

# NIH and Comparative Effectiveness Research Advisory Committee to the Director

Richard J. Hodes, M.D.

Director, NIA

December 4, 2009



# NIH Has a Long History of CER

## Patient Centered Research

- Prevention
- Diagnosis
- Treatment
- Behavior change
- Health systems
- Special populations



FY08: Clinical Research \$9.6B

Initial analysis maps current NIH CER to 88 of 100  
IOM priorities



# NIH CER Landmark Studies

**The NEW ENGLAND  
JOURNAL of MEDICINE**

ESTABLISHED IN 1812    SEPTEMBER 22, 2005    VOL. 353 NO. 12

**Effectiveness of Antipsychotic Drugs in Patients  
with Chronic Schizophrenia**

Jeffrey A. Lieberman, M.D., T. Scott Stroup, |  
Robert A. Rosenheck, M.D., Diana  
Sonia M. Davis, Dr.P.H., Clarence E. D.  
and John K. Hsiao, M.D., for the Clinical Antip:

**ORIGINAL CONTRIBUTION**

**BACKGROUND**  
The relative effectiveness of second-generation (at

The NEW ENGLAND JOURNAL of MEDICINE

**ORIGINAL ARTICLE**

**Mortality Results from a Randomized  
Prostate-Cancer Screening Trial**

Gerald L. Andriole, M.D., E. David Crawford, M.D., Robert L. Grubb III, M.D.,  
Saundra S. Buys, M.D., David Chia, Ph.D., Timothy R. Church, Ph.D.,  
Mona N. Fouad, M.D., Edward P. Gelmann, M.D., Paul A. Kvale, M.D.,  
L. Weissfeld, M.D., Lance A. Yokochi, M.D.,  
than D. Clapp, B.S., Joshua M. Rathmell, M.S.,  
rd B. Hayes, Ph.D., Barnett S. Kramer, M.D.,  
thony B. Miller, M.B., Paul F. Pinsky, Ph.D.,  
. Gohagan, Ph.D., and Christine D. Berg, M.D.,  
e PLCO Project Team\*

**JAMA-EXPRESS**

**ABSTRACT**

ate-specific-antigen (PSA) testing and digital rectal

**The New England  
Journal of Medicine**

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**REDUCTION IN THE INCIDENCE OF TYPE 2 DIABETES WITH LIFESTYLE  
INTERVENTION OR METFORMIN**

DIABETES PREVENTION PROGRAM RESEARCH GROUP\*

**ABSTRACT**  
*Background* Type 2 diabetes affects approximat-  
ly 8 percent of adults in the United States. Some risk  
factors — elevated plasma glucose concentrations in

**T**YPE 2 diabetes mellitus, formerly called  
non-insulin-dependent diabetes mellitus, is  
a serious, costly disease affecting approxi-  
mately 8 percent of adults in the United

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idity and mortality, but t  
To determine whether t  
onverting enzyme inhib  
r other cardiovascular di  
: Antihypertensive and L

