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Building Quality Care: A New Outlook for Humanity

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Disclosures

The content of this presentation does not relate to any product of a commercial entity; therefore, I have no ethical conflicts or relationships to report. I have no financial relationships beyond my employment at Intermountain Healthcare.

The roots of reform ...

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

1. The opportunity *(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** *(2 - 32% of all care delivered, depending on specific condition examined)*
- 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** *(>50%, by best recent measures), spiraling prices, and limited access* *(46.6 million uninsured Americans, increasing rates of under-insured, employers exiting the insurance market, medical tourism)*

2. The cause *(we know why)*

- (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 independent expert

- ♦ *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*

3. 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

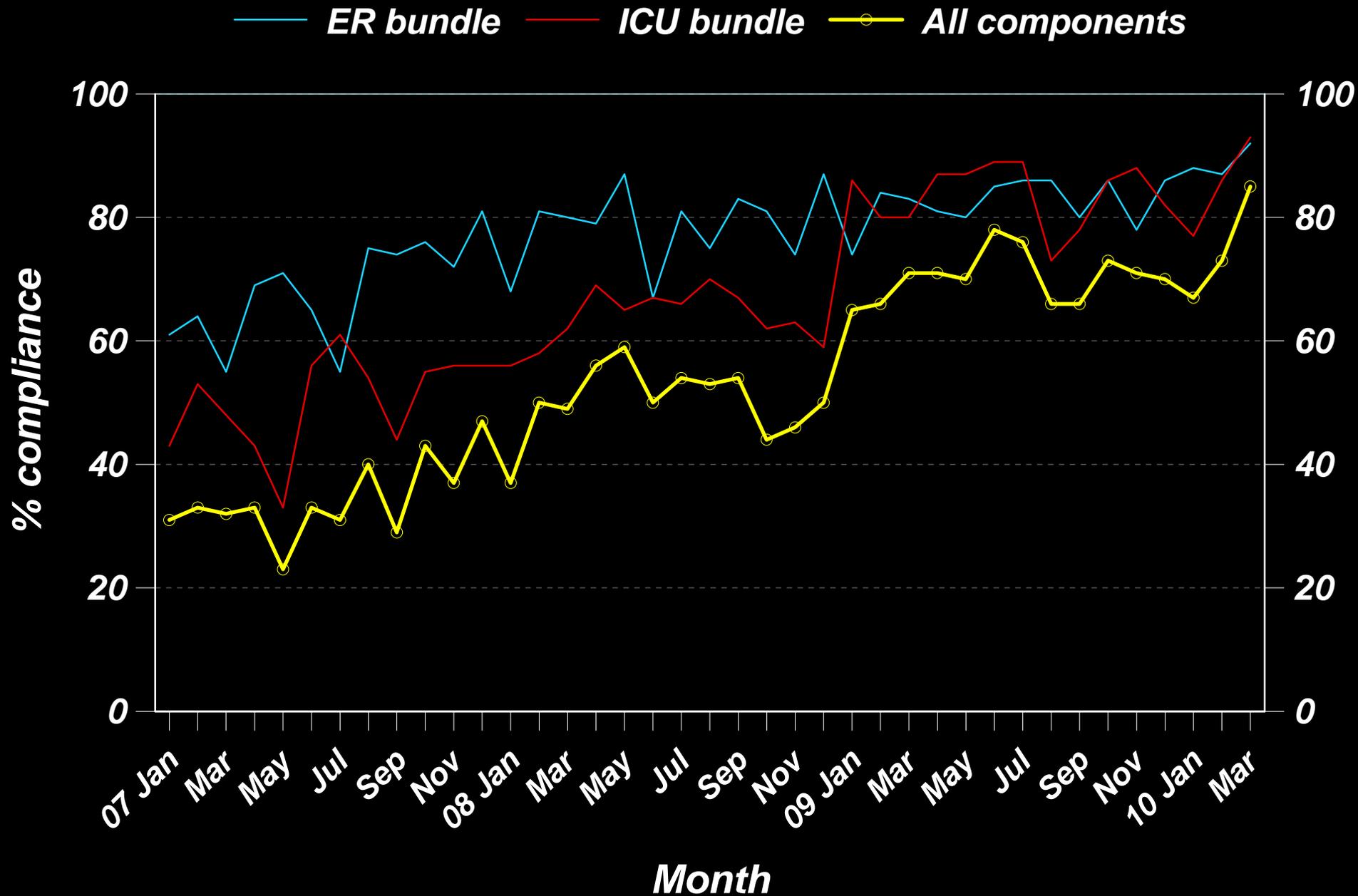
*When abstract guidelines hit real patient care,
experience clearly shows that (with very rare exceptions)*

No protocol fits every patient;

