

Barriers to EHR Use for Quality Improvement in Ambulatory Care

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Background

- EHRs are a tool for improvement--chronic care, prevention, efficiency, access
- Lot of policy focus on EHRs
- Information on EHR costs, benefits, use limited
 - Emerging literature: on prevention, chronic care gains
 - Less literature on effects on efficiency, revenue enhancement
 - Some methods are problematic, little contextual information
- Different sectors making different EHR progress
 - Hospitals: CPOE/EHRs: slow
 - Large groups: substantial
 - Small groups: limited --<10%?

Limited EHR diffusion in MD practices

■ Estimates vary

- National Ambulatory Care Medical Care Survey (NAMCS) (2003): 17%
- Commonwealth MD survey: Audet et al (2003): 18%
- Center for Studying Health System Change (2001): 11% with 4-5 typical functions
- **BUT:** E-prescribing in NAMCS is 8%--EHR users typically use e-prescribing, but e-prescribing users don't have to use EHRs

Limited EHR diffusion

- **Studies produce over-estimates due to...**
 - Fuzzy EHR definitions in surveys
 - Physicians over-report use e.g., Word, Access forms as EHRs
 - Response bias in IT-only studies
- **What is known?**
 - Size matters, age/gender matters much less

Objectives for this presentation

- To describe EHR use, costs, benefits
- To describe factors affecting costs and benefits
- To outline critical policy issues

Why focus on “value” of EHRs?

- Value is real goal, EHR diffusion is a means
- “Value” = benefit/cost
 - (Efficiency + revenue enhancement + quality improvement (QI) + patient satisfaction benefits) / (money + time cost + risk)
 - Value equation varies by stakeholder
- EHR tool worthwhile only if better value than paper
 - i.e., has higher benefit/cost ratio than paper = relative advantage

Key policy question

- ...What can increase EHR benefits, reduce costs, risks?
 - So that EHRs have compelling value in ambulatory care?

Data sources for this presentation

■ Literature

■ Findings from 2 past studies on EHRs

- Large groups (Robert Wood Johnson)--Miller RH, Sim I. Physicians' Use of Electronic Medical Records: Barriers and Solutions. *Health Affairs*. 2004 (March/April);23(2):116-126.
- Solo/small groups—basic (California Health Care Foundation) Miller RH, Sim I, Newman J. *Electronic Medical Records: Lessons Small Physicians' Practice*. CHCF; 2003 (October).

■ Plus insights from 2 current studies on EHRs

- Solo/small groups—in-depth (Commonwealth)--finishing
- Study of community health centers (Tides)—finishing

Methods

- **Design: Cross-sectional qualitative study**
 - Multiple methods
 - Semi-structured interview questionnaire
 - Qualitative methods best for study of emergent phenomena
 - Determine what's important prior to quantitative research
- **Purposeful + random samples of MD groups with EHRs**
 - Purposeful: 9 large medical groups (>70); 17 solo/small, 3 medium, 7 CHCs
 - Random: 15 solo/small groups
- **Interviewed EHR leaders, managers**
 - 200 hours of interviews in all
- **Transcribed audio-taped interviews, summarized into Access, then into Word/Excel tables**

Key findings on EHRs in ambulatory care....

-Then implications for private/public policies

The obvious: EHRs differ in features, maturity

For example....

- **Documentation ease-of-use, usefulness varies**
 - Templates have different flavors, depending on vendor--some more text oriented, others more “point-and-click”
 - Depth, quality of templates for chronic care/prevention vary
- **Reminders vary in ways to set / present them**
- **Reporting tools vary**
 - Patient lists, provider performance
- **Immature EHRs create substantial risks**
- **But EHRs getting better on average**

Use of capabilities varies, so do benefits

- Potential benefits can be substantial
- Use of capabilities varies, so actual benefits much less than potential benefits
- Much variation even within same practice
- “Good news”, “bad news” contrasts

