

Evidence-Based Practice and Practice-Based Evidence

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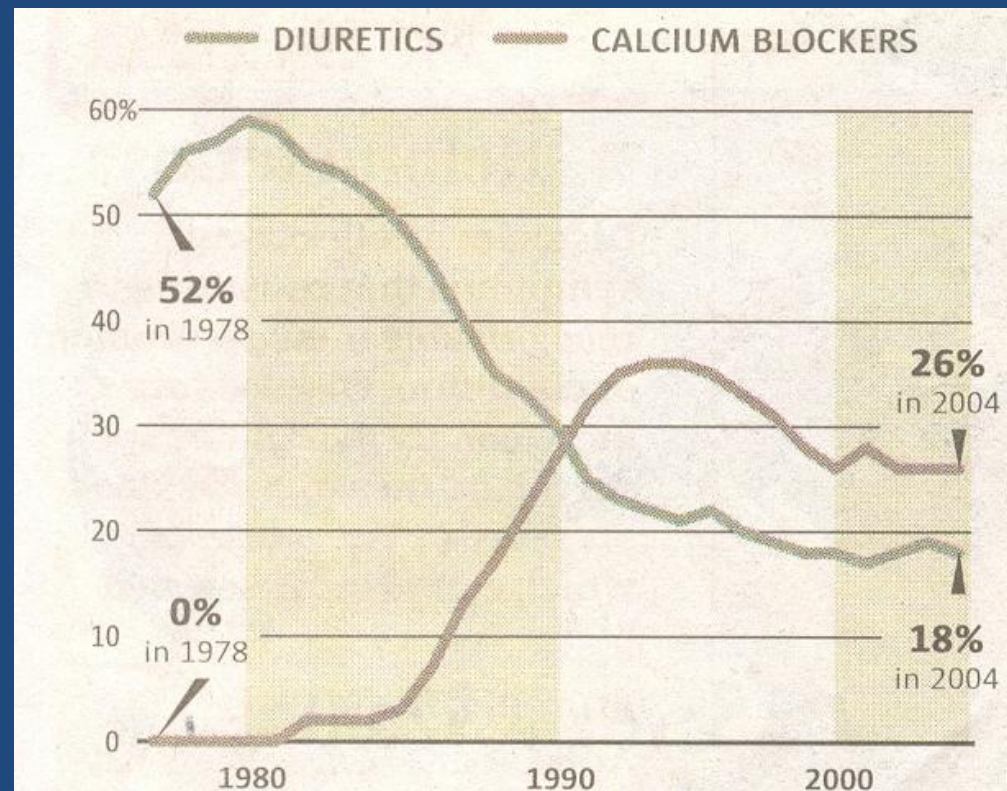
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Evidence-Based Practice and Practice-Based Evidence

- What is EBM, and how is it different from Discovery? Translational Research?
- How does practice-based research contribute to EBM?
 - Different topics
 - Different patient populations
 - More Relevant Guidelines
 - Pragmatic intervention studies
 - Improving Fidelity of Treatment
- Implementing Changes in Practice

Example: Drug Efficacy Problem

- ALLHAT: thiazides > than newer drugs at preventing hypertension complications.
- Use ↓ in favor of newer drugs at 15x higher cost.
- ↑ use of diuretics: might prevent 70,000 MI's/year
Cost: \$1.2 billion/yr.



Source: IMS Health; Dr. Curt Furberg, Wake Forest University; Seattle Times research; National Institutes of Health

Evidence-Based Medicine

- Not enough to know if a treatment *ought* to work, whether it makes physiologic sense, whether it's common practice, whether we learned it in medical school, whether we've always done it that way, whether an expert vouches for it, or whether it works in mice...
- Evidence-based approach: what's the best evidence that a new approach extends lives or improves quality of life, and what are the risks?

Example: Surgery Problems

- Arthroscopic Knee debridement and lavage for osteoarthritis
- No more effective than sham surgery
- Cost: \$3 billion/yr.

Moseley JB et al:

NEJM 2002; 347: 81-8



Not practicing Evidence Based Medicine



'Take these pills three times a day, unless you read in the paper that they've been proven ineffective.'

Discovery vs. EBM:

Haven't we always practiced EBM?

Discovery

- Explain mechanisms
- Pursue hunches, chance observations
- Serendipity
- Unique perspectives on existing data
- Take long shots

Evaluation

- Everything is preplanned
- Needed before basic advances applied to pts.
- High a priori probability of success
- RCT is king

Consequences of Using Expensive, Marginal Treatments

- Costs soaring; fewer can afford insur.
- Marketing, politics, media, advocacy often trump the best science
- Health policy makers not tackling the main reason for rising costs: new technology
- Hard to practice Evidence-Based Medicine

Clinical & Translational Science Awards (CTSAs)

