

University of Texas System Clinical Safety & Effectiveness
Building the Bridge at the Quality Chasm
Renaissance Hotel, Austin, Texas
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Quality: An Imperative for Organizational Survival

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Disclosures

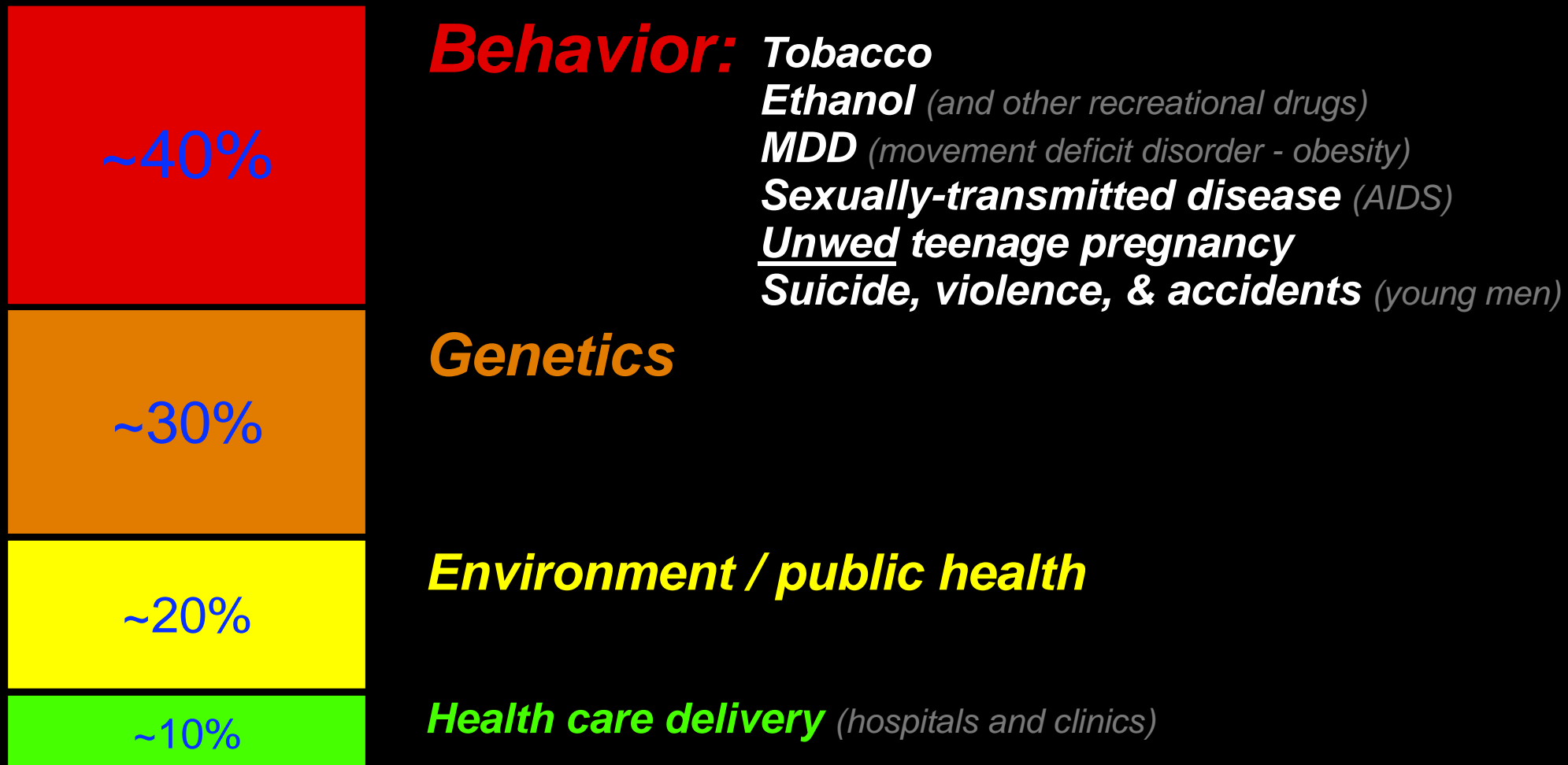
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Part 1

The roots of reform ...

- ◆ *46 million people without health insurance*
- ◆ *cost increases that are bankrupting the country*

Total health: How long, how well we live



McGinnis JM & Foege WH. Actual causes of death in the United States. *JAMA* 1993; 270(18):2207-12 (Nov 10).
McGinnis JM, Williams-Russo P, & Knickman JR. The case for more active policy attention to health promotion. *Health Affairs* 2002; 21(2):78-93 (Mar).

The Great Equation:

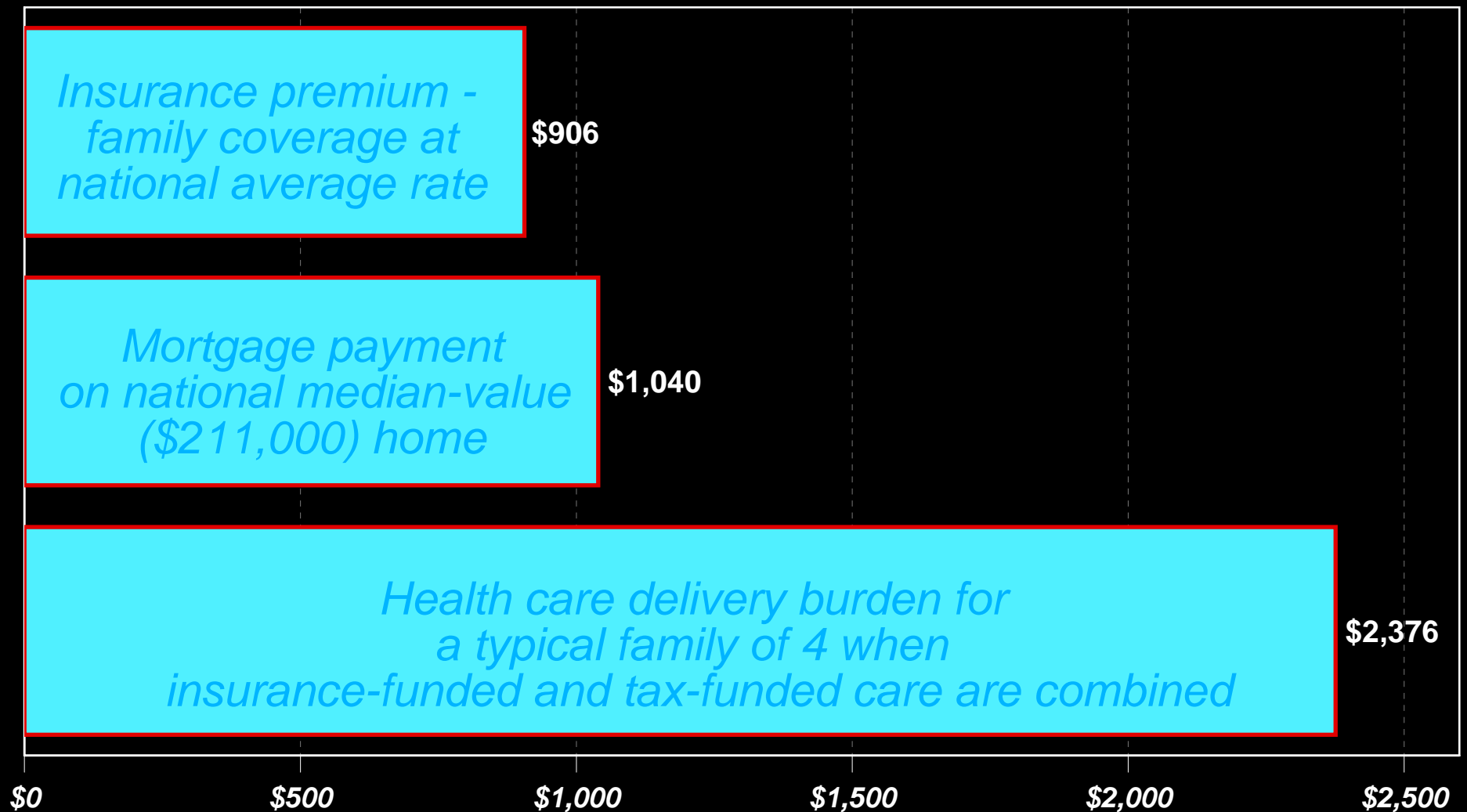
Health = ***medical care***
and medical care = "access to care"

"But the Great Equation is wrong ..."

Health spending



Healthcare - or a house?

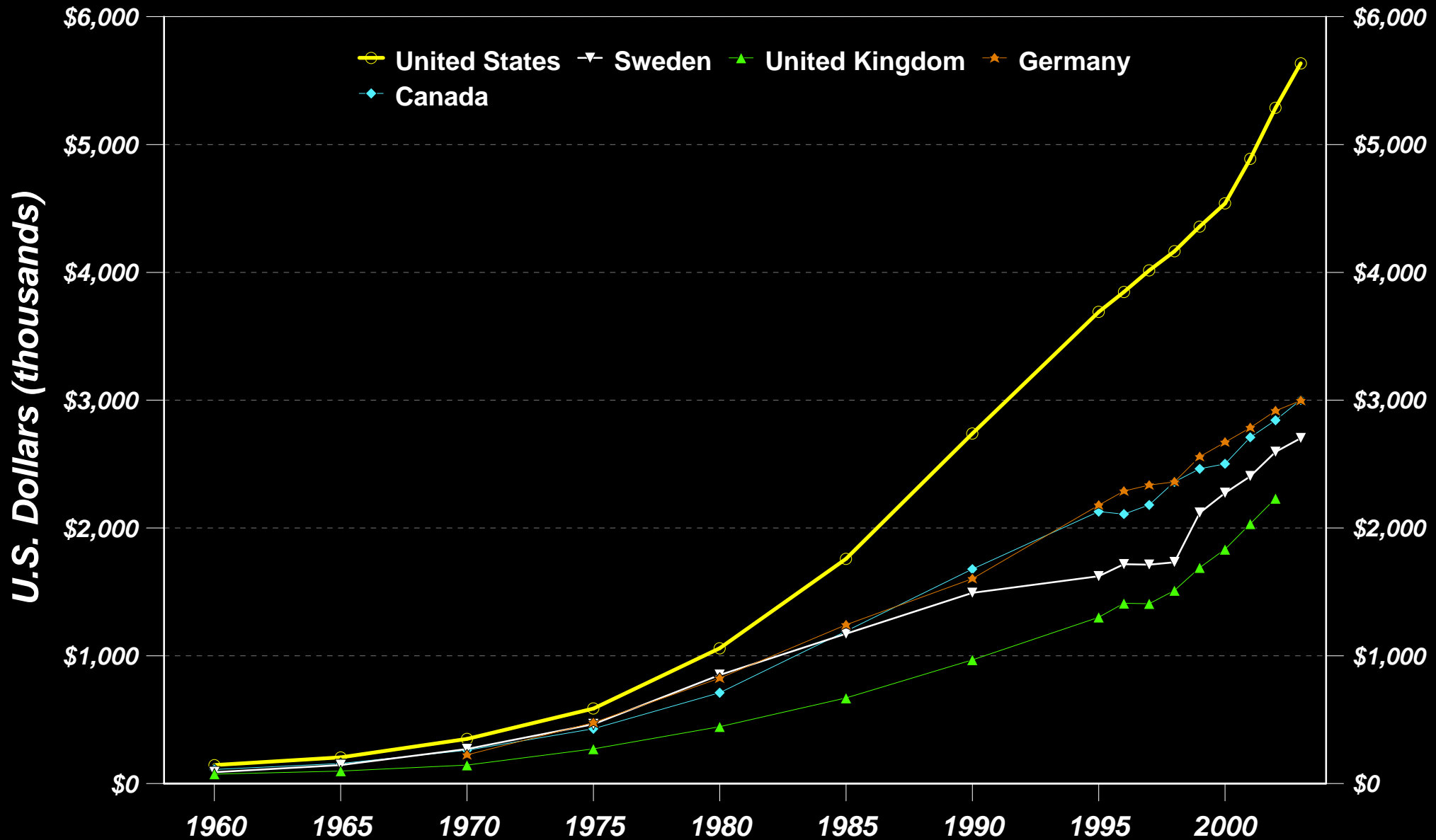


The uninsured - who are they?