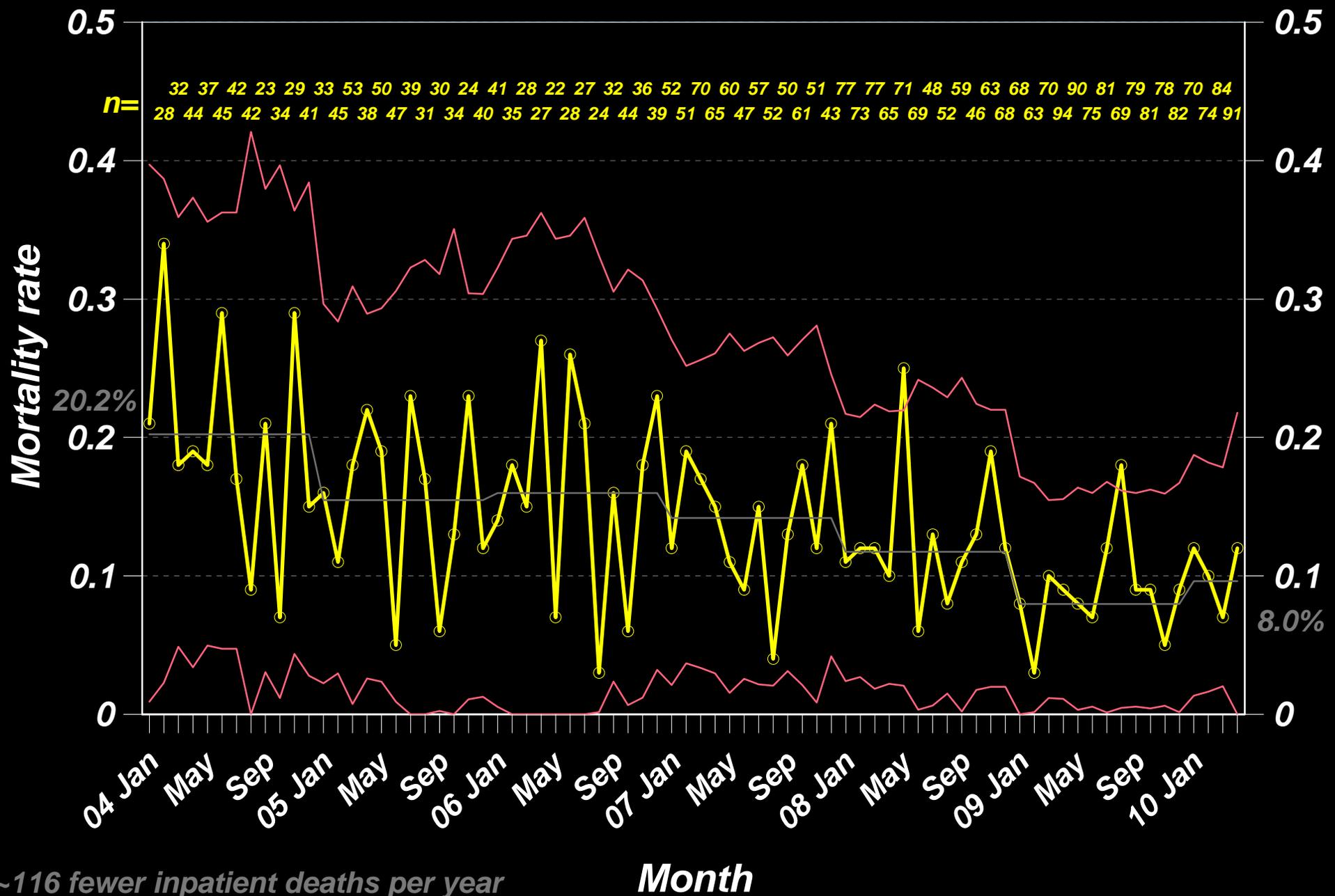
more important,

No protocol (perfectly) fits any patient.

Sepsis bundle compliance



Sepsis mortality - ER-ICU transfers



IHC Primary Care Clinical Programs: Adult Diabetes Patients in your Practice



Reporting Period: 01-Jan-04 To 31-Dec-04

Steven Towner (168) -- Internal Medicine

Salt Lake Clinic, Main

205 Total Patient(s)

Medical Director: Towner

IHC Health Plans -- Higher Risk

9 Patient(s)

Lab Summary:

**** NA-Result Not Available**

Patient ID	Patient Name	IDX MRN	Telephone	DOB	Last PCP Visit	Endocrinologist	Last LDL: (24 mths)		Last A1c:		Microalbumuria:		Eye Exam
							Date	Value**	Date	Value**	Date	Result**	Date
*54320		1765154			12/20/2004		12/20/2004	136 †	12/20/2004	8.6	12/20/2004	NEG	9/13/2004
Corrections													
40471		1389217			6/7/2004	Samuel Abbate	9/22/2004	133	9/22/2004	6.1	3/25/2004	NEG	12/2/2004
Corrections													
21056		1398065			6/10/2004		7/14/2003	118	6/10/2004	7.9	6/10/2004	NEG	Not Tested
Corrections													
47705		1767453			11/4/2004		10/4/2004	118	10/4/2004	5.8		Not Tested	Not Tested
Corrections													
307		1092701			5/17/2004		5/10/2004	115	5/10/2004	11	3/8/2004	NEG	Not Tested
Corrections													
3432		1888085			12/1/2004		4/23/2004	113	10/8/2004	7.4	4/23/2004	NEG	5/10/2004
Corrections													
35912		1865525			4/7/2004		12/9/2004	105 †	12/9/2004	6.9	3/22/2004	NEG	Not Tested
Corrections													
*39339		1847553			4/13/2004	James Grua	11/7/2003	88		Not Tested		Not Tested	Not Tested
Corrections													
*54287		1120578			12/30/2004		11/20/2004	74	11/15/2004	10.8	11/20/2004	NEG	Not Tested
Corrections													

IHC Health Plans -- Lower Risk

28 Patient(s)

Lab Summary:

**** NA-Result Not Available**

Patient ID	Patient Name	IDX MRN	Telephone	DOB	Last PCP Visit	Endocrinologist	Last LDL: (24 mths)		Last A1c:		Microalbumuria:		Eye Exam
							Date	Value**	Date	Value**	Date	Result**	Date
9947		1254184			7/31/2004		7/31/2004	99	7/31/2004	6.2	7/31/2004	NEG	2/20/2004
Corrections													
32984		1767645			10/4/2004		11/3/2003	99	9/27/2004	5.9	9/27/2004	NEG	9/18/2004
Corrections													
23420		1767681			7/7/2004		7/7/2004	98	7/7/2004	7.4	7/7/2004	NEG	1/1/2004
Corrections													
*35956		3019278			10/21/2004		12/1/2003	95	7/12/2004	5.8	10/21/2004	NEG	8/27/2004
Corrections													

Note: Higher Risk Patients are those whose last A1c value was >8.0, last LDL>100, Triglycerides>400, or not tested during the reporting period

* Indicates a new patient on the list from last reporting period.

† Indicates an IHC Health Plans patient who has a pharmacy benefit, is over 40 years old with an LDL test above 100, and is not on a lipid lowering drug.

‡ Indicates an IHC Health Plans patient who has a pharmacy benefit, a positive microalbuminuria test and is not on ACEI or ARB medication.

Please make corrections in the shaded area and fax this report form to Jennifer Davis at 442-3026.

CONFIDENTIAL: This material is prepared pursuant to Utah Code Ann. 26-25-1 et. Seq., Idaho Code Ann. 39-1892 et seq., for improvement of the quality of hospital and medical care rendered by hospitals or physicians.



