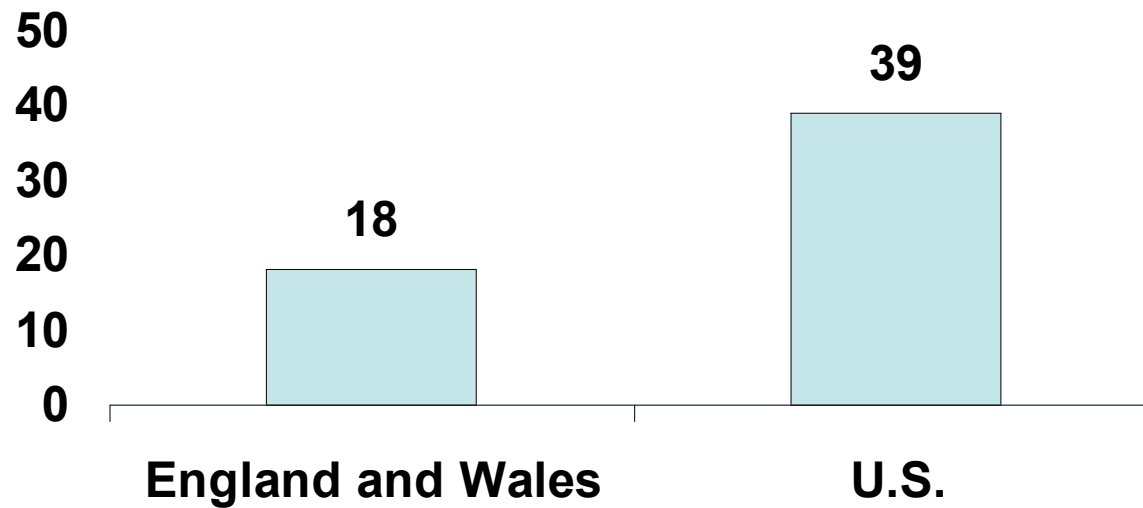


The Challenges of Health System Capacity Growth

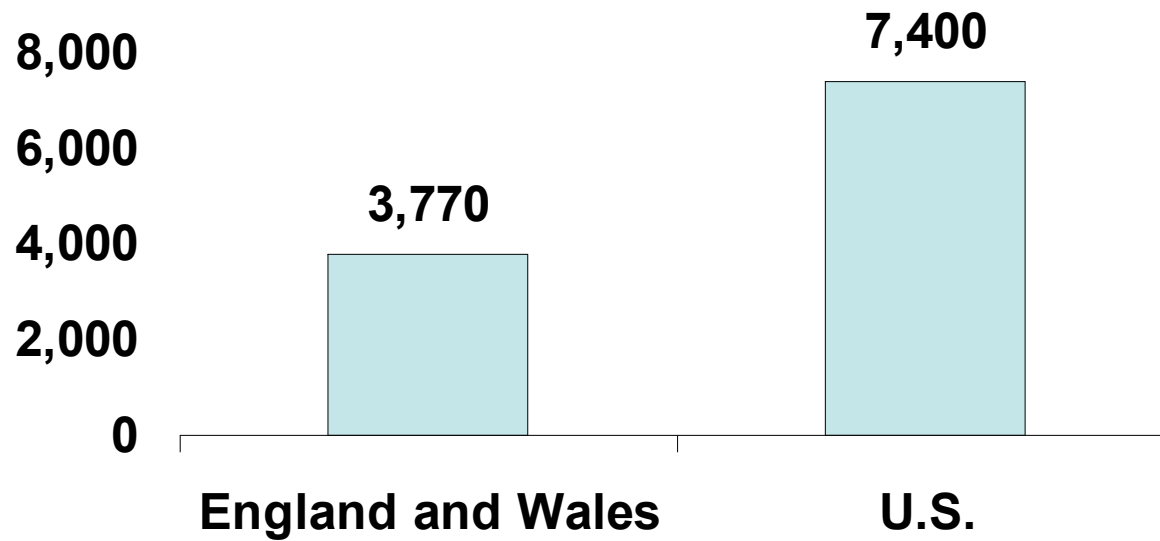
Laurence Baker, Ph.D
Stanford University
(laurence.baker@stanford.edu)