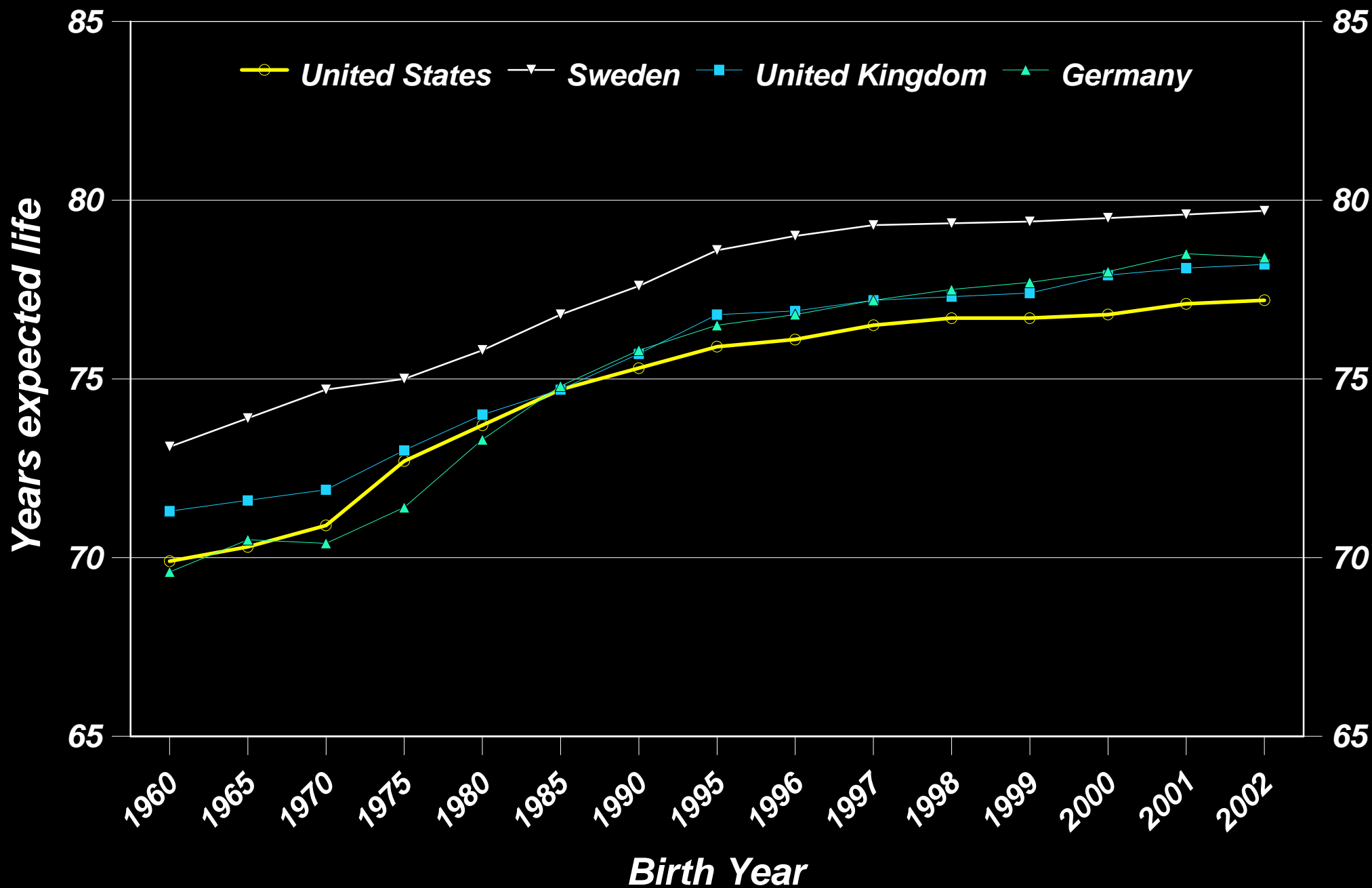
- ◆ **Noncitizens** **9.5 million** (~20.7%)
- ◆ **Eligible but not enrolled** **12 million** (~26.1%)
- ◆ **Temporarily uninsured** (job change) **9 million** (~19.6%)
- ◆ **Free riders** (income > \$84,000) **7 million** (~15.2%)

- ◆ **Long-term uninsured** **8 million** (~17.4%)

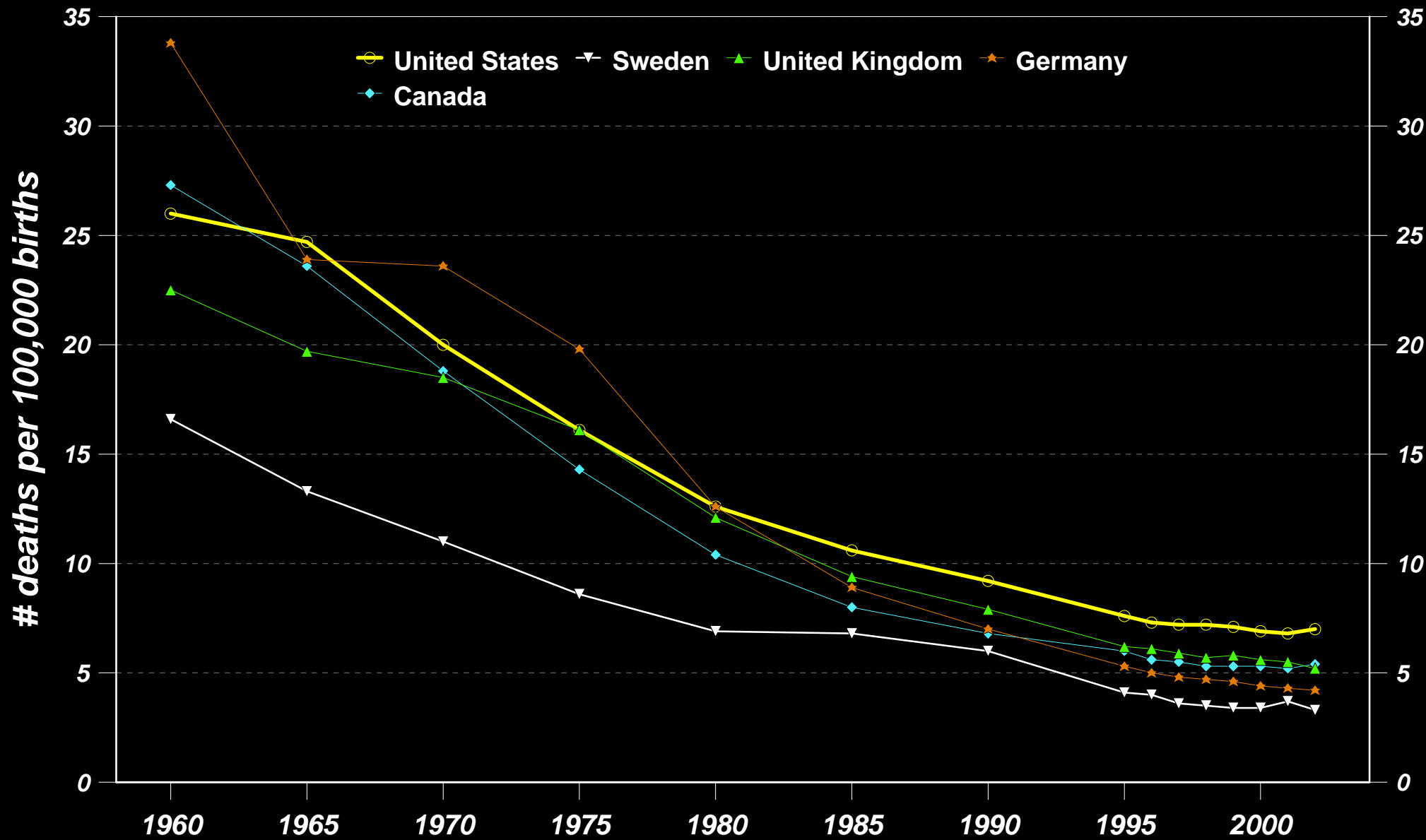
Health cost per resident, by country



Life expectancy at birth, by country



Infant mortality per 100,000 births



What do we get for all that money?

W. Edwards Deming: Aim defines the system ...

Three possible aims of a health care delivery system:

- 1. Total health** -- *how long and how well we live*
- 2. High touch** -- *patients value their relationship with a trusted clinical advisor more than any other element in health care delivery (the clinician-patient relationship)*

High touch: Caring, not just curing

A man stricken with disease today is assaulted by the same fears and finds himself searching for the same helping hand as his ancestors did five or ten thousand years ago. He has been told about the clever tools of modern medicine and somewhat vaguely, he expects that by-and-by he will profit by them, but in his hour of trial his desperate want is for someone who is personally committed to him, who has taken up his cause, and who is willing to go to trouble for him.

D. Emerick Szilagyi, MD: *In Defense of the Art of Medicine, 1965*

(with thanks to Dr. Steven Kappes, Milwaukee, WI)

High touch? Maybe not ...

W. Edwards Deming: Aim defines the system ...

Three possible aims of a health care delivery system:

- ~~1. **Total health** -- how long and how well we live~~
- ~~2. **High touch** -- patients value their relationship with a trusted clinical advisor more than any other element in health care delivery (the clinician-patient relationship)~~
3. **Rescue care** -- the Rule of Rescue

Primary care vs. Secondary care

Rapid response: The Rule of Rescue

*Jonsen AR, 1986: The imperative people feel to rescue identifiable individuals facing (avoidable?) suffering or death.**

- ◆ *subconscious personal identification at an emotional level;*
- ◆ *a person instead of just a number; "a name and a face"*
 - *The child down the well*
 - *The whales trapped in the ice*
 - *The dog on the abandoned boat*
 - *"60 Minutes" program on pertussis vaccination*

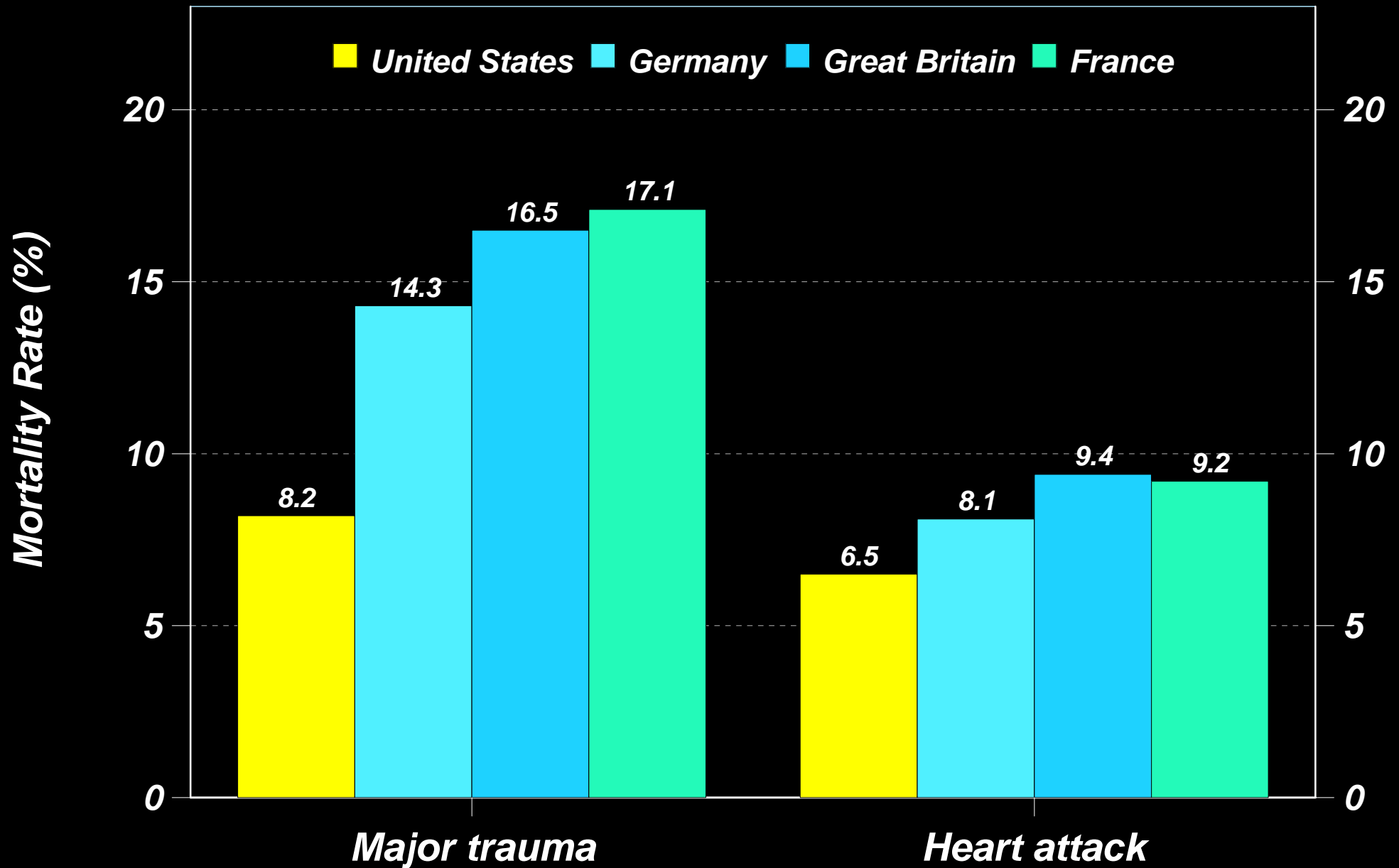
"A single death is a tragedy, a million deaths is a statistic."

