

Understanding Practice Variations

**Presentation by John E. Wennberg
Military Health System Conference
Washington, D.C.
January 26, 2010**

Small Area Variations in Health Care Delivery

A population-based health information system can
guide planning and regulatory decision-making.

John Wennberg and Alan Gittelsohn

Recent legislation has extended planning and regulatory authority in the health field in a number of important areas. The 1972 amendments to the Social Security Act provide authority for regulating the construction of facilities and establish Professional Standard Review Organizations (PSRO's), which are accountable for setting stan-

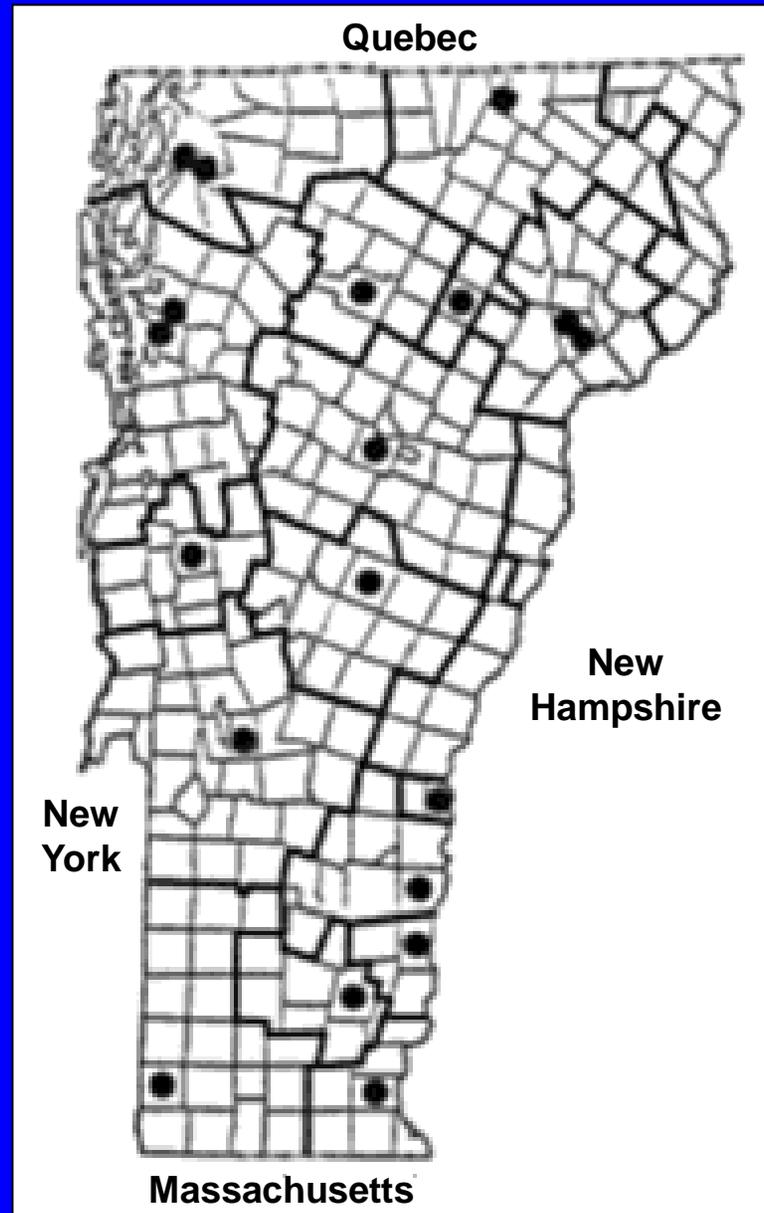
impact of regulatory decisions on the equality of distribution of resources and dollars and the effectiveness of medical care services.

For technical and organizational reasons, documentation of the health care experience of populations has been restricted to large political jurisdictions, such as counties, states,

twice as high in California as in Arkansas. The number of physicians per thousand persons has been up to three times higher in some states than in others. International comparisons and studies of regions within states show that there are large differences in the rate of delivery of specific surgical procedures (1).

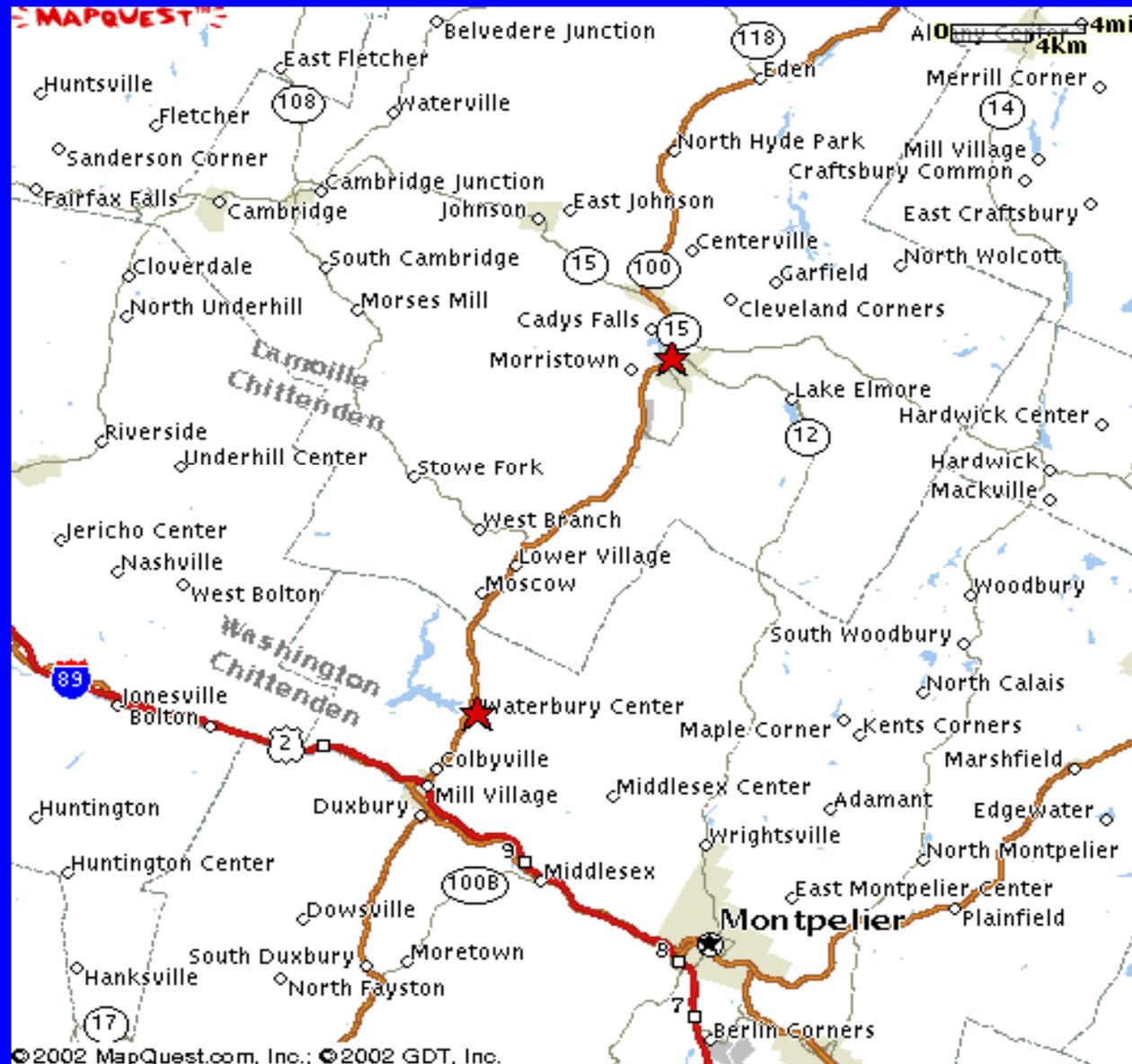
In 1969, there was implemented in the state of Vermont a data system that monitors aspects of health care delivery in each of the 251 towns of the state. When the population of the state is grouped into 13 geographically distinct hospital catchment, or service, areas, variations in health care are often more apparent than they are when the population is divided into fewer, larger areas. Population rates can be used to make direct statistical comparisons between each of the 13 hospital service areas. Since the medical care in each area is delivered predominantly by local physicians, variations tend to reflect differences in the