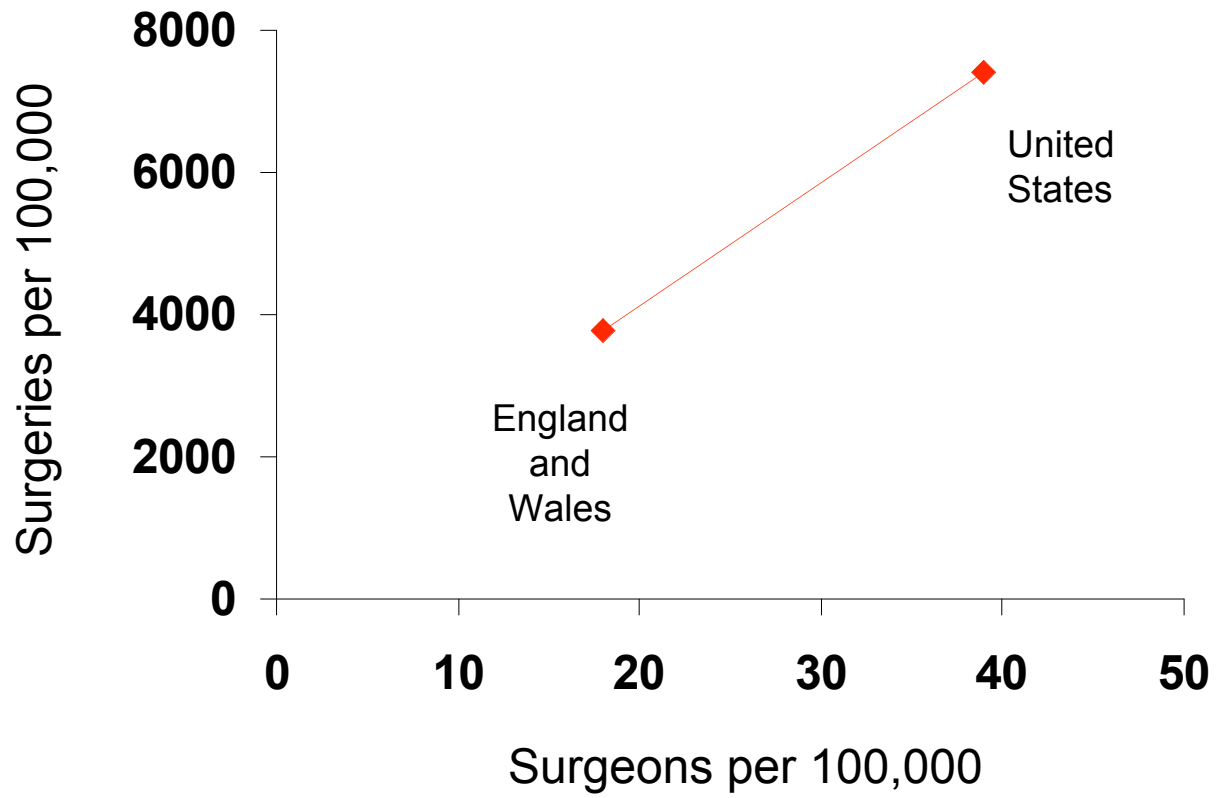
NIHCM meeting
December 1, 2008

Surgeons per 100,000 population, 1967



Surgeries per 100,000 people, 1967





Source: Analysis of data presented in John Bunker, NEJM, 1970

An Old Story, Repeatedly Repeated

- Physicians
 - 10% increase in surgeon-population ratio resulted in about 3 percent increase in per-capita utilization of surgery [Fuchs, 1978]
- Hospitals
 - Odds a Medicare patient is hospitalized are 20-30% higher in areas with the greatest availability of hosp beds [Fisher et al, 2000]
- Other types of services too
 - CT/MRI scanners, NICUs, Cardiac care [Baker et al 2003]

Capacity and utilization are closely related

Capacity and utilization are closely related^{1,2,3}

¹ Not all services are the same

Capacity and utilization are closely related^{1,2,3}

¹ Not all services are the same

² Other things are related to utilization too

Capacity and utilization are closely related^{1,2,3}

¹ Not all services are the same

² Other things are related to utilization too

³ Causality is difficult to nail down

Spending = utilization * price

Spending = covered lives * PMPM amounts



Much medical care appears
to be “worth it” [Cutler et al NEJM]

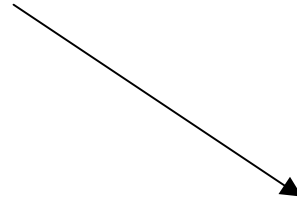


Not all medical care is worth it
[Fisher et al, 2001]