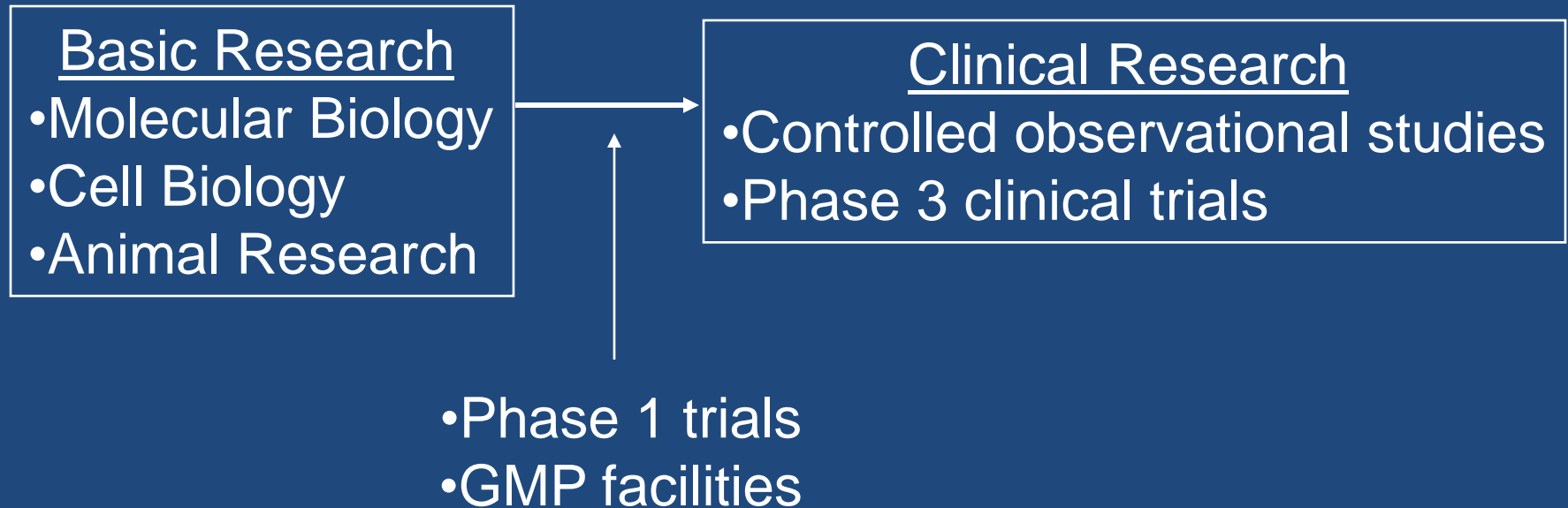
- Original concept was that “community engagement” was a strategy to enhance enrollment in academic-based clinical trials
- Didn't envision community practices as a source of important questions
- Didn't consider importance of testing new clinical approaches in routine practices to figure out best implementation

What is Translational Research?

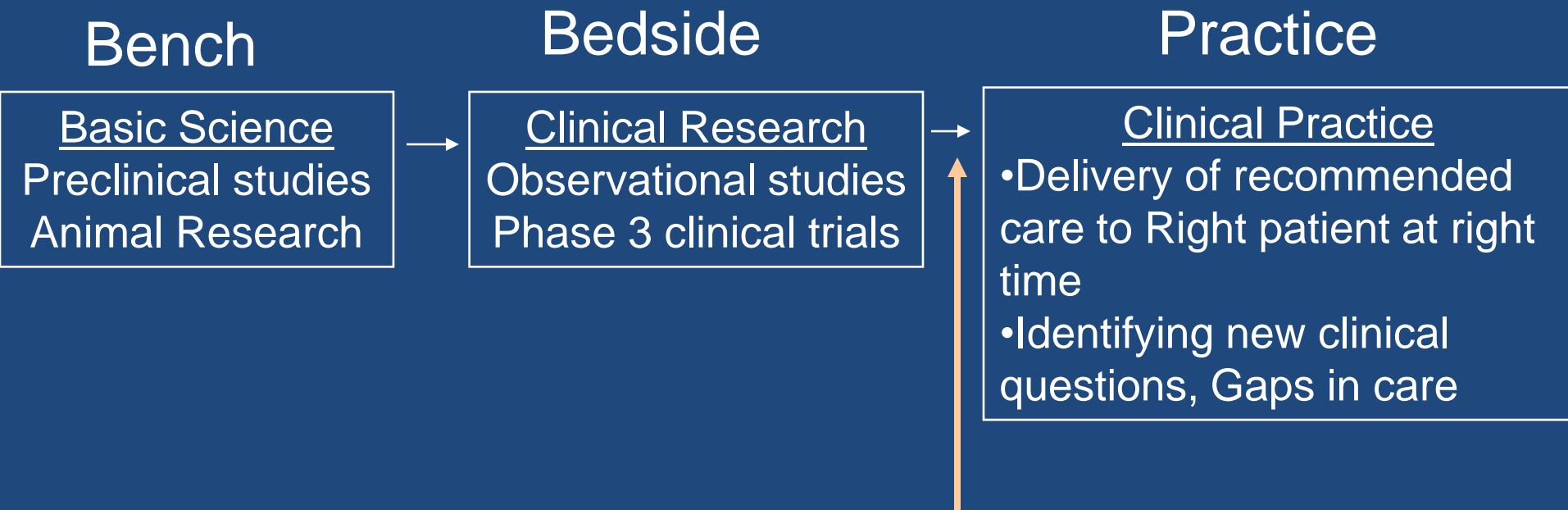
The traditional view

Bench

Bedside



Translational Research: an Expanding Model



Translating Research into Practice:
Often haphazard: CME, drug detailing, guidelines

Everyone wants to be found.