EHR capability: Viewing

- Labs, Rx, allergies, diagnoses, past visits
- Benefit: Data is more accessible, legible, organized

BUT:

- Amount viewable data varies
- Large groups—lot of data from own systems
- Small groups depend on external sources
 - Interfaces with some lab, little else clinical

EHR capability: Prescribing

- Physicians enter data at point-of-care
- Quality benefits: Reduces chances of error
 - Fewer problems with legibility; fewer interactions
- Potential efficiency gains: Time + formulary compliance

BUT:

- Some alerts turned off
- Little connectivity to/from pharmacy, PBM
 - RxHub, SureScripts, others attempting to make connection
- Little \$ incentive for formulary compliance

EHR capability: Provider messaging

- **Quality & efficiency benefits**
 - Fewer “dropped balls”
 - More timely access to information

BUT

- In many groups, little messaging with providers outside the practice

EHR capability: documenting

- **Pivotal capability**
 - Time-consuming initially
- **Quality gains: More legible/accessible/better notes**
 - & templates can act as reminders even without CDS, coded data capture
- **Efficiency benefits: Fewer FTEs, less transcription**
 - Medical records FTEs often lower

BUT

- **Providers' use of tools varies greatly**
 - Some dictate (or never dictated), or used free text
- **Most providers do not use templates w/ coded data**
- **Even heavily coded notes not necessarily better**

EHR capability: Reminders

- “Decision support”
- Benefits: Reduce errors of omission, commission
- Many ways to present the reminders
 - Bottom of screen
 - Pop-ups (controversial)
 - Highlighted text

BUT

- Not many practice-set reminders in many practices

EHR capability: Reporting

- **Patient lists—between visits**
 - Can improve follow-up with patients, compliance
- **Provider performance reports**
 - Better provider performance tracking, feedback

BUT

- **Even large practices could do much more**

EHR capability: E-health/self-care

- **Patient/provider messaging (e-Health)**
 - More reminders, interactive data entry possible → better information, better patient decision-making
- **Patient self-management**
 - Patient-specific plans
 - After visit summaries

BUT:

- **Not much use of either in many practices**

Examples of using EHR capabilities for chronic care improvement

- Reminders
- List of patients needing services
- Provider performance reporting/feedback

From

- Heart of Texas Community Health Center, Waco, Texas
- From Community Health Access Network (CHAN), Raymond, New Hampshire

An example of reminders providers might see on screen (case of diabetic patient)

- Reminders for mammograms, pap smear based on age/sex....
 - Mammograms should be offered according to clinical policies
(MAMMOGRAM (ANNUAL) last satisfied: 2/2/2000)
 - Last pap > 1 yr. Guideline Q 1-3 years. Please assess need for pap”
- Reminders for creatinine & microalbumin based diagnosis of diabetes....
 - Patient with diabetes and no creatinine in > 1yr
(Last crea=1.4 on 8/18/1999)
(Creatinine (Kidney function diabetes) last satisfied: 8/18/1999)
 - Patient with diabetes and no microalbumin in > 1yr
(last Malb: Not on file)
(proteinuria/microalbumin screen (diabetes) last satisfied: Not on file)

Reminders tied to ordering

Provider response

- The block of reminders requires a physician response before proceeding with any other tasks
- If the physician chooses “Yes” an appropriate course of action is presented