**The NEW ENGLAND  
JOURNAL of MEDICINE**

ESTABLISHED IN 1812    JANUARY 20, 2005    VOL. 352 NO. 3

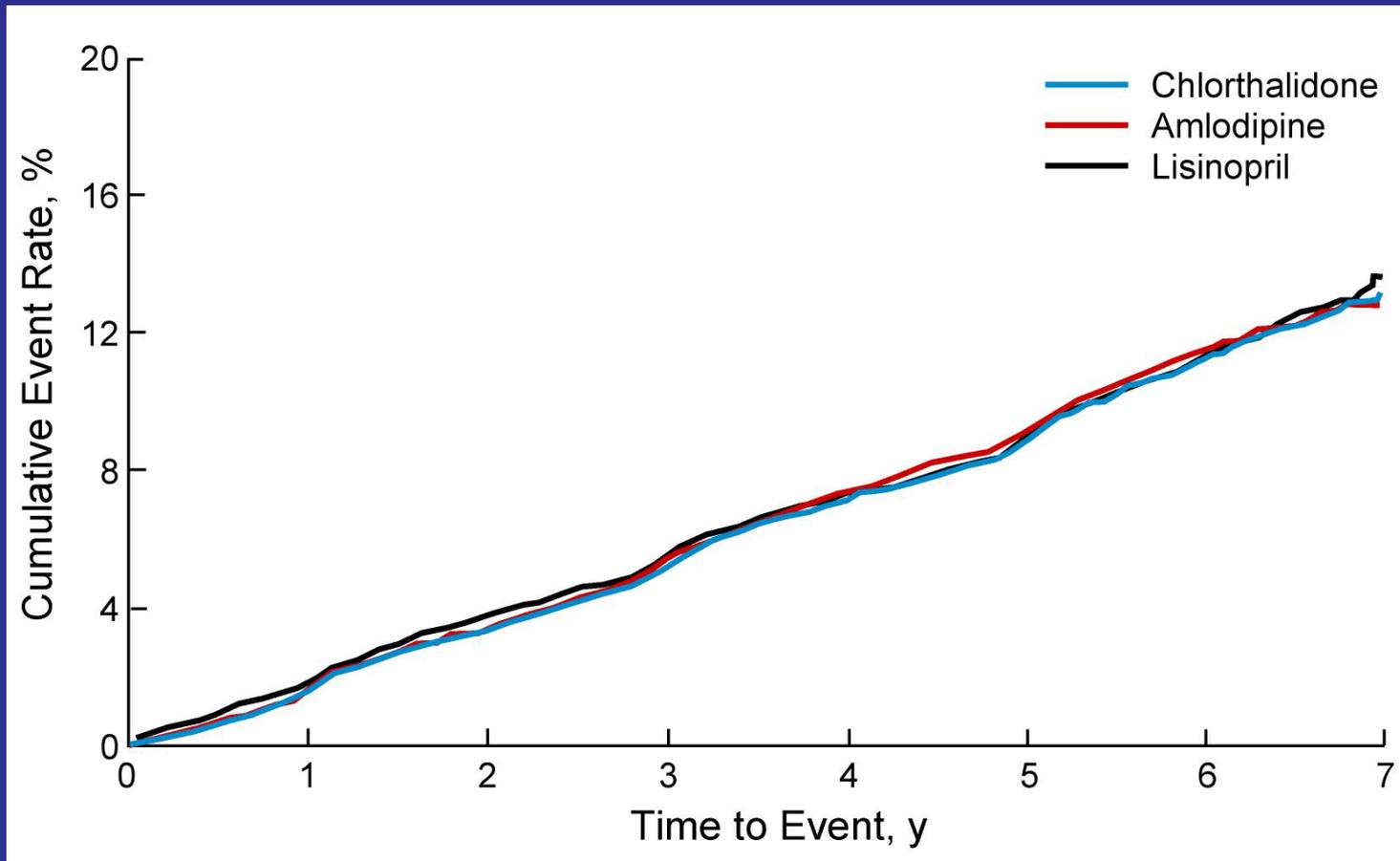
**Amiodarone or an Implantable Cardioverter-Defibrillator  
for Congestive Heart Failure**

Gust H. Bardy, M.D., Kerry L. Lee, Ph.D., Daniel B. Mark, M.D., Jeanne E. Poole, M.D., Douglas L. Packer, M.D.,  
Robin Boineau, M.D., Michael Domanski, M.D., Charles Troutman, R.N., Jill Anderson, R.N.,  
George Johnson, B.S.E.E., Steven E. McNulty, M.S., Nancy Clapp-Channing, R.N., M.P.H.,  
Linda D. Davidson-Ray, M.A., Elizabeth S. Fraulo, R.N., Daniel P. Fishbein, M.D., Richard M. Luceri, M.D.,  
and John H. Ip, M.D., for the Sudden Cardiac Death in Heart Failure Trial (SCD-HeFT) Investigators\*



