The Role of Disease Management in Medical Research

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Overview

- **Current Challenges and Context**
- The Knowledge Gap and Role of AHRQ
- Future Challenges and Opportunities

RAND Study: Quality of Health Care Often Not Optimal

'atients' care often deficient, study says. 'roper treatment given half the time.

n average, doctors provide appropriate health care only half the me, a landmark study of adults in 12 U.S. metropolitan areas suggests.

Medical Care ften Not ptimal

ilure to Treat Patients lly Spans Range of hat Is Expected of ysicians and Nurses

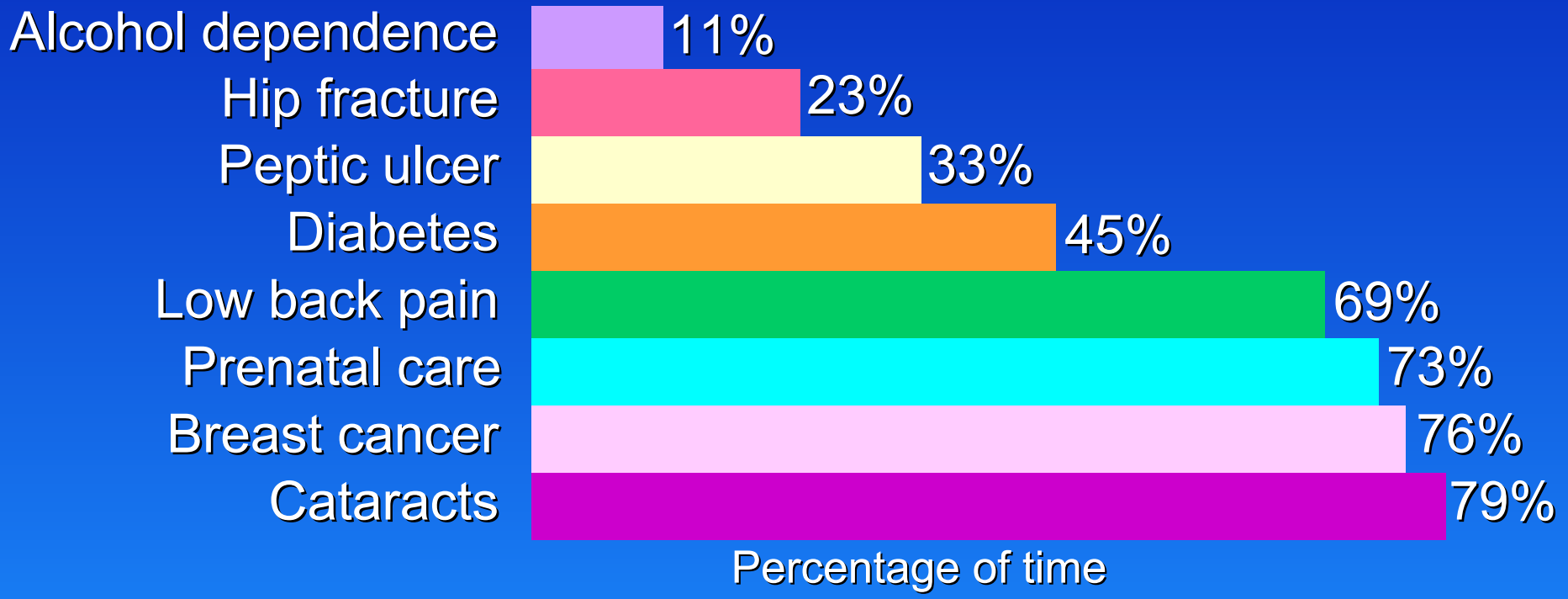
Study: U.S. Doctors are not following the guidelines for ordinary illnesses

Medical errors corrode quality of healthcare syste

The American healthcare syste often touted as a cutting-edge leader in the world, suddenly finds itself mired in serious questions about the ability of it hospitals and doctors to deliver quality care to millions.