Joseph Stalin *(who killed more than 17 million of his own Russian people)*

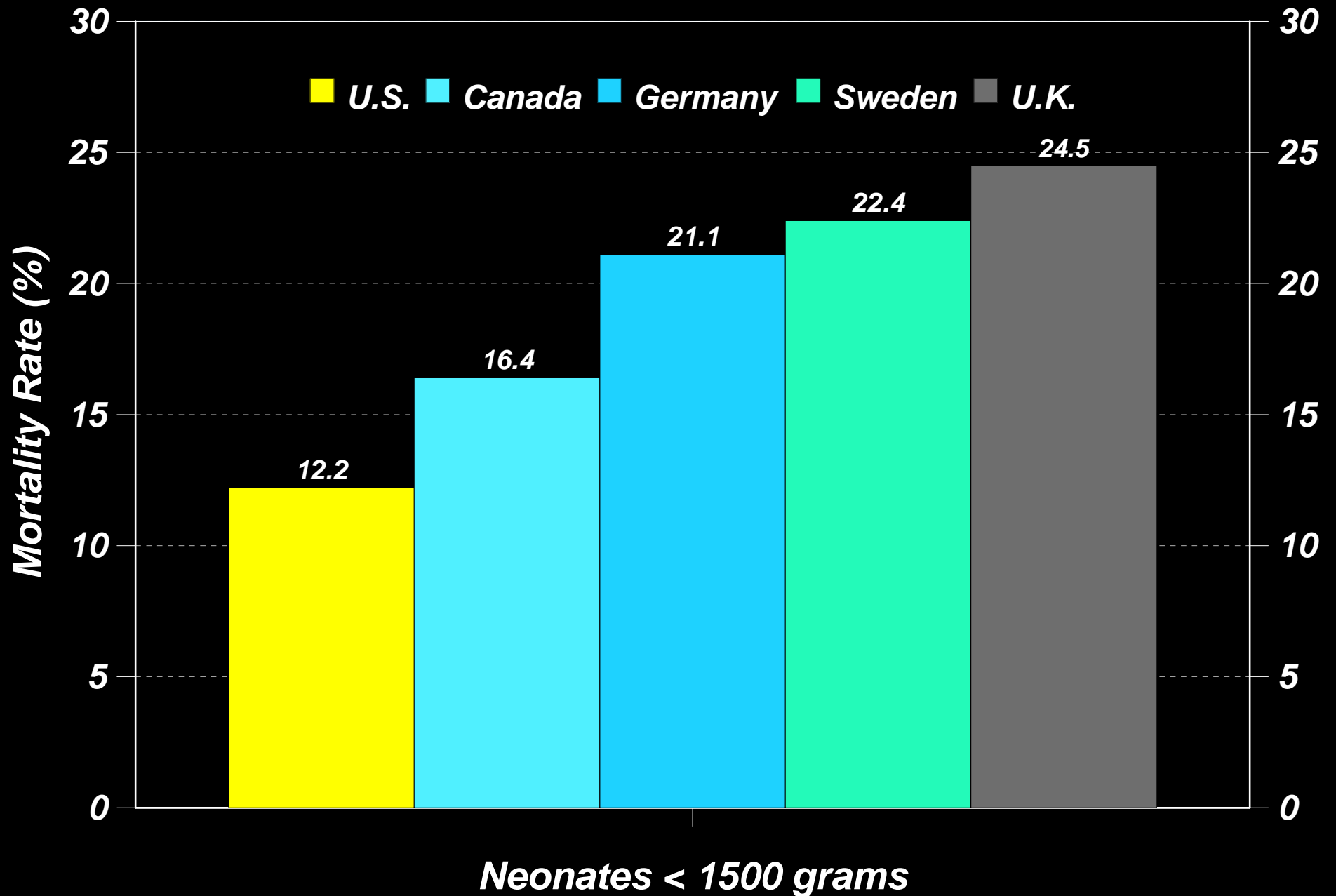
* McKie J & Richardson J. The rule of rescue. *Soc Sci Med* 2003; 56(12):2407-19 (June).

Richardson J & McKie J. *Working Paper 112: The Rule of Rescue*. West Heidelberg, Victoria, Australia: The Centre for Health Program Evaluation; 2000.

