

# Klinisk Kvalitetskonference 2021

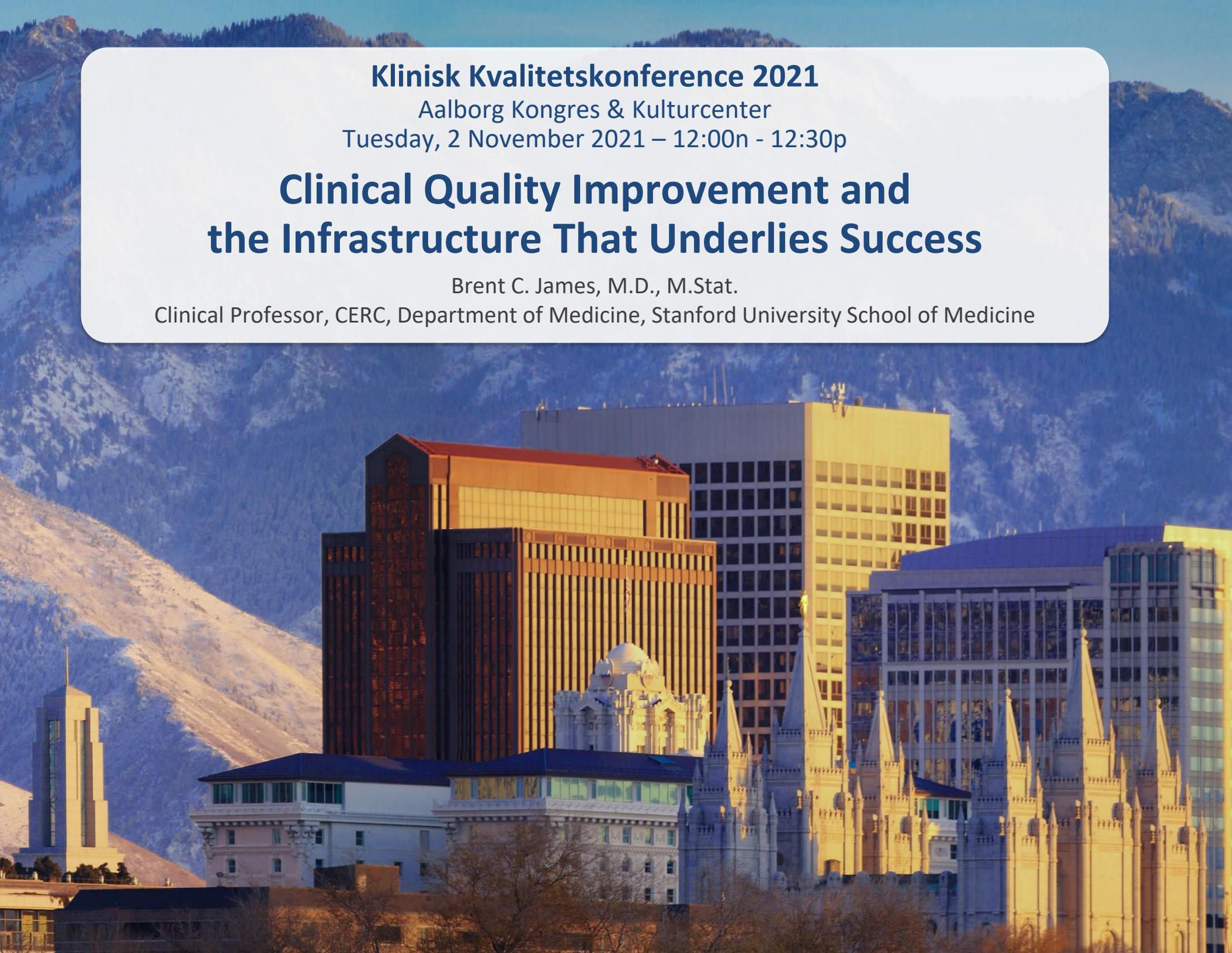
Aalborg Kongres & Kulturcenter

Tuesday, 2 November 2021 – 12:00n - 12:30p

## Clinical Quality Improvement and the Infrastructure That Underlies Success

Brent C. James, M.D., M.Stat.