RAND Study: Quality of Health Care Often Not Optimal

- Doctors provide appropriate health care only about half the time

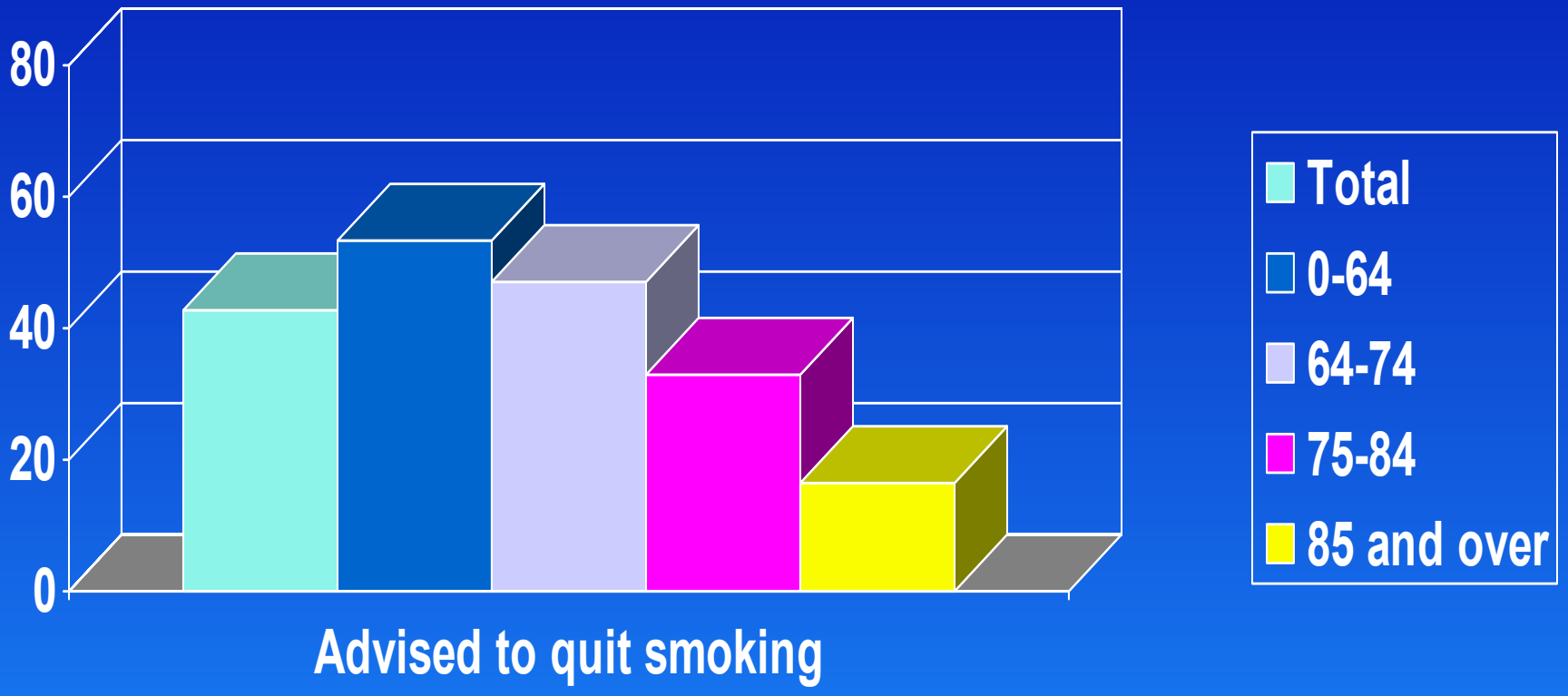


E. McGlynn, S. Asch, J. Adams, et al., The Quality of Health Care Delivered to Adults
n the United States, *N Engl J Med*, 2003

NHQR: Missed Opportunities

- Only **30%** of patients with diabetes receive all recommended tests
- 90% of adults are screened for high blood pressure – but only **25%** are controlled
- Nearly 1/3 of adults and children with asthma do **NOT** receive effective Rx
- Almost **20%** of persons with a usual source of care report that they are not asked about medications to prevent interactions

% of heart attack patients advised to quit smoking while hospitalized



CMS, QIO, 2000-2001

Environmental Change

- “In its current form, habits, and environment, American health care is incapable of providing the public with the quality health care it expects and deserves.”

Driving Forces

- Rising health care expenditures
- Aging and increasingly diverse population
- Consumerism
- Biomedical advances: public and professional expectations
- Growing influence of purchasers

Categories of Care Activities

- ***Technical care*** – Application of science and technology of medicine to manage personal health problems

- ***Interpersonal care*** – Interaction between the patient/consumer and the health care system arrange and receive care

HHS: Recent Developments

- Nursing Home Initiative
- Home Health Care Initiative*
- AHA-JCAHO-VHA …. Hospital reporting initiative*
- Patient experience in hospitals*
- Bar coding
- IT standards (*)

Reperfusion Therapy in Medicare Beneficiaries with Acute MI

Group	% Eligible receiving reperfusion
White men	59%
White women	56%
Black men	50%
Black women	44%

Canto JG; Allison JJ; Kiefe CI; Fincher C; Farmer R, Sekar P; Person S; Weissman NW. Relation of rave and sex to the use of reperfusion therapy in Medicare beneficiaries with acute myocardial infarction. N Engl J Med 2000 Apr 13;342(15):1094-100.