We don't appear to be able to
always figure out which is which

- more generalists often associated with better outcomes; specialists not so much
 - more capacity could improve accessibility
 - more providers might drive down average volumes at each
- more providers might shift the distribution of patients across providers
 - more capacity could increase complexity

Scientific Advancement



Capacity Change

Profitability



COGME:

“Increase total enrollment in U.S. medical schools by 15% from their 2002 levels over the next decade”

AAMC:

Increase enrollment in U.S. Medical Schools by 30%

TABLE 1: CONSTRUCTION OF NEW FACILITIES, 2006

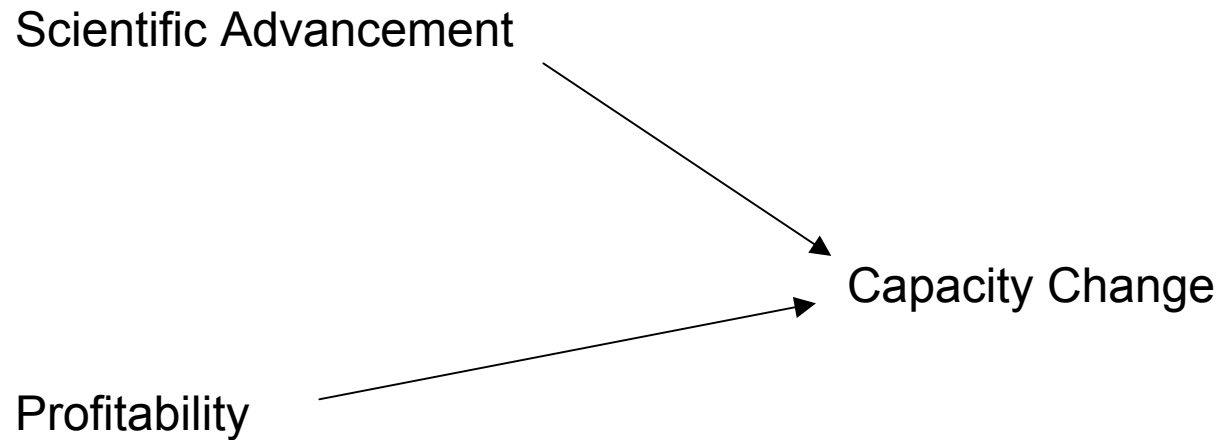
Facility Type	Construction Type	Completed, 2006		Underway	
		Number	Beds	Number	Beds
Acute Care Hospitals	New	144	8,445	173	16,265
	Expansion	395	9,171	411	13,108
Specialty Hospitals	New	55	3,373	50	3,731
Freestanding Outpatient Facilities	New	198	–	179	–
	Expansion	177	–	164	–

Source: Modern Healthcare Construction Survey, 2007

The supply of ambulatory surgery centers grew by more than 50% between 2000 and 2006, to 4,707

What to do?

- More information
 - comparative effectiveness
 - quality information
 - relationships between capacity, use, and costs
 - better metrics for defining “need”
- Align financial incentives
 - address disproportionate rewards
 - more competitive bidding
 - incorporate capacity issues in benefit design
- Organizational Changes
 - Centers of excellence/accreditation
 - Integrated delivery systems
 - CON/health planning

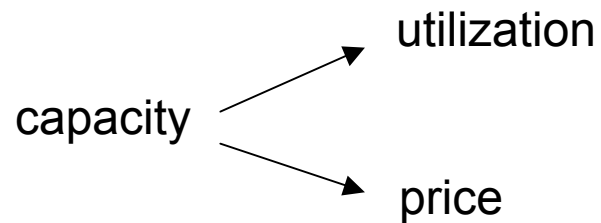


- more profitable new technologies and services get adopted fastest
- HMOs influence capacity change
- Medicare implementation influenced capacity change

- Example: Cardiac care, specialty hospitals, and capacity change

FFS Systems

$$\text{Spending} = \text{utilization} * \text{price}$$



competitive price setting

↑ capacity = ↓ price

administered prices

↑ capacity = ? price

Lesson: There may be offsetting effects on spending where prices are competitively set, but less (or no) offset where prices are administratively set

