organization used scenario-based training to help staff implement EMR use, which has been associated with positive outcomes, such as increased staff efficiency, increased face-to-face time with residents and families, improved vaccination rates, implementation of new quality initiatives, and the formation of electronic health information exchange between one retirement community and a local hospital.

Implementing HIT, including the EMR, has become a major objective for providers of health care in part because of HI-TECH, or the Health Information Technology for Economic and Clinical Health Act. HITECH is a component of the American Recovery and Reinvestment Act (ARRA) of 2009. Among other things, ARRA proposes to provide incentive payments to eligible professionals and hospitals participating in Medicare and Medicaid programs that achieve meaningful use of certified EMR technology. Proposed meaningful use requirements address areas such as computerized physician order entry, medication management, clinical documentation, reporting of quality measures, privacy and security, and health information exchange. From a practical perspective, medical directors should become actively involved as early as possible in strategic planning for the adoption and implementation of health information technology in their facilities because the medical director and the clinicians who practice in the facility will have to incorporate the selected EMR into their day-to-day practices. General issues related to adoption and implementation will be discussed first followed by some comments on meaningful use.

General issues related to adoption and implementation are beginning to be clarified. A study of long-term care nurses, administrators, and corporate executives identified barriers to and facilitators of adoption. Important barriers were costs, training needs, and the inability to make necessary culture change, whereas identified facilitators were an established, effective in-service educational structure, a well-defined implementation plan, government assistance with implementation costs, evidence that the EMR will improve care outcomes, and support from state regulatory agencies. In addition, the electronic information system's graphical user interface design, feature functionality, project management, procurement, and users' previous experience affect implementation outcomes. Concerns about privacy, patient safety, provider and patient relations, staff anxiety, time factors, quality of care, finances, efficiency, and liability can usually be mitigated by having strong leaders, using project management techniques, establishing standards, and providing effective staff training. In the end, however, widespread implementation of HIT continues to be limited by a lack of knowledge about what types of HIT and implementation methods will improve care and manage costs for specific health care organizations and settings.

Because meaningful use may ultimately be linked to incentive payments, 2 important areas of focus for medical directors are computerized physician order entry and medication management. Several published reports have addressed computerized physician order entry (CPOE) and medication management. A cluster-randomized controlled trial of the efficacy of CPOE with clinical decision
support for preventing adverse drug events in 2 large long-term care facilities (1118 residents) showed that CPOE did not reduce the adverse drug event rate or preventable adverse drug event rate.\(^9\) The authors suggest that alert burden, limited scope of the alerts, and a need to more fully integrate clinical and laboratory information may have affected efficacy.\(^9\) On the other hand, a randomized trial to determine the efficacy of a computerized clinical decision support system to assist prescribing in nursing facility residents with renal insufficiency did demonstrate that the use of computerized clinical decision support is associated with improved prescribing practices.\(^10\) A VA study describing the development and pilot testing of CPOE algorithms for 5 common nursing home problems (falls, fever, pneumonia, urinary tract infection, and osteoporosis) showed that with the exception of falls, the algorithms were used infrequently and when used, did not have a significant effect on outcomes.\(^11\) The limitations of these studies and others are that most are small, descriptive reports and do not evaluate features of alerts and prompts that might make them more effective in improving clinicians’ prescribing behavior.\(^12\) In addition, as long-term care is drawn into the world of HIT and especially the implementation and use of the EMR, the time and effort required to master the system and maintain skills are barriers to physician acceptance. Subramanian and colleagues\(^13\) suggest that multiple stakeholders, including physicians, nurses, facilities, pharmacies, laboratories, payers, and residents, will incur costs related to implementation of CPOE with clinical decision support (CDS) in the long-term care setting; however, the costs incurred may not be aligned with the benefits, and financial incentives to physicians and facilities may be necessary to promote and facilitate widespread use of CPOE with CDS in the long-term care setting.

Long-term care is at a critical point in its efforts to adopt and implement electronic information systems. Given the current state of flux of health care reform, it is difficult to anticipate what will happen next month, much less over the next 2 to 5 years. The best that medical directors can do now is to have ongoing conversations with administrators and corporate leaders and let them know that the medical director must be part of the facility’s HIT adoption and implementation planning process.

On behalf of medical directors across the country, the American Medical Directors Association (AMDA) has submitted formal comments to the Centers for Medicare and Medicaid Services (CMS) regarding meaningful use of EMR technology in long-term/postacute care (LTPAC) settings.\(^14\) In its general comments, AMDA encourages CMS to include language that defines the criteria for adoption of EMR in LTPAC settings, as many hospitals routinely communicate with these sites of care. As LTPAC settings become more pivotal in the delivery of quality care in the health care continuum, CMS should address meaningful use criteria for long-term care in future rule making and in defining eligibility for incentive payments.\(^14\)

AMDA made a number of specific comments to CMS as well, a few of which are highlighted here.\(^14\) AMDA urged CMS to provide physicians who practice in the LTPAC setting with incentives to adopt the EMR. Current incentives may not adequately cover the cost of connectivity and portable systems that long-term care physicians may require to achieve meaningful use. AMDA requested that CMS consider supporting alignment of roles and workflow across the care continuum because there are no incentives for alignment of work and for facilitating transfer of care beyond information exchange. It is critical to understand workflows and redesign inefficient processes to ensure successful adoption of CPOE. AMDA suggested that CMS consider the concept of collaborative documentation so that each provider can maintain the integrity of the documentation in terms of location, semantics, measurements, prior findings, and current plan of care. There are currently no incentives designed to create such an interoperable system.\(^14\)

For long-term care in the age of health information technology, it is the best of times, it is the worst of times. It is the best of times because all stakeholders see the potential of a well-designed electronic information system wherever care is delivered to vulnerable older adults. It is the worst of times because we seem so far away from a shared, Web-based EMR that would allow all authorized professional and paraprofessional providers as well as patients and their families to exchange information that can improve quality of care and enhance quality of life.

REFERENCES