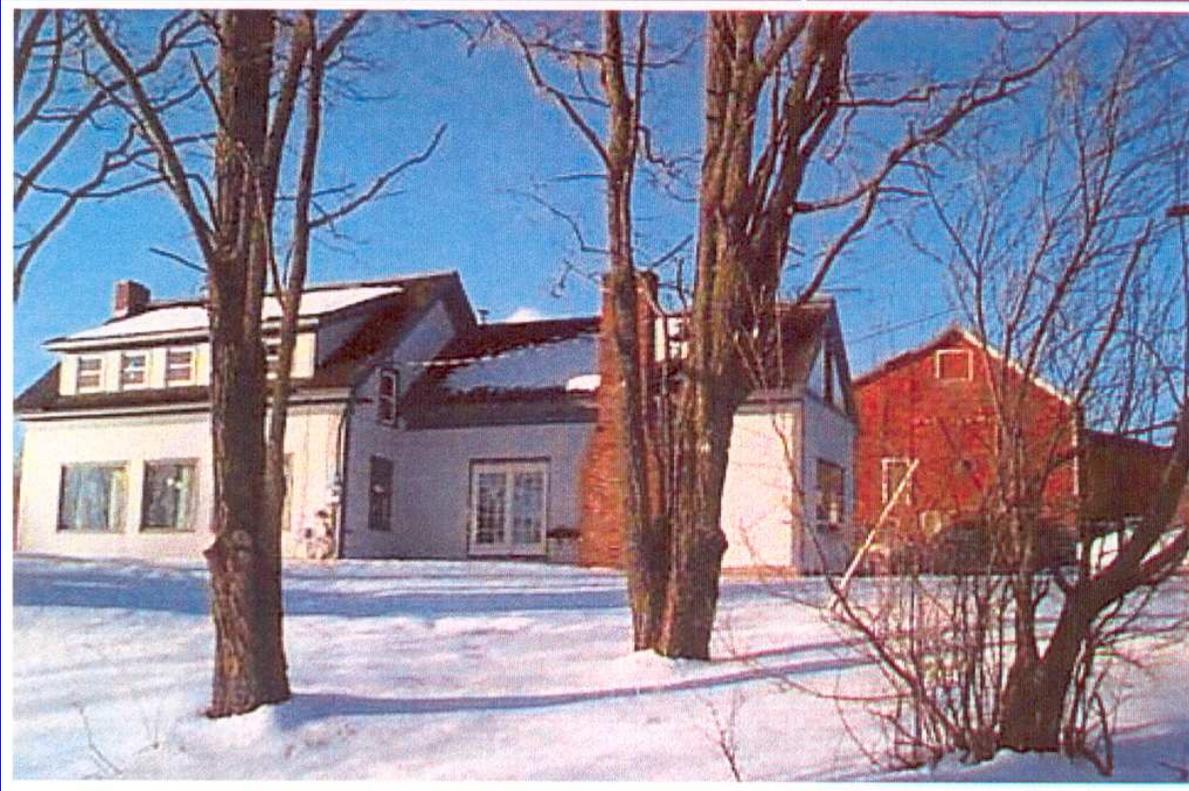
Vermont Map from "Science"



From "Science,"
December 14, 1973.