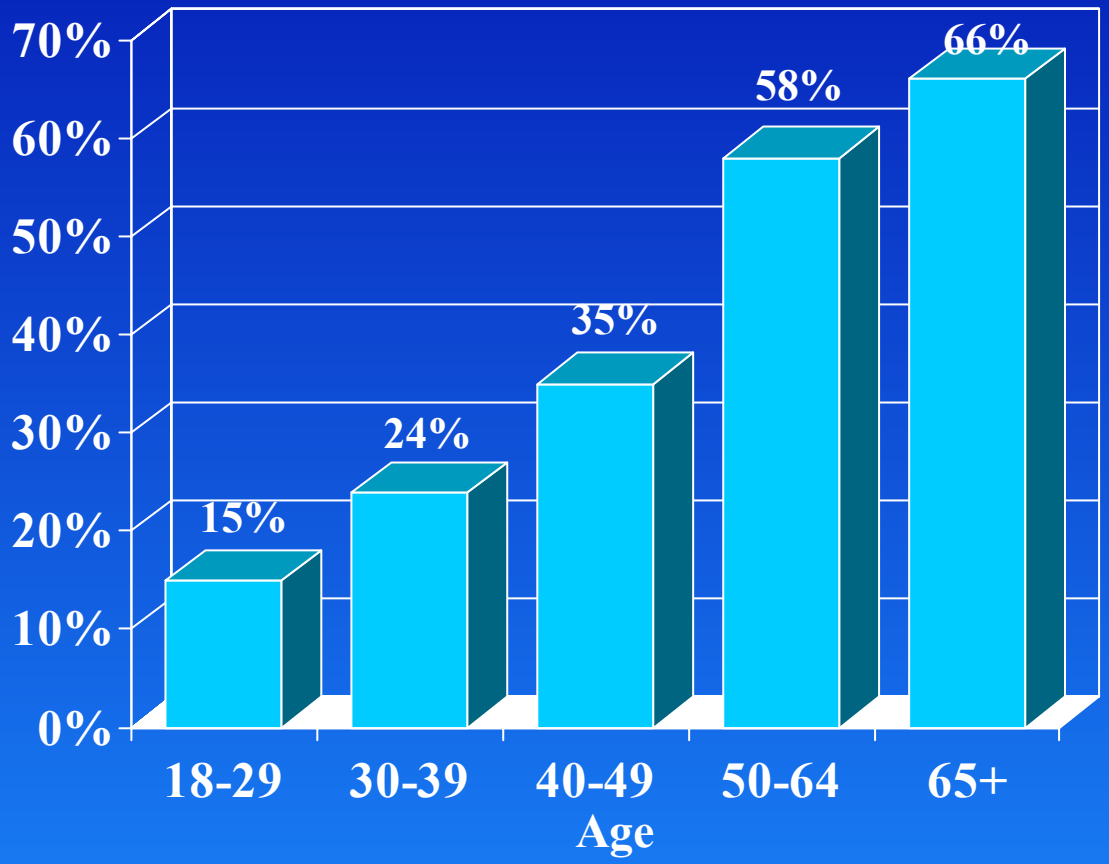
Issues

- Will public reporting → improvements?
- Paying for quality – YES, but HOW??
- If quality improvement is local, what is federal role?

Overview

- Current Challenges and Context
- **The Knowledge Gap and Role of AHRQ**
- Future Challenges and Opportunities

Percent of Americans Saying "I Have A Chronic Condition"



Source: Chronic Illness and Caregiving Survey, Harris 2000

Chronic Care Irony #1

- Most of our care is for people with chronic conditions
  - 100 million people – and growing
  - Cost is $425 billion a year – 70% personal health expenditures
  - Indirect costs are $234 billion
- Our worst care is for people with chronic conditions

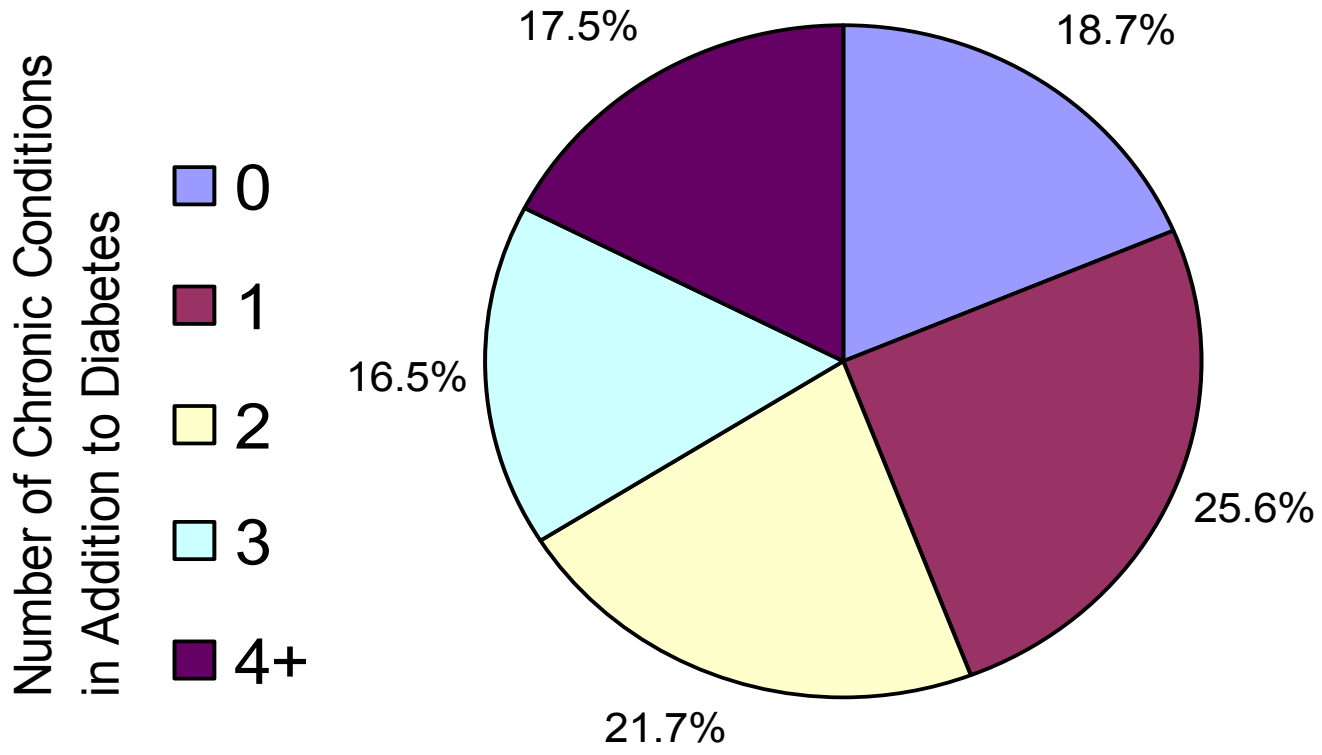
Chronic Care Irony #2

- We know what needs to be done. We have:
  - Strong, evidence-based models
  - Many small pilots with impressive results
  - Strong evidence of major outcomes changes
- But best practices are the exception

