

HIT Implementation in Critical Access Hospitals: Extent of Implementation and Business Strategies Supporting IT Use

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Introduction

- Hospital size has been shown to have a systematic relationship to progress on implementation of health information technology (HIT)^{1,2}
- For small hospitals that convert to Critical Access Hospital (CAH) status, their Medicare payment methodology changes from a prospective payment system (PPS) to retrospective cost-based³
- CAHs' positive finances have permitted many to refurbish aging facilities, enhance patient quality,⁴ and invest in HIT⁵



Research Objectives

- The goal of this study was to review the rural landscape in the use of HIT by examining CAHs in Iowa, a predominantly rural state with a large sample of CAHs
- To help understand the variability in HIT use by CAHs, business strategies for supporting HIT implementation are examined and the relationship between common approaches and HIT use is explored

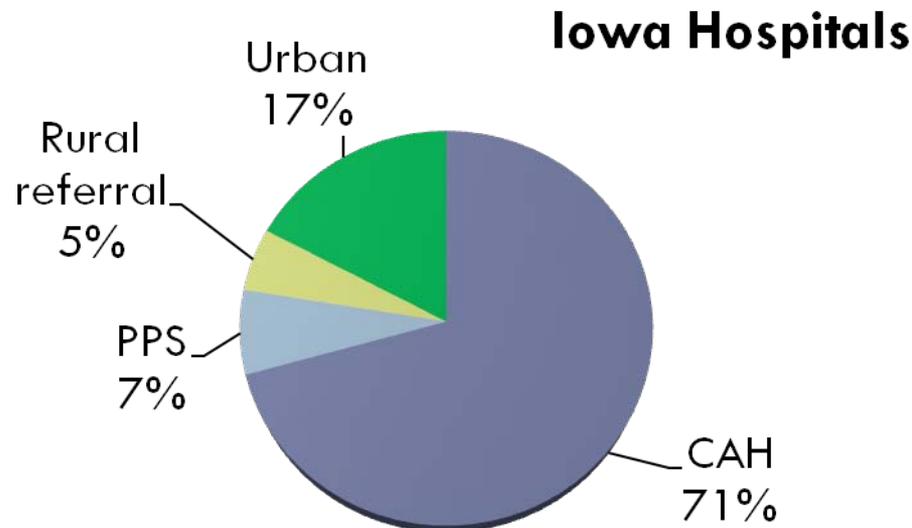


Our Survey of HIT Capacity

Part 1	Part 2
Focus – profile of the hospital in terms of technology resources and capacity	Focus – actual technology applications used for business and clinical operations
Information Collected : <ul style="list-style-type: none">• the number of IT staff• extent of use of consultants, vendors, ASP• if the hospital was part of a network	Information Collected: <ul style="list-style-type: none">• 46 HIT applications, both business and clinical• whether each application was operational, being installed, or in the planning stages
Response Options – 5 point Likert-type scales (ranging from “not at all” to “a great deal”) for extent items	Response Options – for applications currently operational, being installed, or budgeted, information on the chosen vendor was collected

Hospital Distribution in Iowa

- The survey was mailed to all hospitals in Iowa (N=116)
- 82 Iowa hospitals are designated as CAHs – the focus of these analyses⁶