Capitated Systems

Spending = covered lives * PMPM amounts

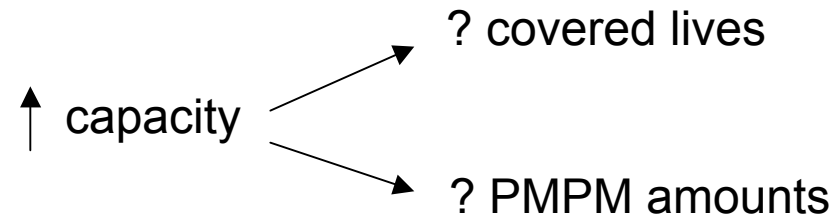
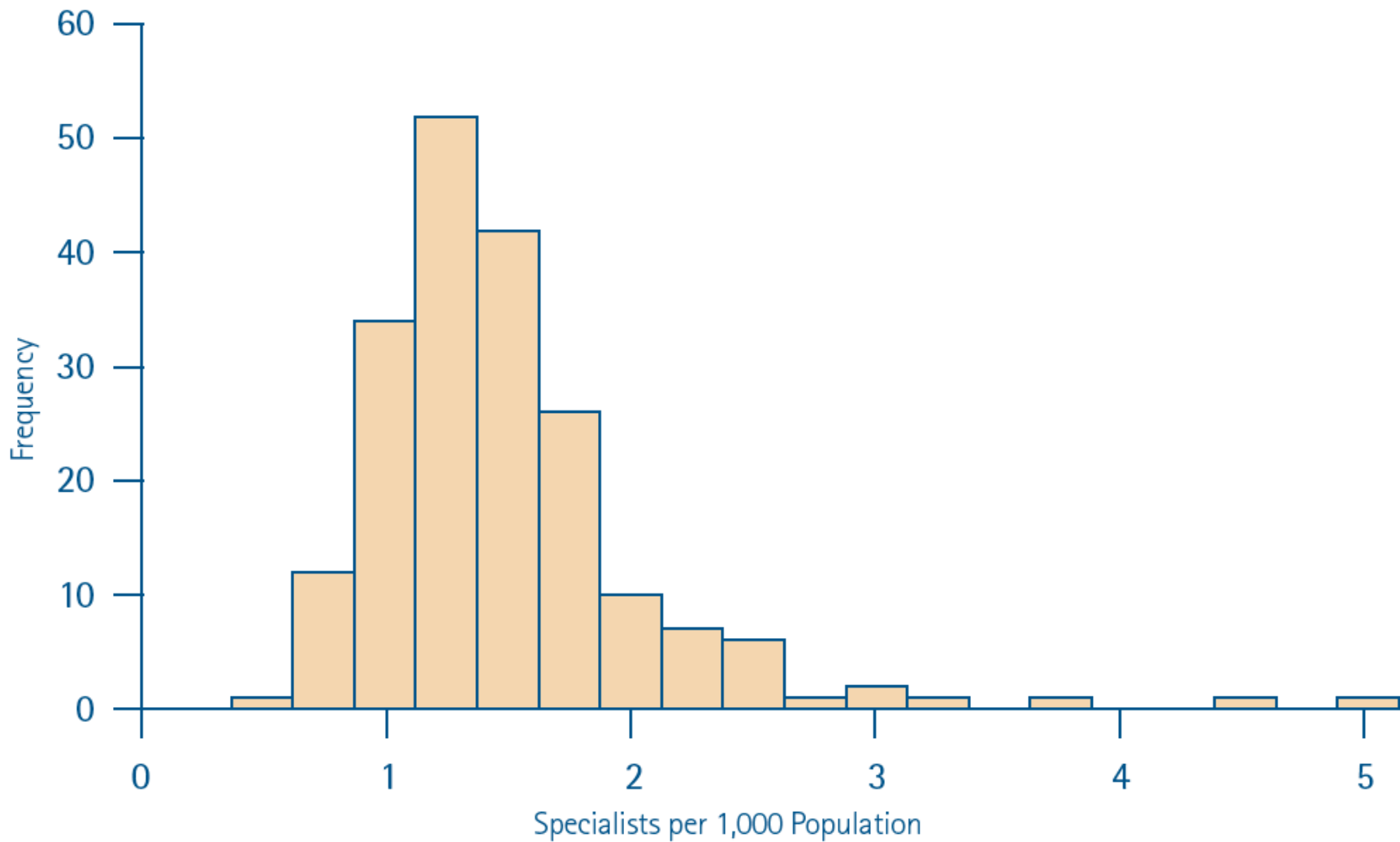
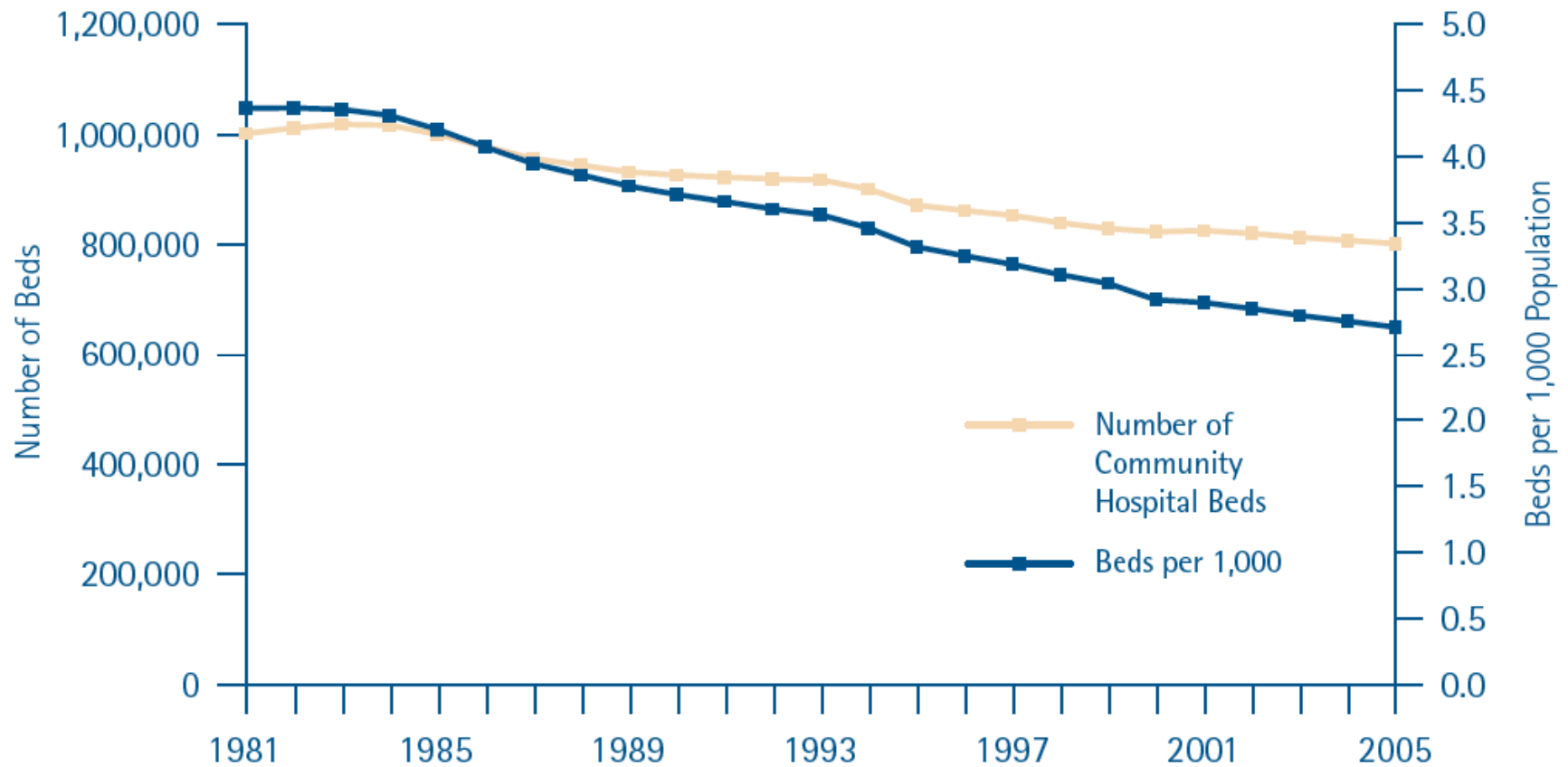