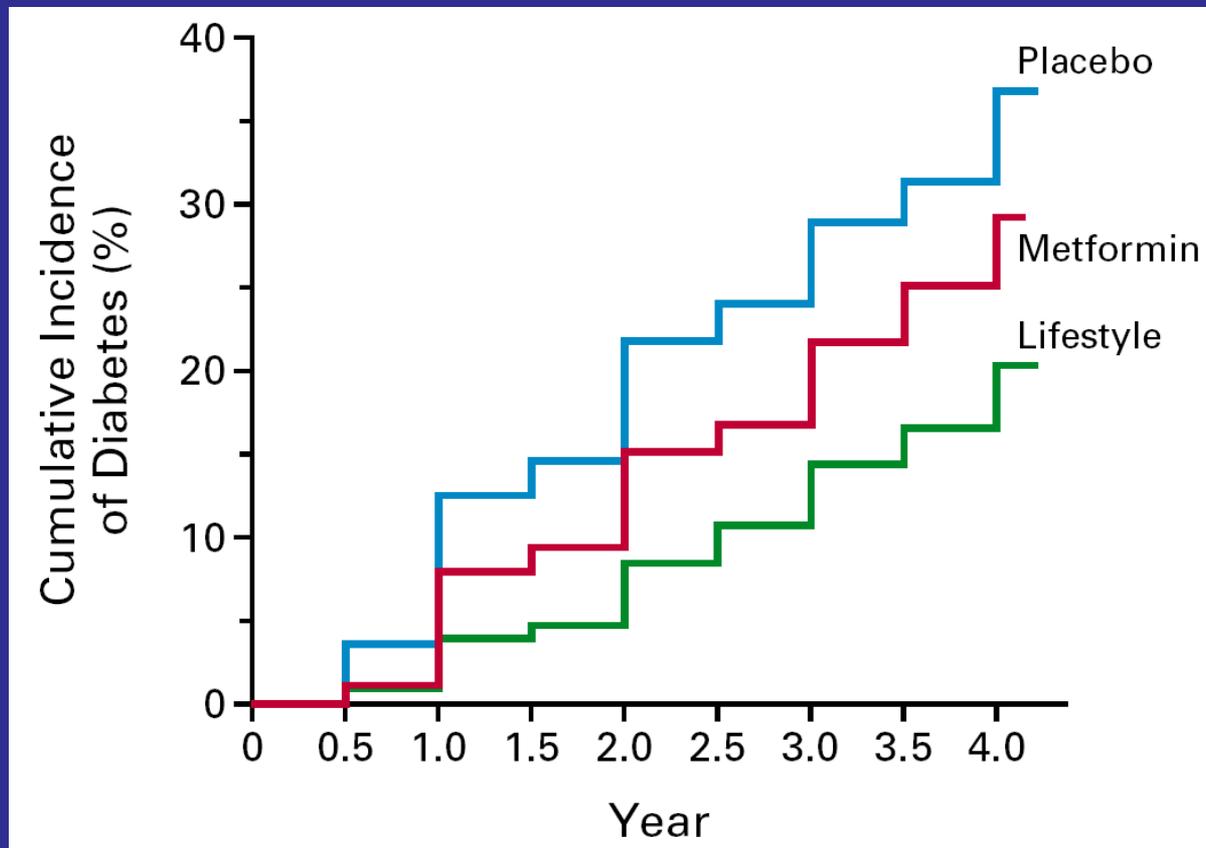
# Drug versus Drug: ALLHAT

Community based study of 33,357 hypertensive individuals found that an inexpensive generic diuretic was as effective as more expensive agents in reducing heart disease and stroke.