Course of Action

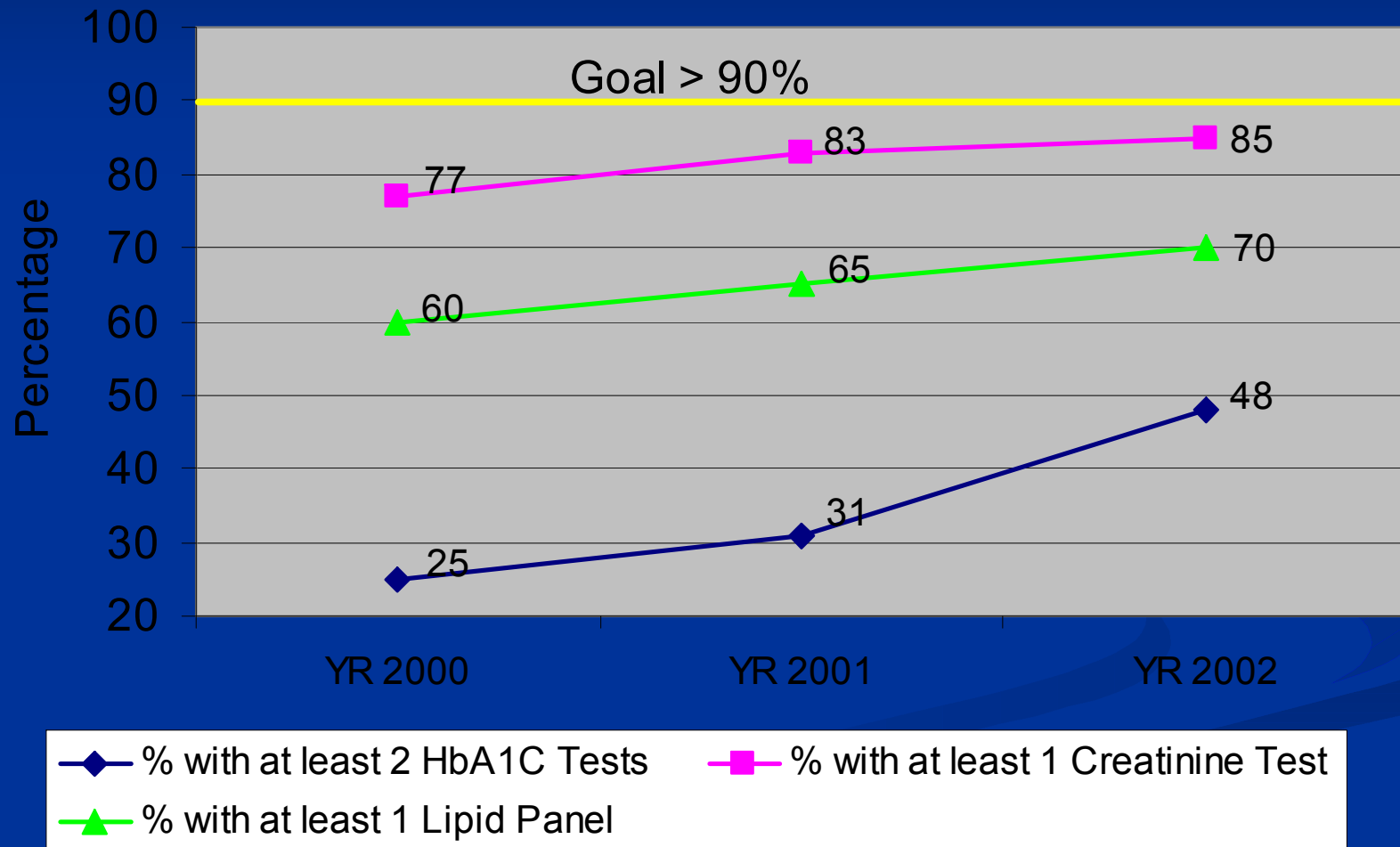
- Default orders are presented, for mammograms, pap smears, and for diabetes care
- The physician can proceed with ordering the appropriate test(s) and associating the order(s) with the corresponding diagnosis by clicking the accept button
 - Or can modify the default order