Diabetes Example

- 10 million Americans diagnosed with diabetes
- Care costs $44 billion a year
- Indirect costs are $54 billion a year
- Good care can limit manifestations
- Potentially preventable hospital admissions cost $2.5 billion a year, $1.3 billion for Medicare alone
  - Healthcare Cost and Utilization Project, 1999

Percent of People with Diabetes and Other Chronic Conditions

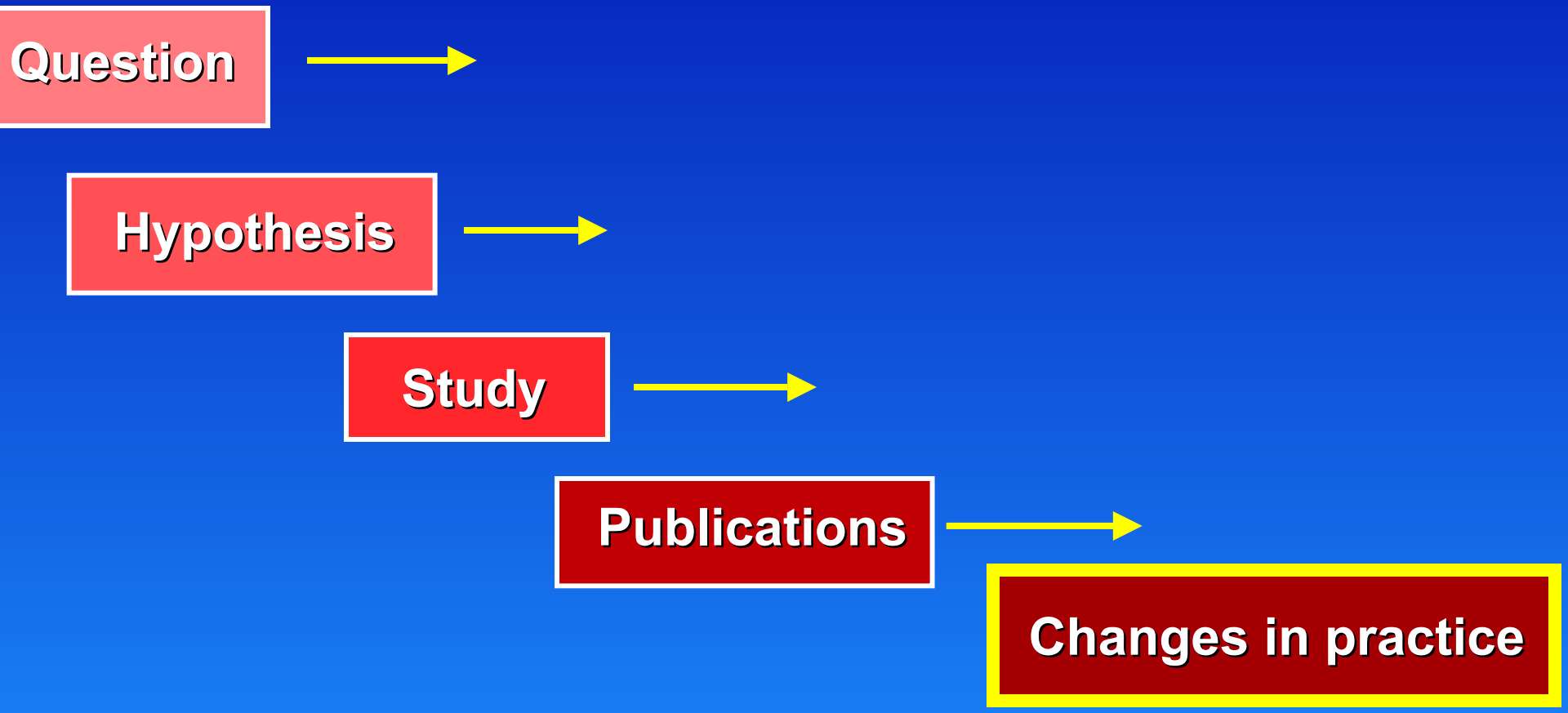


Source: AHRQ's Medical Expenditure Panel Survey, 1996, as cited in Partnerships for Solutions Issue Brief on Diabetes

What We Have Learned 2004

- Knowing the right thing to do is **NOT** = doing it!
- Improvement must be based on science
- Patients as participants are far more effective than patients as ‘recipients’
- Sutton’s Law: improving chronic illness care is essential
- Safety in health care delivery is critical

