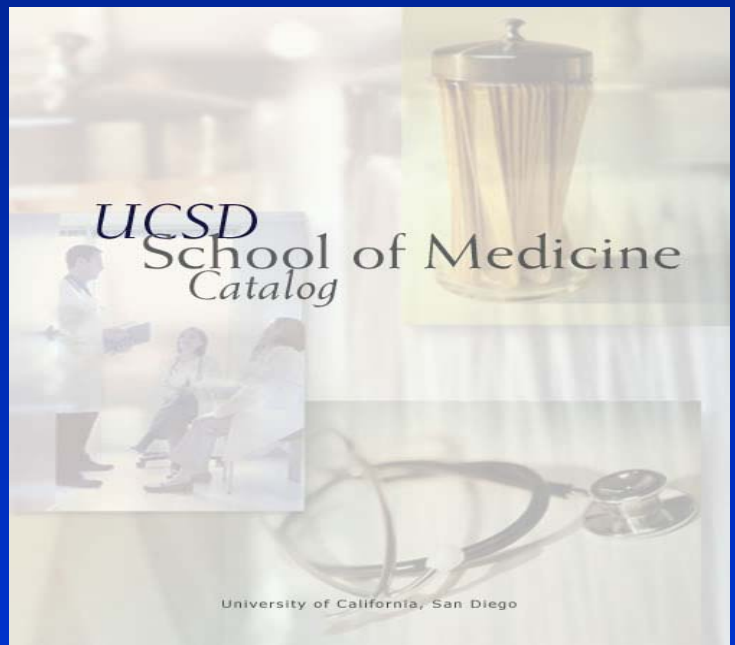
Award Acceptance Presentation by Dr. Rodney Hayward

Recipient of the 2005 Under Secretary's Award for Outstanding Achievement in Health Services Research

An Unexpected Career


UCSD
School of Medicine
Catalog
University of California, San Diego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A DIVISION OF
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UCLA

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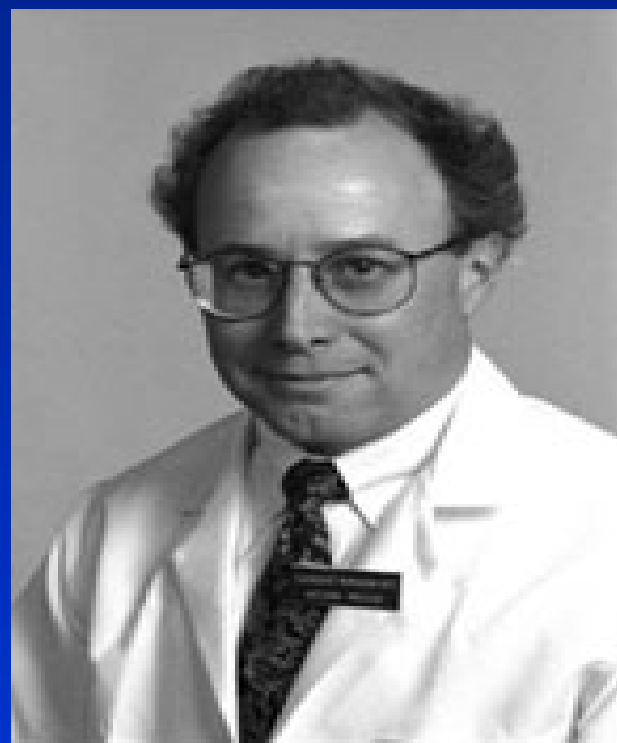
RAND
CORPORATION



My Name's Rod and I'm an Empiricist

- The world is not knowable.
- Rigorous positivistic approaches should be used to assess evidence for causal influence.
- Scientific empiricism is the only valid approach to producing such evidence.
- Empiricism should not determining the importance or meaning of evidence.

Important Questions Related to Patient Safety

- Number & Nature of Preventable Events (positivism)
- Overall Impact of Events (positivism)
- Effectiveness and Efficiency of Safety Systems (positivism)
- Importance of Preventing Adverse Events (normative)
- Importance of Iatrogenic vs. Non-Iatrogenic Adverse Events (normative)

Three Conceptual Contributions

1. Listening to Random Noise

2. Using Quality Measurement as a QI tool

3. Connecting the Dots:
   Clinical Evidence to Health Policy

How best to measure quality and profile providers in order to improve quality and efficiency

Larry McMahon walked into my office about 3 months after I moved to Ann Arbor and . . . .

