

Ambulatory EHRs in Florida: Offices of All Sizes May Apply

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Information Technologies

- ✗ Improves Quality of Care
- ✗ Safety
- ✗ Effectiveness
- ✗ Patient-centered
- ✗ Timely
- ✗ Efficient
- ✗ Equitable

IOM Report (2001)

Computerization in Healthcare

VS.

- ✗ Banking
- ✗ Aviation
- ✗ Shipping
- ✗ Education
- ✗ Trucking

- ✗ Used car salesman

Avandia
Coumadin

Coumadin 4mg po qd

10u(nits) qam & 8u qpm
10u(nits) qam, 28u qpm

10u(nits) qam, 28u qpm

6u(nits) Regular Insulin Now
60 Regular Insulin Now

60 Regular Insulin Now

Source: Institute of Safe Medication Practices

The Value Of Electronic Health Records In Solo Or Small Group Practices

Physicians' EHR adoption is slow, rewards the volume of services rendered
by Robert H. Miller, Christopher W. and Chris Ganchoff

THE ECONOMIC EFFECT OF IMPLEMENTING AN EMR IN AN OUTPATIENT CLINICAL SETTING

SCOTT BARLOW, MBA, JEFFREY JOHNSON, MD, JAMES STEIN, MBA

A Cost-Benefit Analysis of Electronic Medical Records in Primary Care

Samuel J. Wang, MD, PhD, Blackford Middleton, Christiana G. Bardon, MD, Cynthia D. Spurr, RN, Anne F. Kitter, Robert C. Goldszer, MD, M, Andrew J. Stussman, MD, MBA, Gilad J. Kuperm...

Benefiting from Ambulatory EHR Implementation: Solidarity, Six Sigma, and Willingness to Strive

Michael W. Zornitskes, MD, PhD, FACF, and Adnan Hameed, MD

Benefits of EHR

- ✗ Increased revenue
- ✗ Averted costs
- ✗ Intangible benefits

COLLEGE OF MEDICINE
CENTER ON PATIENT SAFETY

Exploring the Return on Investment Associated with Health Information Technologies

A Report to the State of Florida
February, 2009

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Physician EHR Use

- ✗ Sweden (90%)
- ✗ The Netherlands (88%)
- ✗ Denmark (62%)
- ✗ UK (58%)
- ✗ Finland (56%)
- ✗ Austria (55%)
- ✗ United States (*estimated* 10-20%)

Taylor and Leitman (2002) *Health Care News*. 2002;2(16).

Florida Survey

- ✗ Allopathic & osteopathic physicians
 - ✗ Clear and active license
 - ✗ Florida practice address
- ✗ Non-hospital setting
- ✗ All Primary care (FM, IM, Peds, OB)
- ✗ 25% Random stratified sample of other specialists
- ✗ N=14,921

Use of Information Technology in Physician Practices

1. Do you have access to a computer at your current office practice?

YES NO - PLEASE SKIP TO QUESTION 2

If YES, please answer the following:

a. Do you have Internet access at your current office practice?

YES: What type of Internet access do you have? (Phone - dial up/wireless)

NO: Cable High Speed (cable or DSL) Wireless

b. Do you currently use the available computer? (at least once in % of all business days)

Yes No

c. Do other, non-physician, staff at your office use the available computer?

Yes No

d. Does the computer get used in the scope of your practice?

YES: For what type of function(s)? (Please list all that apply)

Scheduling of patients appointments Patient registration

Billing charge capture Claims Chart review

Drug references/medication interactions Lab results Patient records

Access to reference materials Medication administration Imaging (reading/diag)

Electronic prescribing of drugs Weight based dosing Patient records

Electronic order entry (e.g. labs, x-rays) Patient records

Other (Please Specify)

NO

2. Do you currently use a personal digital assistant (PDA) (i.e., Palm Pilot or Pocket PC)?

YES NO

3. Do you currently use a PDA in your office practice? (at least once in % of all business days)

YES NO

If Yes, for which of the following functions do you use your PDA? (Please list all that apply)

Drug references Charge capture Patient records

Medication interactions Lab results Patient records

Access to reference materials Medication administration Imaging (reading/diag)