BILL MURRAY SCARLETT JOHANSSON

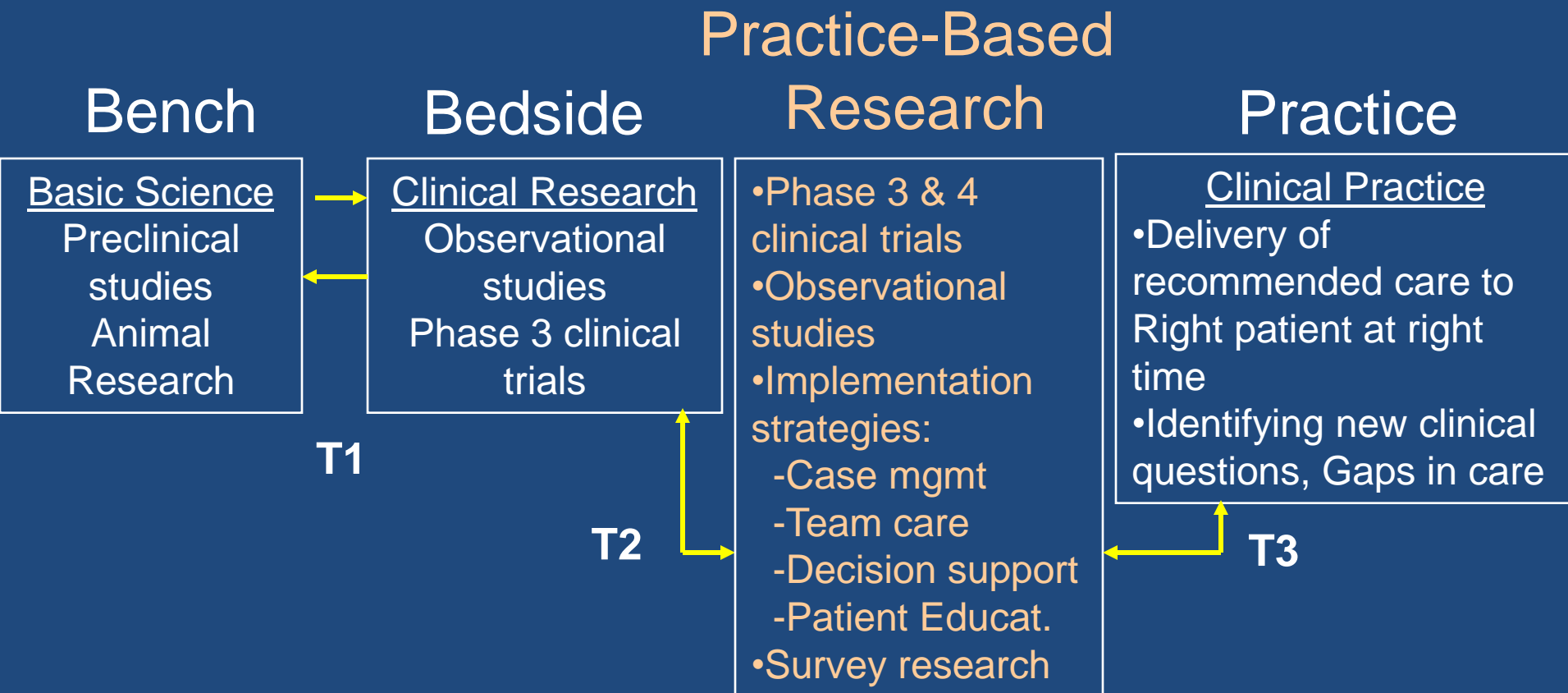
Lost In Translation

FOCUS FEATURES presents an AMERICAN ZIEFFER / ELEMENTAL FILMS production "LOST IN TRANSLATION" with BILL MURRAY, SCARLETT JOHANSSON, GIOVANNI RIBISI, ANNA FARIS, FIONNULA FLORENCE, and BRIAN REITZEL. Also with NANCY STEINER, "DUST AND GLASS" K.K. BARRETT, "SARAH PLACK" JIMMY LANCE ADAMS, and "CALLING GREENE" TONY MITCH GLAZER. Also FRANCIS FORD COPPOLA, FRED ROSS, "FRISKY KATZ" SOPHA COPPOLA, and "SOPHA COPPOLA" SOPHA COPPOLA. www.lost-in-translation.com