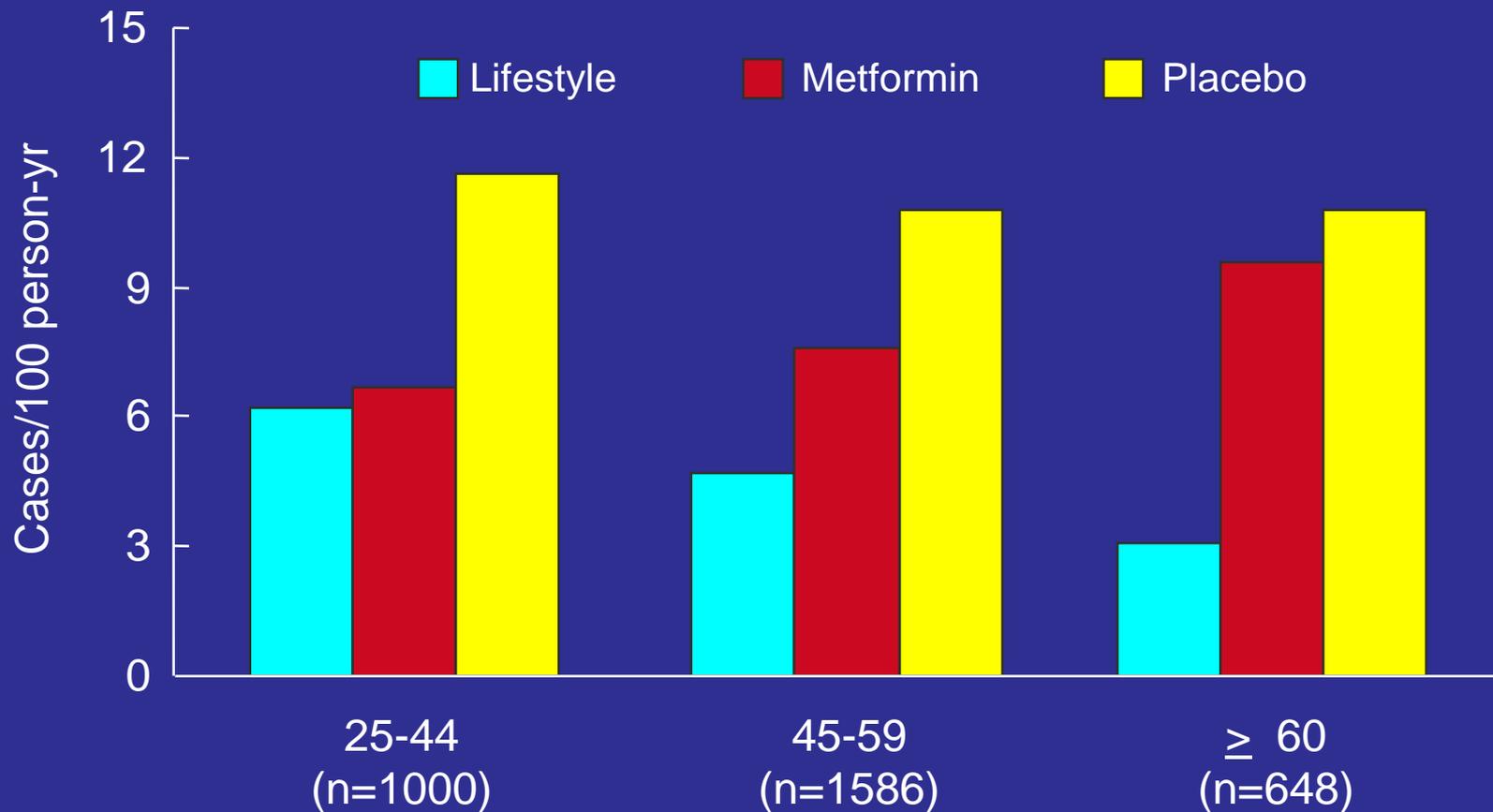


# Lifestyle versus Drug: Diabetes Prevention Program

Exercise and lifestyle changes yield substantially better health and economic outcomes than metformin alone or placebo in preventing the onset of diabetes (N=3234).