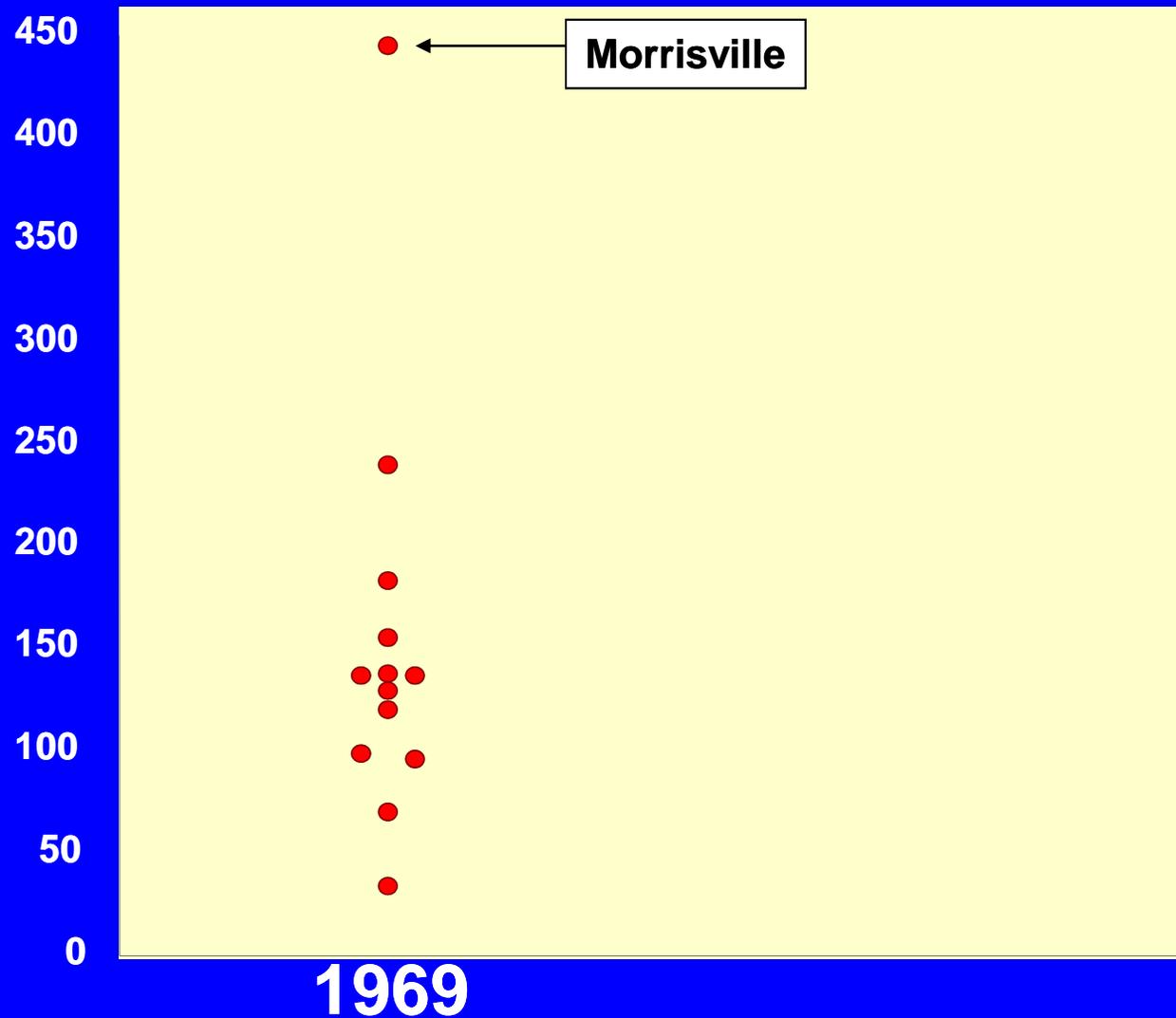
Morrisville and Waterbury Center







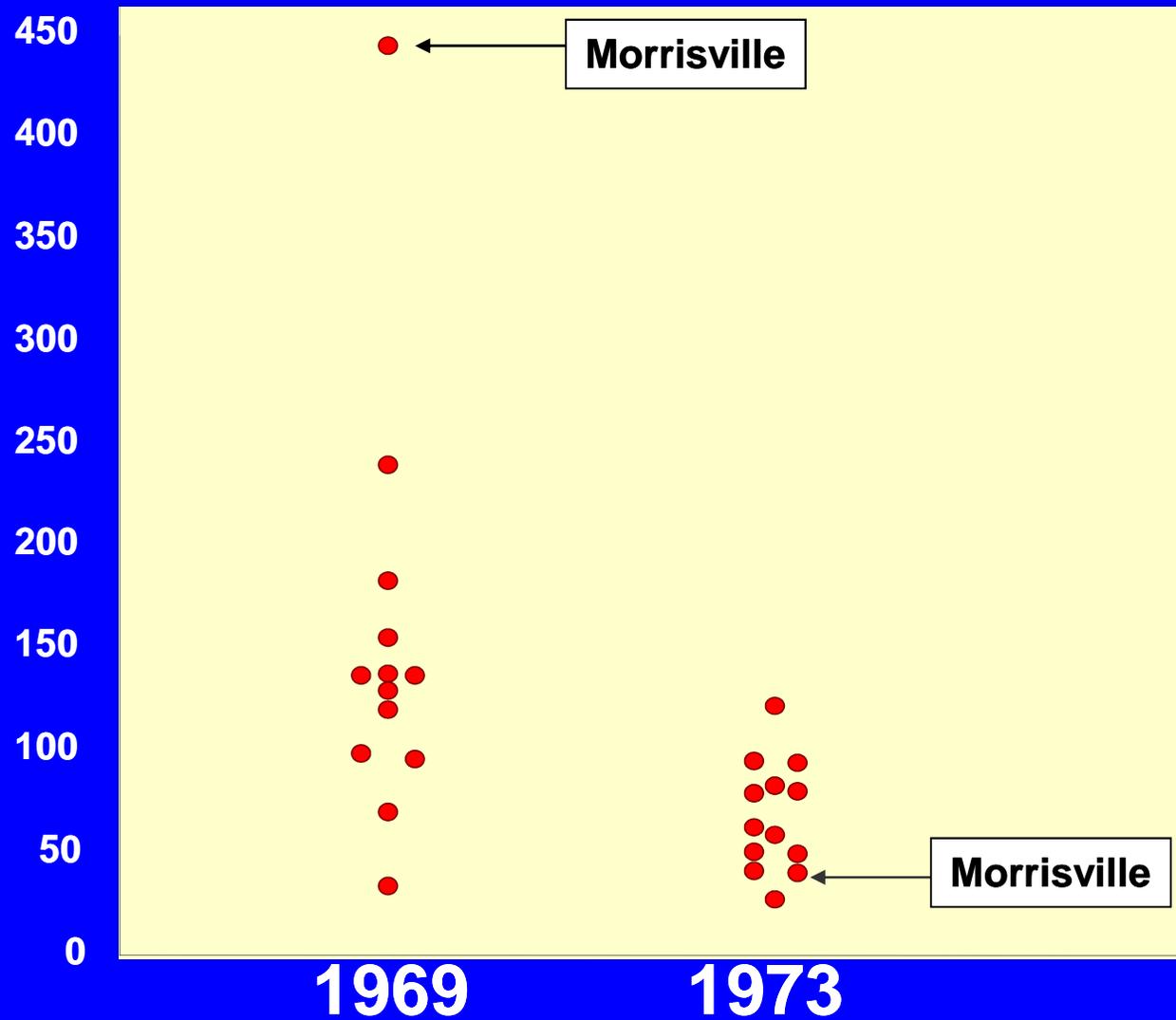
Tonsillectomy Rate per 10,000 Children Among 13 Vermont Hospital Service Areas



Stages of Facing Reality

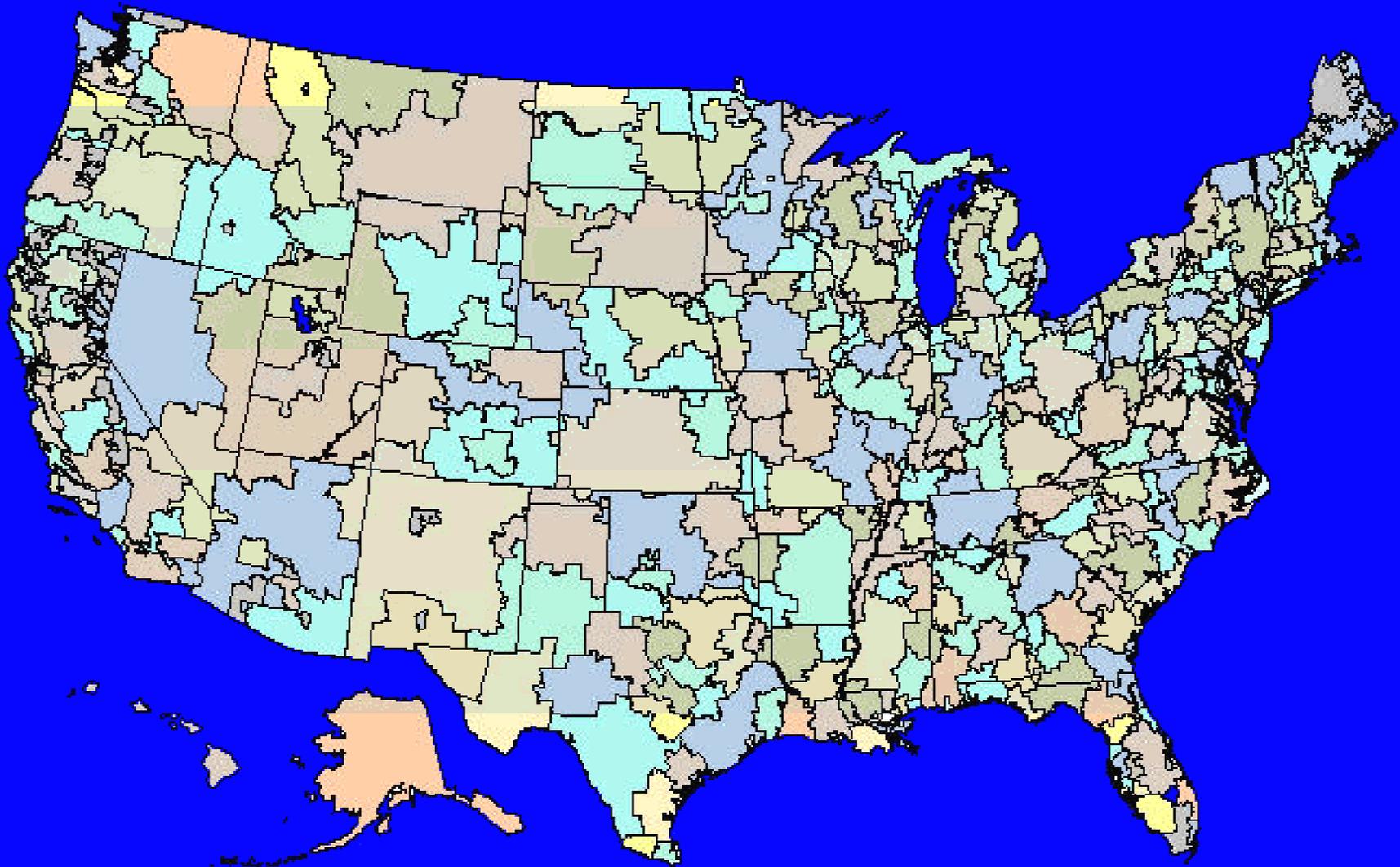
- **Stage 1. “The data are wrong.”**
- **Stage 2. “The data are right, but it’s not a problem.”**
- **Stage 3. “The data are right; it is a problem; but it is not my problem.”**
- **Stage 4. “I accept the burden of improvement.”**