Implementation of Research Findings: Debunked Assumption



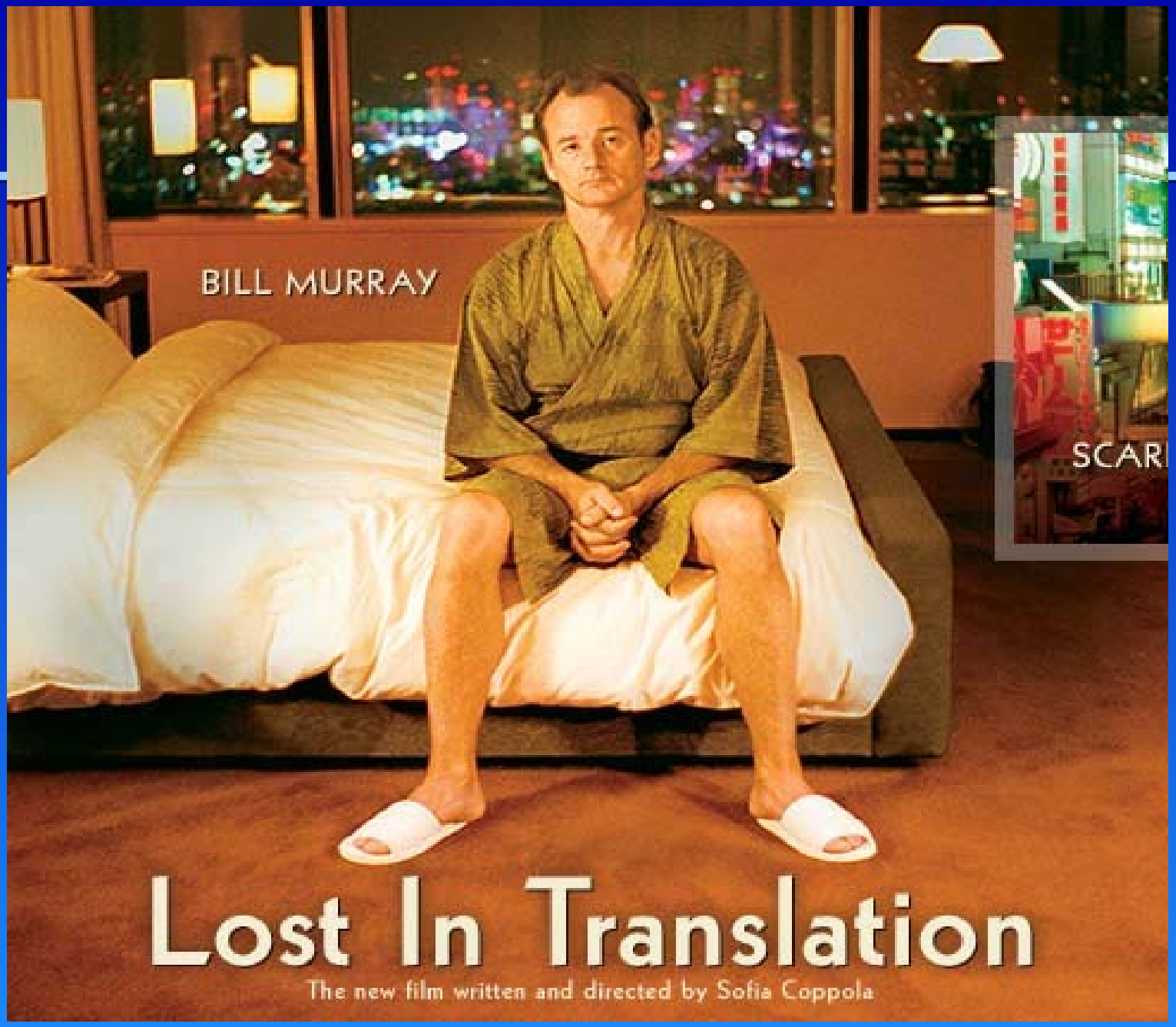
Voltage Drop from Research to Clinical Improvement

"It takes 17 years to turn 14% of original research to the benefit of patient care."

Voltage step-downs: study completion (18%), manuscript submission, acceptance & publication (46%), inadequate N (35%), inconsistent indexing (50%), citation in reviews, guidelines & textbooks (6-13 yrs.), implementation (6 yrs.). --A. Balas

A Flawed Model

- Receptor sites are “assumed”
- Decisionmaking is not-linear: evidence is only part of the “solution”
- Broad dissemination → modest effects


BILL MURRAY
Lost In Translation
The new film written and directed by Sofia Coppola

It is Hard to Change Beliefs

Popularization…is traditionally seen as a low status activity, unrelated to research work, which scientists are often unwilling to do and for which they are ill-equipped…Essentially, popularization is not viewed as part of the knowledge production and validation process but as something external to research which can be left to non-scientists, failed scientists or ex-scientists …

Richard Whitley (1995), 'Knowledge producers and knowledge acquirers: popularizations as a relation between scientific fields and their publics,' in Terry Shinn and Richard Whitley (eds.), Expository Science: Forms and Functions of Popularization. Dordrecht/Boston, MA: D. Reidel Publishing