Quality Measurement Tools

1. Explicit Evaluation of Structure or Process
2. Implicit Evaluation of Structure or Process
3. Outcomes Measurement

How Good Is Structured Implicit Review?
(Annals Internal Med 1994)

- Quality problems and “preventable deaths” are common
- Inter-rater reliability is not very good
- HCFA should re-evaluate their approach to evaluating quality for payment decisions

Resource Use Patterns of Ward Attendings

MD Groups	Ancillary Resources (RVUs)	Length of Stay (Days)
High Users	1344 ± 215	5.7 ± 1.2
Average Users	878 ± 118	4.3 ± 0.7
Low Users	545 ± 112	3.2 ± 0.5

Observed Profiles of Hospital Resource Use

(Hayward et al. Med Care 1996)

	min	5th	25th	75th	95th	Max
Hospital LOS						
Observed	-2.3	-1.57	-.63	.68	1.61	2.8

Observed and Simulated Profiles of Hospital Resource Use

(Hayward et al. Med Care 1996)

	min	5th	25th	75th	95th	Max
Hospital LOS						
Observed	-2.3	-1.57	-.63	.68	1.61	2.8
Expected	-2.2	-1.35	-.62	.58	1.56	2.7

Resource Use Patterns of Ward Attendings

MD Groups	Ancillary Resources (RVUs)	Length of Stay (Days)
High Users	1344 ± 91	5.5 ± 0.5
Average Users	878 ± 86	4.3 ± 0.5
Low Users	545 ± 88	3.2 ± 0.4
Patients	968 ± 910	4.5 ± 5.7

Variance in Risk-Adjusted Resource Use Attributable to Attending Physician

(Medical Care 1996)

	R^2
Hospital LOS	2%
Ancillary RVUs	2%

Variance in Risk-Adjusted Resource Use Attributable to Attending Physician

(Medical Care 1996)

	R^2
Hospital LOS	2%
Ancillary RVUs	2%
Laboratory	2%
Pharmacy	2%
Imaging	1%

What About The Variation and Reliability of Profiles of:

- Residents
- Subspecialty medicine attendings
- Surgeons
- Outpatient care for chronic illness
- Site!!!

To Err Is Human

- As many as 98,000 people die each year in US hospitals due to medical errors (IOM, 1999)
- Medical errors may be the 5th leading cause of death (*Washington Post*, 1999)

" . . . like 3 jumbo jets fully loaded with patients crashing every other day" (NY Times, 1999)

"Therefore, doctors are approximately 9000 times more dangerous than gun owners." (Benton County News Tribune, 2000)

Studies of Preventable Deaths

- Harvard Medical Practice Study
- Utah/Colorado Study
- VA Mortality Study
- RAND Mortality Study

Reliability = 0.1 - 0.3

Probably Preventability = 5%-10%

Possibly Preventable = 20%-35%

VA Mortality Study Results

(Hayward and Hofer. JAMA July 2001)

	% of Active-Care Death, reported as preventable (95% CI)	Preventable Deaths per 10,000 Admissions
Rated as at least possibly preventable	23% (13,32)	23-61