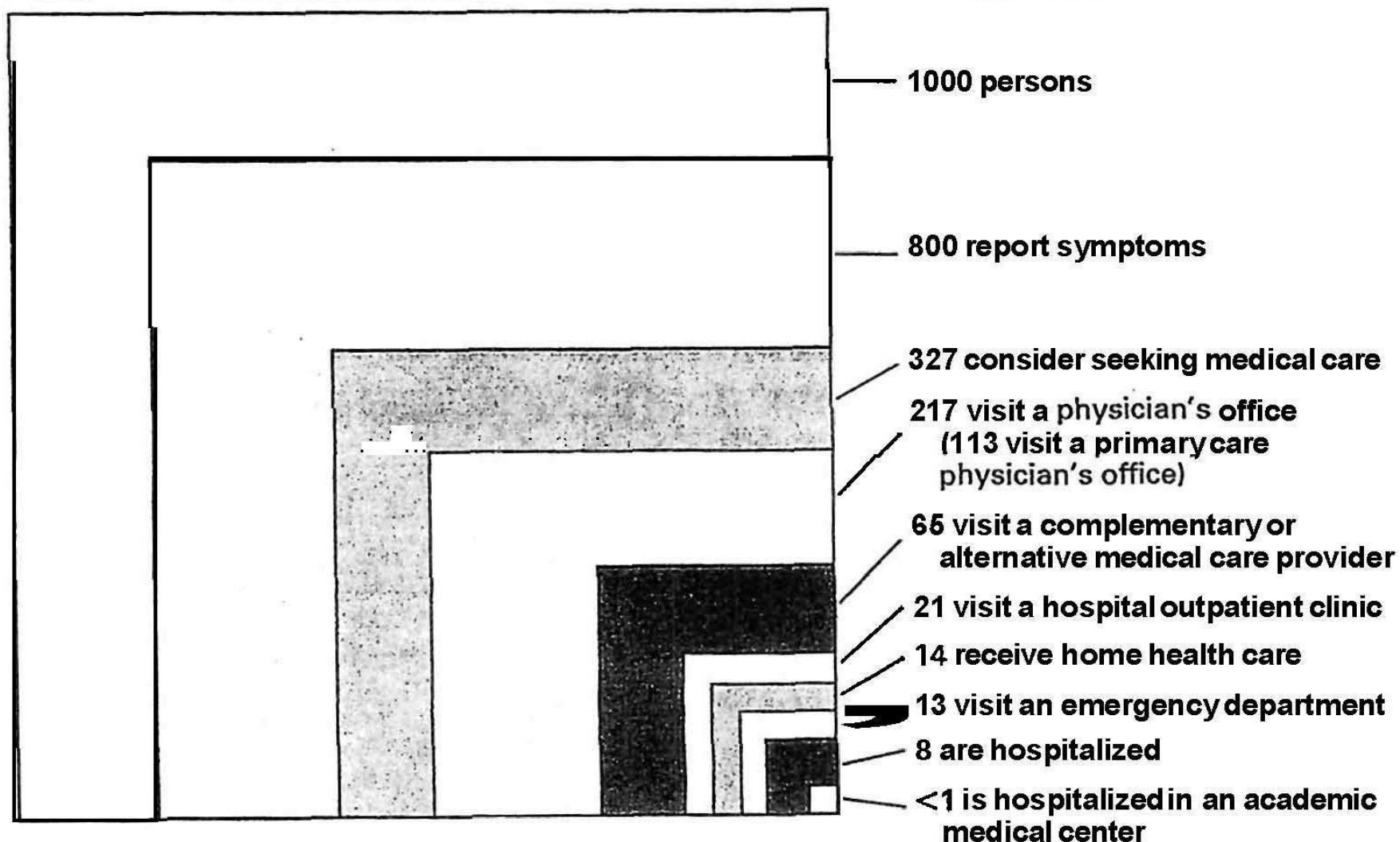


The new film written and directed by Sofia Coppola

Translational Research: a More Fully Expanded Model



Ecology of Health Care



Where Care Happens

113 : 1



Two-way conversation

Research Questions,
Generalizable populations



Evaluation of Effectiveness,
Evaluation of Systems for Delivery

Different Topics: Often Symptoms rather than Diseases

- Patients in 1^o care don't present with diagnoses, they present with symptoms: unlike many in specialty practices
- Our province: headache, dizziness, fatigue, belly pain, backache, insomnia, constipation, chronic cough, unexplained symptoms



Different Topics: Preventive care and Chronic Care

- Preventive care: Immunization, Ca screening – but also weight control, exercise, falls, bicycle helmets, gun safety, condoms, etc.
- Chronic disease care: depression, diabetes, hypertension, hyperlipidemias, CHF, arthritis, etc.
- Both are *planned* care: many elements can be scheduled predictably, not prn.

Priorities in Primary Care

- 38% of deaths attributable to smoking, poor diet, physical inactivity, alcohol*
- Decreasing cardiovascular risk factors may have greater mortality benefit than improved delivery of beta-blockers, warfarin**
- Behavior change may be the central task, even more than diagnosis, therapy

*Mokdad AH et al. *JAMA* 2004; 291: 1238

**Woolf SH. *Harvard Health Policy Rev* 2006; 7: 5-20.

Different Patient Populations

Clinical Trials

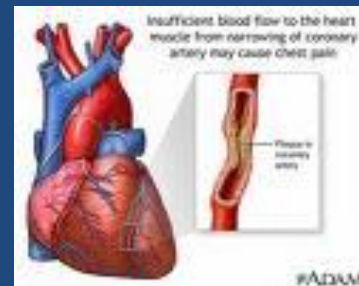
- Well educated, middle-upper income, white
- Well insured
- No comorbidity
- Avoid elderly

Routine Practice

- Full spectrum of education, income, race
- Wide range of insurance
- Often multiple complex chronic illnesses
- Plenty of elderly

Shortcomings of Academic Guidelines

- Recommended preventive care: would require 7.4 hours of every working day
- “Selective” guidelines for low back x-rays: would *increase* utilization over current practice
- URI guideline: only 13% of pts with respiratory sx eligible for guideline due to disqualifying sx, comorbidity or disqualifying dx
- Unstable angina guideline: applied to only 6% of ED pts with unstable angina; wouldn't decrease unnecessary admissions, would increase ICU demand



Explanatory Trials vs. Pragmatic

Explanatory (fastidious)

- “Can it work?”
- Select highly responsive, compliant subjects, no comorbidity
- Treatment optimal, by experts
- Elaborate, close flu, physiologic outcomes