Diabetes Surveillance Reports

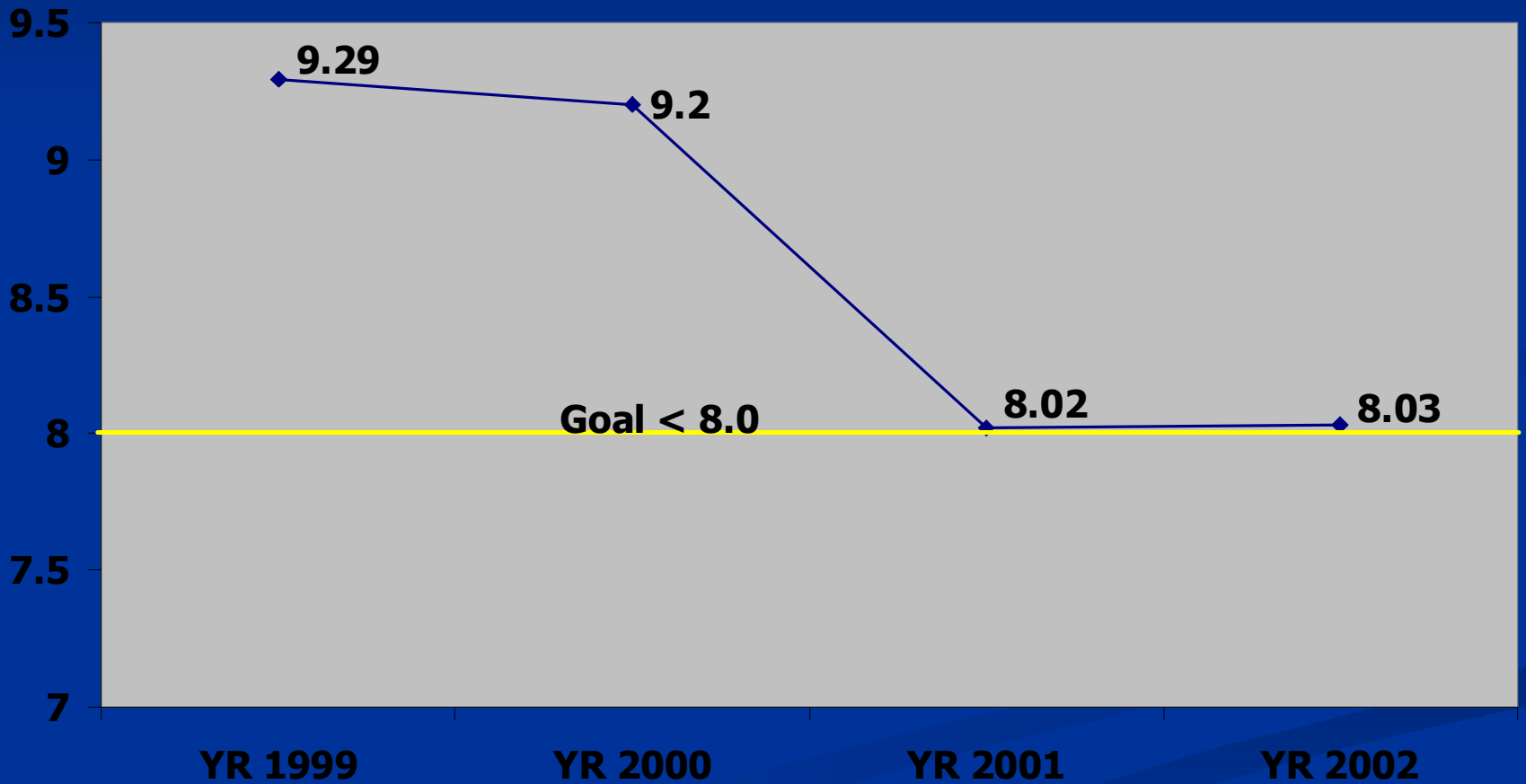
	Pts seen during date range	Average # of HbA1C tests	% with at least 2 HbA1C	% with at least 1 creatinine	% with at least 1 microalbumin	% with at least 1 lipid panel
Provider A	43	1.56	53.49	89.23	9.3	74.42
Summary Data	1769	1.38	43.81	85.36	32.67	67.5

