Studies on the Use of Health Information Technology: Implications for the Health Workforce

NY-NJ HIMSS

'The EHR: IT Gets Clinical'

Academia and the EHR

Thursday, October 19, 2006

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http://chws.albany.edu

The Center for Health Workforce Studies

- Based at the School of Public Health at SUNY Albany
- Conducts studies of the supply, demand, use and education of the health workforce
- Committed to collecting and analyzing data to understand workforce dynamics and trends
- Goal to inform public policies, the health and education sectors and the public

2003 Study of the Health Information Management (HIM) Workforce

- **Funded by the American Health Information Management Association (AHIMA)**
- **Purpose**
  - **Understand the issues facing the HIM workforce from a number of perspectives:**
    - **Workers**
    - **Educators**
    - **Employers**
  - **To assess the future direction of this workforce**

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Key Findings from the Health Information Management (HIM) Workforce Study

- The roles and responsibilities of the HIM workforce is changing dramatically in response to evolving health information technology
- HIM education programs must be responsive to the emerging needs and demands of health care providers
- Demand for HIM professionals is expected to grow and the available supply may not be sufficient to meet demand

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AHIMA's Action Steps

- **Professional Development**
  - Advanced certificates
  - Graduate level education
- **Basic Education**
  - Increase the pipeline
  - Strengthen the curriculum
- **Leadership**
  - Increase diversity
  - Raise the profile of the profession

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Study of Innovative Technologies Used by NYC Hospitals and Impact on Workers

- Funded by the 1199 Training Fund
- Purpose: What technologies are hospitals adopting and what are the implications for the NYC health workforce?
  - Add jobs?
  - Lose jobs?
  - Change jobs?
  - Training needs?
- Study was completed in 2005

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Key Findings

- Technology adoption in New York City hospitals is very uneven
- EHR tended to be the base around which additional technologies were added
- Funding is a large issue – both for purchasing systems and training staff
- Interoperability is a serious issue – both within and between facilities
- Products and systems vary widely by vendor and expecting new hires to be trained to a specific system may not be not realistic

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Key Findings

- Typically, jobs weren't lost as technology was added, but job responsibilities changed
- Workers needed training for new and different roles, usually involving automation
- There is increasing demand for basic computer literacy for the growing number of health care technology end users
- Exposure to and use of technology such as EHR should be integrated into the curricula of health professions education programs

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A Survey of Hospital RNs in NY

- Currently underway
- Designed to help hospitals and other stakeholders learn more about hospital nurses and plan for future nursing needs
- Survey includes a question about the use of computer technology in day-to-day work as well as training needs
- 17 hospitals, primarily downstate, (with over 7,200 RNs) are surveying their RNs
- Over 1,200 responses have been received to date

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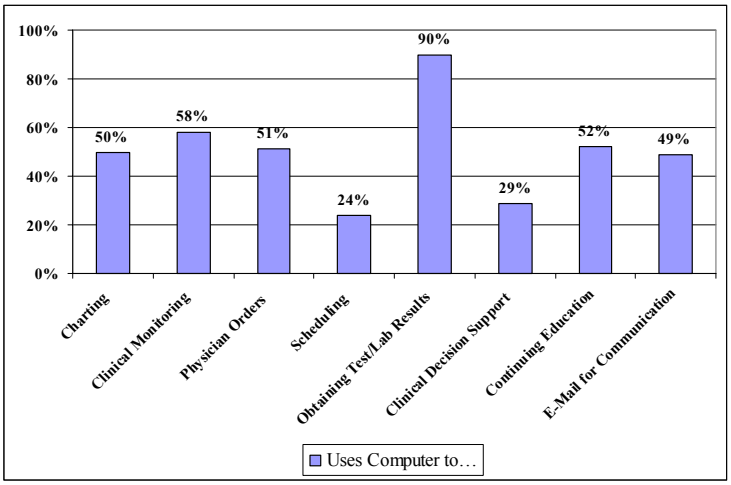
Survey Respondents Report Using Computers Primarily To Obtain Test/Lab Results