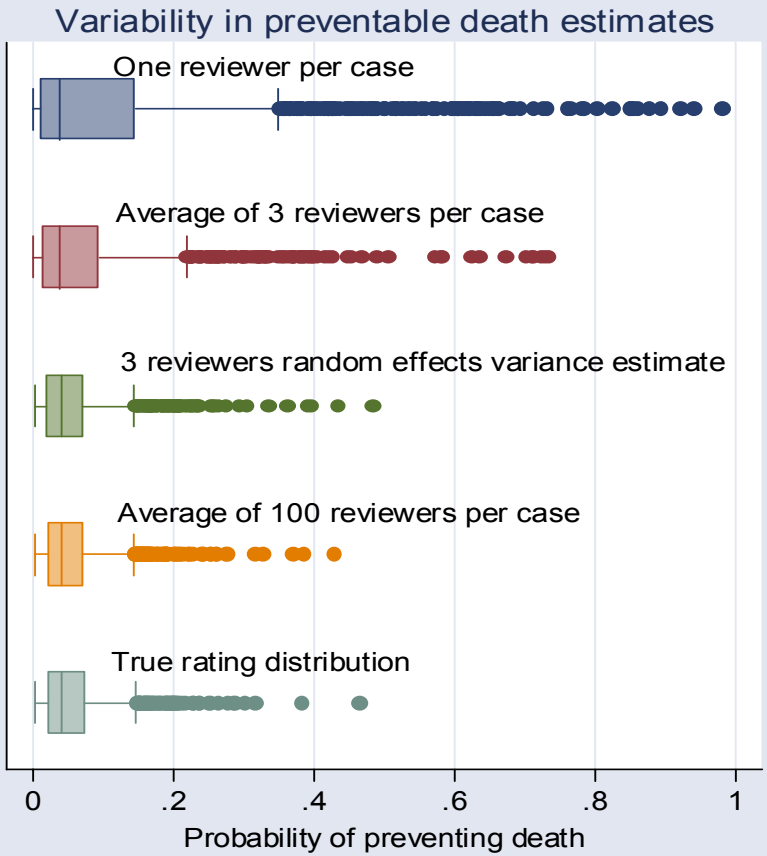
VA Mortality Study Results

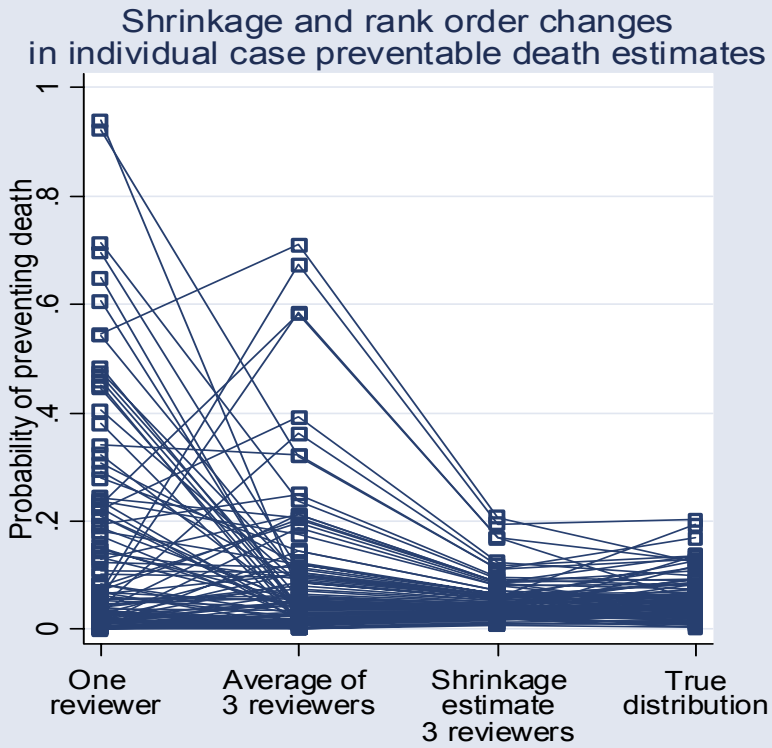
(Hayward and Hofer. JAMA July 2001)

	% of Active-Care Death, reported as preventable (95% CI)	Preventable Deaths per 10,000 Admissions
Rated as at least possibly preventable	23% (13,32)	23-61
Adjusted for probability of leaving the hospital alive and reliability/skew of reviews	1.3% (1.0,1.5)	2-3

Over-Estimating Variance

Effect of multiple reviews on estimations of preventable death rates





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Conceptual Underpinnings of a Good Quality Measure

- The majority of variation in scores is due to quality of care
- The easiest way to improve your score is by improving efficient high-quality care

Sample size estimates for outcome vs... process in AMI

Hospital A Mortality 30%

Hospital B			Sample size neeed to detct a difference in	
Mortality (%)	Uptake of effective interventions (%)	# extra lives saved in B vs A	Outcome	Process
29	6	4.5	32846	155
27	18	13.8	3619	48
25	31	22.5	1290	27
23	43	31.5	651	18
21	55	40.5	389	12