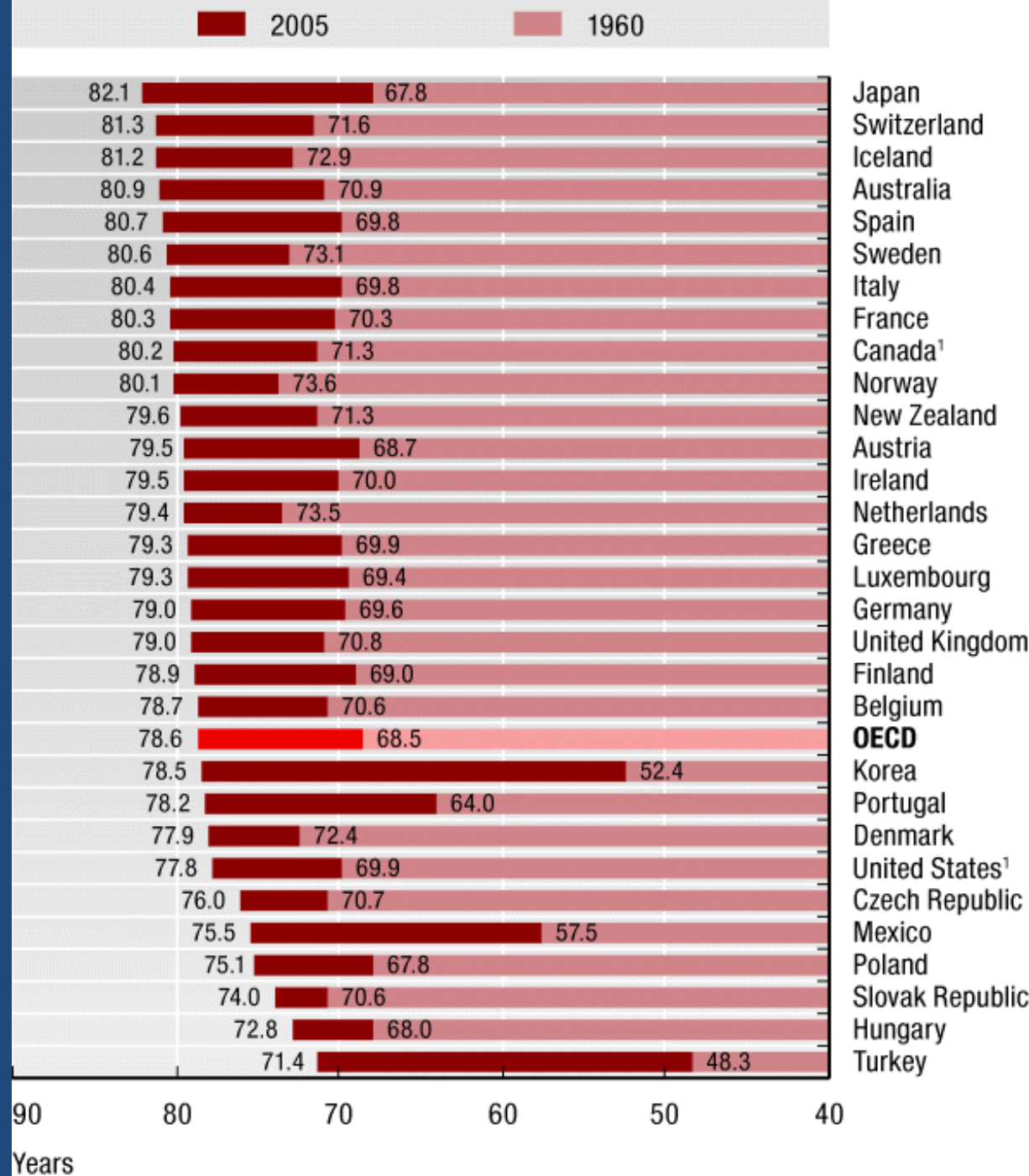
Pragmatic

- “Does it usually work?”
- More diverse subjects
- Treatment by ordinary docs, everyday settings
- Practical level of follow-up, patient-oriented outcomes