PATIENT NAME TEST, A A	SEX F	DOB 09/01/1964	MMI# 545073664	MRN# 545073664
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Problems

Hypothyroidism Hypertension
 status postapixectomy hyperlipidemia
 Diabetes mellitus type 2, insulin treated coronary artery disease

Active Medications

1. - Digitoxin, 0.1mg, Tablet; 3 TABLETS
2. - Entex LA (Guaifenesin/PPA HCl), 400/75mg, Tablet SA; 1 TABLET; BID

Preventive Care

CV Risk **Pap Smear**
 5% (1.4x)** No Data

Clinical Laboratory Data

HgbA1c (<=7.0)	UA Protein	uAlb/Cr (<30)	24 Urine Albumin (<30)			
No Data	06/01/2001 Negative 12/18/2000 Positive 11/06/2000 Negative	No Data	No Data			

Serum Cr	Serum K	Lipid Profile	LDL (<100)	Trig (<200)	HDL (>35)	CHOL (<200)
04/26/2003	1.1	04/26/2003	10	85	50	176
10/25/2002	2.0	02/05/2003	6.0	154	41	212
02/27/2002	1.6	10/25/2002	4.5	149	41	220
10/03/2001	2.3	01/29/2002	6.1	189	33	239

TC/HDL Ratio	HCT	hsCRP	Homocysteine	Fasting Glucose
04/26/2003	3.5	02/05/2003 35.9 %	04/06/2003 0.6 mg/l	04/06/2003 6 mcmol/l
04/06/2003	5.2	10/02/2002 37.7 %	02/24/2003 1.2 mg/l	02/25/2003 127
02/24/2003	5.4	08/23/2002 45.0 %		12/19/2002 127
02/06/2003	7.2	07/19/2002 29.9 %		01/02/2002 127
				12/20/2001 127

Clinic Data

Date	Weight	BMI (<25)	Weight Class	Blood Pressure (<130/80)	Heart Rate
No Data	-	-	-	01/25/2001 145/74 mmHg	01/25/2001 86

Last foot exam: No Data
 Last dilated retinal exam: No Data

Reminders

Preventive
 * Predicted % Risk over 10 years of a cardiovascular event (MI, revascularization, CVA, death).
 ** Relative Risk over 10 years of a cardiovascular event compared to lowest risk category.
 Pap and pelvic suggested every 3 years for those normal yearly Pap tests.
 For Patients with known Cardiovascular disease, target LDL < 100.
 Blood Pressure measurement is suggested for adults every two years.
 Suggested follow-up for missing data: - Pap Smear
 Pneumovax suggested for all patients age 65 and above, and all patients over age 2 with systemic chronic disease.

Diabetes
 Suggest repeat Urine Albumin Test more than (>) 1 year since last test.
 Last ALT = 28 on 4/26/2003 & AST = 66 on 4/26/2003
 Suggested follow-up for missing data: - HgbA1c - Dilated Retinal Exam - Foot Exam - Weight

Hypertension
 ACE Inhibitors (ACEI) or if ACEI intolerant, Angiotensin II Receptor Blockers (ARBs) or the combination of ACEI or ARBS and Diuretics are the recommended initial drug therapy for patients who are diagnosed with hypertension in conjunction with Diabetes.