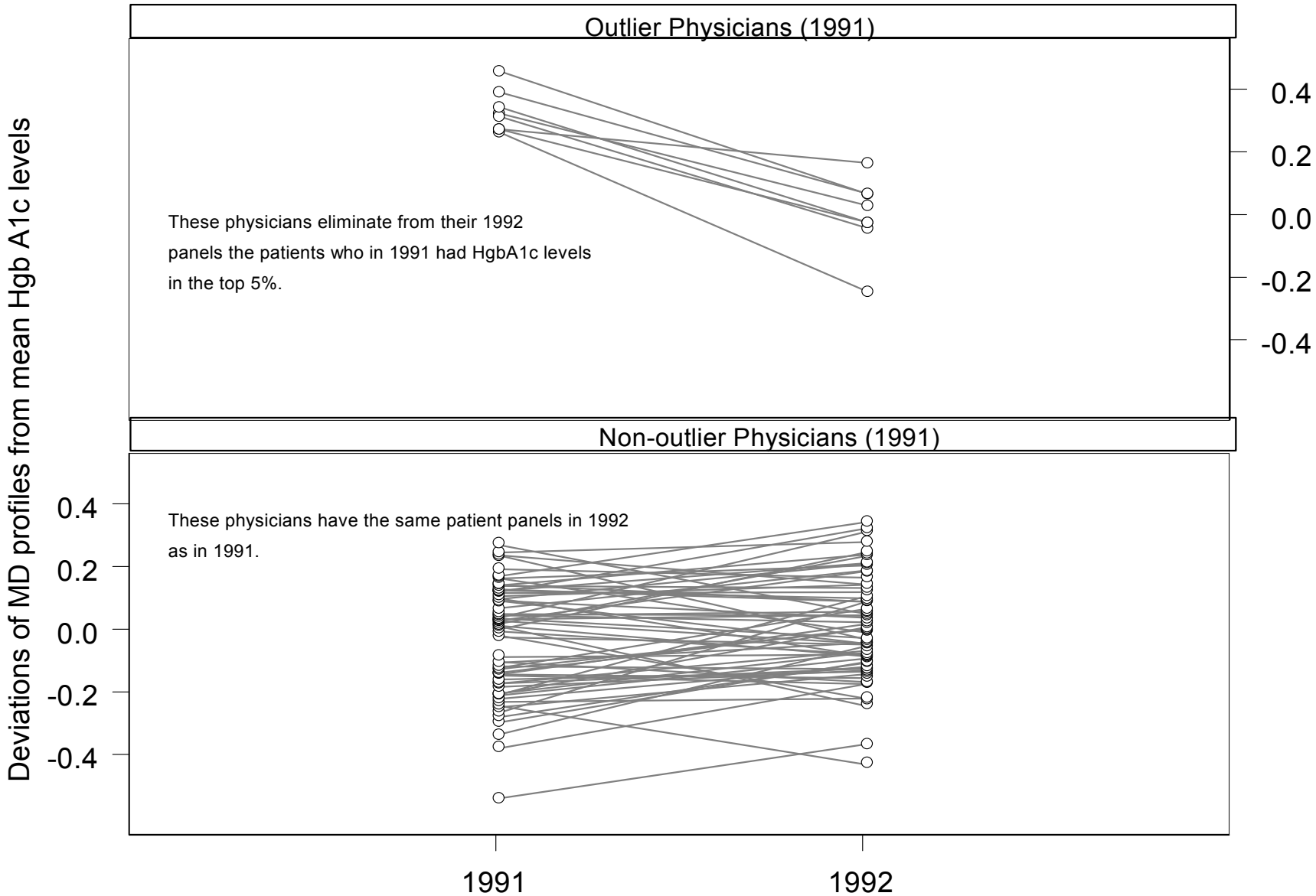
Mant et. al. BMJ 1995;311:795

If > 90% of Variation in a Measure Resides at the Patient Level?

- Unmeasured Casemix can create:
  - Unfair judgments
  - Incentives to deselect patients

The “Advantages” of De-selecting Patients

(Hofer et al, JAMA 1999)



Tightly-linked Measures
(Kerr et al. 2001)

1) High-risk pt with LDL > 120/mg/dl &
not on appropriate statin dose.