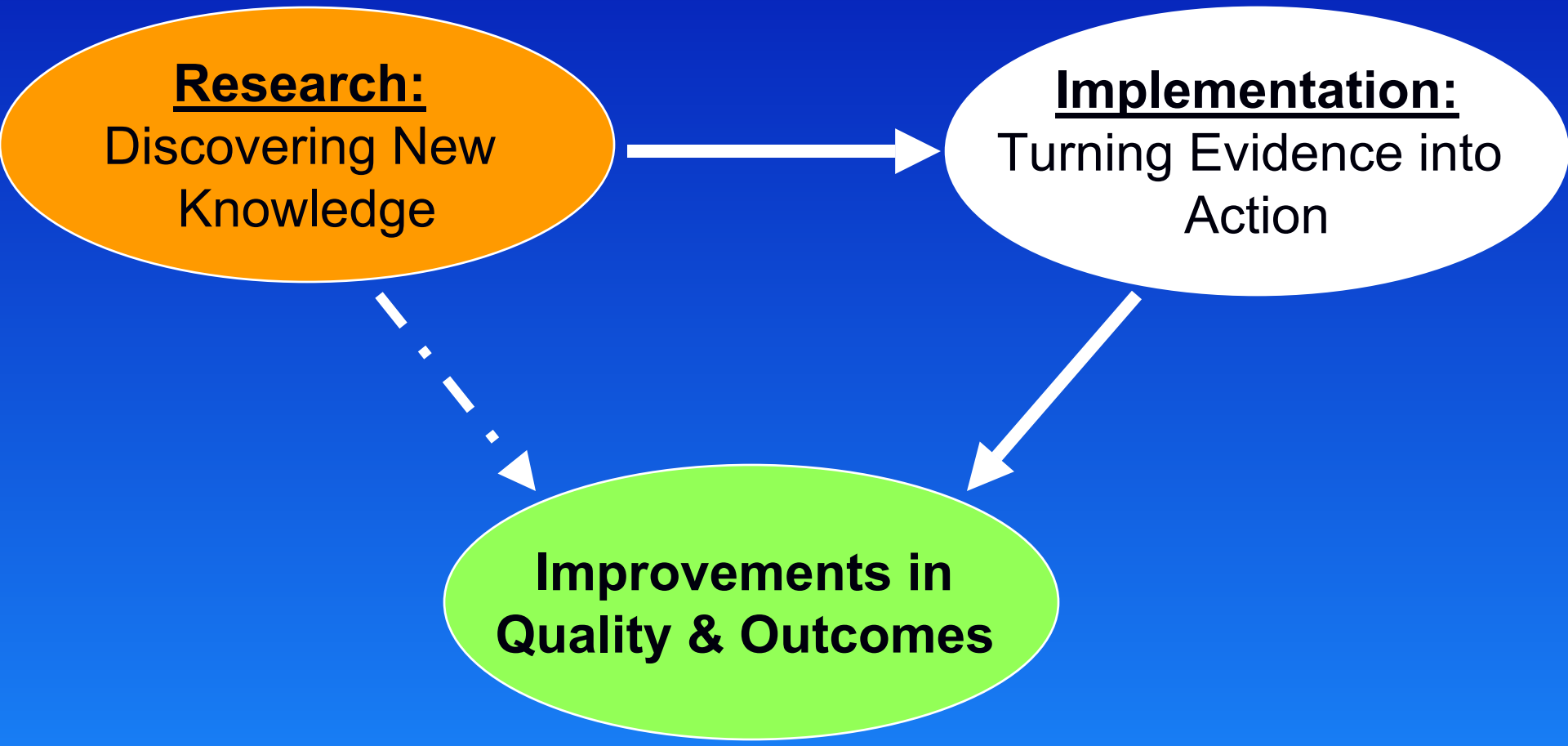
AHRQ – As a Science Partner

- Fund and conduct research on issues important to decisionmakers
  - Clinical
  - Health System
  - Policy

AHRQ Research Focus: How it Differs

- Patient-centered, not disease-specific
- Dual Focus -- Services + Delivery Systems
  Effectiveness research focuses on actual daily practice, not ideal situations (“efficacy”)
- AHRQ mission includes production ***and*** use of evidence-based information

AHRQ Core Activities



Overarching Questions

- What works? (clinical and organizational)
- How to persuade clinicians, patients, systems to do what works?

Getting to Improvement

- Making research findings usable – now: www.qualitytools.ahrq.gov
- Partnerships with professional organizations, communities and patients
- Focus on learning (if this were easy ….)
- Identifying champions
- FY 04: transforming health care through HIT
- **Evidence reports: "best practices" in priority areas**

Closing the Quality Gap

- 2003 IOM report *Priority Areas for National Action*
  - 20 clinical topics with evidence supporting "best practices"
- AHRQ's *National Healthcare Quality Report* and *National Healthcare Disparities Report*
- AHRQ commissioned Stanford-UCSF to identify evidence supporting quality improvement interventions in priority areas
- Goal is to increase the delivery of effective healthcare

QI Strategies Considered

- Patient education
- Patient reminder systems
- Promotion of self-management
- Provider education
- Provider reminder systems
- Facilitated relay of clinical date to providers
- Audit and feedback
- Organizational change
- Financial incentives

Methodologic Approach

- Systematic approach
- Reviewed highest quality evidence available
- Performed quantitative evaluation when possible
- Initial reports on hypertension and diabetes
- Future reports to include medication management and care coordination

Assessing the Evidence

- Are the studies *valid*?
- Does the weight of the evidence suggest the strategy is *effective*?
- Can the findings be *applied* to a specific setting or population?

Hypertension Care Strategies

- 3071 articles identified, 63 included
- Median increase in target SBP range was 16% and in target DBP range was 6%
- Organizational change and patient education strategies appeared most promising
- Combining strategies appears to have increased effect

Diabetes Care Strategies

- 3601 articles identified, 58 included
- Median absolute reduction in HgbA1c was 0.5% for individual interventions
- No strategy itself was unambiguously beneficial
- Case management and provider education were the most promising
- Multi-component interventions reported a slightly larger median absolute reduction in HgbA1c