Problems and chronic conditions

Medication profile

Preventive care summary

Pertinent labs

Pertinent exams

Passive reminders organized by illness

General patient status information

Disease specific information

Diabetes Summary Report

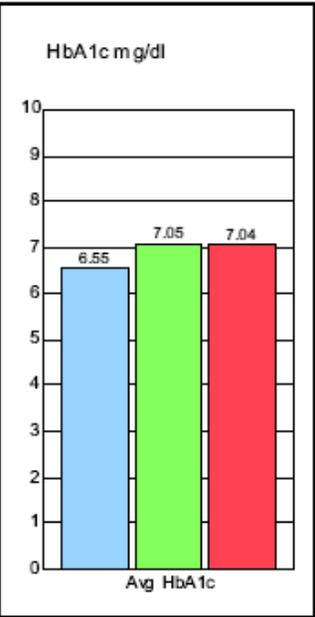
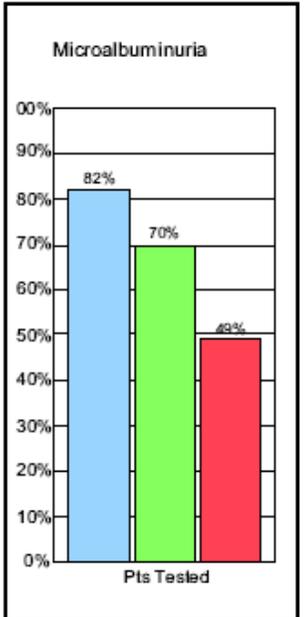
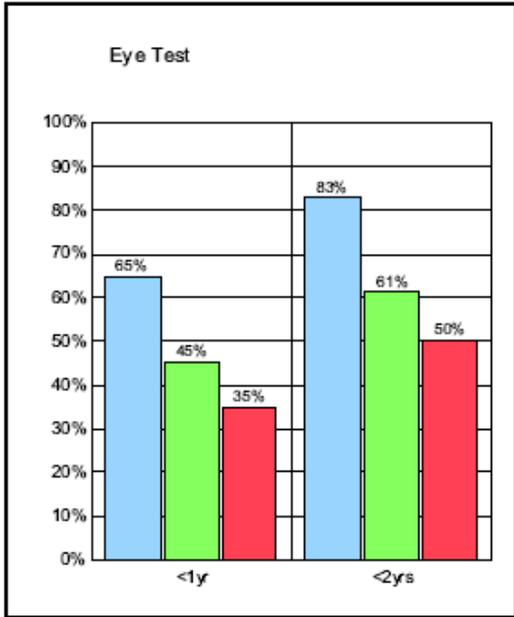
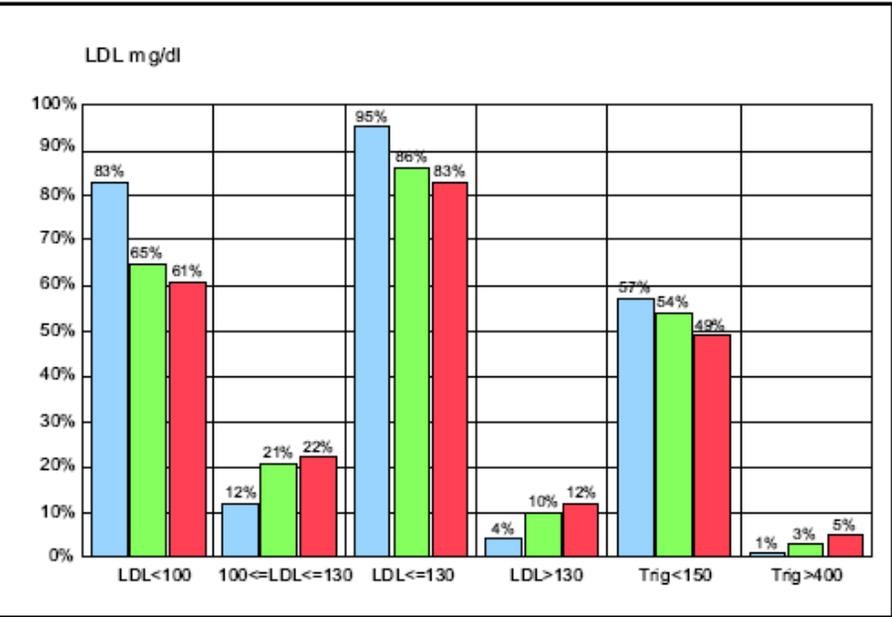
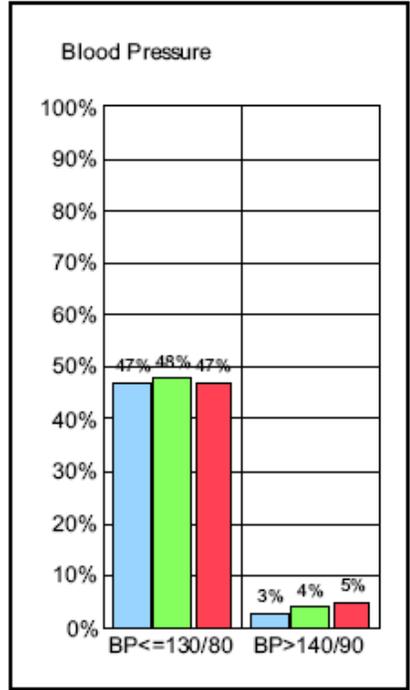
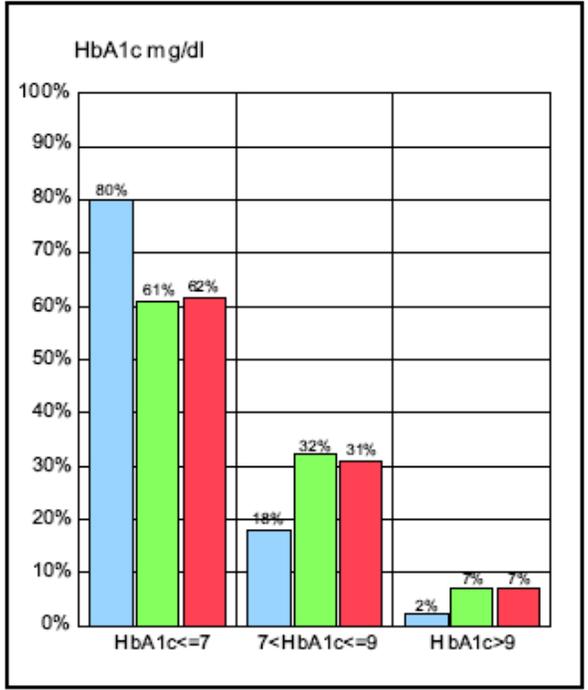
Provider: Towner, Steven (168)

Period: Jan 2005 - Dec 2005

Patients Tested (Prop of Tot Pts%) - All Patients

	Provider	Region	System
HbA1c	188(97%)	1,582(90%)	25,429(83%)
LDL	190(98%)	1,658(94%)	26,040(85%)
Eye Exam	159(82%)	399(23%)	6,509(21%)
Microalbuminuria	159(82%)	1,236(70%)	14,969(49%)
Blood Pressure	188(97%)	1,248(71%)	15,344(65%)
Total Patients	194	1,757	30,470

1. LDL measures represent two years ending in the chose period. 2. Eye exam % calculated using Health Plans patients only. 3.Includes spot microalbumin, 24 hour urine for protein and microalbumin/creatinine ratio within the reporting period, or any history of treatment for nephropathy. 4. Blood pressure data only available for physicians with access to Clinical Workstation and/or Results Review.



IHC Primary Care System Goals and Managed Care Incentive

Achievement Summary: Internal Medicine

Reporting Period: 01-Jan-04 To 31-Dec-04



Medical Director: Towner

1.) Diabetes, HbA1c Testing

The percent of patients with diabetes who had a HbA1c test within the last 12 months.

Your Achievement: 78%
System Goal: 80%
Managed Care Incentive Goal: 85%
Your Score in this area is: 0%

2.) Diabetes, LDL Testing

The percent of patients with diabetes who had a LDL test within the last 24 months.

Your Achievement: 94%
System Goal: 80%
Managed Care Incentive Goal: 85%
Your Score in this area is: 100%

3.) Urine Microalbuminuria Screen

Number of patients with diagnosis of diabetes who had appropriate urine screen in last 12 months.

Your Achievement: 72%
Goal: 45%
Managed Care Incentive Goal: 55%

Your Score in this area is: 100%

4.) Asthma Care

Percent of patients in your Internal Medicine Group with "higher risk asthma" who filled at least one prescription for a controller in the last year.