Tonsillectomy Rate per 10,000 Children Among 13 Vermont Hospital Service Areas





Dartmouth Atlas of Health Care



Hospital Referral Regions In The United States
www.dartmouthatlas.org/

Unwarranted Variation in Health Care Delivery:

**Variation that can't be explained by illness,
medical evidence or patient preferences**

The Three Categories of Unwarranted Variation in Health Care Delivery

Effective Care:

Evidence-based Care That All with Need Should Receive

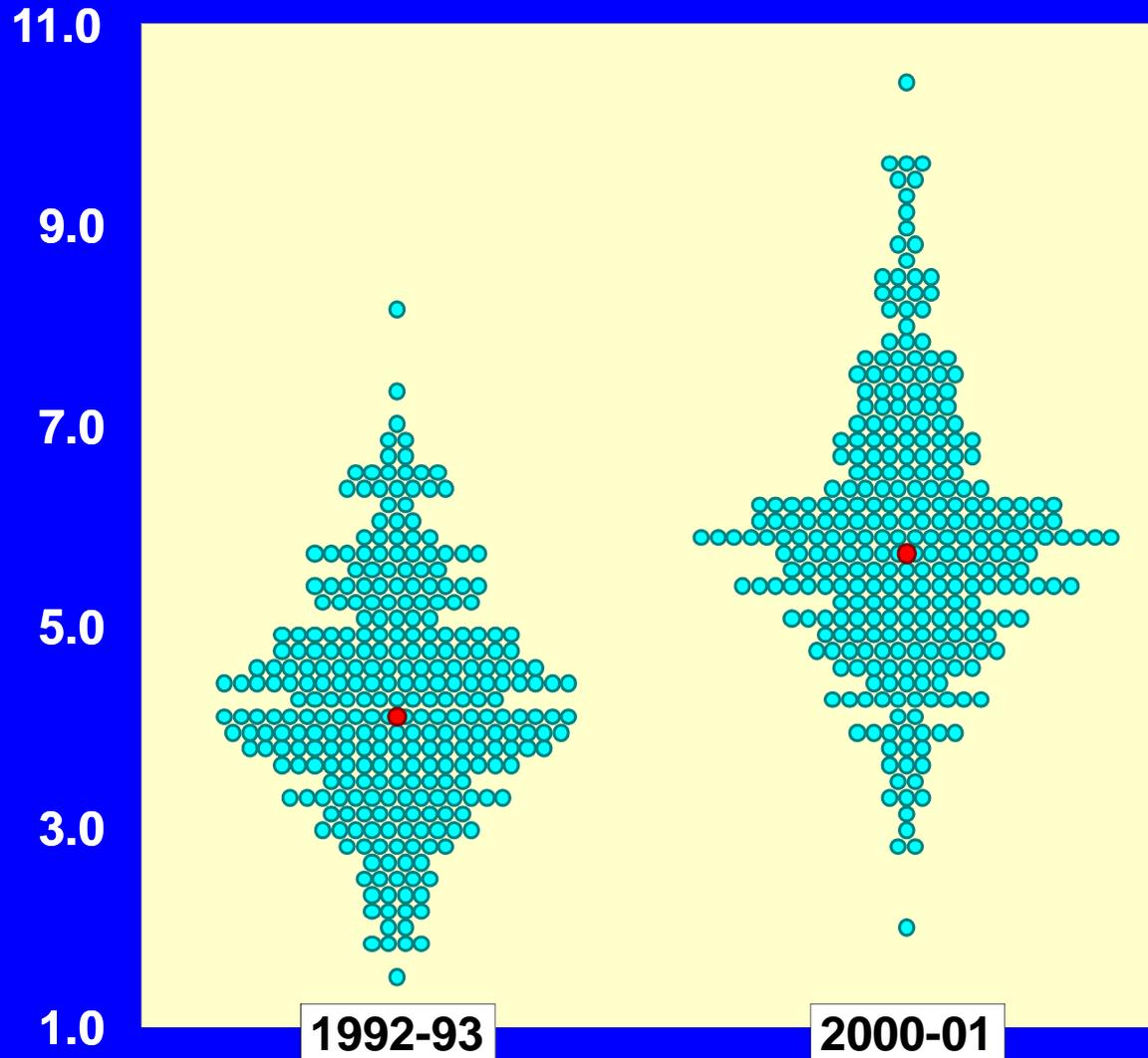
Preference-Sensitive Care

Supply-Sensitive Care

Preference-Sensitive Care

- Involves tradeoffs -- more than one treatment exists and the outcomes are different
- Decisions should be based on the patient's own preferences
- **But Provider Opinion Often Determines Which Treatment is Used**

Knee replacement per 1,000 Medicare enrollees



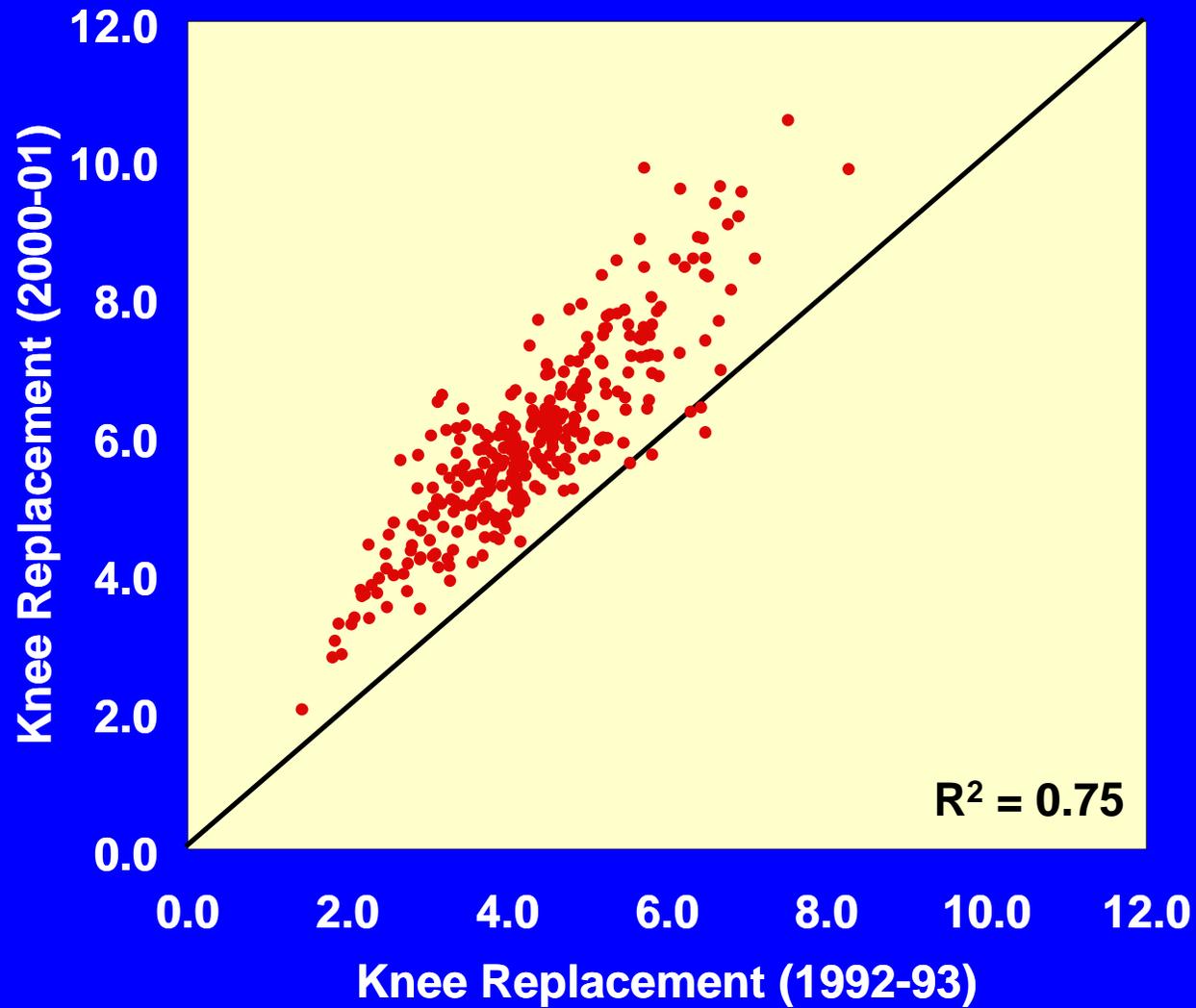
Red dot = U.S. average:

4.03

5.64

40% increase

Relationship Between Knee Replacement Rates among hospital referral regions in 1992-93 and 2000-01



Determining the Need for Hip and Knee Arthroplasty: The Role of Clinical Severity and Patients' Preferences

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BACKGROUND. Area variation in the use of surgical interventions such as arthroplasty is viewed as concerning and inappropriate.

OBJECTIVES. To determine whether area arthroplasty rates reflect patient-related demand factors, we estimated the need for and the willingness to undergo arthroplasty in a high- and a low-use area of Ontario, Canada.

RESEARCH DESIGN. Population-based mail and telephone survey.

for surgery, and evidence of arthritis on examination and radiographs. Estimates of need were then adjusted for patients' willingness to undergo arthroplasty.

RESULTS. Response rates were 72.0% for questionnaires and interviews. The potential need for arthroplasty was 36.3/1,000 respondents in the high-rate area compared with 28.5/1,000 in the low-rate area ($P < 0.0001$). Among individuals with potential need, only

Determining the Need for Hip and Knee Arthroplasty: The Role of Clinical Severity and Patients' Preferences

- Among those with severe arthritis, no more than 15% were definitely willing to undergo (joint replacement), emphasizing the importance of considering both patients' preference and surgical indications in evaluating need and appropriateness of rates of surgery

Conditions involving preference-sensitive surgical decisions

Condition

- Silent Gall stones
- Chronic Stable Angina
- Hip and Knee arthritis
- Carotid Artery stenosis
- Herniated Disc
- Early prostate cancer
- Enlarged prostate

Treatment Options

Surgery versus watchful waiting
PCI vs. surgery vs. other methods
Joint replacement vs. pain meds
Surgery vs. aspirin
Back surgery vs. other strategies
Surgery vs. radiation vs. waiting
Surgery vs. other strategies

2010 Military Health System Conference

Variations in Healthcare: Preliminary Findings

Part 2 – Comparing MHS and Medicare Variation in Coronary Artery Disease

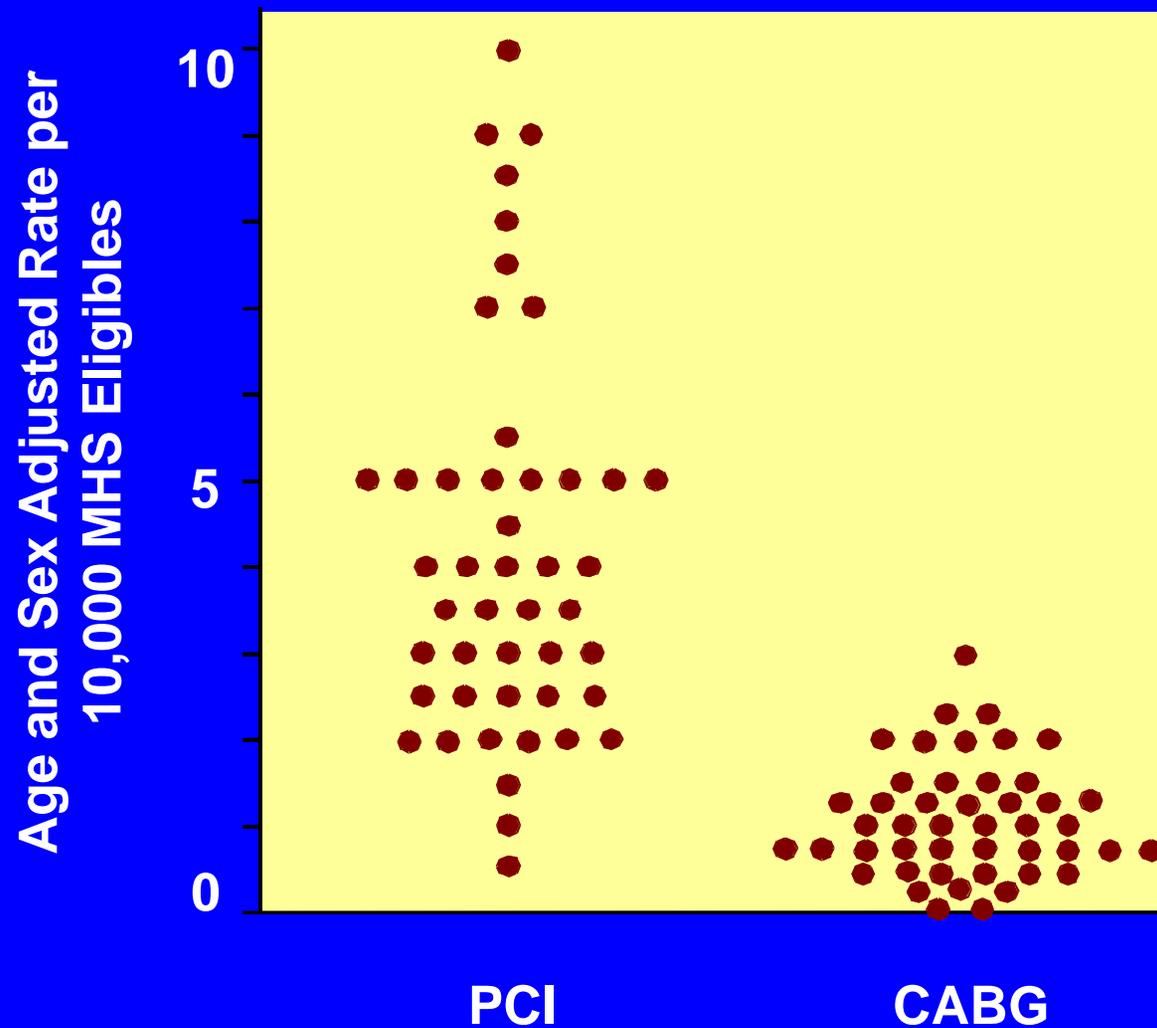
Michael Dinneen MD PhD, OASD/Health Affairs

Bob Kelley MS, Thomson Reuters

January 25, 2010



PCI and CABG for Stable Angina per 10,000 MHS Eligibles by HRR



Papers

Decision aids for patients facing health treatment or screening decisions: systematic review

Annette M O'Connor, Alaa Rostom, Valerie Fiset, Jacqueline Tetroe, Vikki Entwistle, Hilary Llewellyn-Thomas, Margaret Holmes-Rovner, Michael Barry, Jean Jones

Abstract

Objective To conduct a systematic review of randomised trials of patient decision aids in improving decision making and outcomes.