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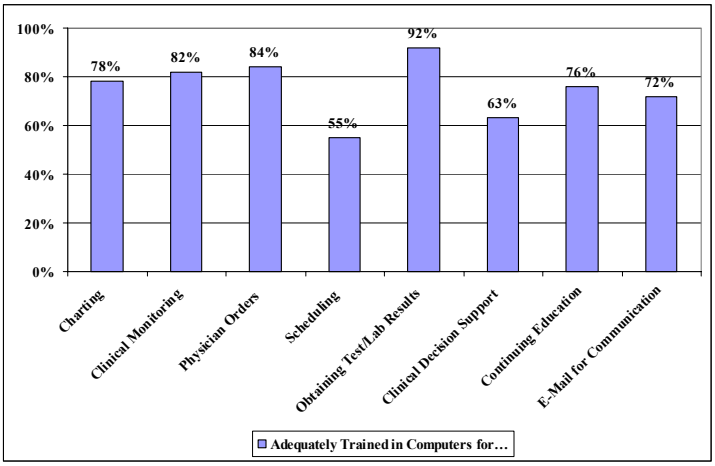
Most Hospital RNs Felt Adequately Trained for Computer Work



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2006 Study of Trends in Use of the Internet by NYS Physicians

- **Purpose: to better understand trends in the use of certain technologies by physicians**
- **Data source: NYS Physician Re-registration Survey (1999-2005) analyzing responses to a question about use of the internet to:**
  - obtain lab results, x-rays, hospital records
  - obtain information about treatment alternatives
  - communicate with patients
  - obtain CME credits
  - transmit prescriptions to pharmacies
- **Findings were presented at the annual Academy Health Research Conference in June**

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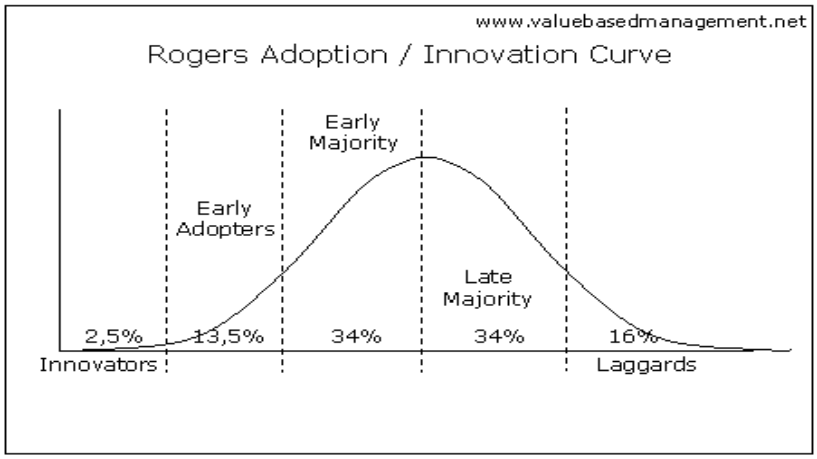
Adoption of technology is both slow and uneven



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Innovators

- Venturesome
- Technical/Scientific
- Specialized job
- Multiple information sources
- Outside, impersonal information sources
- Cosmopolitan

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Early Adopters

- Social leaders
- Integrated
- Technical
- Seeking a competitive edge

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Early Majority

- Many informal social contacts
- Less cautious than average
- Frequent interaction with peers, but not in leadership positions
- Focus on productivity

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Late Majority/Laggards

- Conformity/compliance
- Weight of system norms
- Traditional
- Cautious
- Isolated; limited social networks

Data

- New York State Physician Reregistration Survey
  - Data from three survey cycles:
    - Cycle 1: 1999-2001
    - Cycle 2: 2001-2003
    - Cycle 3: 2003-2005 (incomplete)
  - Valid N = 88,756

Dependent variables:

- Use Internet/e-mail for:
  - Obtain lab results, x-rays or hospital records
  - Obtain information about treatment alternatives
  - Communicate with/answer questions from patients
  - Obtain CME
  - Transmit prescriptions to pharmacies

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Prevalence of use varied by year