Your Group Achievement 94%
Goal: 82%
Managed Care Incentive Goal: 87%

Your Score in this area is: 100%

5.) Clinical Learning Day

Your Score in this area is 100%

Attended a Clinical Learning Day Program in 2003 or 2004

Your Score for each of the above measures is computed as follows:
-100% if you exceed the Managed Care Incentive (MCI) goal
-0% if you are below the System Goal
-50%-100% sliding scale if you are between the System and MCI goals

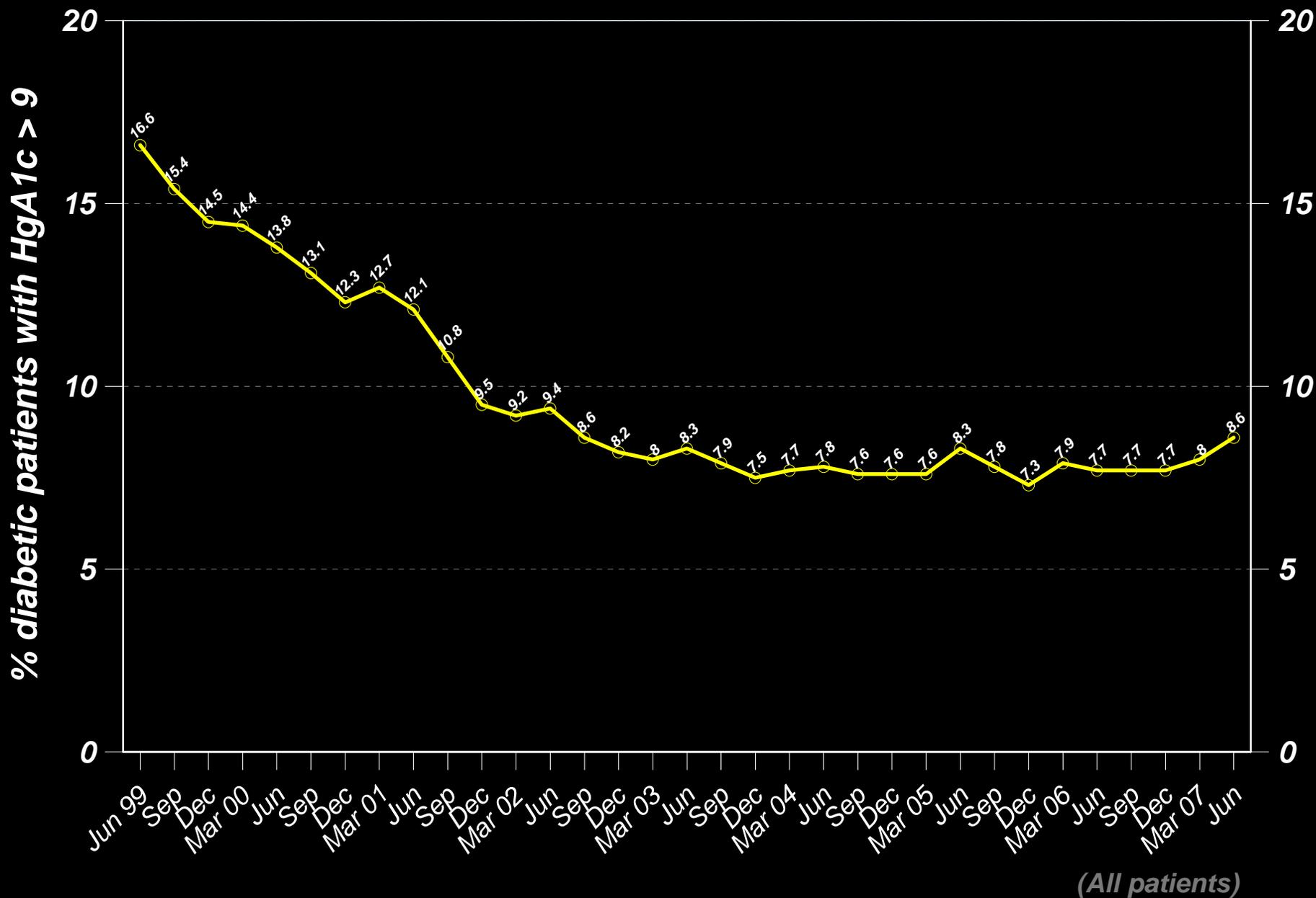
Managed Care Incentive Summary

Your total score is computed using the following weighting:

25% from Item 1 Diabetes (HbA1c Testing)
25% from Item 2 Diabetes (LDL Testing)
10% from Item 3 Urine Microalbuminuria Screen
15% from Item 4 Asthma Care
25% from Item 5 Attend Clinical Learning Day