FIGURE 4: DISTRIBUTION OF SPECIALIST-TO-POPULATION RATIOS
200 LARGEST METROPOLITAN STATISTICAL AREAS, U.S., 2004



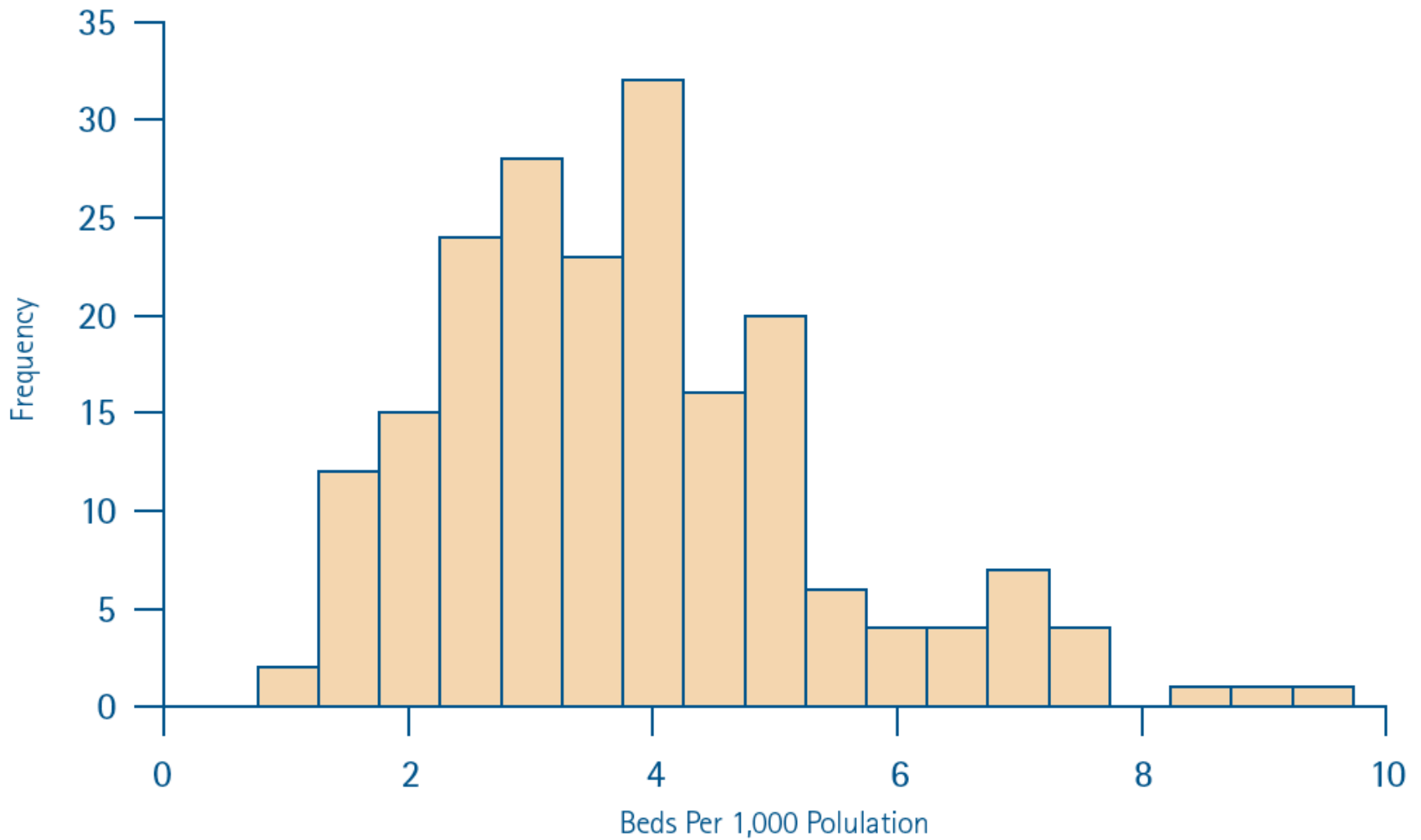
Note: Figure omits 3 MSAs in the upper tail of the distribution: Charlotte (5.96), Iowa City (7.98) and Rochester, MN (13.68)
Source: AMA Annual Physician Survey

FIGURE 1: COMMUNITY HOSPITAL BEDS IN THE U.S., 1981-2005



Source: AHA Annual Hospital Survey Data and U.S. Census Bureau

FIGURE 2: DISTRIBUTION OF HOSPITAL BED-TO-POPULATION RATIOS
200 LARGEST METROPOLITAN STATISTICAL AREAS, U.S., 2003



Source: AHA Annual Hospital Survey Data and U.S. Census Bureau

Capacity and Use

What to make of this?