	1999-2001	2001-2003	2003-2005
Obtain CME	18.4%	31.7%	44.3%
Obtain information about treatment alternatives	33.3%	37.8%	42.6%
Obtain test results	13.5%	19.7%	27.9%
Communicate with patients	9.3%	10.5%	11.6%
Transmit prescriptions	1.6%	1.9%	3.0%

Yellow = Innovation; Pink = Early Adoption; Green = Early Majority

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Methods

- Physicians were classified as innovators, early adopters, early majority or non-adopters depending upon the earliest level of technology they reported for their survey year
- Multinomial logistic regression
  - Probability of being an innovator, early adopter, or early majority compared to being a non-adopter

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Odds Ratios from Multinomial Regression

	Innovator versus Non-Adopter	Early Adopter vs. Non-adopter	Early Majority versus Non-Adopter
Female	0.69***	0.85***	0.93***
Male	1.00	1.00	1.00
Born before 1950	1.03	0.67***	0.66***
Born 1950-1959	1.00	1.00	1.00
Born after 1959	0.76***	0.96	1.10***
Hospital	1.00	1.00	1.00
Solo practice	0.29***	0.50***	0.50***
Group practice	0.62***	0.68***	0.78***
Other settings	0.87	0.75***	0.75***
Non-Hispanic white	1.00	1.00	1.00
Underrepresented minority	1.66***	0.99	1.36***
Asian	1.53***	0.79***	1.10***
U.S. medical graduate	1.00	1.00	1.00
International medical graduate	0.99	0.72***	1.17***
Medical doctor (MD)	1.00	1.00	1.00
Doctor of Osteopathy (DO)	1.04	0.60***	0.96***
Primary Care	1.00	1.00	1.00
Internal medicine subspecialty	0.97	1.50***	1.22***
Surgery/Surgical specialty	0.96	1.29***	0.78***
Psychiatry	0.99	0.69***	0.69***
Other medical specialty	0.53***	0.83***	0.84***

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Innovators

- Male
- Midcareer or older
- Hospitalists
- Minorities
- In primary care
- In other medical specialties (non-IM, non-surgical, non-psych)

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Early adopters

- Male
- Young or midcareer
- Hospitalists
- Non-Hispanic whites/USMGs
- Allopaths
- In primary care, surgery, or IM specialties
- Not in psychiatry or other medical specialties

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Early majority

- Male
- Young or midcareer
- Hospitalists
- Minorities/IMGs
- In primary care, surgery, or IM specialties
- Not in psych or other medical specialties

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Late majority/Laggards

- Female
- Older
- Non-hospitalists
- Non-Hispanic whites/USMGs
- Osteopaths
- In surgery, psychiatry, other (non-IM) medical specialties
- Not primary care or IM specialties

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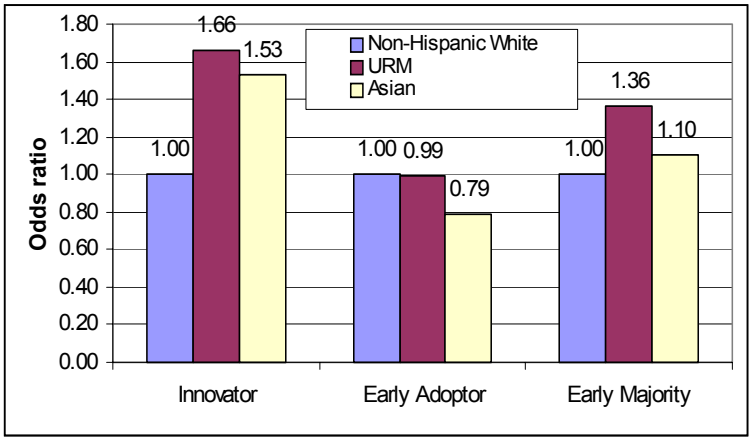
There is not a linear, ordinal relationship between physician characteristics and stage of adoption



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Conclusions

- Adoption of innovation among NYS physicians follows patterns consistent with Rogers' theory
- HIT must be effectively targeted to both innovators and early adopters, and the characteristics of these groups differ

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