Design We included randomised trials of interventions providing structured, detailed, and specific information on treatment or screening options and outcomes to aid decision making. Two reviewers independently screened and extracted data on several evaluation criteria. Results were pooled by using weighted mean differences and relative risks.

Results 17 studies met the inclusion criteria. Compared with the controls, decision aids produced higher knowledge scores (weighted mean difference = 19/100, 95% confidence interval 14 to 25); lower decisional conflict scores (weighted mean difference = -0.3/5, -0.4 to -0.1); more active patient participation in decision making (relative risk

tioners. Their efficacy has been described in general reports and reviews.⁴⁻⁶ We conducted a systematic overview of the trials of decision aids to determine whether they improved decision making and outcomes for patients facing treatment or screening decisions.

Methods

The search strategy is described in detail elsewhere.⁷ We searched the following electronic databases: Medline (1966-April 98); Embase (1980-November 98); PsycINFO (1979-March 98); CINAHL (1983-February 98); Aidslite (1980-98); CancerLit (1983-April 98); and the Cochrane Controlled Trials Register (1998, Issue 4). Additional studies were searched for in our personal files and the contents lists of *Health Expectations* (1998), *Medical Decision Making* (January-March 1986-January-March 1998), and *Patient Education and*

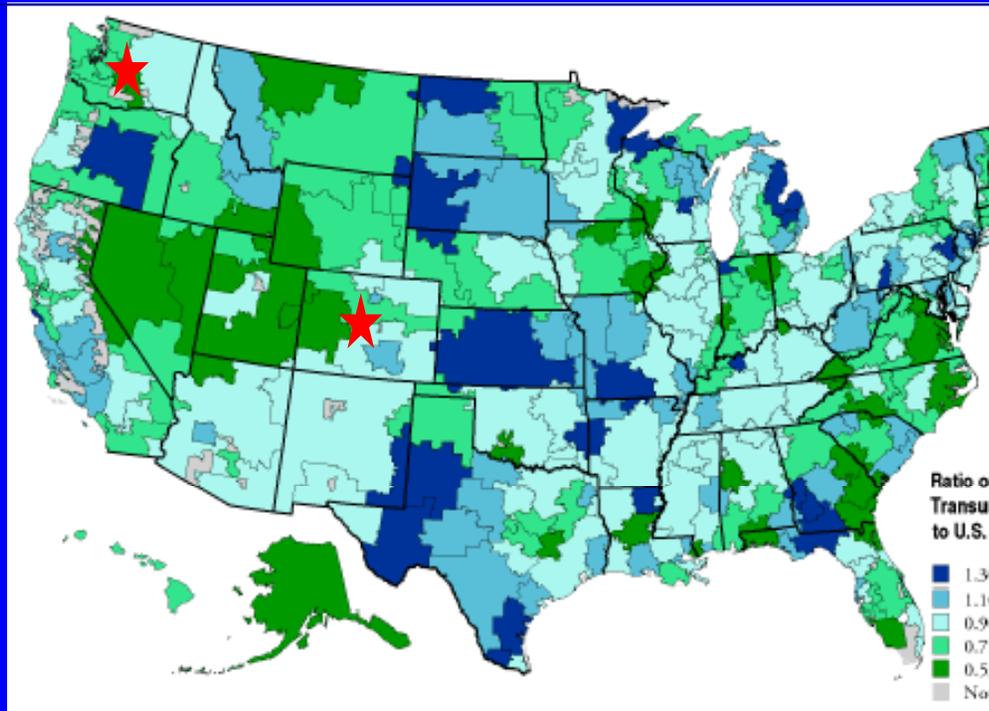
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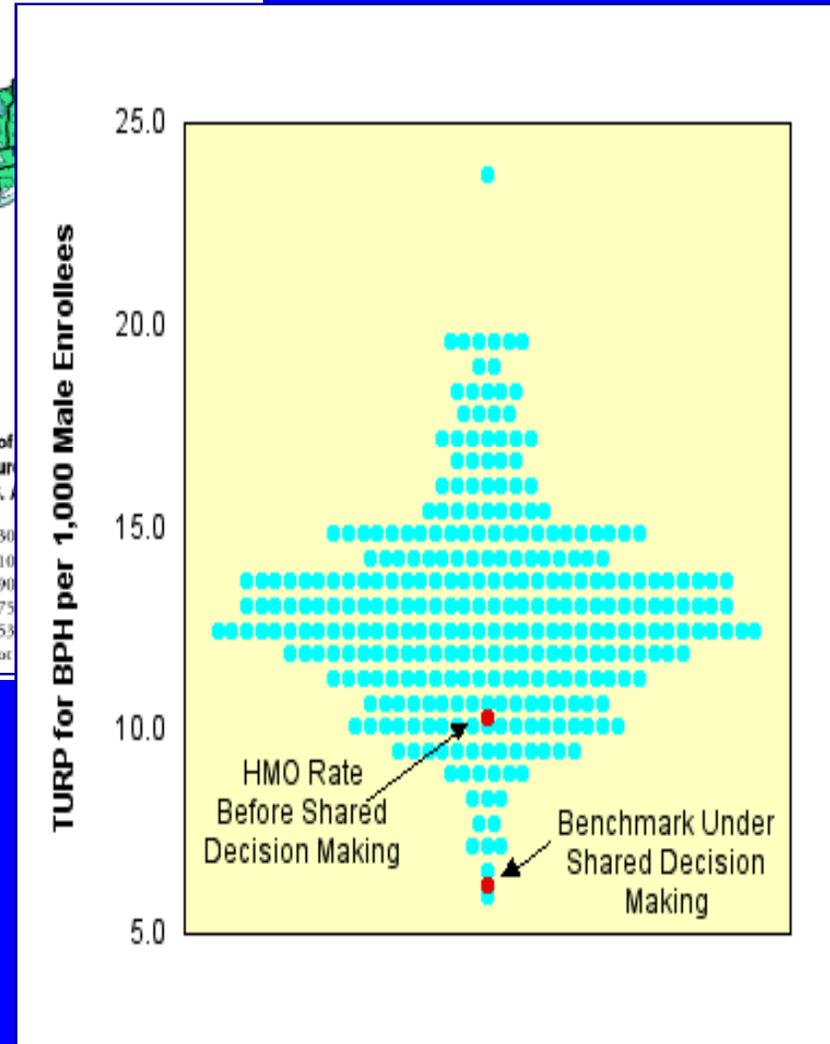
Sisters of Charity of
Ottawa Health
Services, Ottawa,
Ontario, Canada
Valerie Fiset

Which rate is right? Impact of improved decision quality on surgery rates: BPH



Knowledge of relevant treatment options and outcomes

Concordance between patient values and care received



Bottom Line Implication:

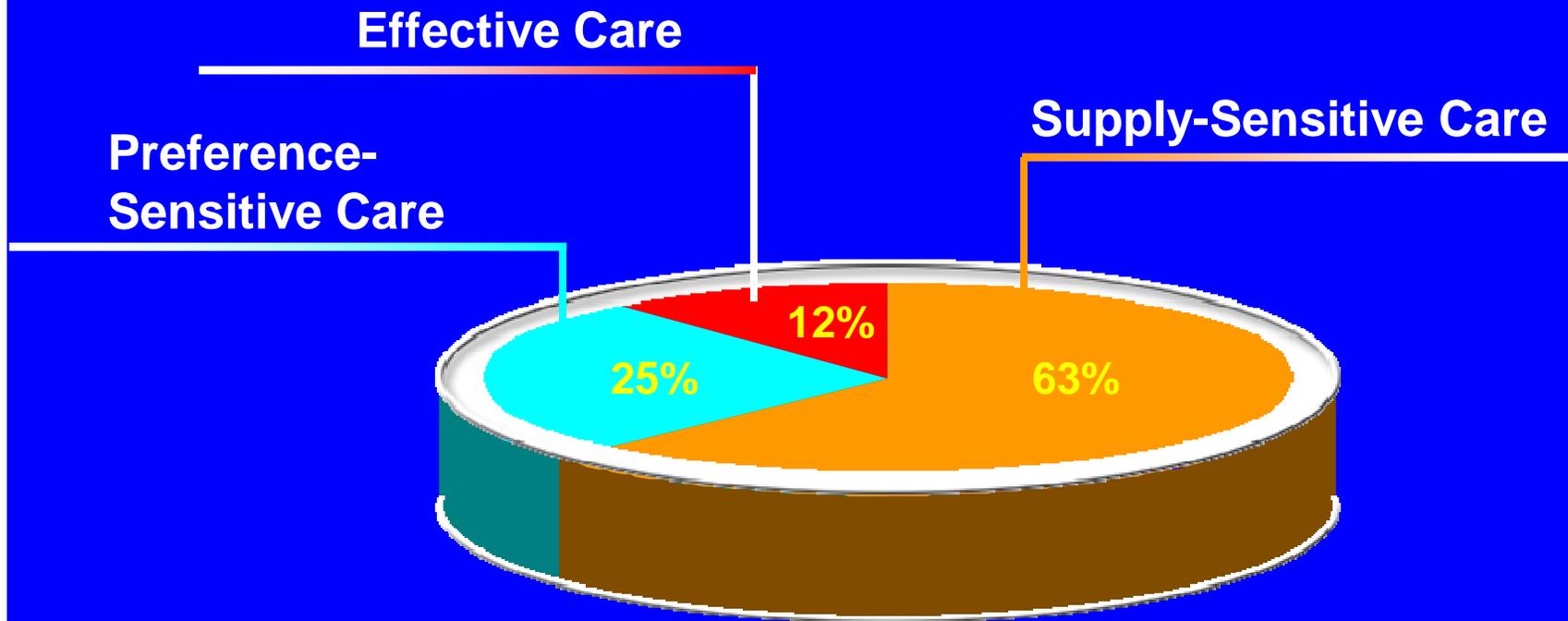
Clinical Appropriateness should be based on sound evaluation of treatment options (outcomes research)

Medical Necessity should be based on informed patient choice among clinically appropriate options (high quality shared decision making)

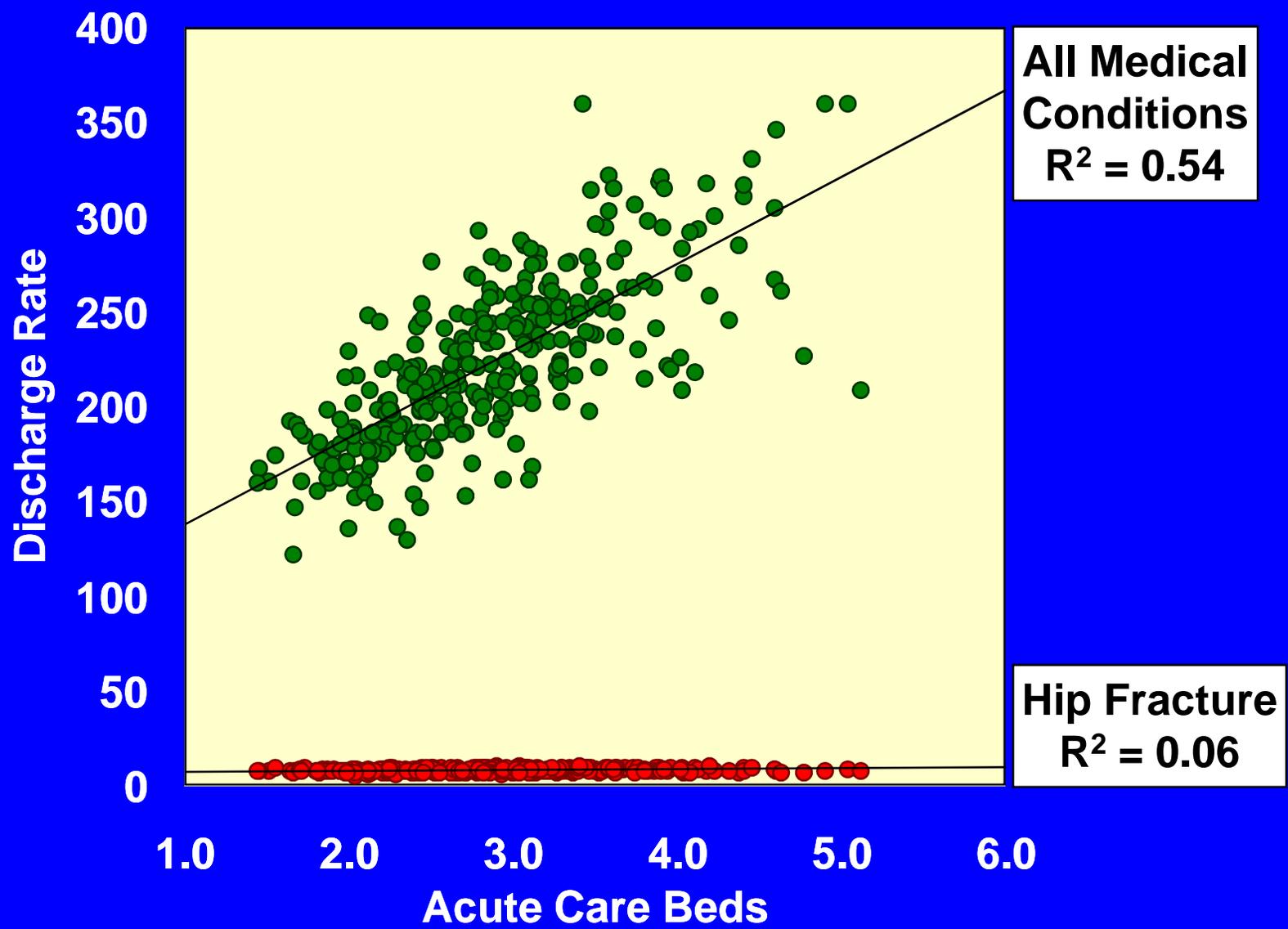
Supply-Sensitive Care

- The frequency of use is governed by the assumption that resources should be fully utilized, i.e. that more is better
- Specific medical theories and medical evidence play little role in governing frequency of use
- In the absence of evidence and under the assumption that more is better, available supply governs frequency of use