2) Persistent BP > 135/80 &
not on 3-4 anti-hypertensive meds.

Why Not Set Strict Performance Measures?

- May put excessive emphasis on borderline or low-risk cases or care.
- May encourage devaluing or deselecting outliers.
- Can canonize care that is contrary to patient preferences.

Relationship between Receipt of Care & Quality

Quality ⟷ Value/Dollar ⟷ Pt Autonomy

0%
Demand

100%
High
Demand

Kerr & Asch et al

1. What you measure is what improves most

2. Perhaps sometimes other aspects of care improves

3. Implicit Review might be much better than you think

Reminder:
Impart Some Words of Wisdom & Inspiration

Mentors

- Martin Shapiro
- Larry Lynn
- Shelly Greenfield
- Bob Brook
- Howard Freeman
- Al Williams
- Bill Kelley
- Ken Warner

- Will Manning
- Bob Oye
- Roger Grekin
- Joel Howell
- Larry McMahon
- Nicki Lurie
- Dennis Cope
- Jack Billi
- Sharon Hayward

Research Colleagues

- Tim Hofer
- Will Manning
- Joel Howell
- Larry McMahon
- John Piette
- Martin Shapiro
- Shelly Greenfield
- Richard Kravitz
- Haya Rubin
- Joel Weissfeld
- Steve Asch

- Sandeep Vijan
- Sarah Krein
- David Kent
- Susan Goold
- Caroline Richardson
- Bill Herman
- Annette Bernard
- Judi Zemencuk
- Mary Hogan
- Sonya DeMonner

- Eve Kerr
- Michele Heisler
- Steve Bernstein
- Sanjay Saint
- Steven Katz
- Michael Chernew
- Paula Lantz
- Catherine MacLaughlin
- Ken Langa

Trainees

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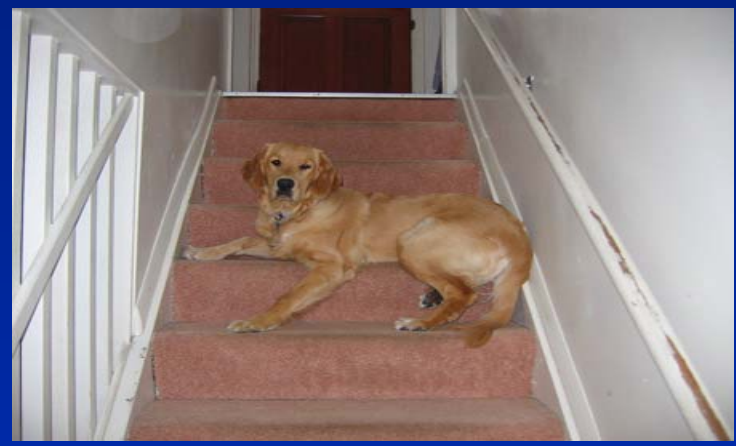
FIND WALDO NOW



Why Are You Doing Research?