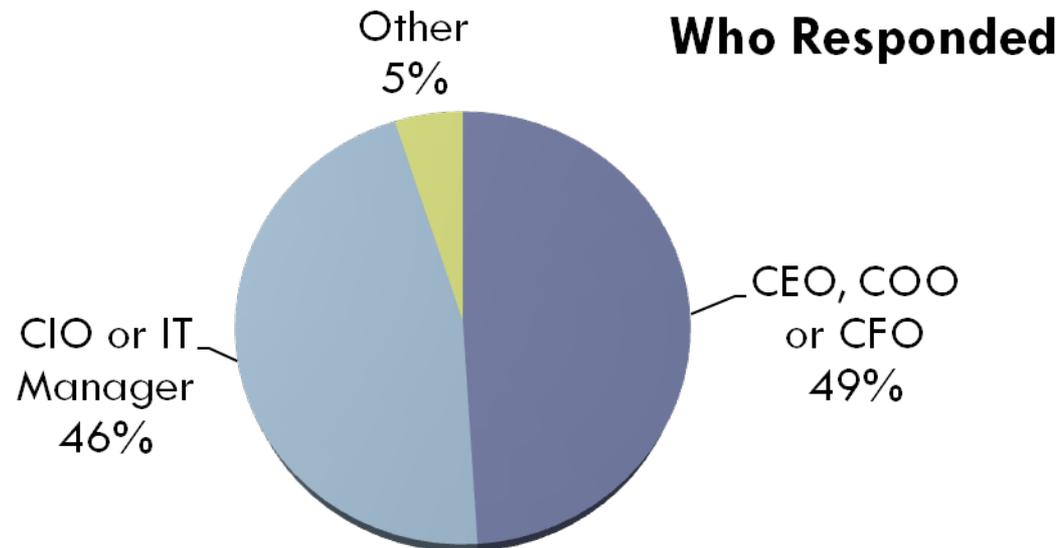


Data Analysis

- The survey data were entered into Microsoft Access using double data entry
- Access datasets were exported to SAS version 9.1 for analysis
- Descriptive analysis was performed to investigate the application of HIT in CAHs
- Chi-square tests were used to compare subsets of CAHs
- A p-value of $<.05$ was used to indicate statistical significance

Who Responded?

- Overall, 85% of hospitals and 85% of CAHs (N = 70) returned completed surveys
- For the CAHs, half of the responses were from the CEO, COO or CFO, and almost half were from the CIO or IT Manager



Basic IT Use in CAHs

Almost All CAHs

- have a website presence (90%)
- use local area networks (85%)
- use intranets within their organizations (79%)

Two-thirds of CAHs

- use technology for remote interpretation of digital images (65%)
- use technology for consultative support through telemedicine (62%)

Majority of CAHs

- have client server applications (66%)
- have laptops and/or tablet PCs (66%)
- have nursing call systems (59%)

Business and Clinical Applications

Business applications

- Financial systems (96%)
- Patient registration (97%)
- Patient billing IT systems (97%)
- Billing coding IT systems (86%)
- Inventory control (79%)

Clinical Information Systems

- Inpatient laboratory (86%)
- Pharmacy (70%)
- Radiology (56%)

EHR/EMR Systems in CAHs

Status of EHR/EMR Availability

- 29% of CAHs have implemented systems
- 14% are currently installing
- 13% have it budgeted and
- 32% are planning
- 13% have no plans



Top 3 Vendors of EMR among CAHs

- CPSI (26%) Dairyland (25%) Meditech (12%)