NOTE: Diabetes outcome reports very similar

EHR tool can improve chronic care: Effect on laboratory screening



EHR tool can improve chronic care: Average HbA1C



Diabetes Compliance Report

22-Mar-04

Total # of Patients with Diagnosis of DIABETES

1580

	Number	Percent	Cluster Actual*	Collaborative Goal
Patients with HgA1c tested twice within past 12 months:	954	61%	48%	>90%
Patients with Monofilament within past 12 months:	960	61%	46%	>90%
Patients with Flu Vaccine within past 12 months:	820	52%	31%	>90%
Patients with Pneumovax:	884	56%	43%	>90%
Patients with Microalbumin urine within past 12 months:	781	49%	20%	>50%
Patients with LDL within past 12 months:	986	62%		>90%
Patients with LDL <100 within past 12 months:	474	48%	54%	>70%
Patients with Aspirin Education:	963	61%		>90%
Patients with Self Mgmt. Goals within past 12 months:	564	36%	49%	>70%
Average HgA1c	7.6		7.8	≤ 7.0

EHRs can create many benefits...

- **Improved chronic care/prevention**
- **Efficiency gains**
 - Decreased non-clinical support staff
 - More visits/provider in same time
 - Decreased visits, Rx, labs per patient (for capitated groups)
- **Revenue enhancement**
 - Higher levels of coding
 - Capture of other services
 - Decrease in denied claims
 - More visits (for fee-for-service practices)

If potential benefits are great, what's the problem in creating EHR "value"?

- **And how can those problems be addressed?**

Financial costs are high

- **\$30k-60k per provider initial not uncommon**
 - Mostly hardware, software, installation, extra IS staff or external IS contractors
 - + temporary implementation/scanning staffing, extra management time
 - + revenue losses from lower initial productivity
 - On-going vary, can be substantial

Initial provider time costs can be high

- **Providers must change many work processes**
 - Must ascend EHR learning curve, change own/staff processes
 - Change in documenting especially hard
- **Initially: providers spent more time at work or saw fewer patients (less income)**
 - For months
 - Time is money, especially in solo/small groups
- **Chronic care, prevention programs add to time cost**
 - Disincentive to implement those programs
 - Lack of positive incentives for QI

Time demands in small practice

- *“The first three months I cut back on the number of patients I saw by 25 %. When I found I wasn’t staying really late at night, I’d add a few more patients & cut down patients by 10 to 15%. At six months, it was still taking me more time so I had to work through lunches or stay a little late. But by the time I got to **three years**, the time I spent at work was the same as before the EHR. Past three years, then suddenly, you’re going home early” --Family physician, small practice (emphasis added)*

Benefits vary, can take time to emerge

- **Short-run efficiency benefits vary**
 - Medical records, transcribing, data entry
 - Some savings depend on intensive provider use
- **Greater efficiency savings takes work, time**
 - Needs even more provider use, more process change
- **Revenue enhancement varies greatly**
 - And doesn't create "value" to payers
- **Pay-back time can vary from 1.5 years to never**
 - True for next "layer" of physicians?
- **Generating quality benefits also hard, varies**

Underlying barriers

- **Difficulty in using the technology**
 - Usability challenges can consume provider time
- **Lack of community-wide data exchange**
 - Still far too much paper
- **Mixed provider attitudes towards EHR**
- **Lack of pay-for-performance (P4P) incentives**
- **Difficulty making complementary changes, lack of resources to make the changes**
 - Impossible to use EHRs “out of the box”

Difficulty using the technology

- **Software varies in capabilities, ease of use**
 - Affects whether benefits possible, extent of benefits
 - Less robust products can be cheaper BUT create fewer benefits
 - Some good systems; bad systems = game over
- **Providers vary in EHR use → much under-use of capabilities**
- **No “silver bullet”—incremental improvement in technology**