# Diabetes Incidence Rates by Age



Source: Diabetes Prevention Program, 2001



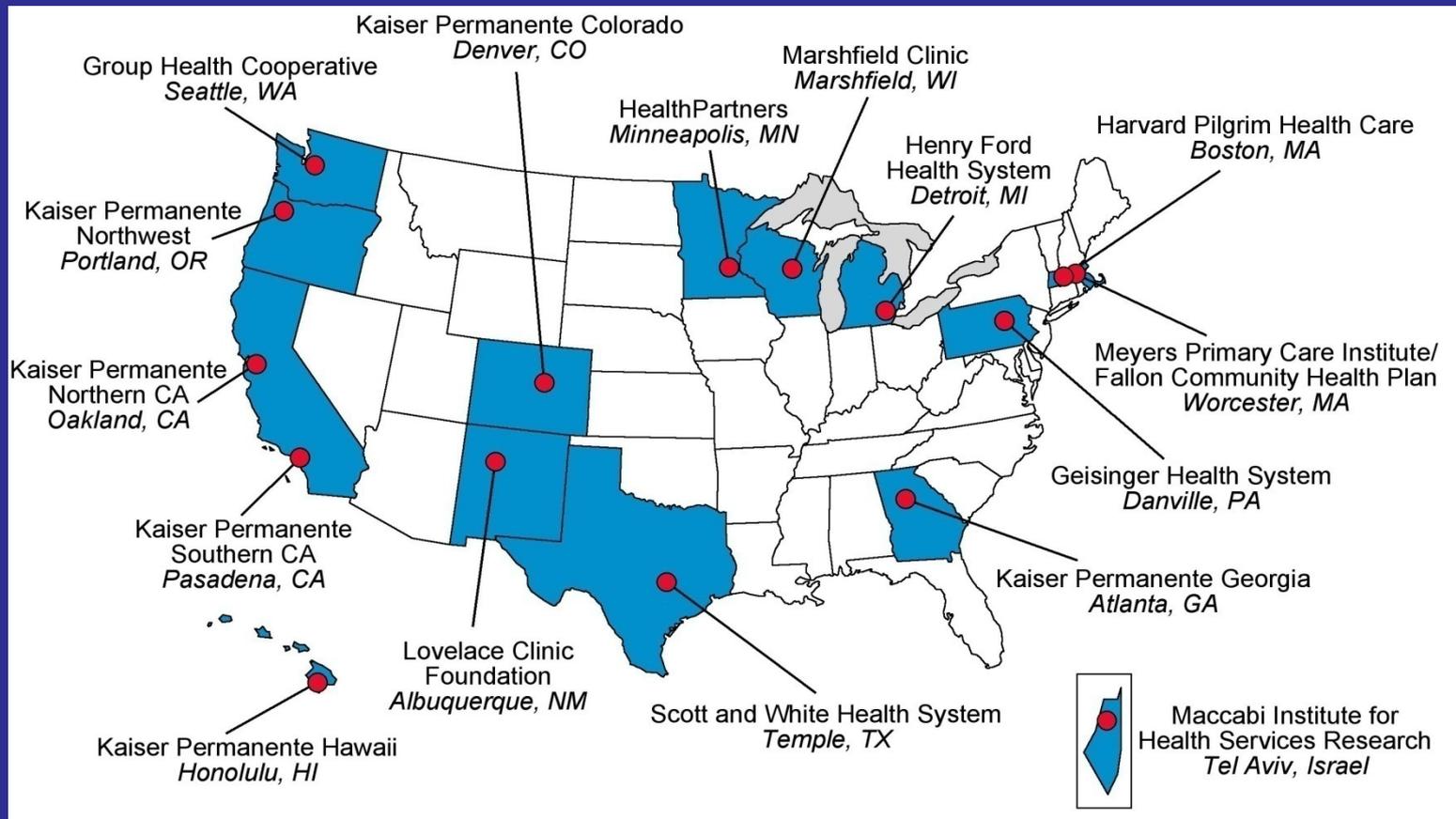
# NIH Has an Extensive CER Research and Training Infrastructure

- Trial networks, cooperative groups
- NIH Consensus Development Program
- NLM National Center on Health Services Research
- CTSA's and community collaborations
- Integration of CMS and SEER databases
- HMO Research Network



# HMO Research Network

- A consortium of 16 integrated health systems covering 11 million lives
- Funding from NIH, AHRQ, FDA, CDC



# NIH CER Dissemination

The screenshot shows the NIH National Library of Medicine website for the public. The header includes the NLM logo, the text "United States National Library of Medicine National Institutes of Health", and a search bar with a "Go" button. Below the header, there is a navigation menu with links for "NLM Home", "Contact NLM", "Site Map", and "FAQ". The main content area is titled "For the Public" and features a banner image of a smiling woman and child. Below the banner, there is a section for "Medline Plus" with a search bar and a "Go" button. To the right of the search bar, there are links for "NLM Guide to Finding Health Information", "NLM Tutorial: Evaluating Internet Health Information", and "ClinicalTrials.gov". Below the search bar, there is a section for "Current Health News" with links to "FDA, in First Tobacco Action, Bans Flavors (09/23/09)", "Hand Washing 10 Times a Day May Help Keep Flu Away (09/23/09)", and "Study Suggests a Wider Use for Statins (09/23/09)". At the bottom, there is a section for "Online Exhibitions".

<http://www.nlm.nih.gov/portals/public.html>

The screenshot shows the NIH National Library of Medicine website for health care professionals. The header includes the NLM logo, the text "United States National Library of Medicine National Institutes of Health", and a search bar with a "Go" button. Below the header, there is a navigation menu with links for "NLM Home", "Contact NLM", "Site Map", and "FAQ". The main content area is titled "For Health Care Professionals" and features a banner image of a group of people in a meeting. Below the banner, there is a section for "From NLM for Health Care Professionals" with a search bar and a "Go" button. To the right of the search bar, there are links for "MEDLINE/PubMed Biomedical journal literature", "ClinicalTrials.gov Information for patients about clinical research studies", and "NIH MedlinePlus Magazine A quarterly guide for patients and their families". Below the search bar, there is a section for "Public Health" with links for "Partners in Information Access for the Public Health Workforce" and "Health Services Research and Health Care Technology". At the bottom, there is a section for "Policies and Guidelines" with links for "Health Services Research Web Site Portal" and "NIH Public Access Policy Resources".