Proportion of Medicare Spending Attributed to Each Category of Unwarranted Variation



Association between hospital beds per 1,000 and discharges per 1,000 among Medicare Enrollees: 306 Hospital Regions



**Days in Hospital and Inpatient Visits per Patient
Last 2 Years of Life for those with Chronic illness
(Selected U.S. Regions)**

Region	Days in Hospital	Inpatient Visits
Los Angeles	28.0	76.9
Pittsburgh	24.8	54.4
San Francisco	18.7	34.5
Denver	14.6	26.3
Seattle	13.7	20.2
Salt Lake City	11.6	15.4

**Contrasting Practice Patterns in Managing Chronic Illness
in Regions (HRRs) Ranked in Highest and Lowest
Utilization Quintile (patients in their last 2 years of life)**

Resource input/Utilization	Low HRRs	High HRRs	Ratio H/L
Medicare \$ per capita	\$38,300	\$60,800	1.59
Physician Labor/1,000			
All Physicians	16.6	29.5	1.78
Medical Specialists	5.6	13.1	2.35
Primary Care Doctors	7.4	11.5	1.55
Ratio: MS/PCP	0.76	1.14	1.50

**Contrasting Practice Patterns in Managing Chronic Illness
in Regions (HRRs) Ranked in Highest and Lowest
Utilization Quintile (patients in their last 2 years of life)**

	Low HRRs	High HRRs	Ratio H/L
End of Life Care			
Hospital Days (L6M)	8.5	15.6	1.83
Hospital MD Visit (L6M)	12.9	36.3	2.82
% Seeing 10 or more MDs	20.8	43.7	2.16
% Deaths in ICUs	14.3	23.2	1.63

Spending during the last two years of life at selected academic medical centers (deaths 2001-05)

Hospital Name	Total Medicare spending	Inpatient sector spending	SNF/long-term sector spending	Home health spending
NYU Medical Center	105,068	75,622	5,545	5,996
UCLA Medical Center	93,842	63,900	6,891	3,994
Brigham and Women's	87,721	50,156	13,633	4,943
Johns Hopkins	85,729	63,079	3,287	1,813
Cleveland Clinic	55,333	34,372	5,101	2,194
Mayo Clinic (St. Mary's)	53,432	34,372	7,114	662

The patient experience of end-of-life care at selected academic medical centers (deaths 2001-05)

Hospital Name	Hospital days (last 6 months)	MD visits (last 6 months)	% of deaths with ICU admission	Average co-payments (last 2 years)
NYU Medical Center	31.2	76.9	35.1	5,544
UCLA Medical Center	18.5	52.8	37.9	4,835
Brigham and Women's	16.1	37.1	26.2	3,729
Johns Hopkins	16.5	28.9	23.2	3,390
Cleveland Clinic	14.8	33.1	23.1	3,045
Mayo Clinic (St. Mary's)	12.0	23.9	21.8	2,439

Per Capita Resource inputs and Health Outcomes: High versus Low Quintiles of Spending

Cohort Health Outcomes

Survival:	Worse
Functional Status:	Same
Satisfaction:	worse
Perceived Access:	Worse
Objective Quality:	Worse

Bottom Line Implication:

**Reducing overuse of acute care hospitals
and growth of organized care should be a goal
of public policy as well as clinical policy**

What we must do

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- **Move from disorganized to organized systems of care (longitudinal management of patient populations)**

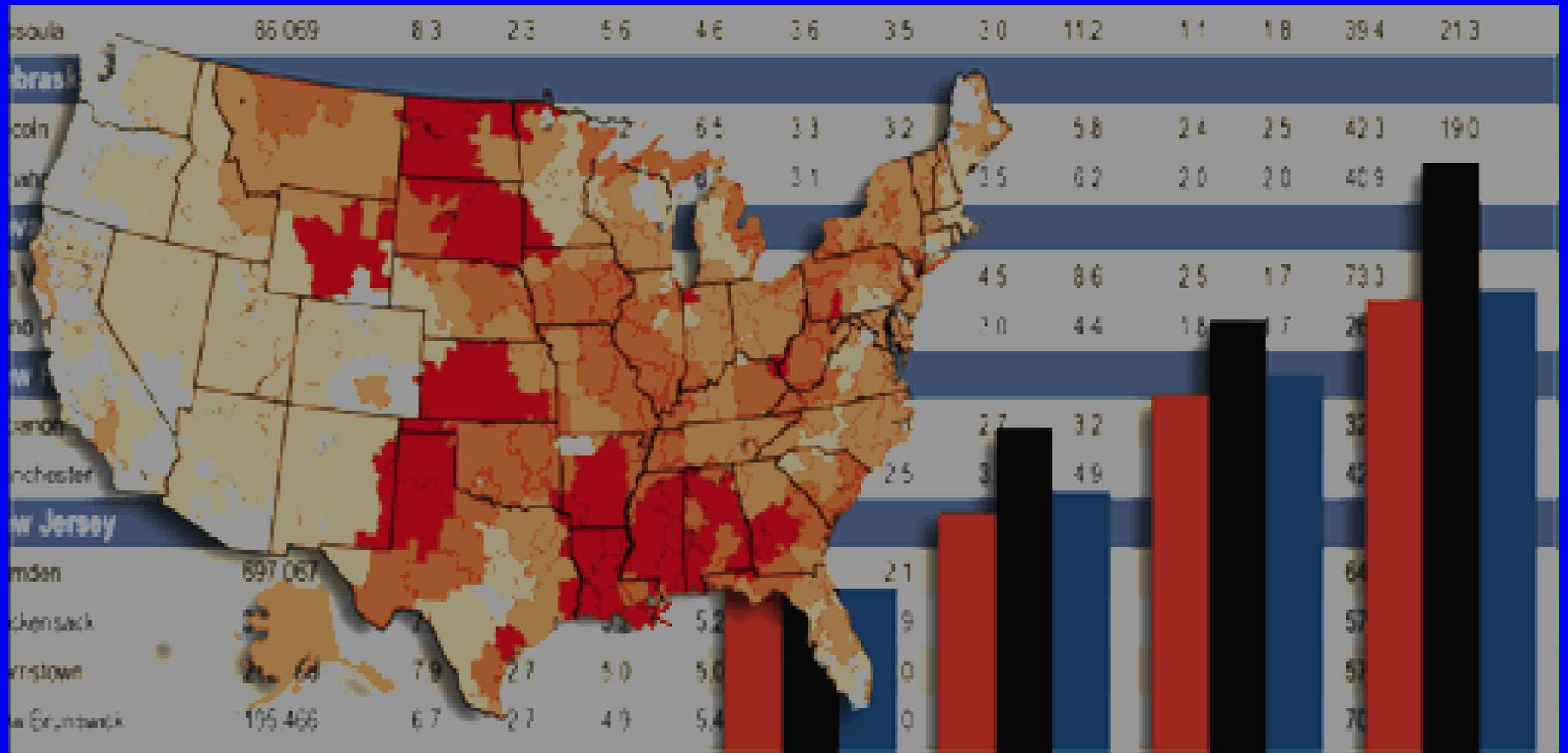
What we must do

- **Establish Informed patient choice as the standard of practice**
- **Build the scientific basis for clinical decision making (the science of health care delivery)**
- **Move from disorganized to organized systems of care (longitudinal management of patient populations)**
- **Reduce excess capacity and constrain undisciplined growth in health care spending**

My Challenge

**Can Military Health Care lead the
nation in doing what we must do?**

Thank You!!!!



Dartmouthatlas.org