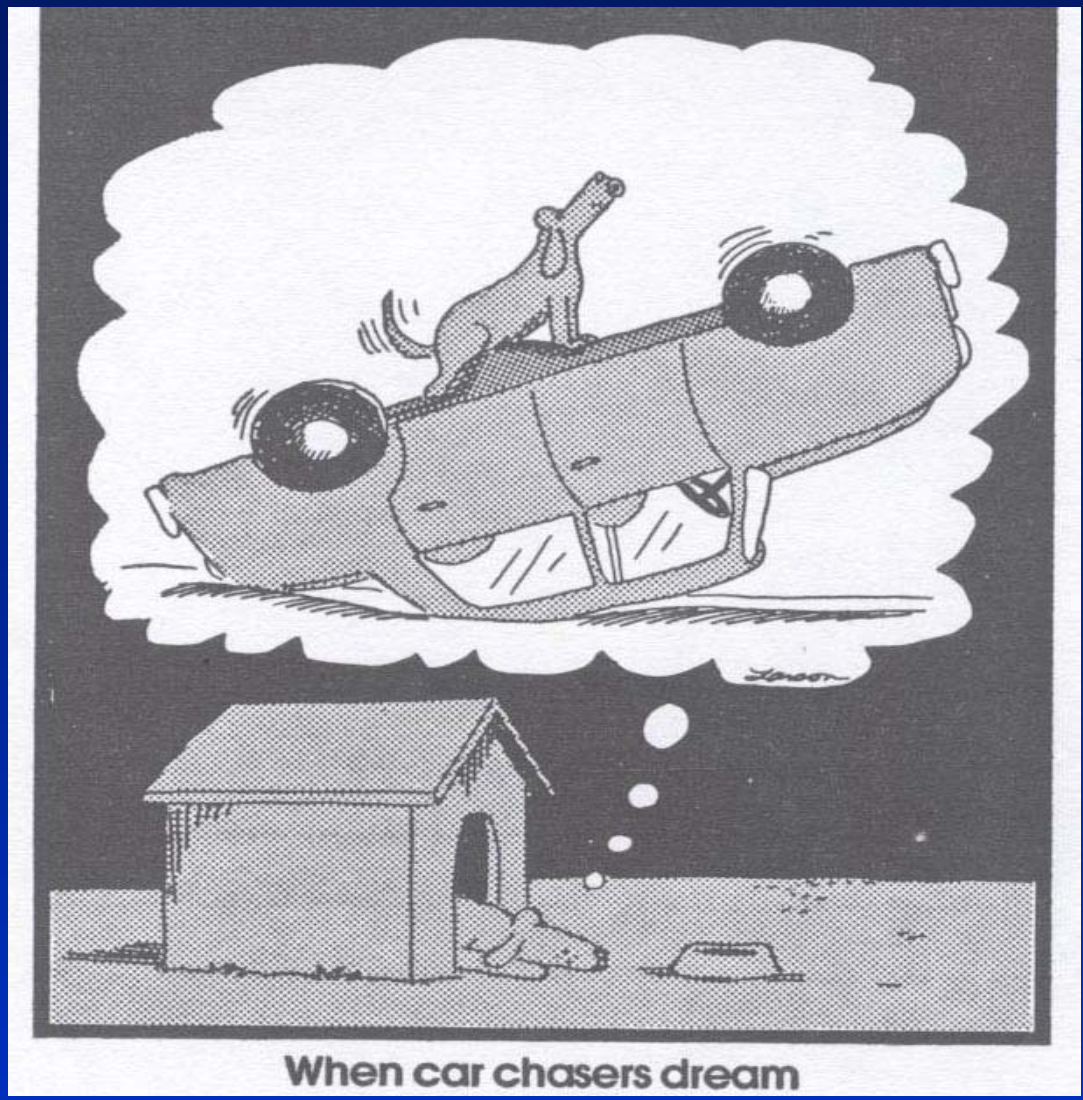
Good Reasons

- To help improve the effectiveness and efficiency of health care
  (make the maximum impact on length and quality of life with the available resources)
- Try to make the world more humane and just
- To improve our understanding of the world

Why Are You Doing Research?

Bad Reasons

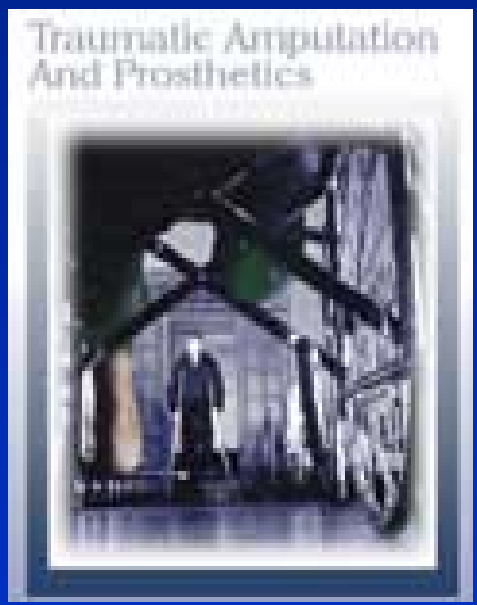
- To prove or demonstrate your pet theories, beliefs or political beliefs
- To be a disease, occupation or disciplinary advocate
- To stay in an academic or teaching environment
- To acquire impressive titles



When car chasers dream


Hearing Impairment


DEPARTMENT OF VETERANS AFFAIRS
UNITED STATES OF AMERICA


Traumatic Amputation
And Prosthetics