<http://www.nlm.nih.gov/portals/healthcare.html>

- NIH disseminates its research evidence
  - Public through website, press, education programs
  - Patient groups
  - Professional organizations
- [www.NIH.gov](http://www.nih.gov) 500,000 to 1,000,000 visitors a day
- NIH coordinates with DHHS Agencies



# Why Do We Need CER?

*“Only a limited amount of evidence is available about which treatments work best for which patients . . .”*

Peter Orszag



Congressional Budget Office 2007



# Examples of Findings: The Cardiovascular Evidence Gap

*Nearly half of current clinical practice recommendations from the American College of Cardiology and the American Heart Association are not evidence based.*

ORIGINAL CONTRIBUTION

## Scientific Evidence Underlying the ACC/AHA Clinical Practice Guidelines

Pierluigi Tricoci, MD, MHS, PhD

Joseph M. Allen, MA

Judith M. Kramer, MD, MS

Robert M. Califf, MD

Sidney C. Smith Jr, MD

**C**LINICAL PRACTICE GUIDELINES are systematically developed statements to assist practitioners with decisions about appropriate health care for spe-

**Context** The joint cardiovascular practice guidelines of the American College of Cardiology (ACC) and the American Heart Association (AHA) have become important documents for guiding cardiology practice and establishing benchmarks for quality of care.

**Objective** To describe the evolution of recommendations in ACC/AHA cardiovascular guidelines and the distribution of recommendations across classes of recommendations and levels of evidence.

**Data Sources and Study Selection** Data from all ACC/AHA practice guidelines issued from 1984 to September 2008 were abstracted by personnel in the ACC Science and Quality Division. Fifty-three guidelines on 22 topics, including a total of 7196 recommendations, were abstracted.

# Patient-Centered Health Research is Vital to Health Reform

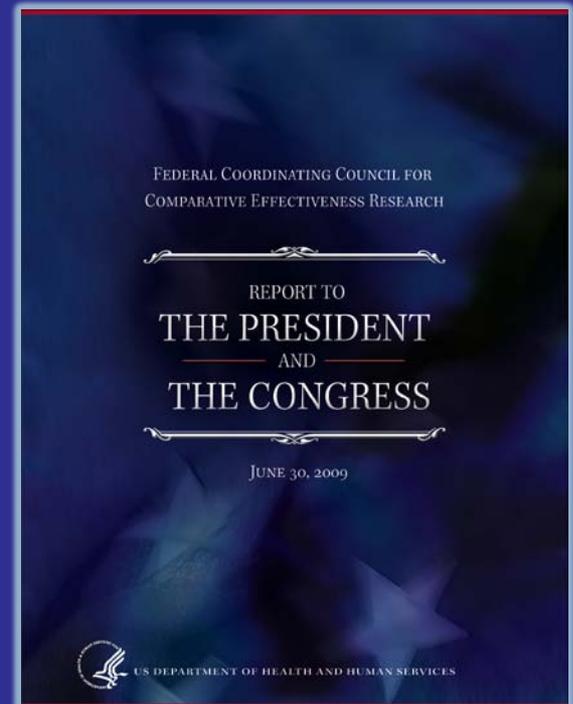
In situations where the right thing to do is well established, physicians from high- and low-cost cities make the same decisions. But in cases where the science is more unclear, some physicians pursue the maximum possible amount of testing and procedures; some pursue the minimum. And what kind of doctor they are depends on where they came from. In case after uncertain case, more was not necessarily better.

(Dr. Atul Gawande)



# NIH and ARRA CER

- Active leadership role in Federal Coordinating Council and CER CIT
- NIH CER Coordinating Committee coordinates NIH CER programs and develops funding recommendations for the NIH Director
- CER CC Subcommittees to coordinate and integrate Inter-Agency activities:
  - NIH-AHRQ CER Workgroup
  - NIH-VA CER Workgroup
  - NIH-FDA CER Workgroup



# CER Activities Approved for ARRA Funding from NIH's \$400 Million (as of 11/2009)

Funding Mechanism	# Submissions	Total Costs (millions)
Grand Opportunity Grants (RC2)	31	\$144,734,120
Challenge Grants (RC1)	82	\$76,510,300
Pay-line Expansions	8	\$35,838,658
"Other"	9	\$58,473,346
Competitive Revisions	7	\$7,272,466
Administrative Supplements	29	\$19,081,118
<b>TOTAL APPROVED</b>	<b>166</b>	<b>\$341,910,008</b>