Physician Attitudes to Use, Skills Vary

- Some physicians are IT-savvy, willing to make initial time investment
- Some physicians aren't
 - Laggards: leave, or reduce benefits to practice by using paper, dictation—or don't adopt
- But many physician attitudes are “good enough”
 - “Techno-phobic” docs are few
- Attitudes are improving
 - Helped by diffusion of semi-conductor based innovations--internet, cell phones, PDAs, iPods

Lack of regional data exchange

- **Lots of activity in regional areas**
 - Markle, AHRQ funding
 - BUT little progress at physician practice level (so far)
- **Lack of regional data exchange reduces efficiency, quality benefits**
 - Too much paper in/out of practice → parallel paper, electronic processes
 - Increases financial costs—for abstraction, scanning/medical records staff
 - Increases time costs, decreases QI benefits—information less accessible, usable

Lack of incentives, reporting

- **Financial incentives for QI lacking**
 - QI takes time, effort
 - “Toxic” reimbursement environment
 - P4P limited
 - Incentives vital to reimburse initial time, \$ costs
- **Little public (or even confidential) reporting**
 - Reduces competition for patients, and among MDs

Difficult complementary changes/innovations

- Hard to use EHRs “out-of-the-box”
- Complementary changes reduce provider time costs, increase use, benefits....
 -BUT have initial money, time costs
- 3 types of changes
 - #1 EHR selection and contracting
 - #2 EHR implementation, efficiency gains
 - #3 EHR use for chronic care, prevention improvement
- Must make many “right” decisions, changes
 - In order to increase benefits, reduce time costs
- Focus often is on #1 or #2—but #3 creates value to consumers, payers

Complementary changes: EHR implementation & QI examples

■ EHR implementation

- Develop technical support capacity, leaders
- Configure hardware, software, interfaces
- Populate database/abstract data
- Reengineer basic workflow, train providers

■ EHR use for QI

- Templates, reminders, provider performance reports
- Patient self-management

Large groups: more resources for change

- IS expertise
 - More specialized staff
- Clinical leadership
- Management expertise
- Governance
- Past process change experience
- Financial capital

AND

- More opportunities to “learn by doing” and disseminate “lessons learned”

Some practices lack resources to make change, learn

- **Solo/small groups—big emphasis on physician champion skills**
 - Unequal distribution among practices
- **Must “rediscover the wheel”**
 - Since providing care, not EHRs, is core capability
- **Practices lack ability to purchase layer of services between vendor and clinic**

Policies: Intermediate organizations

- Can compensate for limited resources
- Provide another layer of support
 - Facilitates basic use, quality/efficiency improvement
- Application service providers (ASPs)
 - Sell services: software, hosting, training, support
- Quality Improvement Organizations (QIO)
 - Doctors' Office Quality-IT (DOQ-IT) project is step in right direction
 - QIO Eight Scope of Work builds on DOQ-IT

Policies: Regional health information organizations, financial incentives for QI

■ Regional data exchange

- Regional health information organizations (RHIOs)
- Would help small practices the most
- View data from ALL providers

■ Financial incentives for QI

- “Pay for performance” (P4P) focuses attention
- Several important private initiatives underway
- Can stimulate market for support services

Policies: Research, product comparisons

■ Funding for research

- Dearth of information on what “works” & why
- AHRQ solicitation (but relatively small budget)

■ Product comparisons

- Certification programs underway
- California Health Care Foundation/Community Clinics Initiative (CCI) effort
- “Consumer Reports” evaluations needed

Summary

- EHRs--great potential to improve quality, efficiency
- To create value, practices must make difficult EHR decisions, changes
- Some practices lack resources, incentives to effect changes
 - Especially for QI
- Interventions can enable practices to generate more value from EHRs
 - Support for intermediate organizations
 - RHIOs/community-wide data exchange
 - P4P reimbursement reform
 - Research on what “works”

Thank you!

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