- Are all types of care the same?
- Is it only capacity that drives utilization?
- Cause or correlation?

Capacity and Spending

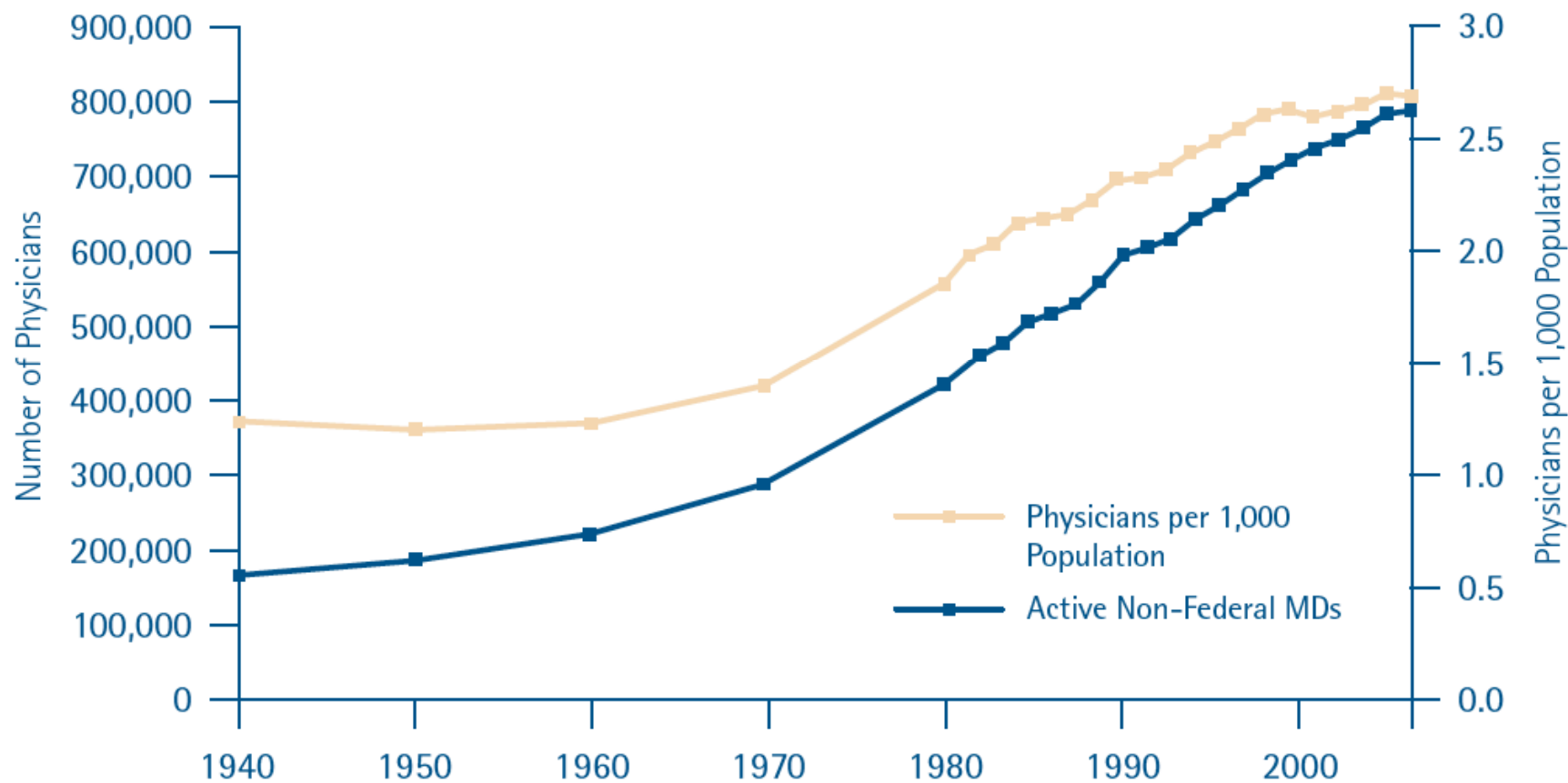
Capacity and Quality

Determinants of Capacity Change

Health Care System Capacity in the U.S.

Growth and Variations

FIGURE 3: PRACTICING PHYSICIANS IN THE U.S., SELECTED YEARS 1940-2004



Source: AMA Annual Physician Survey data as reported on the Annual Resource File and the U.S. Census Bureau