# Highlights of ARRA funded CER projects

- SPRINT Senior - the NHLBI/NIDDK/NIA/NINDS study adding an enhanced older adult population to compare control of systolic BP to 140 versus 120 on multiple real-world end-points, including cardiovascular, renal cognitive function.
- The Oregon lottery study - NIA supported analysis of the Oregon randomized lottery experiment, where multiple health behavior consequences of health insurance policy will be analyzed.
- Follow-on to the NIDDK/NIA - supported diabetes prevention study to determine effects on relevant health end-points associated with diabetes complications.
- Schizophrenia clinical trial of treatment post acute episodes, NIMH-funded.
- Multiple registries which will allow tracking of populations for variables including outcomes and relationship to treatment.
- CER Centers such as the Center for CER in Cancer Genomics (NCI), the Comparative Effectiveness and Outcomes Improvement Center (NHLBI) and CTSA's (NCRR).



# More ARRA funded CER projects

- Center for Comparative Effectiveness Research in Cancer Genomics
- Comparative effectiveness of breast imaging strategies in community practice
- Contemporary Treatment and Outcomes for Atrial Fibrillation in Clinical Practice
- Comparative Effectiveness of Interventions for Chronic Pain Management
- Comparative effectiveness of FIT vs. colonoscopy for colon cancer screening
- Minimally Invasive Surgical Pulmonary Vein Isolation vs. Medical Management in Patients with AF and Stroke
- Data Infrastructure for Post-Marketing for Comparative Effectiveness Studies
- Conservative Versus Dialytic Management in Stage V Chronic Kidney Disease
- Developing a Community-Based Autism Spectrum Disorders Research Registry



# Key NIH CER Activities

- **Research** to generate evidence that enables physicians and patients to make optimal health care decisions
- Research **Training** to develop the CER workforce of tomorrow
- **Personalized Medicine** highlights uniqueness of individuals and special populations
- CER **Centers** to support research, training and dissemination of evidentiary knowledge
- **Behavioral Economics** to increase “uptake” of CER findings by providers and payers



# AHRQ CER Spend Plan

- AHRQ plans to use their \$300 million in ARRA funds to broaden pre-existing CER activities initiated in response to Section 1013 of the MMA (2003).
- AHRQ views CER as a process that includes the following steps, and for which they will fund various projects/initiatives:
  - Horizon Scanning: identification of current or emerging medical interventions (\$9.5 M in contracts)
  - Evidence Synthesis: review and synthesis of current medical research (\$25 M in contracts)
  - Identification of Evidence Needs and Gaps (\$25 M)



# AHRQ CER Spend Plan Initiatives (cont.)

- Evidence Generation (\$173 M)
  - CHOICE Studies
  - Requests for Registries
  - DEcIDE Consortium Support
  - Unfunded Meritorious Applications
- Dissemination and Translation (\$34.5 M)
  - CE Dissemination and Translation Innovation Grants
  - Eisenberg Center Modification
- Research Training and Career Development (\$20 M)
  - Institutional Training Awards and CE Fellowship
- In addition, AHRQ plans to convene a Citizen Forum on Effective Health Care in order to formally engage stakeholders in the CER enterprise (\$10 M)



# Office of the Secretary CER Spend Plan

- As of November 19, 2009, approximately 95% of the Secretary's \$400 Million has been allocated to specific projects across the following categories:
  - Data Infrastructure
  - Dissemination & Translation
  - Research
  - Inventory and Evaluation
- NIH will take the lead on the following projects being funded by the Office of the Secretary
  - Centers of Excellence for Racial and Ethnic Minority-focused CER (NIH/OMH)
  - Behavioral Economics and Change (NIH/AHRQ)



# CER and Personalized Medicine

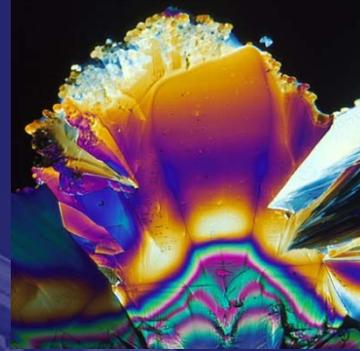
- CER should be guided by the emerging science of genomic and personalized medicine.
- CER will generate research hypotheses relevant to personalized medicine by exploring why certain groups may or may not respond to an intervention.
- Participant genomic and environmental exposure data could be included in CER studies, in order to understand why some individuals benefit from a treatment while others do not. NIH is uniquely positioned to evaluate the effect of these factors.