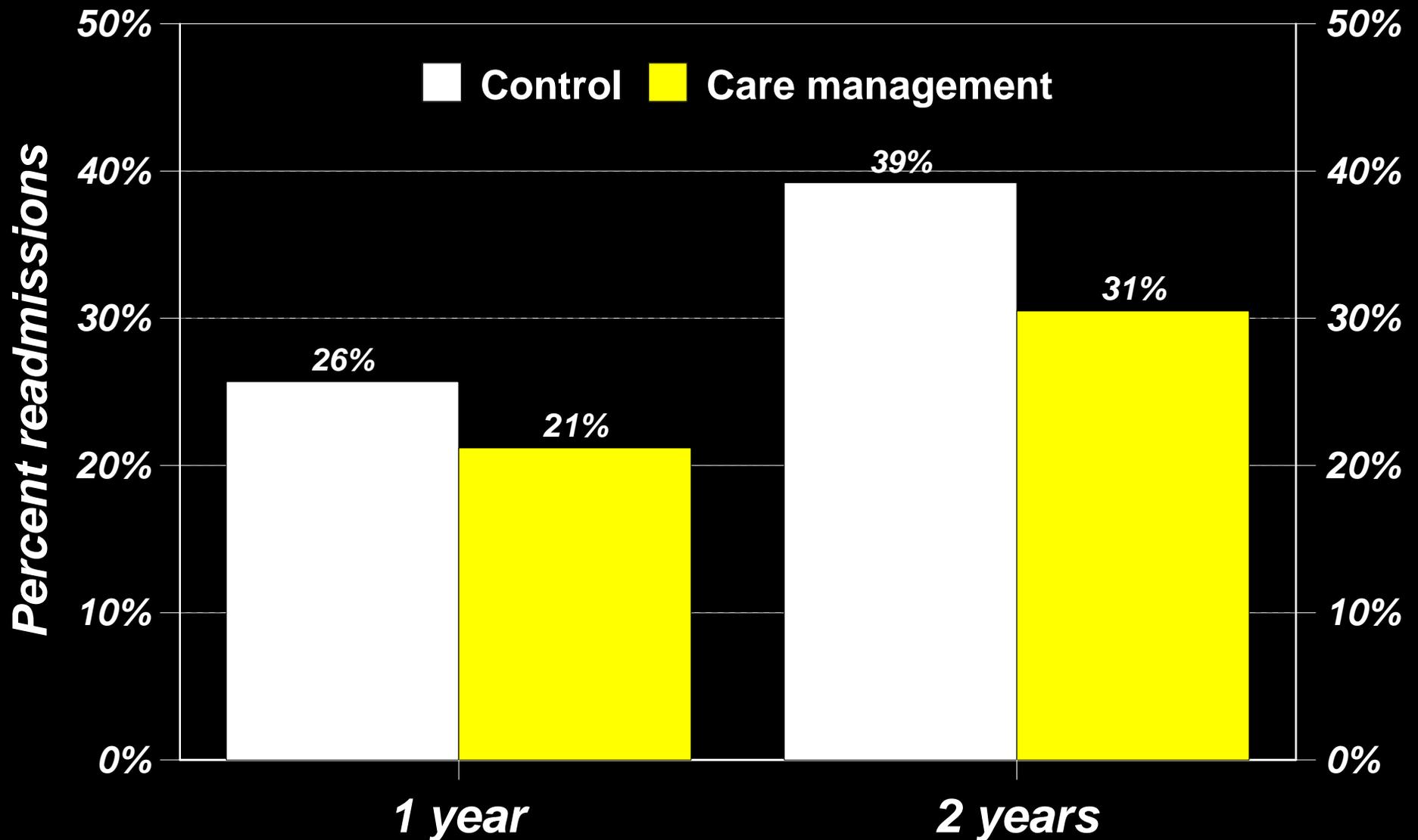
Your Total Managed Care Incentive Score is: 75%