CPOE and CDSS Use in CAHs

CPOE –
computerized
provider order
entry

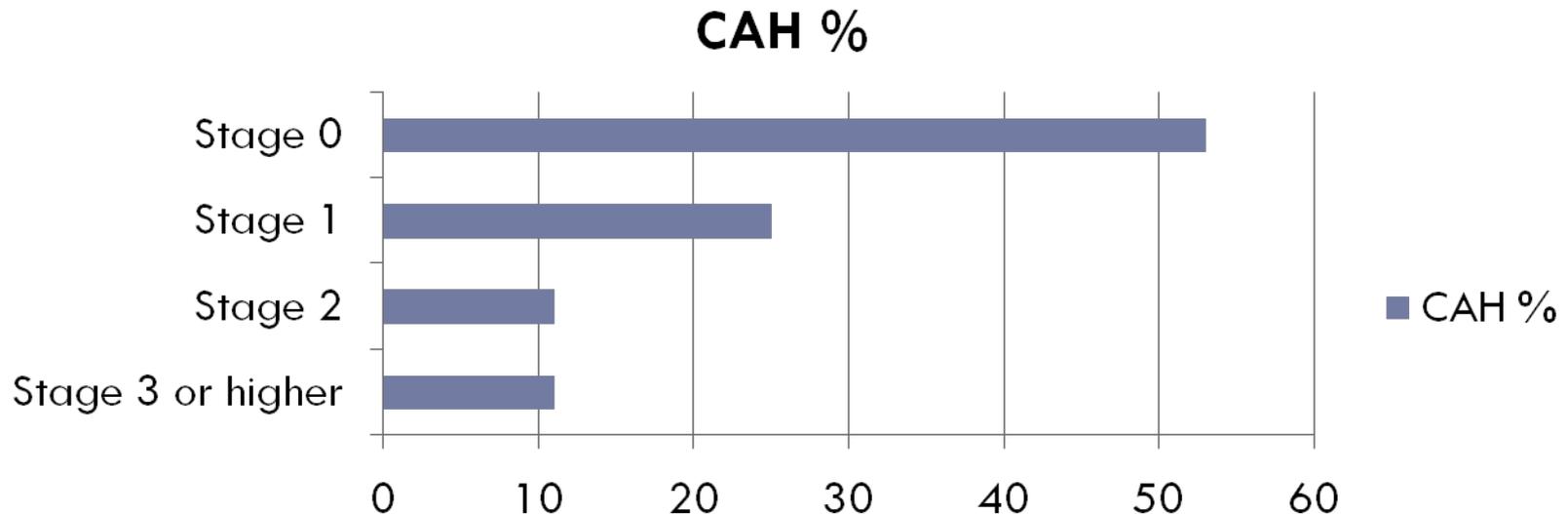
- 12% have CPOE operational
- 13% are currently installing
- 26% have it budgeted
- 36% have no plans

CDSS –
clinical
decision
support
systems

- 14% have CDSS operational
- 5% are currently installing
- 4% have it budgeted
- 74% have no plans

HIMSS Analytics Stages of EMR in CAHs

- Based on HIMSS Analytics 8-stage model for the measurement and understanding of EMR capabilities in hospitals⁷, the current survey indicates that:
 - 53% are in Stage 0
 - 25% are in Stage 1
 - 11% are in Stage 2
 - 11% are in Stage 3 or higher