Electronic prescribing of medications Weight based dosing Patient records

Electronic order entry (e.g. labs, x-rays) Claims Patient records

Calendar and other organizer functions Claims Patient records

Other (Please Specify)

Physicians and Information Technology Page 1

Physician Survey

- ✗ Computer Avail.
- ✗ Uses
- ✗ Internet Access
- ✗ PDA use
- ✗ By function
- ✗ Email w/patients
- ✗ EHR use
- ✗ By function
- ✗ EHR Barriers

Results- Descriptive

- ✗ Total physician sample= 4,203
- ✗ Response rate 28.2%¹
- ✗ Average age: 50.6 years (range 30-86)
- ✗ Male (75.9%)
- ✗ Caucasian (68.4%), Hispanic (12.8%), Asian (10.3%), African-American (3.2%), Other or unknown (5.3%)

¹Menachemi, Hikmet, et al. (2006) Investigating Response Bias in an IT Survey of Physicians, *J. Medical Systems* 30(4). 277-282.

Results

✗ Overall EHR Adoption	23.7%
✗ Practice Size <i>Odds Ratio</i>¹	
Solo practice	13.8% Reference
2-9 physicians	20.4% 1.40*
10-49 physicians	45.2% 4.44**
50+ physicians	72.8% 19.6**

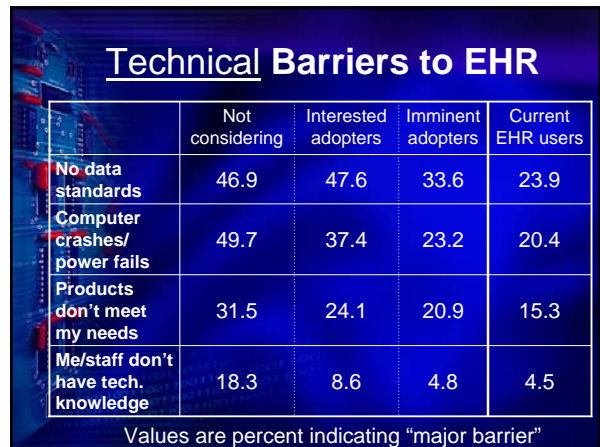
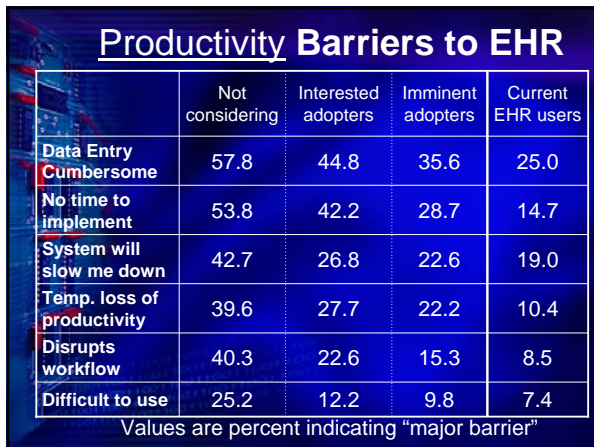
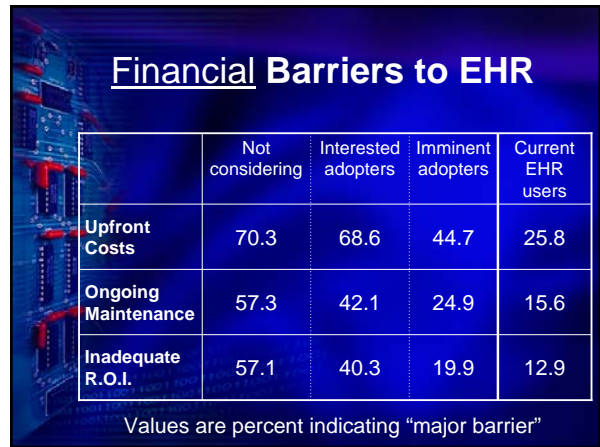
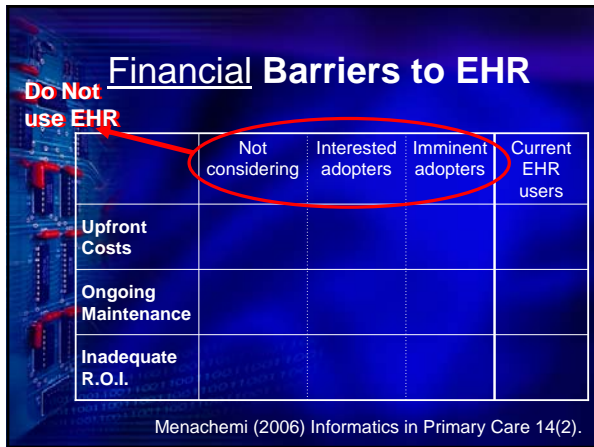
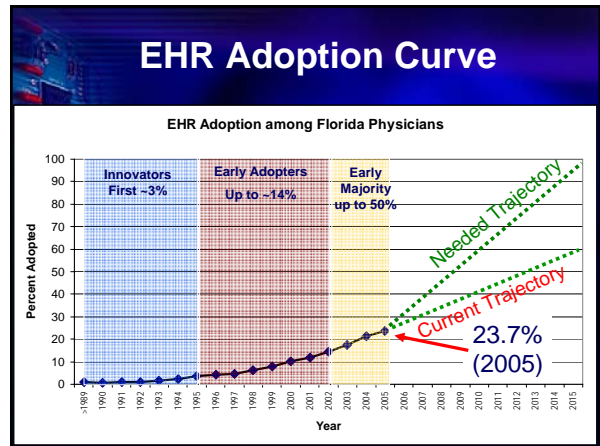
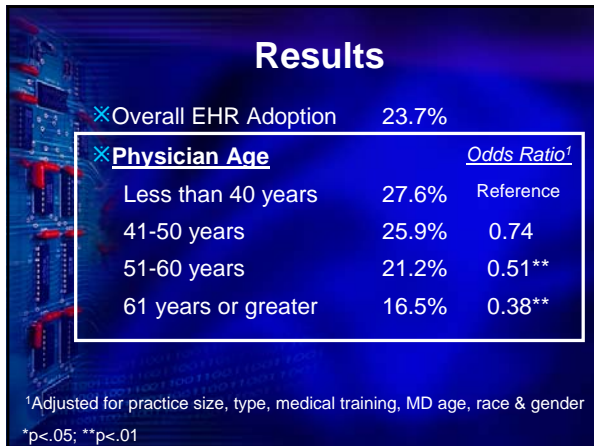
¹Adjusted for practice size, type, medical training, MD age, race & gender
*p<.05; **p<.01