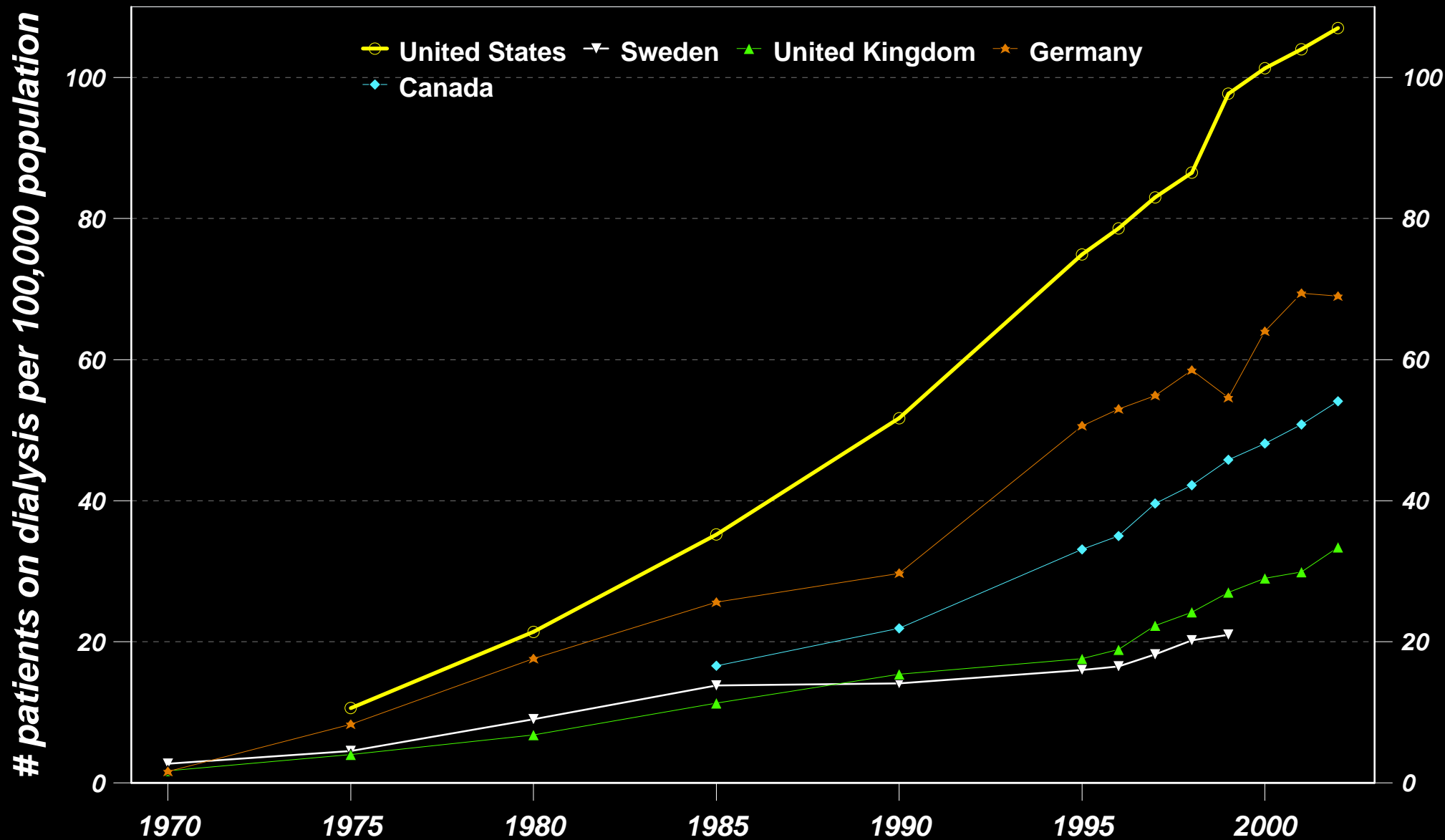
System performance, by nation



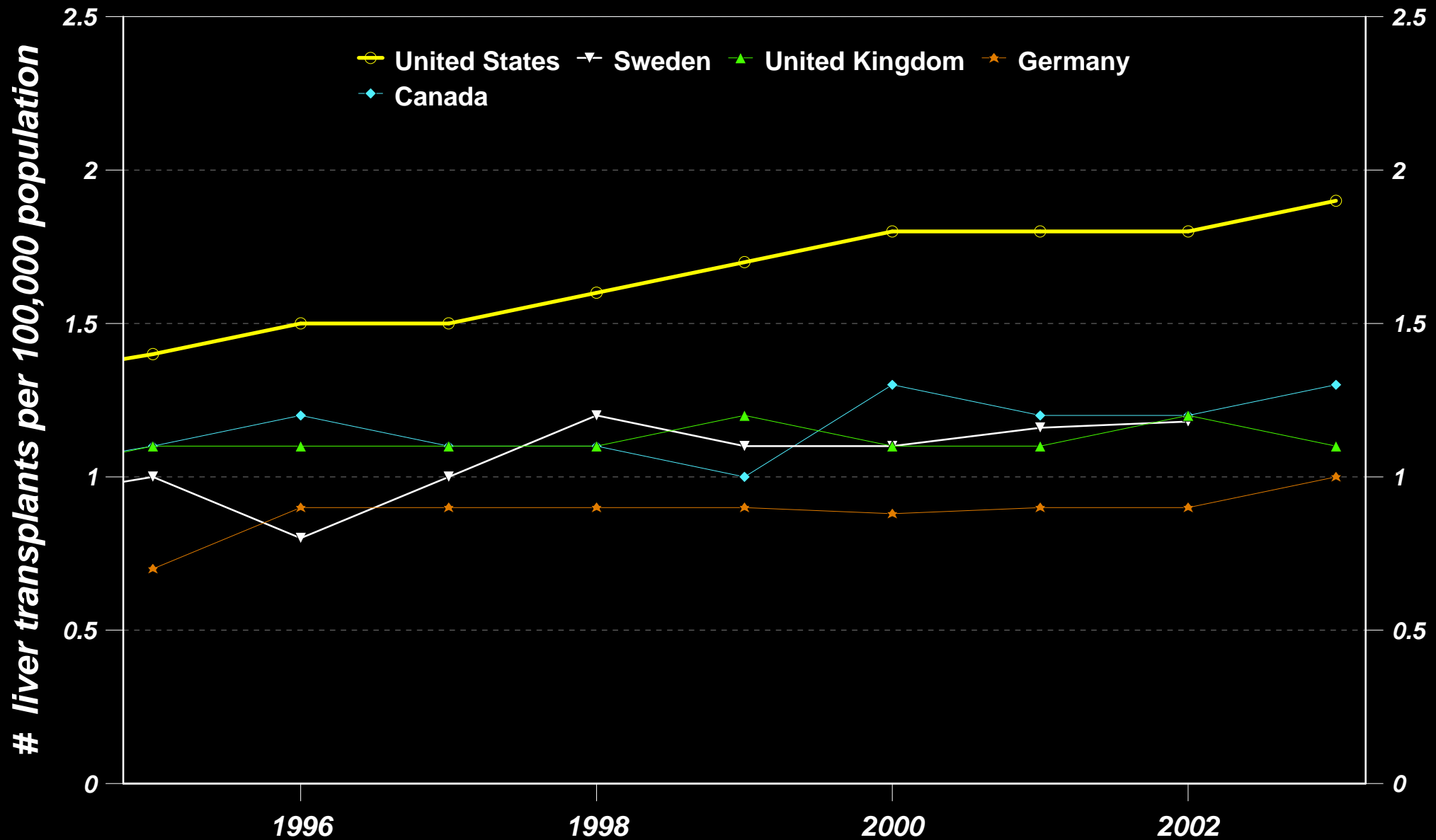
System performance, by nation



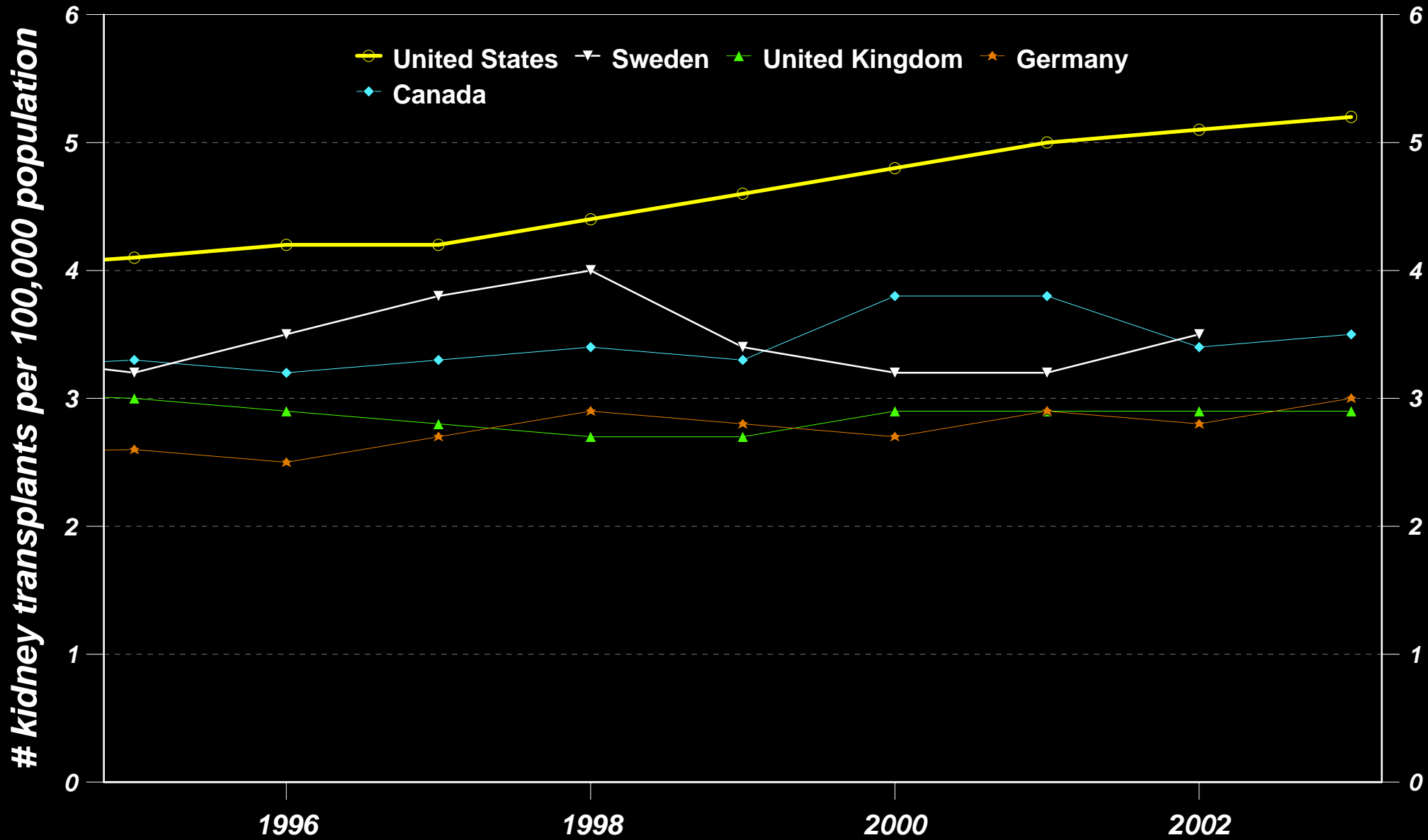
Renal dialysis per 100,000



Liver transplants per 100,000

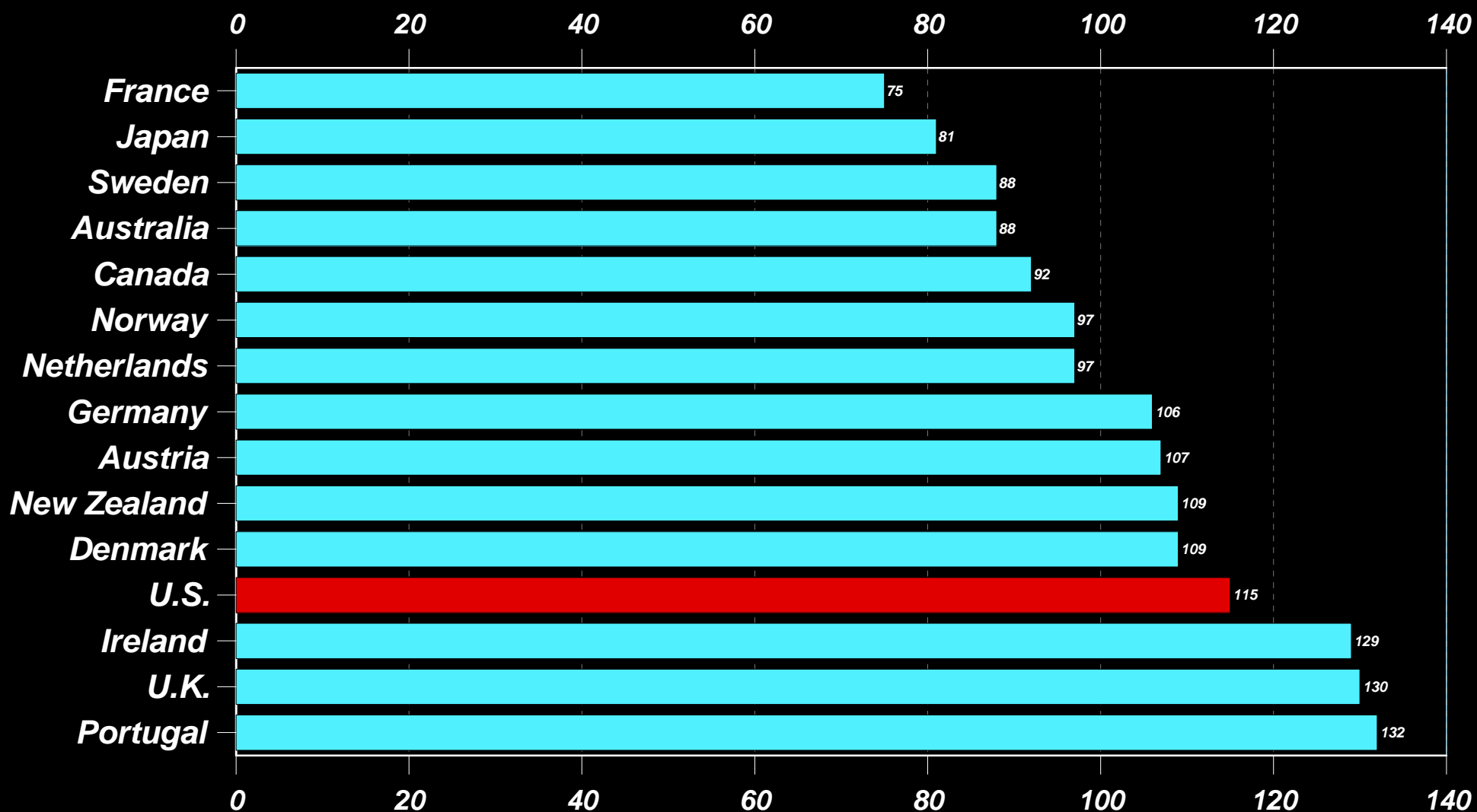


Kidney transplants per 100,000



Mortality amenable to health care

Deaths per 100,000 population



Source: World Health Organization, Nolte and McKee, Rutgers Center for State Health Policy Standardized for age (1998)
Utah from 2003, normalized for general US change from 1998

International health comparisons

- ◆ *On a macro basis, many countries out-perform the U.S.:*
This is primarily attributable to healthier behaviors, better public health, and a heavy emphasis on easily accessible primary care (easy access = "high touch" = better satisfaction; primary care is relatively cost effective)
- ◆ *the U.S. system performs significantly better for those with severe illness or injury. This is due to several factors:*
 - **Better access to technology**
 - **Less explicit and implicit rationing**
 - **Easy access to subspecialists** - *better / more extensive health professional training; very much less waiting in line for specialty care (queueing)*

Part 2

***Current care delivery
offers opportunities ...***

Care falls short of its theoretic potential

- 1. Well-documented, massive, variation in practices**
(beyond the level where it is even remotely possible that all patients are receiving good care)
- 2. High rates of inappropriate care**
- 3. Unacceptable rates of preventable care-associated patient injury and death**
- 4. A striking inability to "do what we know works"**
- 5. Huge amounts of waste and spiraling prices, that limit access** *(46.6 million uninsured Americans, and still climbing)*

50+% of all resource expenditures in hospitals is quality-associated waste:

- ◆ *recovering from preventable foul-ups*
- ◆ *building unusable products*
- ◆ *providing unnecessary treatments*
- ◆ *simple inefficiency*

U.S. fiscal exposures (Comptroller General David Walker)

<ul style="list-style-type: none"> • Explicit liabilities <ul style="list-style-type: none"> ◆ Publicly held debt (e.g., the national debt) ◆ Military & civilian pensions & retiree health ◆ Other 	\$ 4.3 3.1 <u>1.7</u>	\$ 9.1 trillion
<ul style="list-style-type: none"> • Commitments & contingencies (e.g., PBGC, undelivered orders) 		0.9
<ul style="list-style-type: none"> • Implicit exposures <ul style="list-style-type: none"> -Future Social Security benefits <ul style="list-style-type: none"> ◆ Obligations in excess of trust fund ◆ Debt held by the trust fund -Future Medicare Part A benefits <ul style="list-style-type: none"> ◆ Obligations in excess of trust fund ◆ Debt held by the trust fund -Medicare Part B benefits -Medicare Part D benefits 	4.0 <u>1.7</u> 8.6 <u>0.3</u>	5.7 8.8 12.4 8.7
<ul style="list-style-type: none"> • Total: 		\$45.6 trillion

Note: Estimates for Social Security and Medicare are the intermediate 75-year estimates of the Social Security and Medicare Trustees as of January 1, 2005. All other data are as of September 30, 2004. Totals may not add due to rounding.
 Source: 2004 Financial Report of the U.S. Government and 2005 Social Security and Medicare Trustees reports.

Another way to think about it

◆ <i>Debt held by the public</i>	\$4.3 trillion
◆ <i>Trust fund debt</i>	<u>3.1</u>
◆ <i>Gross debt</i> ¹	\$7.4 trillion

◆ *Gross debt per person:* about \$25,000

◆ *The \$46 trillion is fiscal exposures is:*

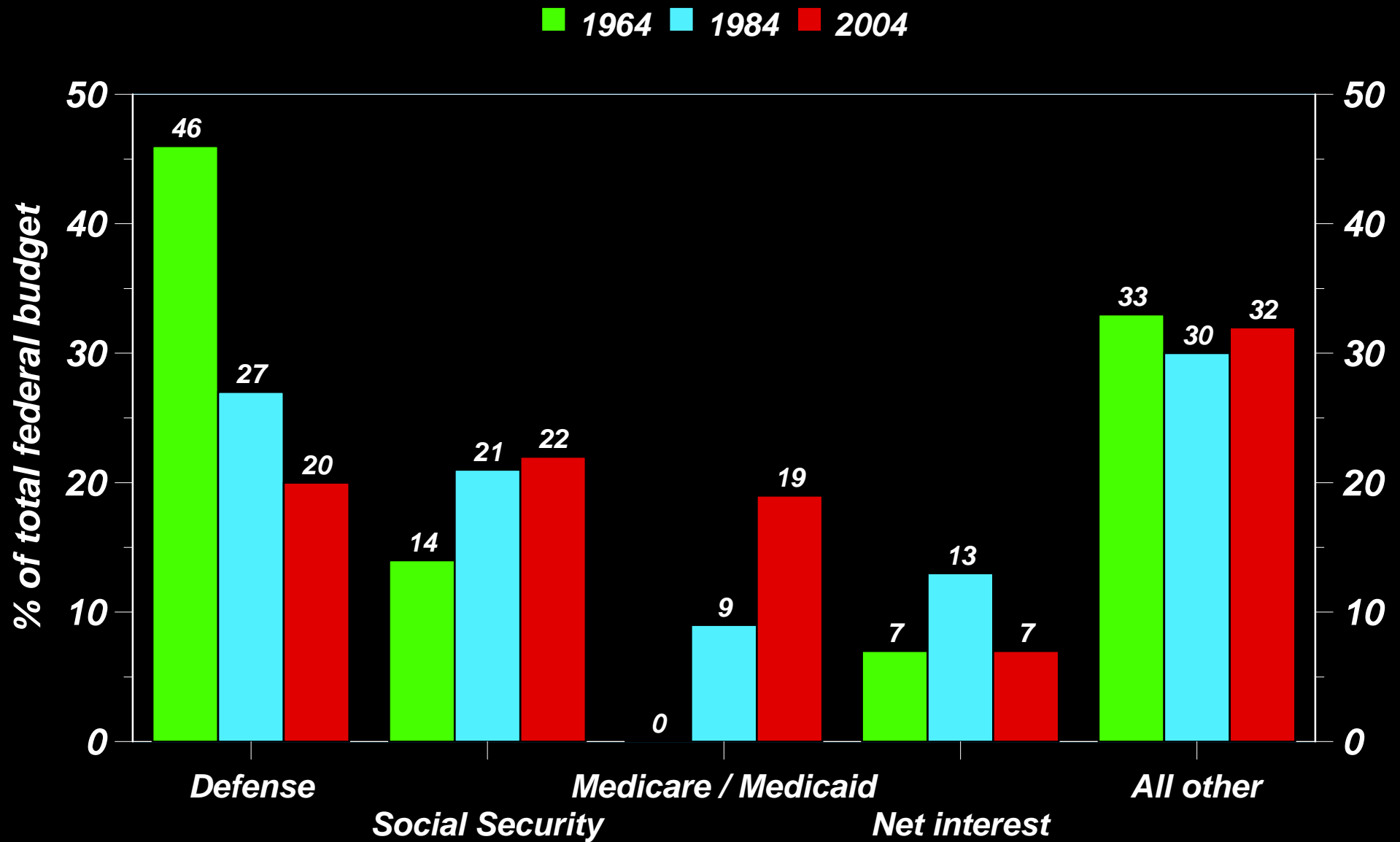
- a burden of more than **\$150,000 per person** or more than **\$370,000 per full-time worker**;
- nearly **19 times the current annual federal budget**, and **4 times the current annual Gross Domestic Product**;
- almost **equal to the** (estimated) **\$48.5 trillion total net worth**, including home equity, **of all U.S. citizens.**

¹ Includes all debt held by government accounts.

Funding federal health care

- 1. Massively raise taxes** (*mandatory health insurance; increased Medicare copays and deductibles; fees on pharma, device makers, care providers, insurers, etc., passed along to patients*)
- 2. Decrease benefits** (*e.g., means test Medicare; tighten coverage criteria for specific interventions*)
- 3. Shift money from other areas in the federal budget**
- 4. Shift responsibility to States** (*bait and switch through block grants*)
- 5. Decrease payments to care providers**

Composition of federal spending



Source: Office of Management and Budget

Looming financial crisis

- ◆ ***Unsupportable increases in federal spending***
- ◆ ***Employers exiting health insurance***
(and transferring cost increases to employees)
- ◆ ***Increasing numbers of under- and uninsured***
- ◆ ***Medical tourism*** *(off-shore treatment)*

Dartmouth CECS group (Jack Wennberg, Elliott Fisher, et al.)

