Health Information Technology in Nursing Homes
Why and How?

Despite consensus that the use of health information technology (HIT) could lead to more efficient, safer, and better quality of care, in 2006, only 1% of nursing homes reported using basic-level HIT systems, such as electronic health records (Martin, Brantley, & Dangler, 2007; Poon et al., 2006). More recently, studies conducted in California and Minnesota reported a 20% to 32% rate of electronic health record implementation in nursing homes (Richard, Kaehny, May, & Kramer, 2009). The few randomized controlled trials on more advanced technology (i.e., clinical decision support systems) have reported reductions in inappropriate prescribing of medications when the systems are in place (Donovan et al., 2010; Judge et al., 2006). Currently, there are no incentives for nursing homes to implement even basic-level HIT systems; hence, limited research supports how these systems can improve quality of care and reduce costs.

Data from the National Nursing Home Survey conducted in 2004 indicated that 82% of nursing homes used electronic software to submit their Minimum Data Set (MDS) data to the Centers for Medicare and Medicaid Services (Jones, Dwyer, Bercovitz, & Strahan, 2009). This suggests that nursing homes can adopt technology into their everyday routines. However, even with this high level of MDS software use, only one third of nursing homes are using the more advanced features, such as medication tracking, available in their system (Liu, Castle, & Diesel, 2010). What can be done to inspire the adoption of basic and advanced technology in the nursing home setting? Nursing homes may be more inclined to adopt these technologies if data supported the effect of HIT on nursing home quality of care and cost containment.

QUALITY OF CARE

Poor quality of care is a significant issue in nursing homes because it is associated with pain and suffering, increased costs, and poor nursing home ratings. Research on HIT in hospitals has shown major improvements in quality of care through reduced medication errors, enhanced surveillance and monitoring, and improved adherence to evidence-based guidelines (Chaudhry et al., 2006). Adverse drug events and inappropriate medication prescribing in hospitals were reduced by 23% with the use of a computerized provider order entry system including a clinical decision support system (Bates et al., 1998; Colpaert et al., 2006). If nursing home research showed similar results, quality of care in nursing homes would be greatly improved. These improvements may then be reflected in better nursing home ratings, as reported on Nursing Home Compare (http://www.medicare.gov/nursinghomecompare). However, research on the effect of HIT in nursing homes is scarce, even for the most fundamental systems. Research on the effect of HIT on quality of nursing home care is urgently needed, and nurses should be at the forefront of this effort. The findings of such studies may motivate nursing home owners and administrators to adopt more advanced technology systems and may lead to improved nursing home care.

COSTS

Nursing home owners and administrators report that a main barrier to the adoption of HIT is the high costs associated with both the hardware and software (Cherry, Carter, Owen, & Lockhart, 2008). Future research should investigate the effect of HIT on direct costs associated with medication administration and medication errors, acquired pressure ulcers, urinary tract infections, and falls. The costs of HIT systems may be offset by a reduction in direct care costs.

Research has the potential to support additional cost savings. Advanced technology systems used in hospital settings, such as clinical decision support applications, have been shown to streamline processes, support effective decision making, integrate complex tasks, and
provide real-time data, especially related to medication safety (Brandeis, Hogan, Murphy, & Murray, 2007; Scott-Cawiezell et al., 2009). Improvements in processes and real-time reporting can reduce medication costs, supply costs, and staffing costs. In turn, these savings will offset hardware and software costs.

CONCLUSION

Nurses should be active participants and leaders of interprofessional teams that will design and test the effectiveness of HIT systems for nursing homes. Additional descriptive research is needed on the current level of HIT adoption in nursing homes, the design features and level of IT sophistication of current systems, and the needs of users for future systems. Research is urgently needed to determine the effects of HIT on quality of care and costs in nursing homes.

REFERENCES


Carla Spinelli-Moraski, MSN, RN-BC
Graduate Research Assistant and PhD candidate

Kathy Richards, PhD, RN, FAAN
University Professor and Assistant Dean
Doctoral Programs and Research Development
George Mason University
College of Health and Human Services
School of Nursing
Fairfax, Virginia

The authors have disclosed no potential conflicts of interest, financial or otherwise.
doi:10.3928/19404921-20130712-01