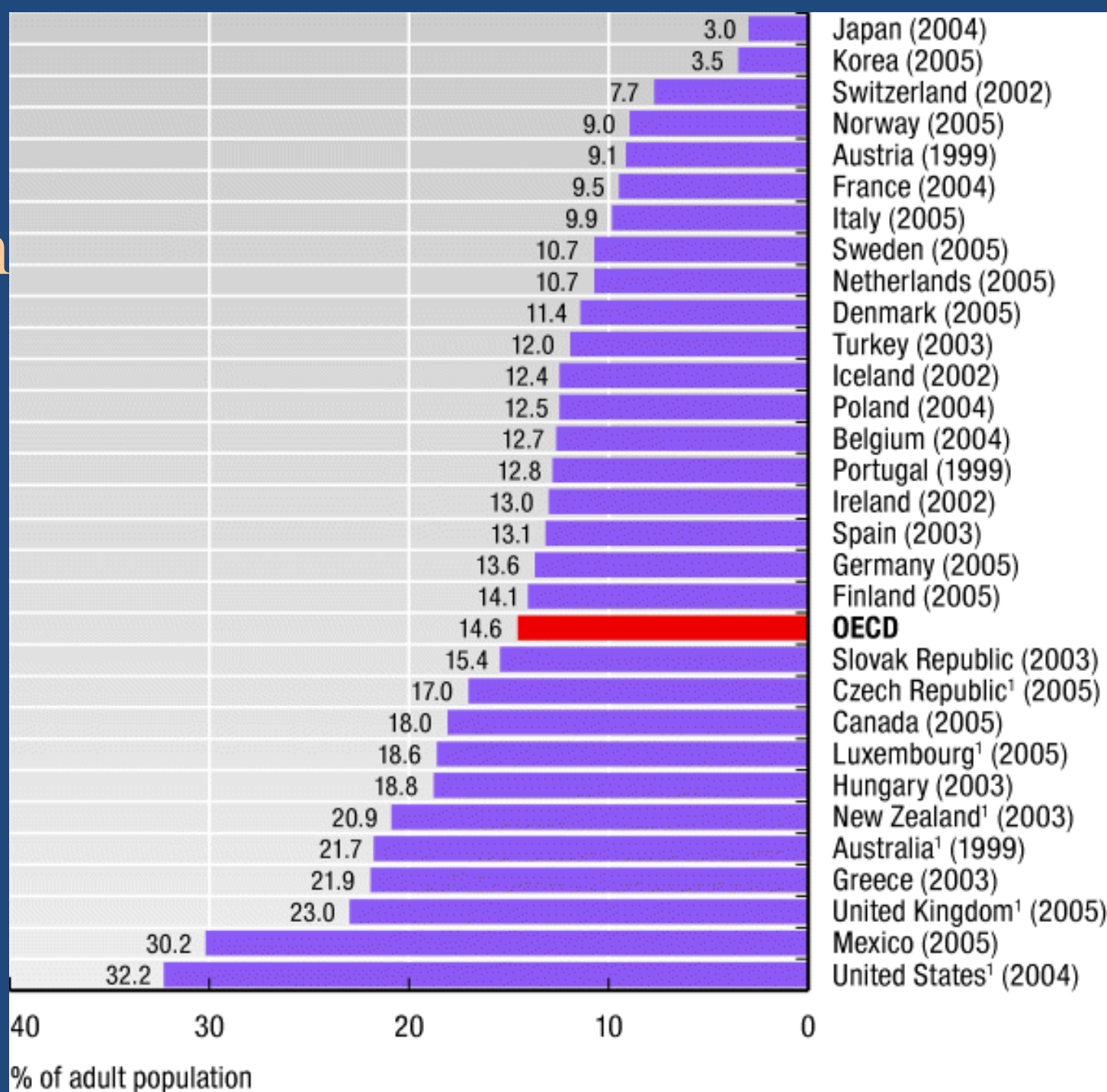
Improving the Fidelity of Treatment

- Greater access
 - Greater convenience
 - Better communication
 - Reducing errors
- ➔ May save more lives than new discoveries