Specialty: **measuring practice variation**

Observation: *~30% of all health expenditures happen in the terminal episode of life*

Question 1: **Is there variation in end-of-life spending?**

(Studies directly adjust for age, gender, ethnicity, burden of comorbid illness)

Answer 1: **~5X variation** - \$12,000 (Intermountain) to \$58,000 (UCLA)

Question 2: **Is end-of-life spending variation associated with spending levels before the terminal episode?**

Answer 2: **Yes** - *>90% correlation 2 years prior, 5 years prior*

Question 3: **Is end-of-life spending associated with quality of care?**

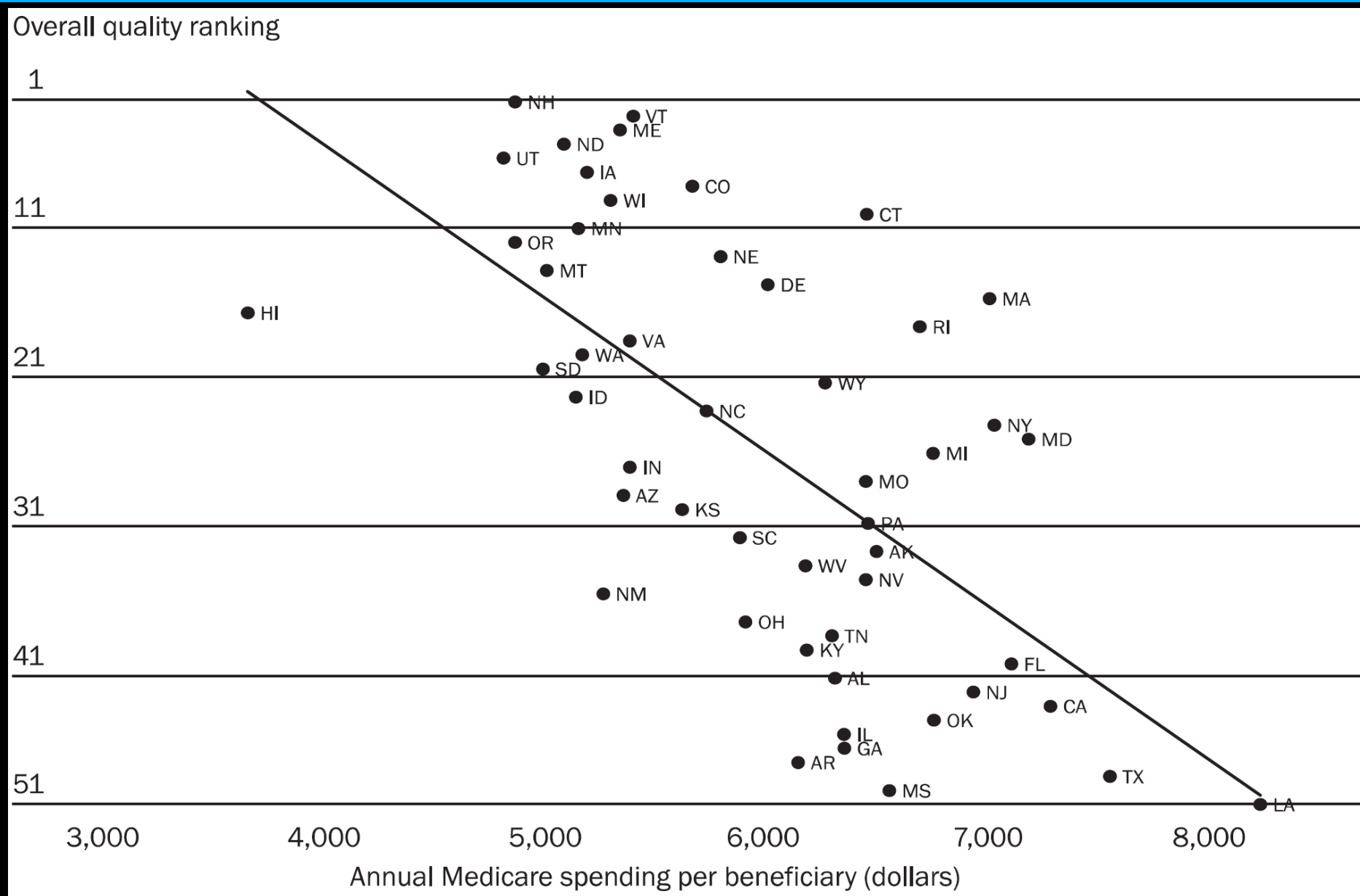
(2 major studies - 1st examined mortality rates, 2nd looked at blended CMS quality measures)

Answer 3: **Yes** *(consistent, strong, results from both studies)*

Unfortunately, the relationship is negative:

More spending = lower quality of care *(by either measure)*

Medicare cost versus quality



Baicker, K and Chandra, A. Medicare spending, the physician workforce, beneficiaries' quality of care. *Health Affairs Web Exclusive* 7 April 2004; W4-184-97.

Part 3

We know why ...

Why? The collision of 2 forces:

(1) **Continued reliance on the "craft of medicine"**
(clinicians as stand-alone experts)

runs up against

(2) **Clinical uncertainty**

in the context of

(3) **Payment that encourages utilization**

The craft of medicine *(each physician an expert)*

An individual physician

- ♦ ***placing her patient's health care needs before any other end or goal,***
- ♦ ***drawing on extensive clinical knowledge gained through formal education and experience***

Can craft

- ♦ ***a unique diagnostic and treatment regimen customized for that particular patient.***

Medicine's promise:

This approach will produce the best result possible for each patient.

Clinical uncertainty *(a hundred years of science)*

- 1. Lack of valid clinical knowledge regarding best treatment** *(poor evidence)*
- 2. Exponentially increasing new medical knowledge** *(doubling time has decreased to ~8 years; at current rates, a clinician will need to learn, unlearn, then relearn half of their medical knowledge base 5 times during a typical career)*
- 3. Continued reliance on subjective judgment** *(subjective recall is dominated by anecdotes, and notoriously poor when estimating results across groups or over time)*
- 4. Limitations of the expert mind when making complex decisions**
Miller, 1956: The magic number 7, plus or minus 2: some limits on our capacity for processing information
Eddy: "The complexity of modern medicine exceeds the capacity of the unaided human mind"

Which, combined with the craft of medicine, leads to:

- ◆ **Enthusiasm for unproven methods** ... *Mark Chassin, MD*
- ◆ **The maxim, "If it might work, try it"** ... *David Eddy, MD, PhD*
- ◆ **Quality means "spare no expense"** ... *Brent James, MD, MStat*

Part 4

We have found proven solutions ...

We have found proven solutions

Shared baselines *(a form of Lean Production) -*

A multidisciplinary team of health professionals:

- 1. Select a high priority care process**
- 2. Generate an evidence-based "best practice" guideline**
- 3. Blend the guideline into the flow of clinical work**
 - ◆ *staffing*
 - ◆ *training*
 - ◆ *supplies*
 - ◆ *physical layout*
 - ◆ *educational materials*
 - ◆ *measurement / information flow*
- 4. Use the guideline as a shared baseline, with clinicians free to vary based on individual patient needs**
- 5. Measure, learn from, and (over time) eliminate variation arising from professionals; retain variation arising from patients** *("mass customization")*

Practical limitations on protocol use

When abstract guidelines hit real patient care, experience clearly shows that (with very rare exceptions)

No protocol fits every patient;

more important,

No protocol (perfectly) fits any patient.

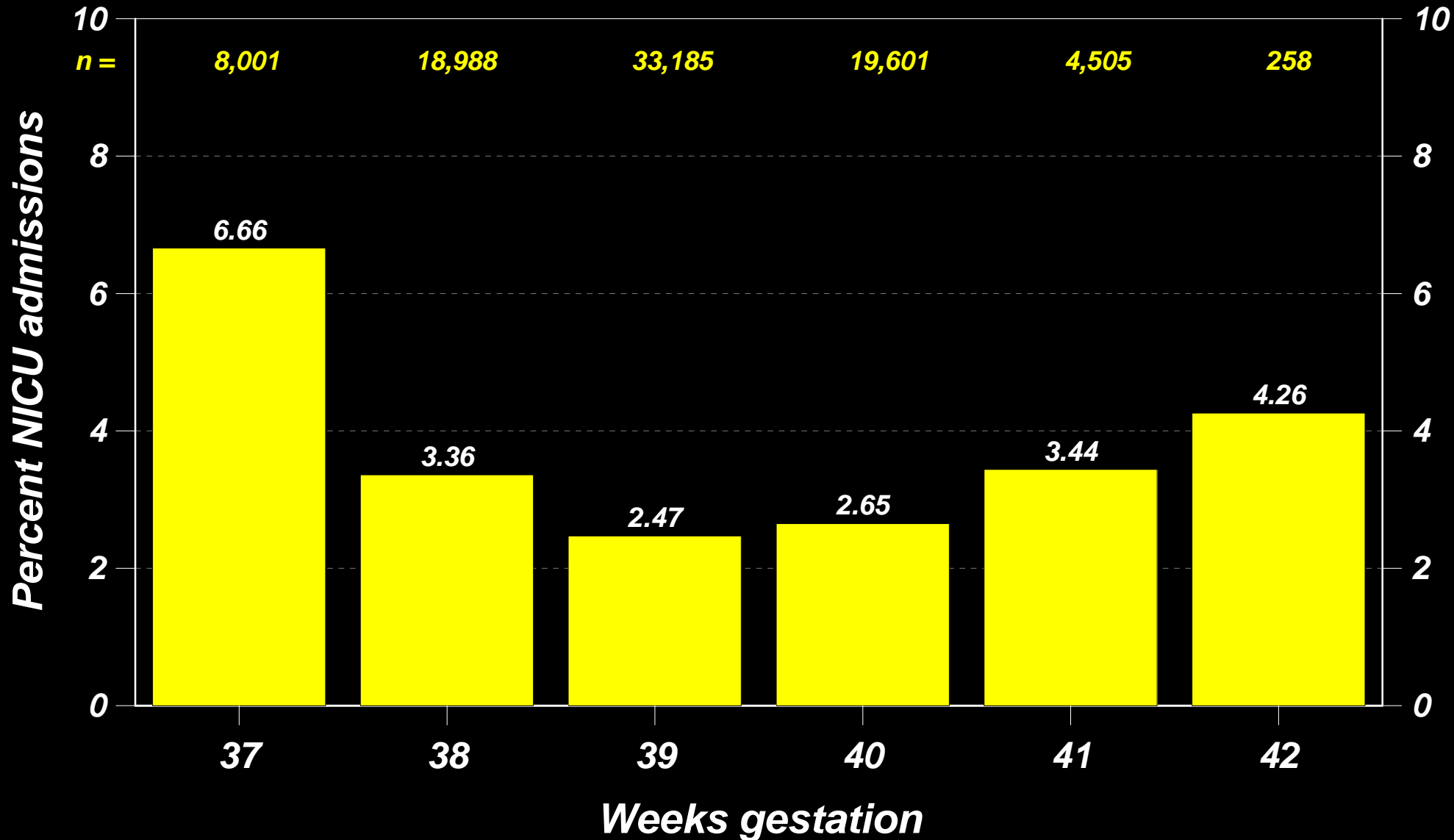
Methods to manage complexity

Subspecialize (*analytic method; reductionism; 'divide and conquer'*)
(old joke: **Know more and more about less and less until you know everything about nothing**)

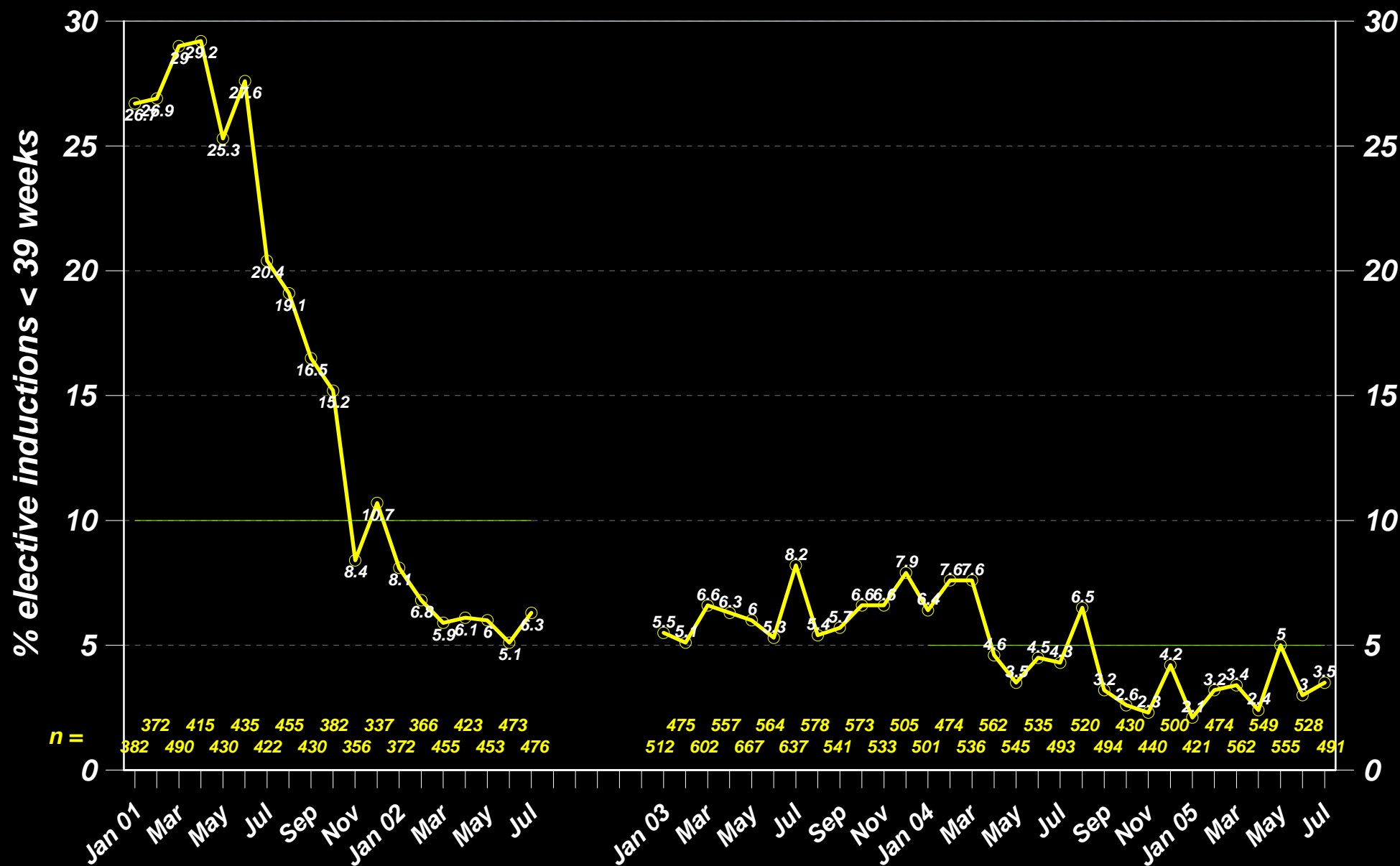
Mass customize (*a shared baseline: focus on that relatively small subset of factors that are unique by and for each individual patient [typically 5-15%], concentrating your most important resource -- the trained human mind -- where it can have the greatest impact*)