Poor HbA1c control



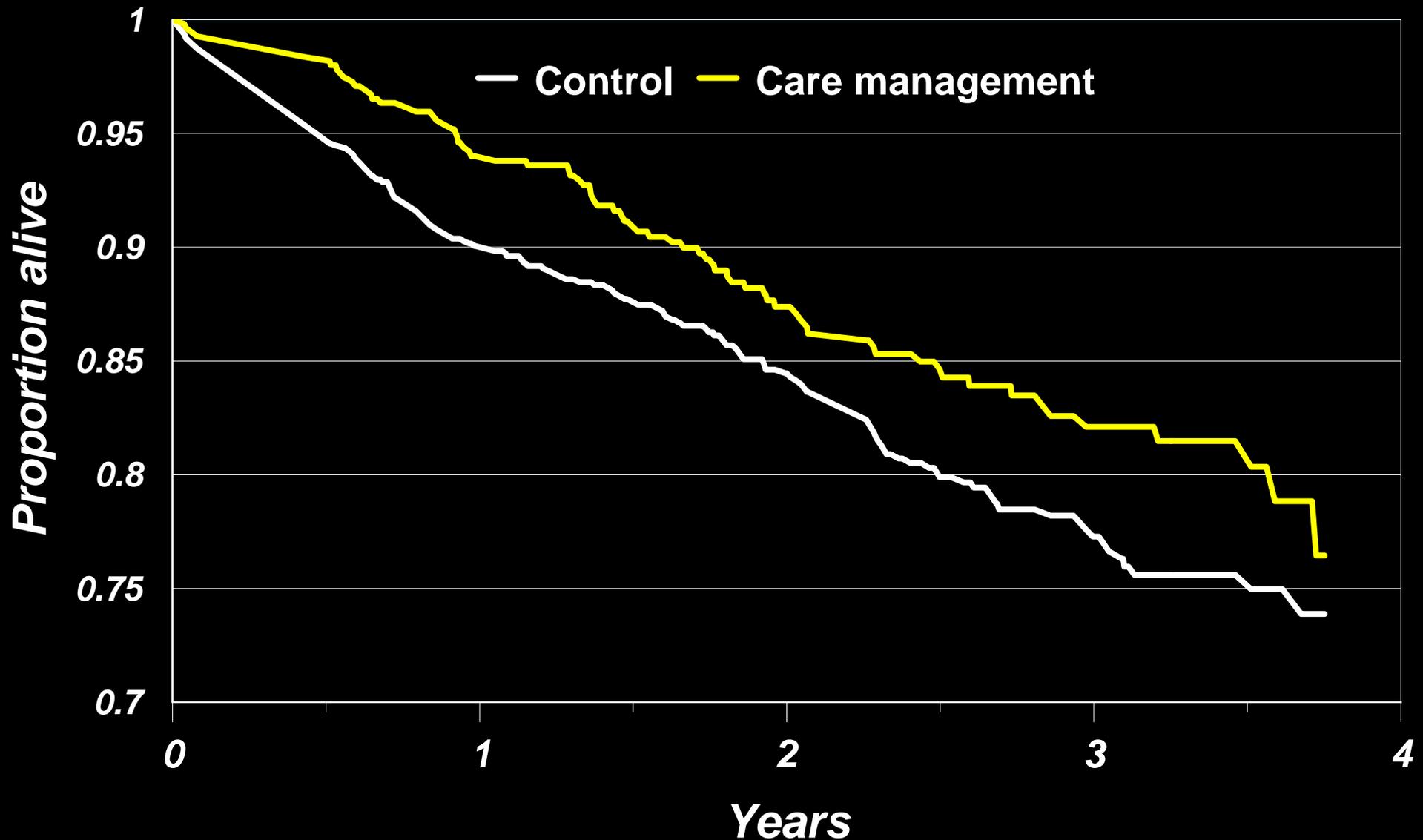
CPM with clinic care managers

Complex diabetes patients - hospitalization rates

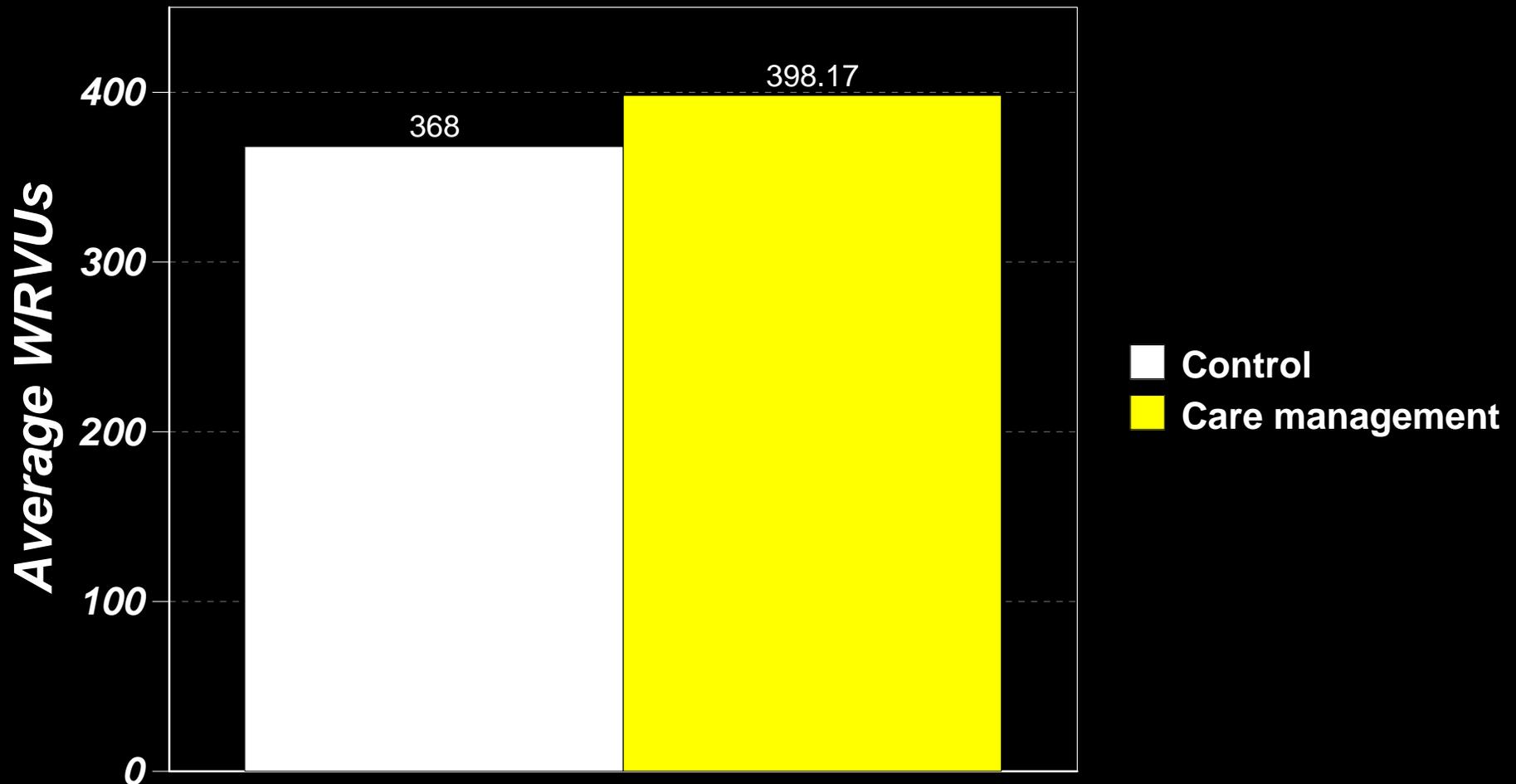


CPM with clinic care managers

Complex diabetes patients - mortality rates



Physician productivity (WRVUs - work relative value units)



Physicians with embedded care management support were significantly (8%) more productive than controls

In most circumstances

better care is cheaper care

(higher quality = lower operating costs)

Aligning incentives

- ◆ **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

4. Real reform: Organized care

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)

Quality control foundation

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)

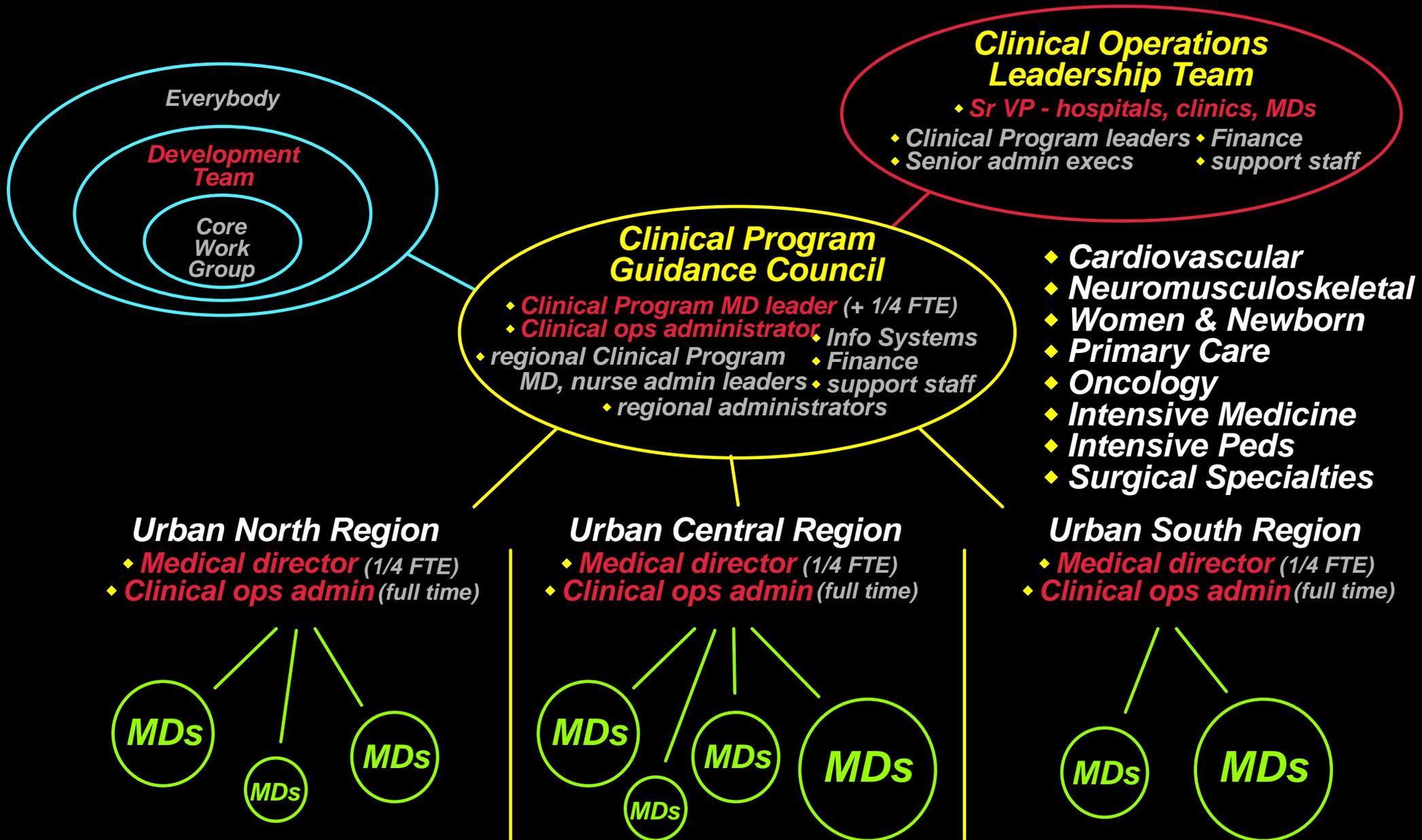
1998: *Integrated clinical / operations management structure*

