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Policy Brief

Health Information Technology Policy and Rural Hospitals

The Potential Relationship between Health Information Technology and Quality of Care

- Clinical errors result in at least 44,000 deaths and direct medical costs of $17 billion annually, imposing a substantial burden on the health care system and society as a whole (Institute of Medicine, 1999). Technologies such as electronic medical records, computerized physician order entry, and electronic medication administration records are designed to reduce opportunities for miscommunication between health care professionals. These technologies facilitate care pathway and decision support system implementation, and hold the potential to improve care coordination, decrease errors and resultant costs.
- Numerous studies have assessed the relationship between health information technology (HIT) and clinical quality. Several demonstrate that hospitals experience error reductions subsequent to HIT adoption (Kuperman and Gibson, 2003; Garg, 2005; Chaudhry et al., 2006) and suggest that HIT may reduce mortality and improve quality (Amarasingham, et al., 2009). Some evidence suggests that these results may be due to adoption being most prevalent in otherwise high quality hospitals (Parente and McCullough, 2009). Other studies have not found empirical evidence that HIT improves clinical quality or may have unintended consequences (Ash et al., 2004; Berger and Kichak, 2004; Koppel et al., 2005).

Key HIT Applications in Critical Access Hospitals and Other Rural Hospitals

- The vast majority of HIT research has focused on HIT adoption and impact in urban institutions. Of the 18 studies reviewed by Kuperman and Gibson, all were case studies of either one or two hospitals conducted at academic medical centers, and none were conducted at rural hospitals.
- The Institute of Medicine report on the Future of Rural Health (2005) emphasized the importance of HIT as a vehicle for improving the quality and safety of health care in rural communities. The report also highlighted the challenges many rural communities face in HIT adoption including financial constraints, limited access to capital, inadequate infrastructure, and limited HIT workforce support.
- A study of HIT use in Critical Access Hospitals (CAHs) concluded that "Medicare cost-based reimbursement has permitted many CAHs to make some initial investments in HIT infrastructure" but found that CAHs had much lower use rates for most clinical applications than larger urban hospitals (Casey et al., 2006). Another study found that rural hospitals spend 2% of their annual operating budget on HIT activities, with less activity in smaller rural hospitals (Schoenman, 2007).
- Rural hospitals in general and CAHs in particular continue to lag urban hospitals in HIT adoption (Table 1). Our preliminary analysis suggests that these differences have persisted or grown during 2007 and 2008.

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Table 1. HIT Prevalence in Critical Access, Rural and Urban Hospitals, 2006

Type of technology[1]	CAH's	Rural Hospitals	Urban Hospitals
Electronic medical records (EMRs)	36%	41%	55%
Computerized physician order entry (CPOE)	8%	11%	20%
Medication administration records (MARs)	18%	22%	31%
Nurse charting/documentation	19%	27%	35%
Lab order entry and communications	69%	84%	93%
Radiology picture archiving and communications systems (PACS)	26%	34%	52%
Cardiology picture archiving and communications systems (PACS)	3%	7%	18%

Data source: Upper Midwest Rural Health Research Center analysis of data from the Healthcare Information and Management Systems Society Analytics Database

[1]Note: our HIT measures differ substantially from those recently used by Jha et. al. (2009) that focus on relatively sophisticated systems. Our measures focus on more common place applications. Given that only 1.5% of all hospitals have comprehensive systems in 2008, we feel that this is a more appropriate approach, particularly for rural hospitals.

Policies for Encouraging HIT Adoption in Rural Hospitals

- MedPAC (2004) and the Institute of Medicine (2005) have recommended several strategies to further use of HIT, including financial incentives and technical assistance for health care providers. The Agency for Healthcare Research and Quality and the Federal Office of Rural Health Policy are funding projects to plan, implement, and demonstrate the value of HIT to improve quality and patient safety in rural areas.
- Ideally, HIT subsidies should be targeted towards institutions that are unlikely to adopt HIT but would produce substantial value in adoption (Orszag, 2008). Mandates may constitute a more cost effective strategy for inducing adoption, but impose costs on providers. Both subsidies and mandates are difficult to target efficiently.
- The American Recovery and Reinvestment Act of 2009 provides approximately $19 billion in subsidies to increase HIT adoption, along with requirements that providers implement "meaningful use" of electronic health records by 2015 or face reimbursement reductions. While the funds are intended to spur widespread HIT adoption, incentives for CAHs are considerably lower than for other hospitals (Wenzlow et al., 2009). Some argue that cost-based reimbursement provides CAHs with sufficient financial resources for HIT, but this implicit subsidy has been in effect while CAHs have lagged far behind other hospitals in HIT. It is crucial that HIT investment and diffusion be carefully monitored.

Additional Information

The information in this policy brief was developed by Jeffrey McCullough, PhD, Assistant Professor, Michelle Casey, MS, Deputy Director, and Ira Moscovice, PhD, Mayo Professor and Director, Upper Midwest Rural Health Research Center.

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