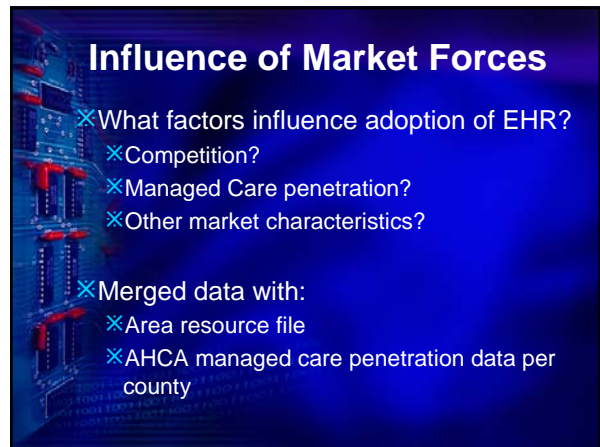
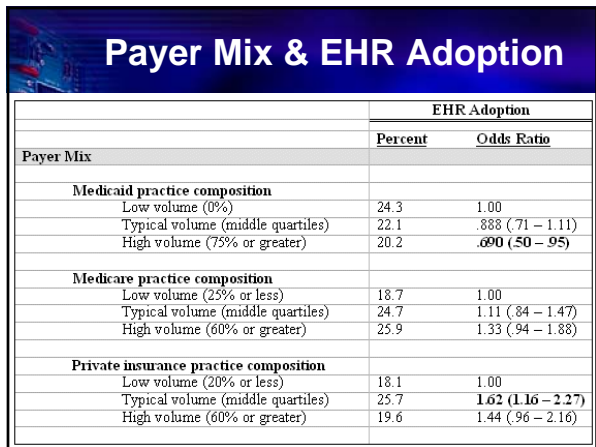
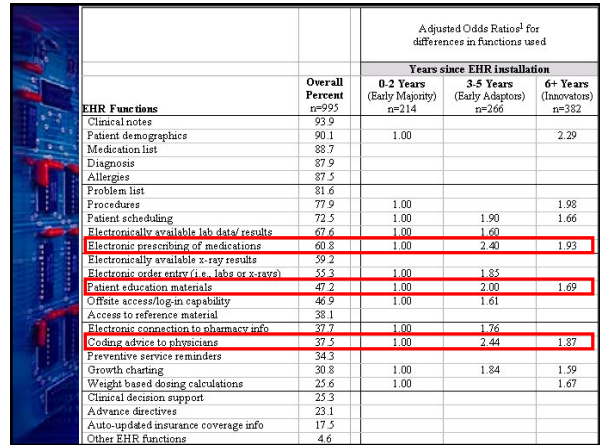
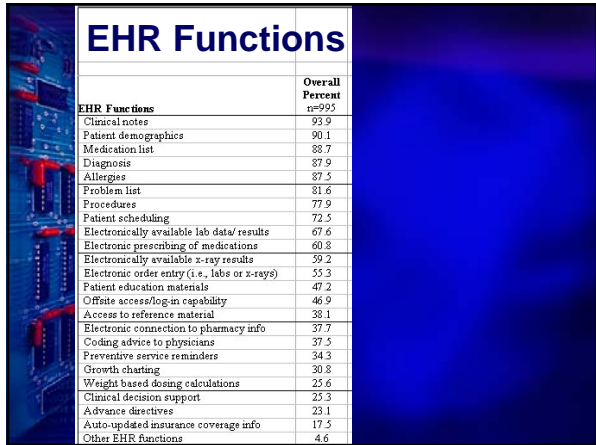
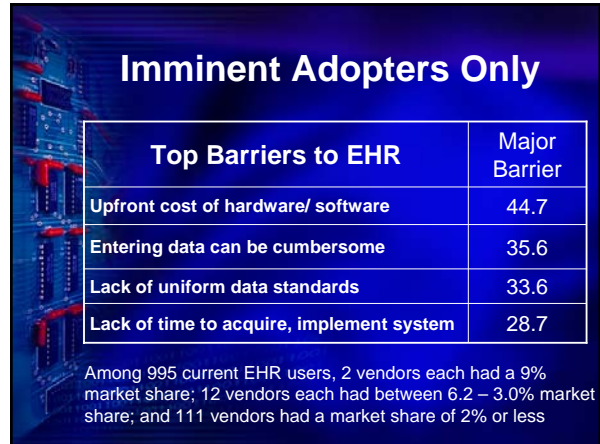
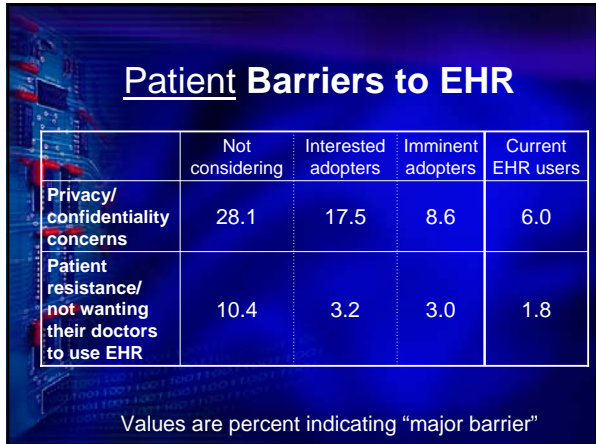
Menachemi & Brooks (2006) *J Health Info Management* 20(3). 79-87.