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*

Implementing 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**

5. The profession is 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

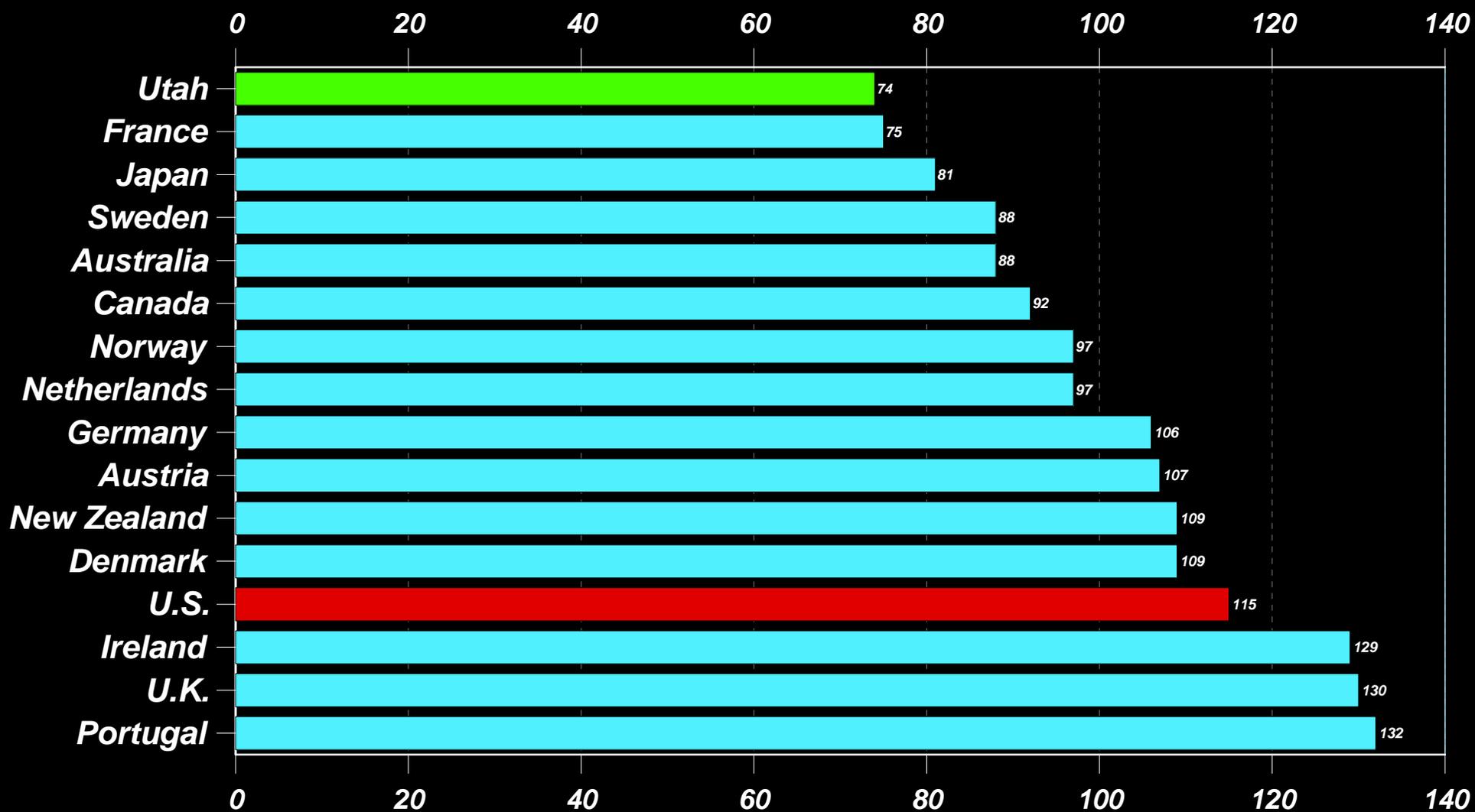
- ◆ **groups of peers, treating similar patients in a shared setting**
- ◆ **plan coordinated care delivery processes** (*e.g., standing order sets*)
- ◆ **which individual clinicians adapt to specific patient needs**
- ◆ **early experience shows**
 - ▶ **less expensive** (*facility can staff, train, 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 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***

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).