NICU admits by weeks gestation

Deliveries w/o Complications, 2002 - 2003

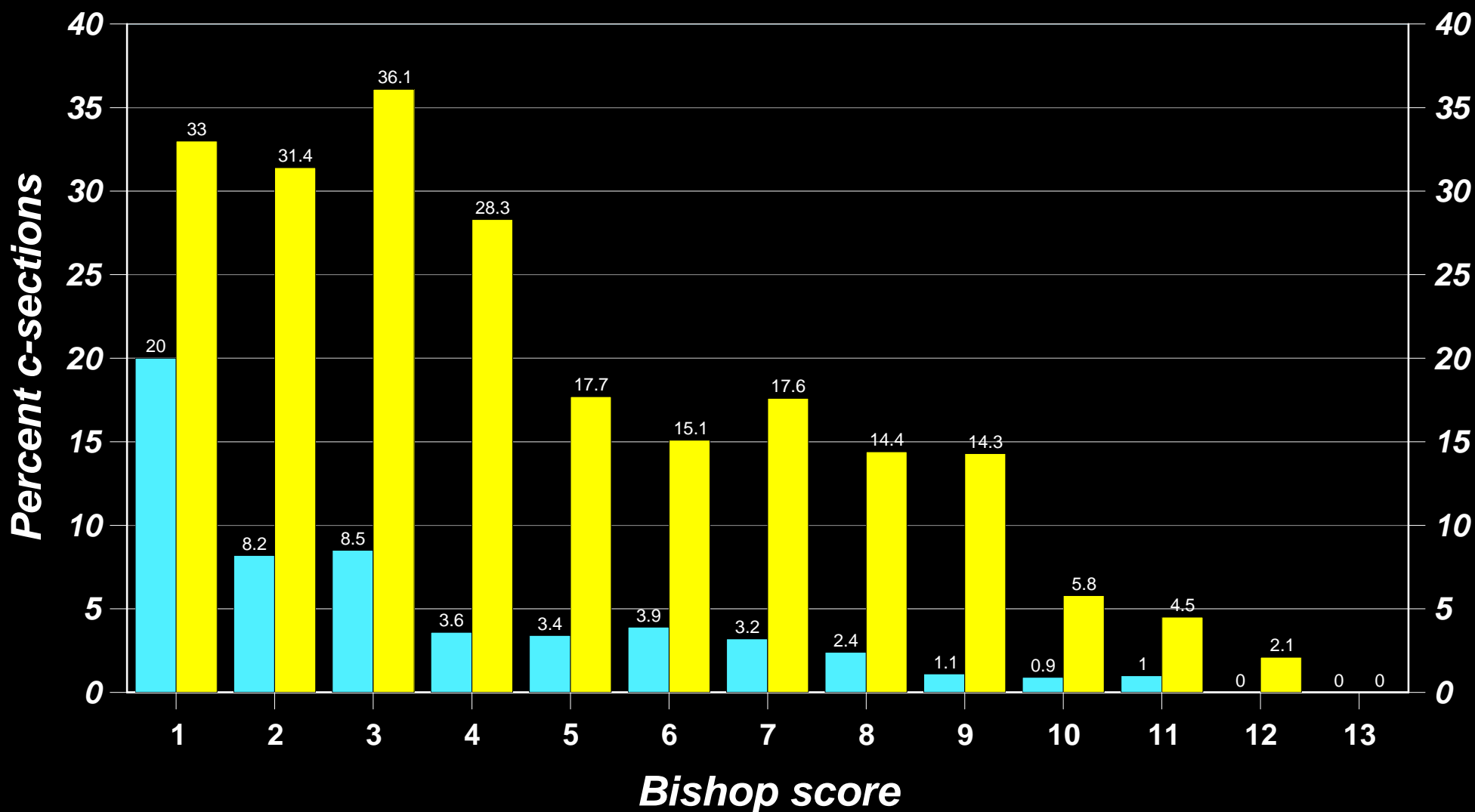


Elective inductions < 39 weeks



Unplanned c-section rates

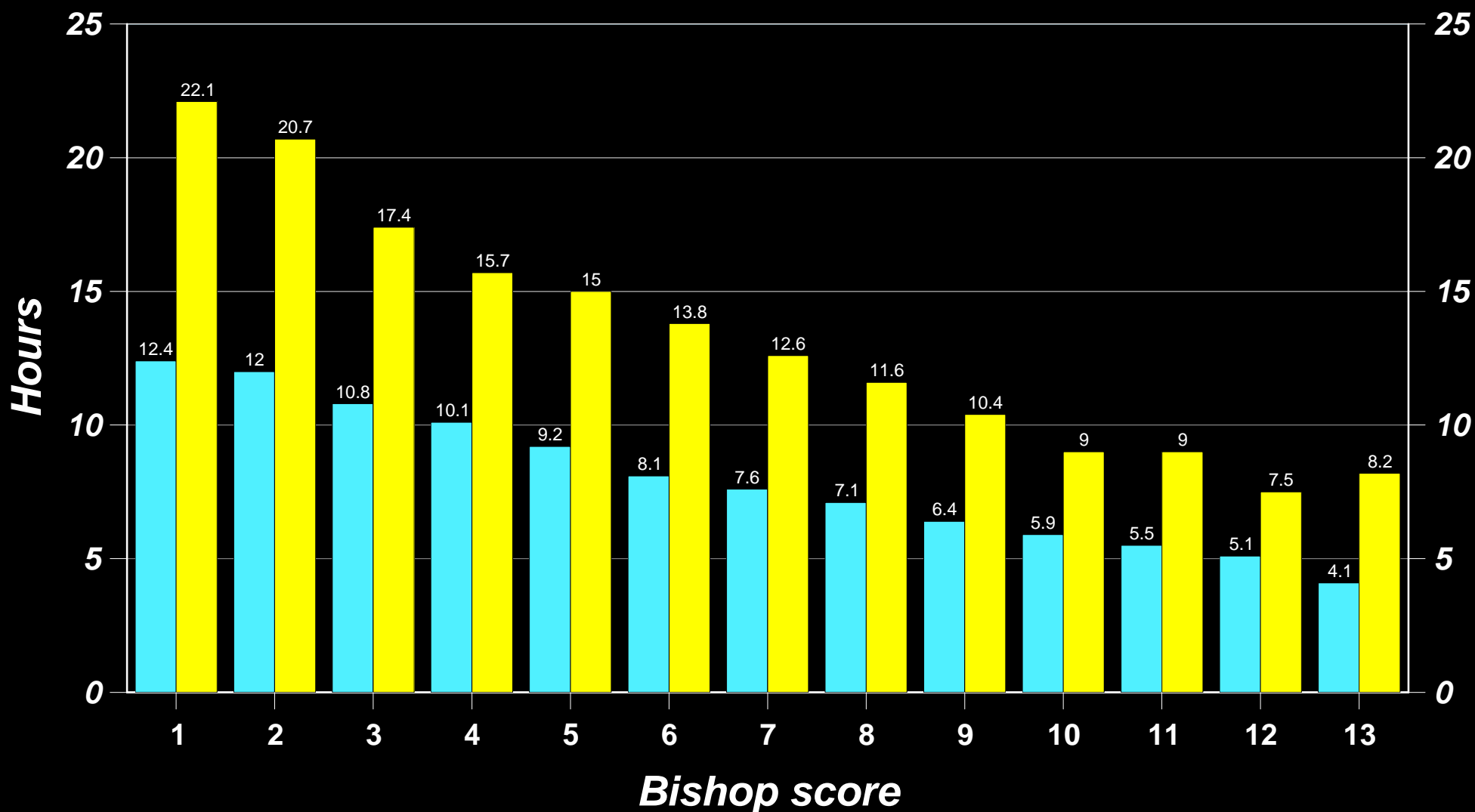
Electively induced patients by Bishop score, Jan 2002 - Aug 2003



<u>n</u>													
<i>Multips</i>	10	49	130	274	567	856	1114	1266	1062	737	415	86	19
<i>Primips</i>	18	35	61	99	164	278	375	487	453	346	179	47	7