Results

✗ Overall EHR Adoption	23.7%
✗ Practice Type <i>Odds Ratio</i>¹	
Single specialty	17.8% Reference
Multi-specialty	40.5% 1.47*
✗ Medical Training	
Primary care	22.4% Reference
All other specialists	25.2% 1.27*

¹Adjusted for practice size, type, medical training, MD age, race & gender
*p<.05; **p<.01





Market Characteristics (county level)	Use of EHR	
	Percent	Odds Ratio
Physicians per capita ¹		.968
Physician Ratio ²		1.02
Managed Care Penetration Rate ³ (%)		.981**
Percent of population that is White		.130
Percent of population 65 years or greater		.255
Newborns as percent of population		.205
Unemployment rate		.890
Geographic location		
Urban	24.1	1.00
Rural	17.6	.746
Practice Level Characteristics	Percent	Odds Ratio
Practice size		
Solo practice	13.8	1.00
2-9 physicians	20.4	1.14
10-49 physicians	45.2	2.78**
50 or greater physicians	72.8	7.36**
Practice Type		
Single specialty	17.8	1.00
Multi specialty	40.5	1.43**
Primary Care⁴		
No	22.4	1.00
Yes	25.2	1.40**
Physician Age⁵		
Male	23.5	1.00
Female	22.1	.900

Market Drivers of EHR Adoption

- ✗ Every 1% increase in managed care penetration was associated with a 1.9% decrease in observed EHR adoption
- ✗ Other 'external' factors did not matter (i.e., patient characteristics, competition, location)

Menachemi, Ford, et al, (2007) *Forthcoming*

Discussion

- ✗ Practice and physician characteristics are associated with EHR adoption
 - ✗ Every physician can benefit from computerization
- ✗ Policy makers should focus on the barriers of imminent adopters in order to achieve 'tipping point'
- ✗ Incomplete adoption among recent users threatens to erode potential benefits of EHR

Discussion

- ✗ Managed care penetration appears to be negatively related to EHR use
 - ✗ Despite fact that benefits accrue to payors
 - ✗ Improved utilization of tests
 - ✗ Formulary compliance
 - ✗ Prevention of duplicate orders
 - ✗ Reduced errors
- ✗ Implications for 'Pay for Performance' programs

Limitations

- ✗ Cross-sectional, non-experimental
- ✗ Common limitations of survey research
 - ✗ Willingness of physicians to participate and give accurate responses
 - ✗ Response rate
- ✗ Generalizability outside of Florida

Future Research

- ✗ Link our data with payer claims data
- ✗ Compare disease specific quality of care measures in 'wired' vs. 'non-wired' physician practices
- ✗ Examine how pay-for-performance programs are influencing adoption
- ✗ Looking for collaborators

Studies from the current dataset

Menachemi, N., Brooks, R. (2006). EHR and Other IT Adoption among Ambulatory Physicians: Results of a Large-Scale Statewide Analysis. *J Healthcare Information Management*, 20(3). 79-87

Menachemi, N., et al. (2006). Growth Charting the Use of Electronic Health Records and other Information Technologies among Child Health Providers in Florida. *BMC Pediatrics*, 6(21).

Menachemi, N. (2006). Barriers to Ambulatory EHR: Who are "imminent adopters" and how do they differ from other physicians? *Informatics in Primary Care*, 14(2).

Menachemi, N., et al. (2006). The Proliferation of Electronic Health Records among Obstetrician-Gynecologists. *Qual Manag Health Care*, (15)3. 150-156.

Ford, E., **Menachemi, N.,** Phillips, T. (2006). Predicting the Adoption of Electronic Health Records by Physicians: When will Health Care be Paperless? *J Am Med Informatics Assoc*, 13(1). 106-12.

Studies (Continued)

Menachemi, N., et al. (2006). Examining the Adoption of EHR & PDA use by Family Physicians in Florida. *Informatics in Primary Care*, 14(1)

Brooks, R., **Menachemi, N.** (2006). Physician use of email with patients: factors influencing electronic communication and adherence to best practices. *J Internet Medical Research*, 8(1) e2.

Menachemi, N., et al. (2006). The Relationship of Managed Care Penetration and other Factors with the use of CPOE by Physicians in the Ambulatory Setting. *Am J of Manag Care*, 12(12). 738-44.

Menachemi, N., et al. (2007) Incomplete EHR Adoption: Lagged Diffusion of Patient Safety and Cost Control Functions. *Am J Med Qual, Forthcoming*

Menachemi, N., et al (2007) The Influence of Paper Mix on EHR Adoption by Physicians. *Health Care Mgt Rev, Forthcoming*