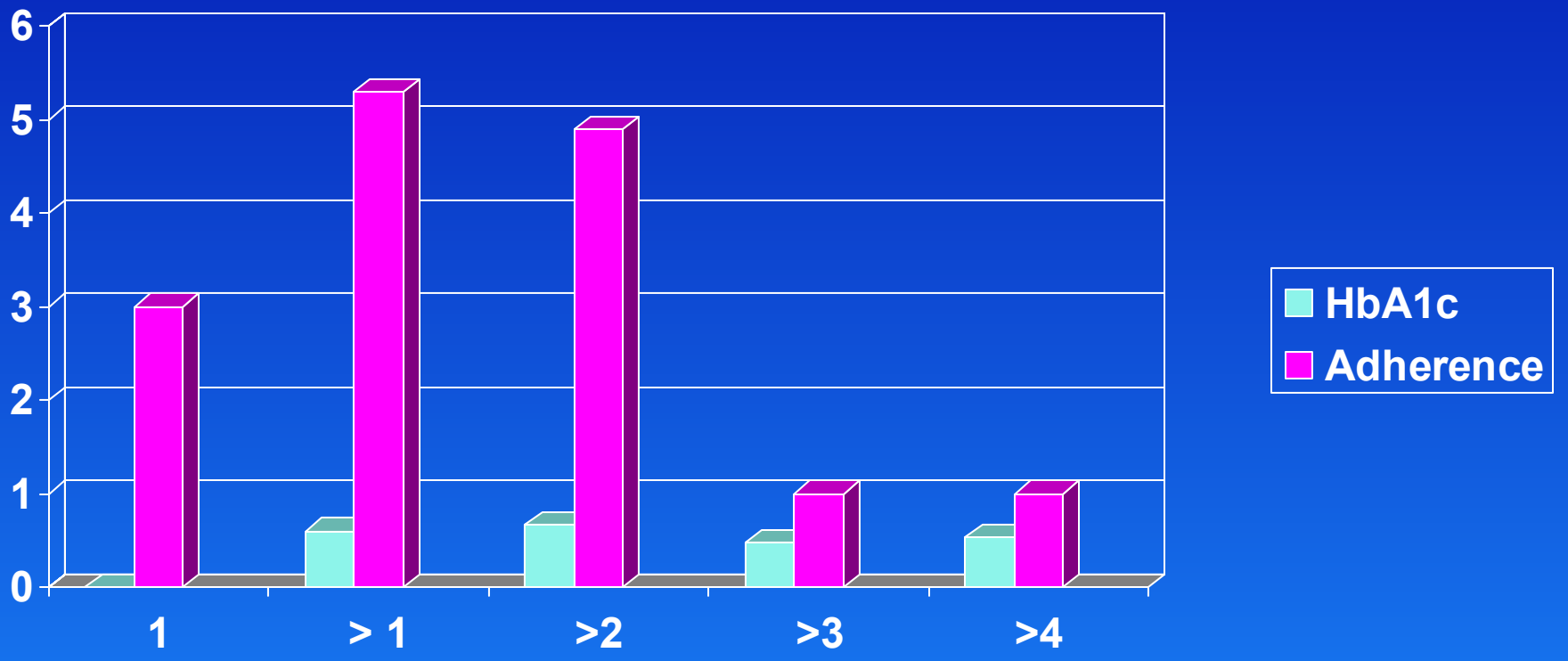
Outcomes Assessed

- Measures of disease control
  - HbA_{1c} , blood pressure
- Provider adherence to recommended care
  - Monitoring of HbA_{1c}, retinopathy, nephropathy, neuropathy
  - Recommended diabetes treatments
  - Targets for CVD risk reduction
  - Patient education
- Patient adherence to recommended care
  - Medication
  - Self-care (glucose monitoring)
  - Diet, exercise, follow-up

Overall Findings

- Median reduction in HbA_{1c} = 0.48 (0.2 – 1.4)
- Median improvement in provider adherence 4.9 % (3.8 – 15)
- Smaller effects in RCTs than other designs
  - HbA_{1c} : 0.39 (RCT) vs. 1.4 (non-RCT)
  - Provider adherence: 4.5% (RCT) vs. 18% (non-RCT)
- Smaller effects in largest studies
- Smaller effects in adherence in more recent studies

Effects of # of Intervention Strategies on HbA1c and Provider Adherence



Regression Results

- Examines independent contribution of each strategy
- HbA1c (27 studies)
  - Strongest effects for disease management and provider education
- Provider adherence (17 studies)
  - Strongest effects for provider education and personnel or team changes
- Caveat: None of the coefficients statistically different (i.e. no strategy clearly superior)

General conclusions and limitations

- Difficult to definitively separate out effects of individual QI components
- Literature limited by poor reporting of specific details of interventions
- Little use of theory or explanation of choice of specific strategies
- Evidence of reporting bias – average effects may be exaggerated by underreporting of small, negative trials

Conclusions

- Consistent effect of QI interventions on intermediate endpoints (HbA1c and provider adherence)
- Modest median effects may conceal more dramatic effects of specific approaches on specific outcomes
- Current QI interventions may have smaller effects due to improving baseline performance over time
- Combining multiple interventions improves effects but optimal combination not clear
- Implications: Incredible opportunity – and urgency – to learn as we go**

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The Future Delivery System: Baseline Assumptions

- Today's students will encounter a dramatically different health care system
- Basic premise of health insurance is eroding
- System fragmentation will increase
- Consumer-directed options will increase → increased price sensitivity and need for information
- "Disruptive challenges" (BT, SARS, ???) a daily reality: the "new normal"