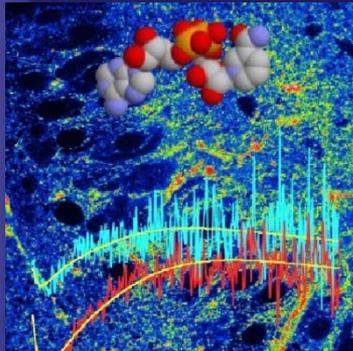
# Summary

- The NIH is committed to CER as a research priority
- CER can be an effective tool to:
  - Generate evidence that demonstrate “what works”
  - Inform medical decision-making
  - Support decisions based upon quality and value
  - Possibly “bend the curve” on health care costs
- A key challenge is getting the results of NIH supported CER studies implemented by providers, payers, and the public





# NIH *Transforming medicine and health through Comparative Effectiveness Research*





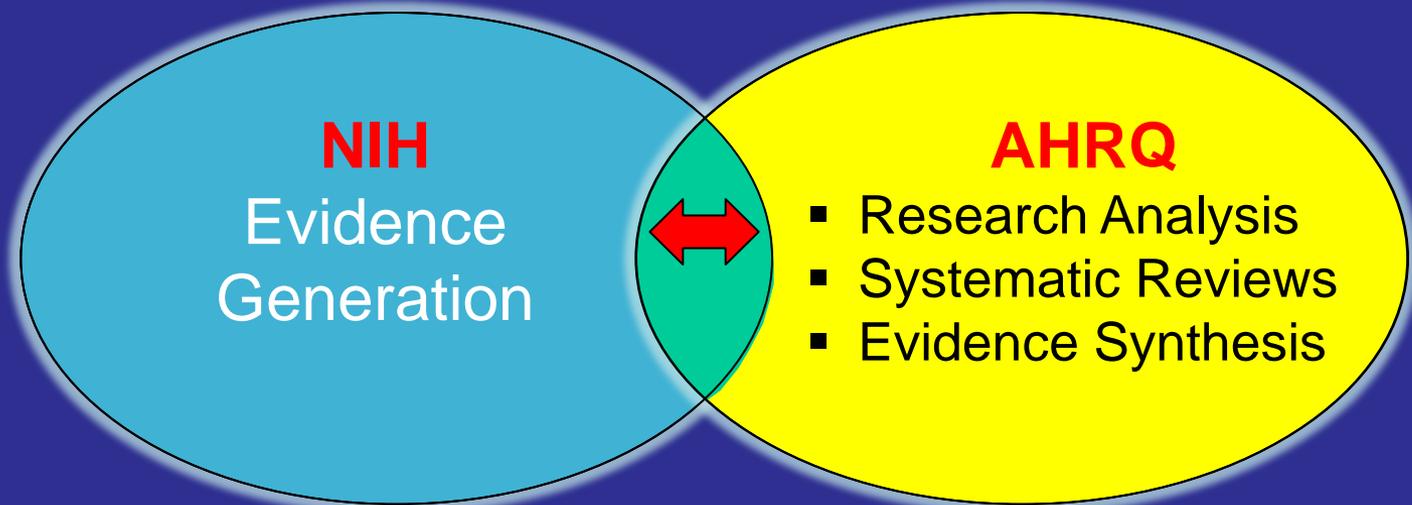
# DHHS Definition of CER

Comparative effectiveness research is the conduct and synthesis of research comparing the benefits and harms of different interventions and strategies to prevent, diagnose, treat and monitor health conditions in “real world” settings. The purpose of this research is to improve health outcomes by developing and disseminating evidence-based information to patients, clinicians, and other decision-makers, responding to their expressed needs, about which interventions are most effective for which patients under specific circumstances.

- To provide this information, CER must assess a comprehensive array of health-related outcomes for diverse patient populations and sub-groups.
- Defined interventions compared may include medications, procedures, medical and assistive devices and technologies, diagnostic testing, behavioral change, and delivery system strategies.
- This research necessitates the development, expansion, and use of a variety of data sources and methods to assess comparative effectiveness and actively disseminate the results.



# NIH and AHRQ have Complementary Roles



Informs

Payers and Providers