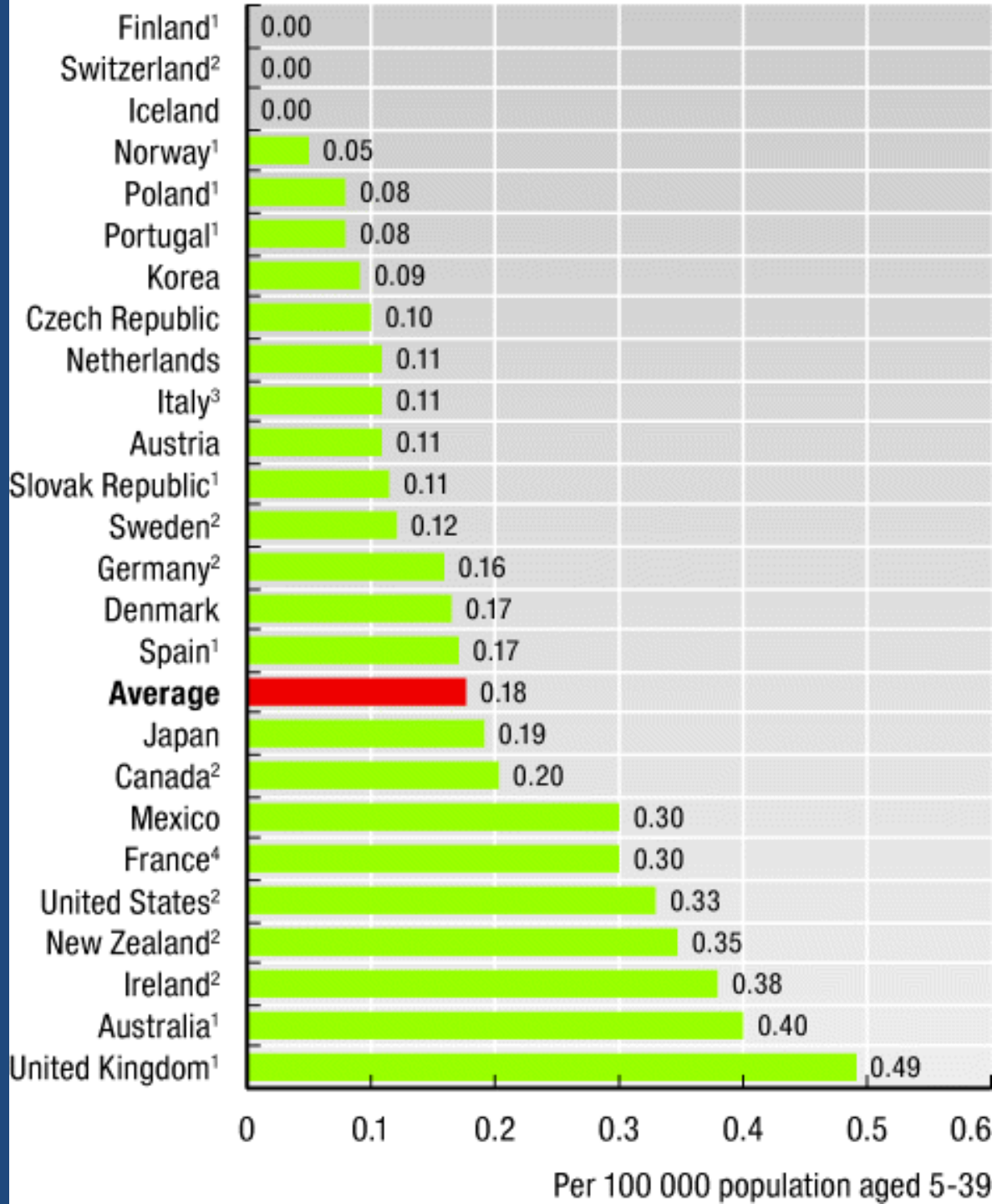
Life Expectancy, Years



Obesity, Percent of Population with BMI > 30

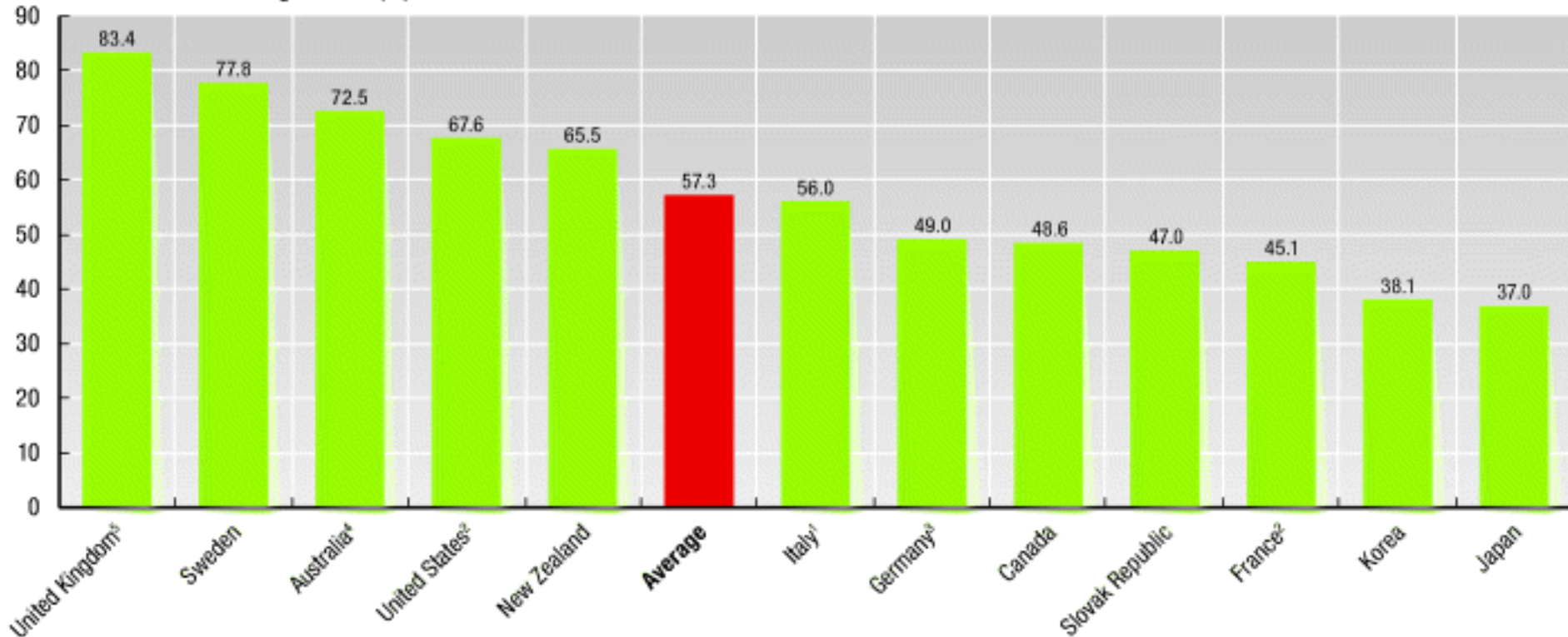


Asthma Mortality



Eye Exams for Diabetics

Retinal exam rate for diabetics aged 18-75 (%)



Shortcomings due to lack of Modern Technology or Money?

- Heck, No!
- U.S. spends by far more per capita than any other country
- U.S. has by far the highest surgery rates for most conditions and the greatest number of MRI scanners per capita of any country
- We know how and have the resources, but fail to deliver; need to improve fidelity

Implementing Changes

- Decision support, esp. using Info Technology
- Case management strategies
- Team management approaches
- Strategies for coordinating care
- Better communication: Shared decision-making

Examples: Decision Support

- Computer reminders of 5 drug interactions with warfarin: 15% relative reduction in co-prescriptions
- Reminder plus guideline advice on BMD testing and osteoporosis drug therapy improved appropriate management in older women with fractures from 13% to 44%.

Feldstein AC et al. *Arch Intern Med* 2006; 166: 1009-1015

Feldstein AC et al. *J Am Geriatr Soc* 2007; 55: 1464-69

Examples: Problems in Care Coordination

- 30% of ED patients report regular doctor never informed about care
- < 50% of primary care doctors got discharge plans and meds of recently hospitalized pts.
- 75% of doctors do not contact pts about normal test results; 33% don't consistently notify about abnormal results
- 50% of pts don't understand or can't restate instructions after leaving office

Models for improving Coordination

- Electronic specialist consultation (Greenfield Health, Group Health in Seattle)
- Nurse practitioner follows patients into hospital, makes post-discharge home visits, phone calls
- “Coaches” for patients and families, eg how to do dressing changes; how to contact physician
- “Teamlets”: Dr. and nurse or MA who acts as coach before, after, between visits
- Paying for care coordination



Example: Care Management Plus (combined care mgmt and IT)

- Care manager using advanced IT tools
- Ambulatory care for diabetes at Intermountain Health
- With care management, odds of:
 - overdue HbA1c: 0.79
 - HbA1c < 7.0: 1.31
 - LDL completed if overdue: 1.26



Shared Decision-Making

- Model for engaging patients in major decisions where choices are gray; reasonable people might make different choices
- Examples:
 - CABG vs. stents vs. medical rx for angina
 - Mastectomy vs. lumpectomy for breast Ca
 - Surgery vs. non-surg. care for herniated disc
 - PSA vs. no screening in elderly men

Shared Decision-Making: Rationale for an Interactive Video

- Wide geo. variations in surg. rates
- Lumbar surgery usually elective
- Pts weigh risks, benefits differently; prefs. have major role in decision
- Physicians cannot remember all relevant data, differences by age and diagnosis; time limited

Interactive Video Program

- Computer-based
- Info. specific to age and diagnosis
- Data on outcomes, complications from existing literature
- Reoperation rates, mortality from insurance claims, discharge registries
- Core and optional segments