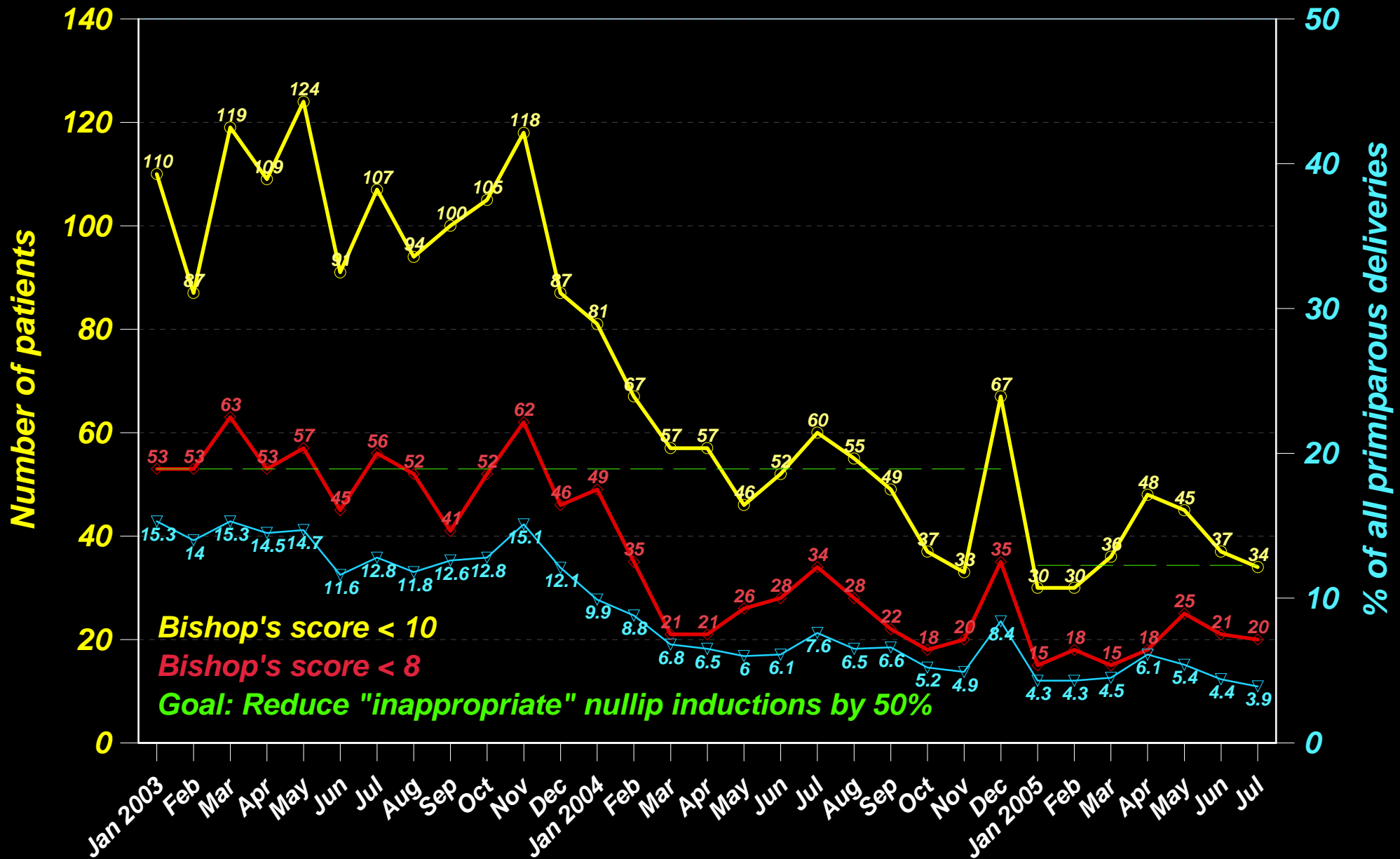
Average hours in labor & delivery

Electively induced patients by Bishop score, Jan 2002 - Aug 2003

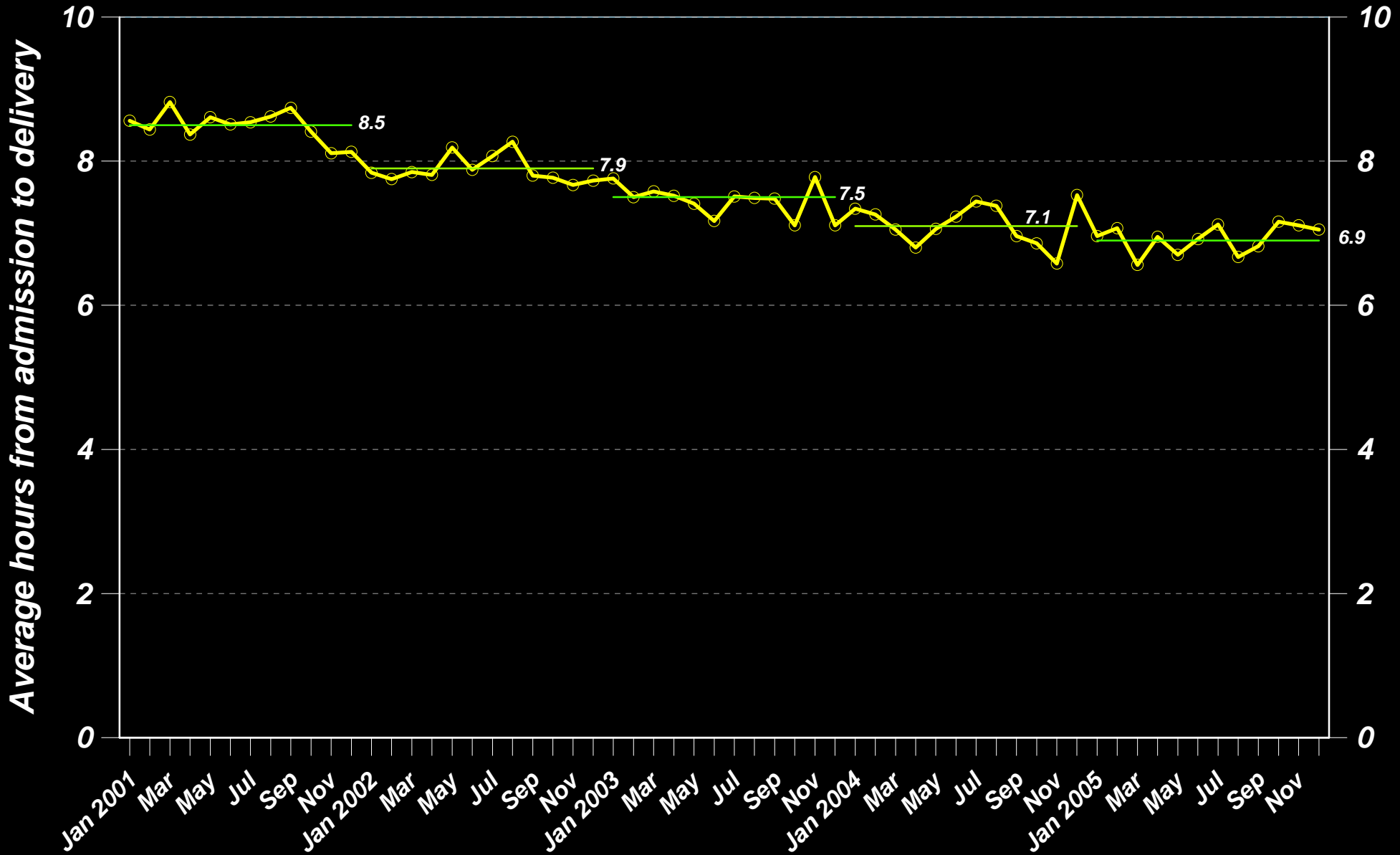


<u>n</u>	1	2	3	4	5	6	7	8	9	10	11	12	13
<i>Multips</i>	10	49	130	274	567	856	1114	1266	1062	737	415	86	19
<i>Primips</i>	18	35	61	99	164	278	375	487	453	346	179	47	7

Primiparous elective inductions

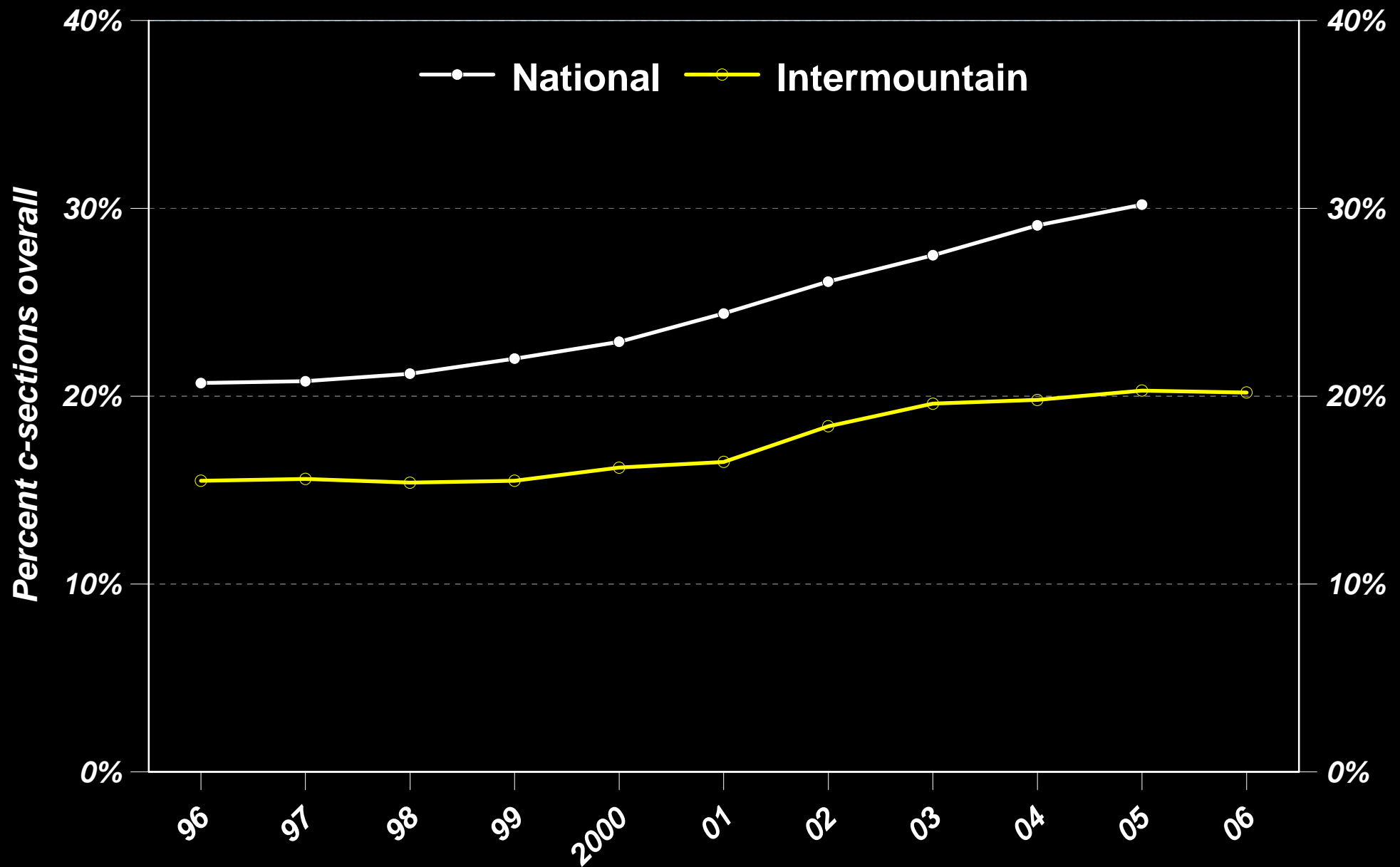


Elective induction: length of labor



(note: includes all elective inductions)

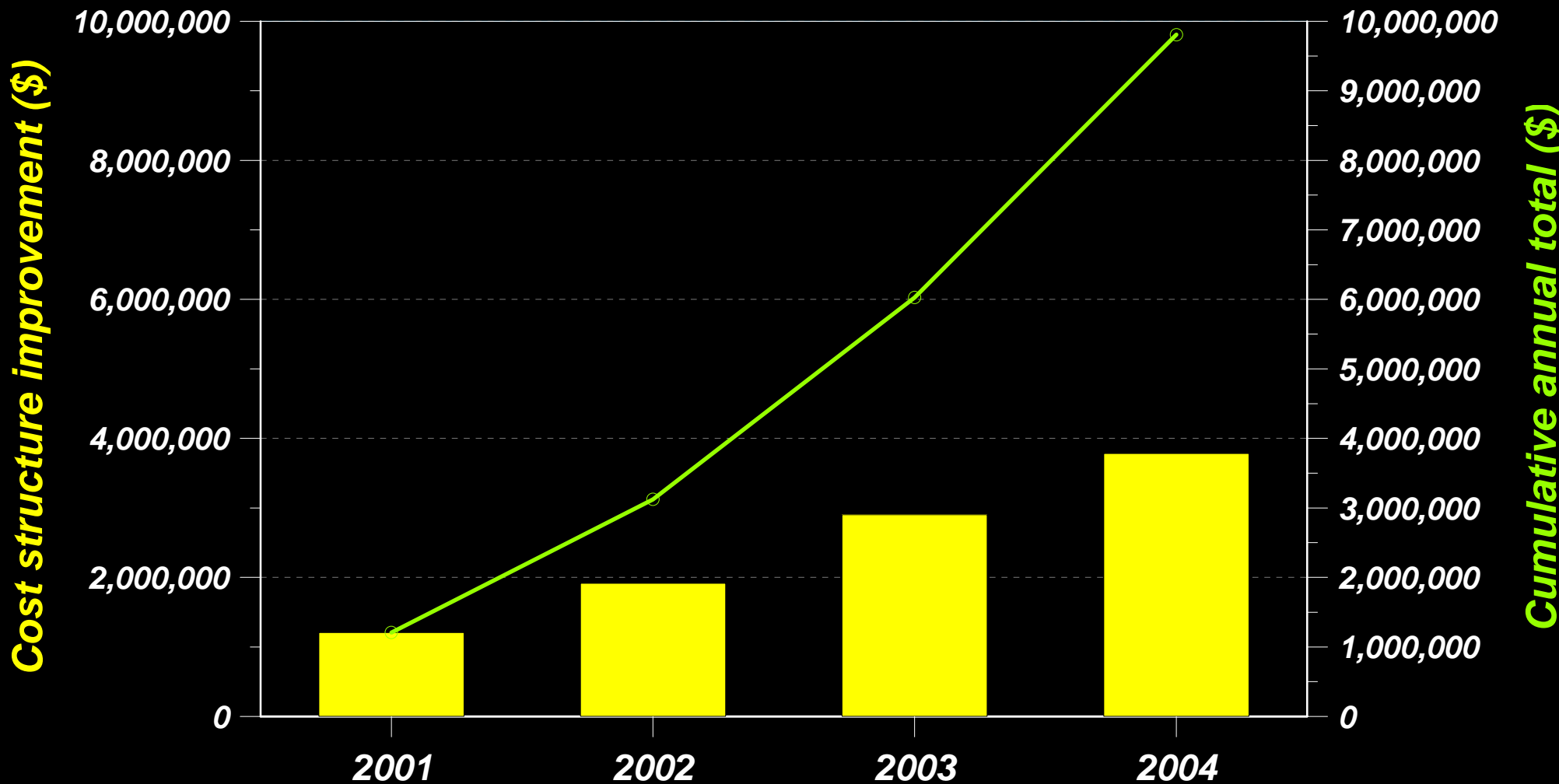
Overall c-section rate



Quality-based cost improvement

Combined maternal and neonatal variable cost

Deliveries without complications resulting in normal newborns
Actual - expected cost, based on year-end 2000 with PPI inflation



The healing professions are changing

From **craft-based practice**

- ◆ **individual physicians, working alone** (housestaff ::= apprentices)
- ◆ **handcraft a customized solution for each patient**
- ◆ **based on a core ethical commitment to the patient and**
- ◆ **vast personal knowledge gained from training and experience**

To **profession-based practice**

- ◆ **groups of peers, treating similar patients in a shared setting**
- ◆ **plan coordinated care delivery processes** (e.g., standing order sets)
- ◆ **which individual clinicians adapt to specific patient needs**
- ◆ **early experience shows**
 - ▶ **less expensive** (facility can staff, train, supply and organize to a single core process)
 - ▶ **less complex** (which means fewer mistakes and dropped handoffs, less conflict)
 - ▶ **better patient outcomes**

Why "profession-based" practice?

- 1. It produces better outcomes for our patients***
- 2. It eliminates waste, reduces costs, and increases available resources for patient care***
- 3. It puts the caring professions back in control of care delivery***
- 4. It is the foundation for useful shared electronic data -- an important next step in care delivery improvement***

Part 5

What does it take

*to survive -- and perhaps even thrive --
in this emerging new world?*

Care management at the bedside

Core infrastructure:

- 1. Tools to change culture** *(clinical and administrative)*
- 2. Tools for quality control** *(a.k.a. quality management)*
- 3. Knowledge management** *(the key organizational advantage)*
- 4. Administrative follow-through on clinical savings**

Culture change that pays its way

Formal QI training programs:

Facilitator Workshop Series (FWS) - 8 days in 4 sessions

Advanced Training Program (ATP) - 20 days in 4 sessions

miniATP - 9 days in 4 sessions

others (MD intro course, lab series, etc.)

that

teach methods (key: hands-on projects - creates quality zealots)

change culture (key: early adopters)

improve front-line work (key: organizational learning that rolls ahead;
concrete examples where others can "see the wheels turning")

pays its own way (savings from projects provide a net ROI)

Health care as a system of production

Design

- ◆ Lean design
- ◆ TPS: Value stream analysis
- ◆ 6 Σ : Define, measure, analyze, design, verify (DMADV)

Improve

- ◆ 100% participation vs. breakthrough models
- ◆ Identify/prioritize opportunities:
 - voice of the customer,
 - voice of the process
- ◆ Rapid Cycle Improvement
- ◆ TPS: A3 analysis, w/ coaching
- ◆ 6 Σ : Define, measure, analyze, improve, control (DMAIC)

Manage

- ◆ Technically, Quality Control (Juran)
- ◆ Build essential infrastructure
 - key process identification
 - performance tracking (outcomes)
 - organizational structure
- ◆ Accountability - e.g., monthly review

Building infrastructure

To make it easy to do it right ...