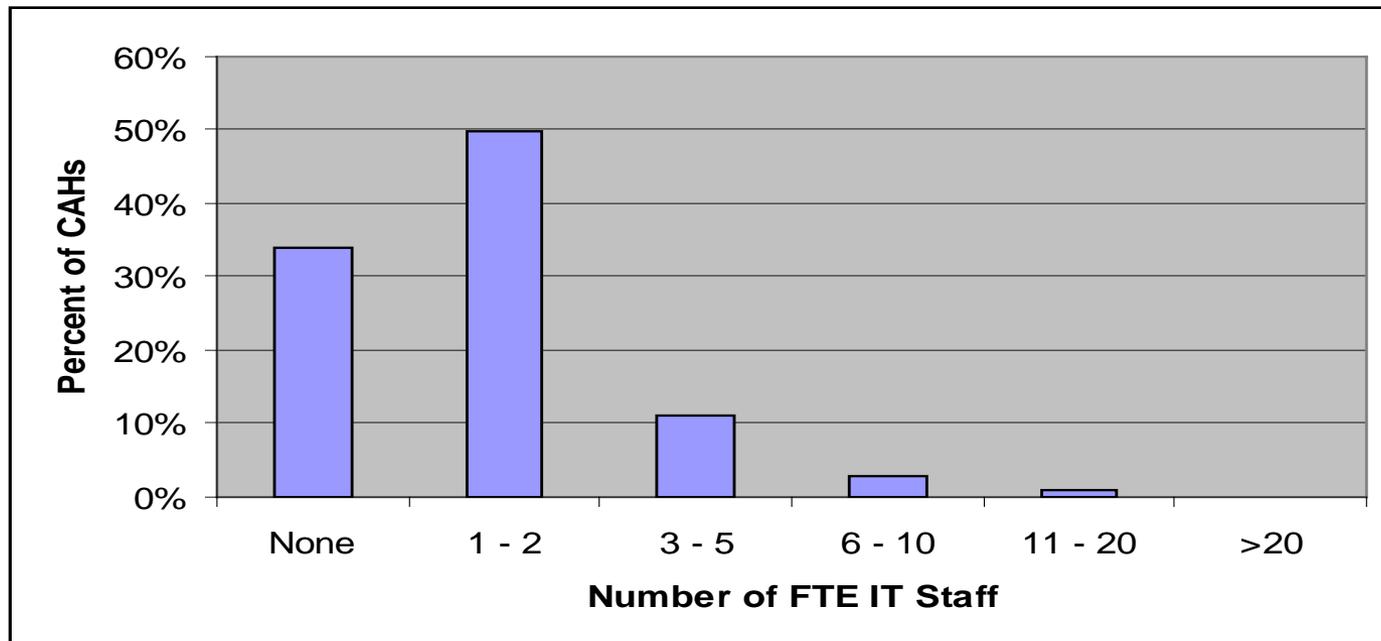


CAH Business Strategies for HIT

- This survey of 70 CAHs in Iowa indicates use levels of IT applications that are quite similar to those found in a 2006 national survey of CAHs⁸, suggesting that the current survey findings are generalizable
- This survey and follow-up interviews in 16 CAHs with EMR indicate:
 - The most common strategy was the “best of breed” where the best available system is purchased for each specific purpose
 - A second common purchasing strategy was to incrementally add systems from a single vendor

CAH IT Staff Resources – Number of FTEs

- A third of the CAHs do not employ any IT staff
- Half only employ 1 to 2 IT staff
- Fewer than 5% of CAHs employ more than 5 IT staff



CAH Use of External Staff Resources

External IT Consultants	Outsourcing IT Services	Application System Providers (ASP)
91% use external IT consultants	85% of CAHs use outsourcing to meet their IT needs	<40% of CAHs use ASP to support their clinical applications
CAHs use external IT consultants: <ul data-bbox="144 828 656 935" style="list-style-type: none">• 38% to a great extent• 12% to a large extent	More than 40% of CAHs outsource: <ul data-bbox="705 828 1188 1120" style="list-style-type: none">• website• system installation• technical support• network operations• applications development services	Of CAHs that use an ASP vendor, only 9% use this approach to a great extent

Approaches for CAHs with Few IT Staff

- CAHs with fewer IT staff use outsourcing more ($r = 0.72$)
- CAHs with no IT staff used outsourcing more to meet their needs for:
 - system installation ($p < .05$)
 - technical support ($p < .01$)
 - PC support ($p < .0001$)
 - network operations ($p < .02$)
 - help desk ($p < .01$)
 - user training ($p < .001$)
 - outsourced their full IT department ($p < .01$)

Staffing for HIT: Chicken or Egg

- CAHs rely on outsourcing more than larger hospitals to meet their IT needs
- CAHs that have not yet installed an EMR commonly operate without any IT staff whereas CAHs with an operational EMR tend to have at least a handful of in-house IT personnel - which comes first – staff or EMR?
 - Follow-up interviews indicate that some CAHs purchased EMR systems and then hired IT staff
 - Other CAHs hired IT staff to help with EMR decision/installation process



HIT Business Strategies for CAHs

- CAHs still lag behind larger hospitals in IT, especially clinical information systems
- However, CAHs are more financially able to purchase or upgrade HIT now because of increased revenue related to Medicare billing policy change
- CAHs are dividing into two groups in terms of HIT:
 - ❖ CAHs that are part of healthcare systems benefit in terms of having access to system technology and IT staff
 - ❖ Independent, rural CAHs have considerable difficulty finding IT staff and when they purchase EMRs, those EMRs have fewer functionalities (e.g., no CPOE or CDSS)

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Acknowledgements

- University of Iowa - College of Public Health
 - Department of Health Management and Policy
 - Center for Health Policy and Research
- Funded in part by:
 - The Agency for Healthcare Research and Quality through grant # HS015009 – “HIT Value in Rural Hospitals”
 - The Agency for Healthcare Research and Quality through grant # 5UC1HS016156 – “EHR Implementation for the Continuum of Care in Rural Iowa”