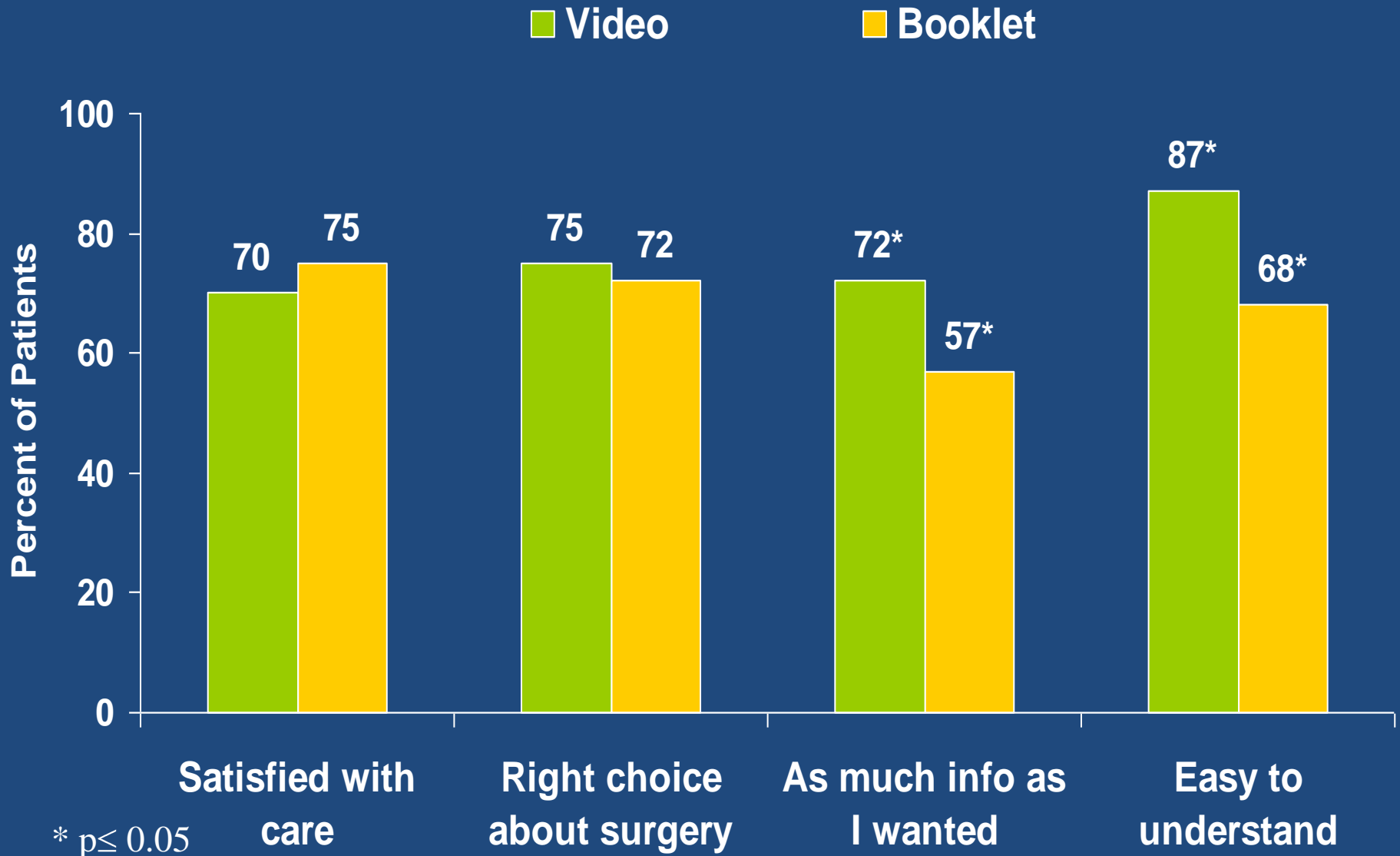
LOW BACK PAIN



Greatest Knowledge Gains

- "After 5-10 years, non-surgical treatment for herniated disc gives same result as surgery"
- "Herniated disc and sciatica respond more quickly to surgery than conservative care"
- "Surgery may cause scarring around nerves"

Patient Satisfaction



* $p \leq 0.05$

% Having Surgery: 1 year

	Video	Booklet	Relative Diff. for Video
All patients	26	33	-22%
Herniated disc*	32	47	-31%
Spinal stenosis	39	29	+35%
Other diagnoses	5.4	14.0	-61%

* $p \leq 0.05$

1-Year Outcomes: Videodisc Trial

	Video	Booklet
Mean improv., Roland Score	5.4	5.7
Working full time (<65 y.o.)	65%	63%
Compensation	8%	10%
Severe leg pain	21%	26%
Missed any work, past 4 wks.	16%	17%

Conclusions: Videodisc Trial

- For HNP, video group had 31% lower surgery rate, even in conservative practices, but equivalent overall outcomes
- Patients with stenosis chose more surgery, perhaps based on different probabilities
- Patients preferred video, felt better informed: may enhance consent process?
- Cost impact: depends on local surgery rates, mix of diagnoses

Other trials of Decision Aids

- Women chose fewer hysterectomies for excessive menstrual bleeding
- Men chose PSA screening less often
- Patients with stable angina chose less bypass surgery or angioplasty
- In general, patients who use decision aids choose invasive therapy less often than occurs with usual care; are more knowledgeable; have less decisional conflict

Summary: Implementing Changes

- When a practice, or a whole network of practices, has pilot tested a new strategy for research purposes, what better way to implement successful changes? These practices have already done it!

Summary: Some Practice-Based EBM Research Themes

- Measuring treatment outcomes in routine care
- Unexplained symptoms; effects on chronic & preventive care; pain management
- Strategies for patient/public education; self-mgmt; shared decision-making
- Helping physicians, policy makers to be more discriminating in use of new technology
- System-level interventions for QI

Summary: EBP and PBE

- EBM is a useful new approach, but delivering it in primary care isn't as simple as writing guidelines
- High fidelity in delivering care may have a greater impact on health than most new discoveries.
- Practice-based research is the “missing link” between academic clinical trials and high quality practice; the right laboratory for testing practice innovations
- Practices in turn make major contributions to the research agenda and quality of research

Supposing is good, but finding
out is better.

-Mark Twain