(Education programs: A learning organization)

(A shared vision for a future state)

1996: *(strategic) Key process analysis*

1997: *Integrated management information systems*
(an outcomes tracking system)

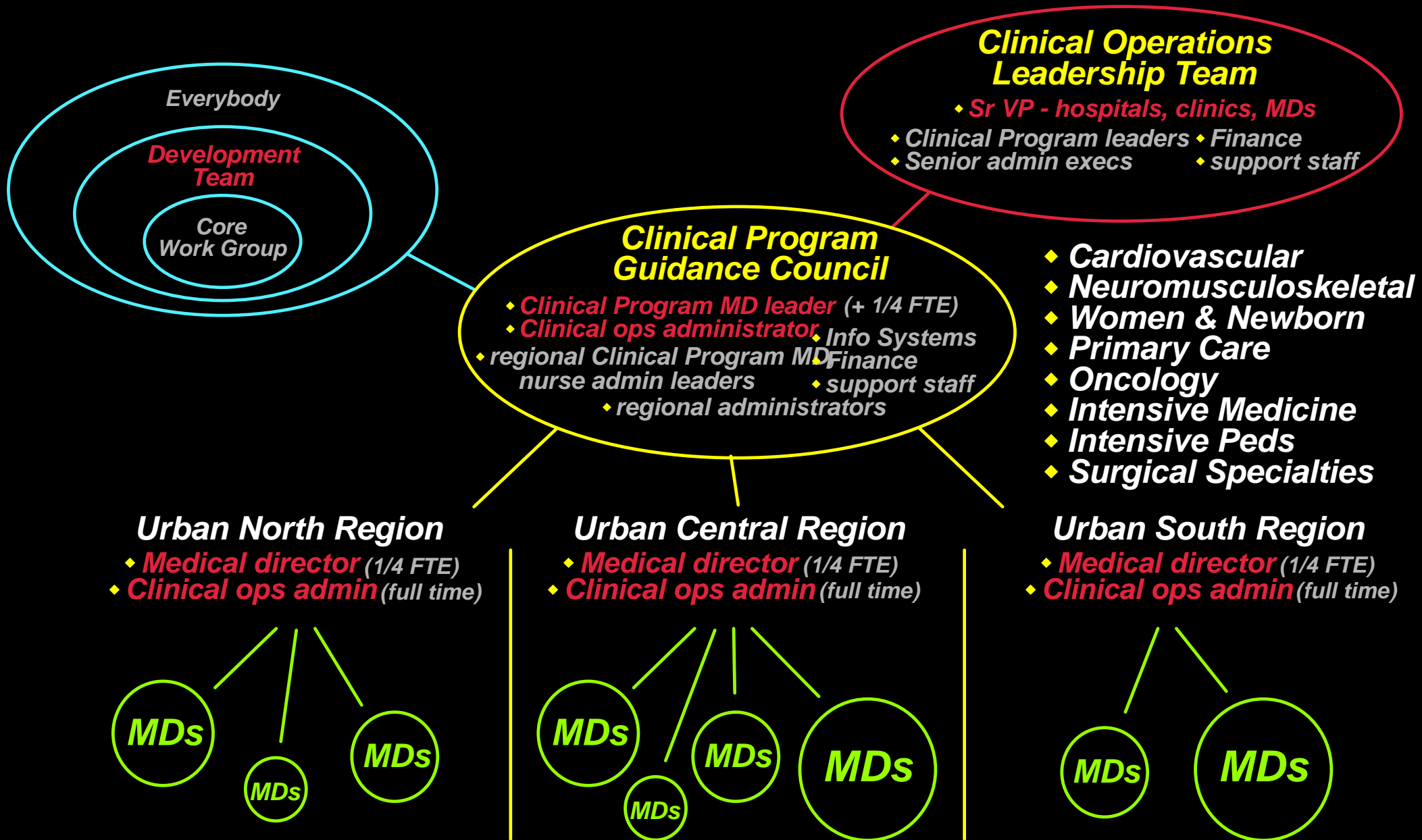
1998: *Integrated clinical / operations
management structure*

1999: *Integrated (aligned) incentives*

- ◆ *cost structure vs. net income (mediated by payment mechanisms)*
- ◆ *integrated facility / medical expense budgets*

2000: *Full roll-out and administrative integration*

Deploying EBM



Development Team structure

◆ **Team leader**

- *respected physician leader, in active practice*
- *functionally a knowledge expert*

◆ **Core work group**

- *knowledge experts*
- *build initial Care Process Model*
- *provide academic detailing, run referral clinic*
- *geographically base*

◆ **Front line clinicians**

- *physicians, nurses, clerks, techs, etc.*
- *first level review; keep knowledge experts grounded*
- *2-way street: fundamental knowledge up, ownership down*
- *geographic representation*

◆ **Staff support** - *flow charter, statistician, data manager, clinical ops administrator*

Managing clinical knowledge

Core work group (*knowledge expert*) **responsibility** -
build and maintain the Care Process Model:

Initial development phase

- 1. Generate initial evidence-based best practice guideline** (*flowchart*)
- 2. Blend the guideline into clinical workflow**
(*clinical flow sheets, standing order sets, etc.*)
- 3. Design outcomes tracking reports** (*using electronic data warehouse*)
- 4. Design and coordinate decision support** (*electronic medical record*)
- 5. Design patient and professional education materials**

Maintenance phase

- 6. Keep the Care Process Model current** (*research pipeline; protocol variations; outcomes; improvement suggestions*)
- 7. Academic detail front-line teams** (*Clinical Learning Days*)
- 8. Run the referral clinic** (*last step in treatment cascade*)
- 9. Manage specialist care managers**

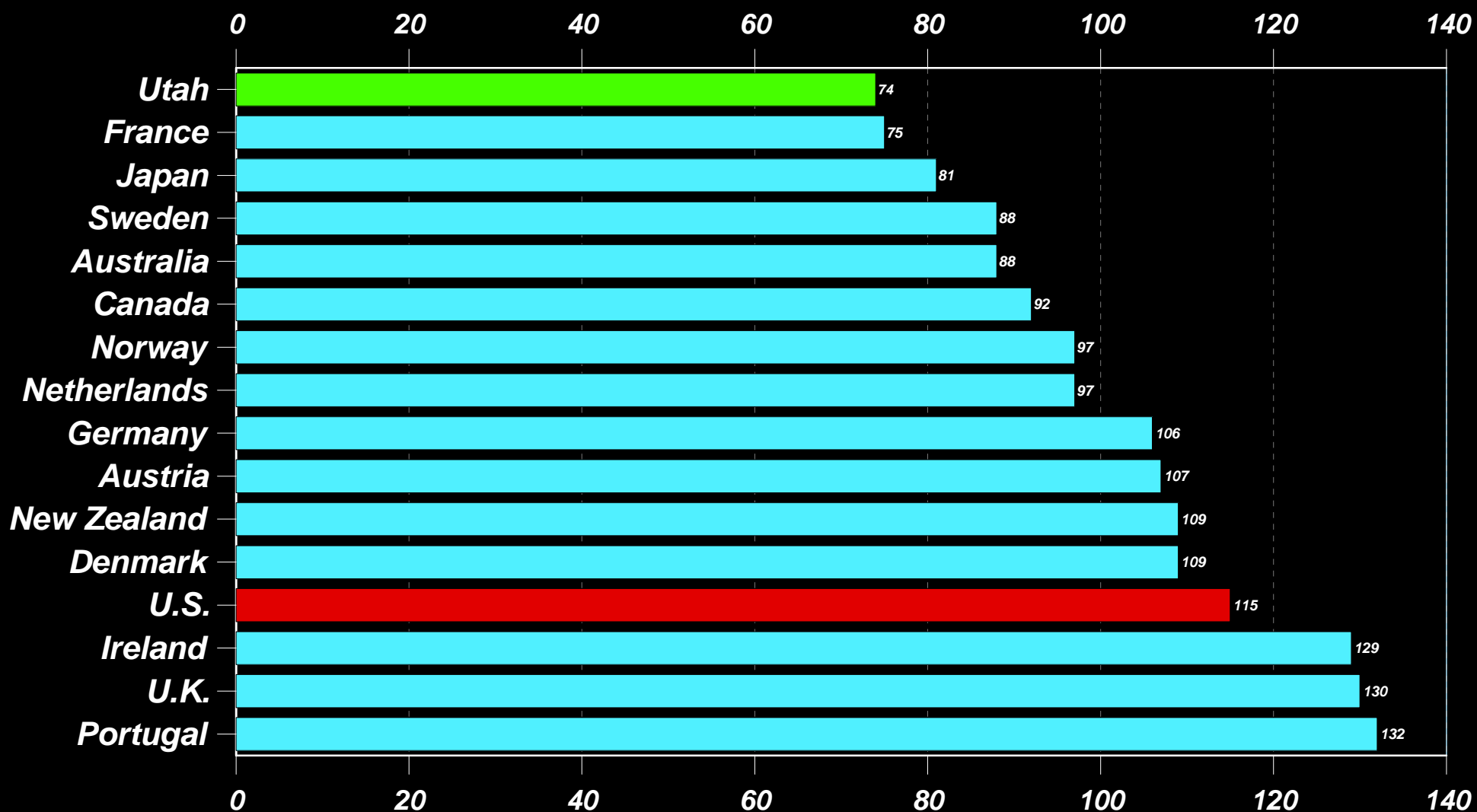
No good deed goes unpunished

- ◆ **Neonates > 33 weeks gestational age who develop respiratory distress syndrome**
- ◆ **Treat at birth hospital with nasal CPAP** (prevents alveolar collapse), **oxygen, +/- surfactant**
- ◆ **Transport to NICU declines from 78% to 18%.**
- ◆ **Financial impact** (NOI; ~110 patients per year; raw \$):

	<u>Before</u>	<u>After</u>	<u>Net</u>
Birth hospital	84,244	553,479	469,235
Transport (staff only)	22,199	- 27,222	- 49,421
Tertiary (NICU) hospital	<u>958,467</u>	<u>209,829</u>	<u>-748,638</u>
Delivery system total	1,064,910	736,086	-328,824
Integrated health plan	900,599	512,120	388,479
Medicaid	652,103	373,735	278,368
Other commercial payers	<u>429,101</u>	<u>223,215</u>	<u>205,886</u>
Payer total	1,981,803	1,109,070	872,733

Mortality amenable to health care

Deaths per 100,000 population



Source: World Health Organization, Nolte and McKee, Rutgers Center for State Health Policy Standardized for age (1998)
Utah from 2003, normalized for general US change from 1998

Wells Fargo inflation summary, 1988-2006

December 2006

**WELLS
FARGO**

COST OF LIVING INDEX

	Wasatch Front			National			
	Index Mar. 1988=100	% Change 6 Mos.*	(Non-Seas. Adj.) 1 Mo. Prior	Index Mar. 1988=100	% Change 6 Mos.*	(Non-Seas. Adj.) 1 Mo. Prior	(Seas. Adj.) 1 Mo. Prior
All Categories	154.6	-0.1%	0.2%	173.4	2.7%	0.1%	0.5%
Housing	182.8	2.7	0.1	175.6	3.8	0.1	0.4
Transportation	120.2	-11.4	-1.4	163.9	0.8	0.9	1.8
Health Care	157.4	0.1	-0.1	249.5	3.9	0.0	0.1
Food at Home	201.2	3.3	3.1	170.6	1.8	0.0	-0.3
Clothing	113.2	-1.6	0.6	102.9	0.2	-2.5	0.6
Food Away	162.2	0.0	0.0	168.7	3.2	0.3	0.3
Utilities	128.7	-1.0	0.0	175.4	3.1	1.1	1.2
Recreation	139.1**	5.8	0.0	109.8 [†]	1.3	-0.4	-0.3
Education & Comm.	124.6**	5.6	0.0	116.2 [†]	2.5	-0.1	0.2
Other Goods & Svcs.	104.3**	0.0	0.0	243.3	2.6	0.7	0.8

*Last six-month percentage change compared with same period one year ago.
 ***(Feb. 1998=100 base)

National Data Source: U.S. Bureau of Labor Statistics
 †(Dec. 1997=100 base)

The Wall Street Journal

Perverse Incentives in Health Care

April 5, 2007

John C. Goodman, President, National Center for Policy Analysis

Research at Dartmouth Medical School suggests that if everyone in America went to the Mayo Clinic, our annual health-care bill would be 25% lower (more than \$500 billion!), and the average quality of care would improve. If everyone got care at Intermountain Healthcare in Salt Lake City, our healthcare costs would be lowered by one-third.

Of course, not everyone can get treatment at Mayo or Intermountain. But why are these examples of efficient, high-quality care not being replicated all across the country? The answer is that high-quality, low-cost care is not financially rewarding. Indeed, the opposite is true. Hospitals and doctors can make more money providing inefficient, mediocre care.

"I am sorry for you, young men (and women) of this generation. You will do great things. You will have great victories, and standing on our shoulders, you will see far, but you can never have our sensations. To have lived through a revolution, to have seen a new birth of science, a new dispensation of health, reorganized medical schools, remodeled hospitals, a new outlook for humanity, is not given to every generation."

-- Sir William Osler

At the opening of the Phipps Clinic in England, near the end of his career. Cited in

Reid, Edith Gittings. The Great Physician: A Life of Sir William Osler. New York, NY: Oxford University Press, 1931 (p. 241).