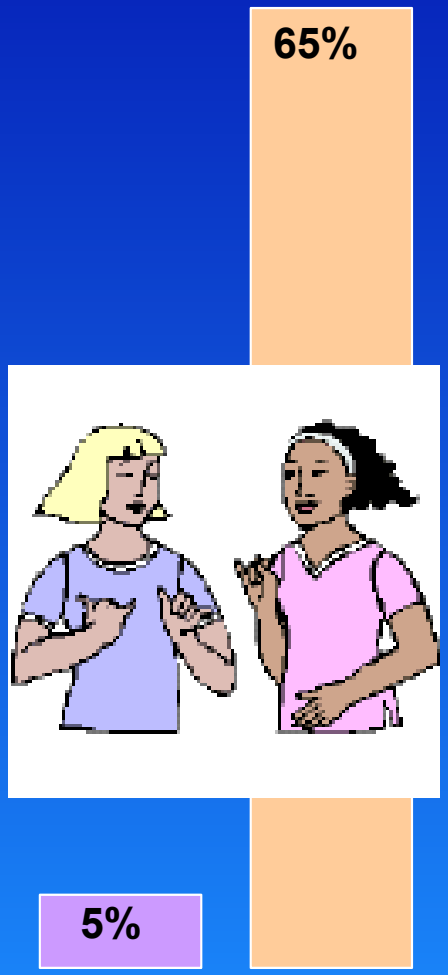
The Future Delivery System: Essential Components

- Evidence-based (disease) management
- Knowledge Infrastructure
- Leadership

#1: Design Studies that Answer User Questions

- Move from description to prediction and explanation
- Focus on independent variables that are modifiable
- *Provide details on HOW to implement*

Team Approach to Testing for Chlamydia



- Team-oriented approach to testing for chlamydia increased screening rate of sexually active 14- to 18-year old female patients from 5% to 65% in a large California HMO study
- New screening system may help reduce estimated $4 billion annual treatment cost

M Shafer, The effect of clinical practice improvement intervention on chlamydia screening among sexually active adolescent girls, *JAMA*, December 11, 2002

Impact Case Study: Kaiser Permanente of Northern California

- AHRQ-sponsored research on screening for chlamydia trachomatis
- As a result, Kaiser Permanente of Northern California instituted a clinical practice improvement intervention to increase chlamydia screening among sexually active adolescent girls during routine checkups
- Screening is in place at 5 pediatric clinics and is being disseminated to all of the pediatric clinics of Kaiser Permanente of Northern California

Shafer MB, Tebb KP, Pantell RH, Wibbelsman CJ, et al. Effect of a clinical practice improvement intervention on chlamydial screening among adolescent girls. *JAMA*. 2002; 288:2846-2852 (HS10537) (COE-04-01)

AHRQ Research Study: Timing of Surgery for Hip Fracture and Outcomes

- **Major Finding:** Hip fracture surgery performed within 24 hours of hospital admission results in positive outcomes for the patient:
  - Reduces pain
  - Shortens hospital stays
  - May limit probability of major complications, such as pneumonia and arrhythmias

GM Orosz, J. Magaziner, EL Hannan, et. al., The association of timing of surgery for hip fracture and patient outcomes, *JAMA*, April 14, 2004

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Health Technology Information

It's the Wave of the Future

Improving Quality and Safety

"We need to make the right thing the easy thing…"

Mark Chassin, MD
October 12, 2000

Potential of IT for Enhancing Qualit

- IT can enhance the precision and decrease the cost of measurement – i.e., getting to the “right” measures
- IT can also enhance translation of strategies to improve quality (e.g., decision support)
- IT can greatly enhance the timeliness of data collection

“Potential is what you have when you haven’t done it yet”

Darrel Royall
University of Texas
Football coach

AHRQ Case Study: Computerized ICU System and Nursing Care

- Computerized medical information management system in hospital intensive care units (ICU) significantly reduced time ICU nurses spent on documentation
- Nurses were able to complete more tasks without interruption

52 minutes saved in an 8-hour shift

D. Wong, Y. Gallegos, M. Weinger, et al., Changes in intensive care unit nurse task activity after installation of a third-generation intensive care unit information system, *Critical Care Medicine*, 2003

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AHRQ Research Study: Identifying Successful Hospital Quality Improvements

- **Major finding:** Hospitals that were more likely to prescribe beta-blockers shared similar characteristics:
  - Solid support from their hospital administration
  - **Strong physician leadership**
  - Shared goals of improving medical practice
  - Effective way of monitoring progress
- Conducted by Yale University School of Medicine

E Bradley, E Holmboe, J Mattera, et al., A Qualitative Study of Increasing B-Blocker Use After Myocardial Infarction, Journal of the American Medical Association, May 23, 2001

What is Section 1013?

- To improve the quality, effectiveness and efficiency of health care delivered through Medicare, Medicaid and the S-CHIP programs
- $50 million is authorized in Fiscal Year 2004 for the Agency for Healthcare Research and Quality (AHRQ) to conduct and support research with a focus on outcomes, comparative clinical effectiveness and appropriateness of health care items and services (including pharmaceutical drugs), including strategies for how these items and services are organized, managed and delivered

Essential Issues to be Addressed

- **Ethics and QI / Disease Management:** (when is research?
- Identification of subgroups most likely to benefit
- Identifying critical intervention points ("teachable moments")
- Conceptual blueprint for practical clinical trials
- *Integration of disease management with clinical decision support – "knowledge engineering"*
- Patient engagement (including the pre-contemplative)

Globalize the Evidence
Localize the Decision

AHCPR