Clinical Professor, CERC, Department of Medicine, Stanford University School of Medicine



# Disclosures

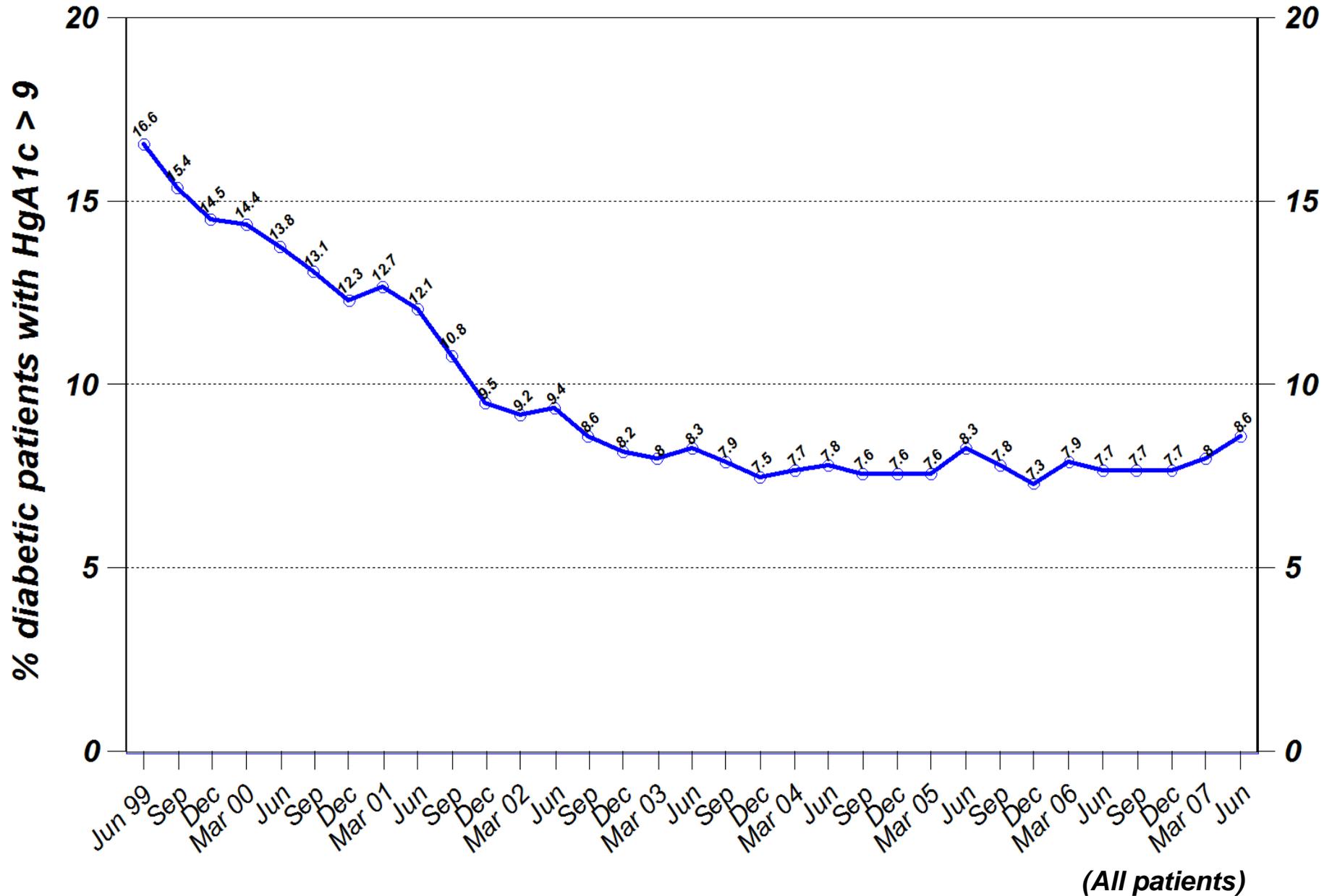
*I receive a monthly retainer as a part time  
(3 days / month) senior advisor for **Health Catalyst**.  
I also own (a small amount of) **Health Catalyst** stock.  
I serve on an advisory board for **Amplifire**,  
a privately-held company that provides  
computer-based health care education products.*

*Other than that, neither I nor any family  
members have any relevant financial  
relationships to be directly or indirectly  
discussed, referred to or illustrated within the  
presentation, with or without recognition.*

# Case study – Type II diabetes mellitus

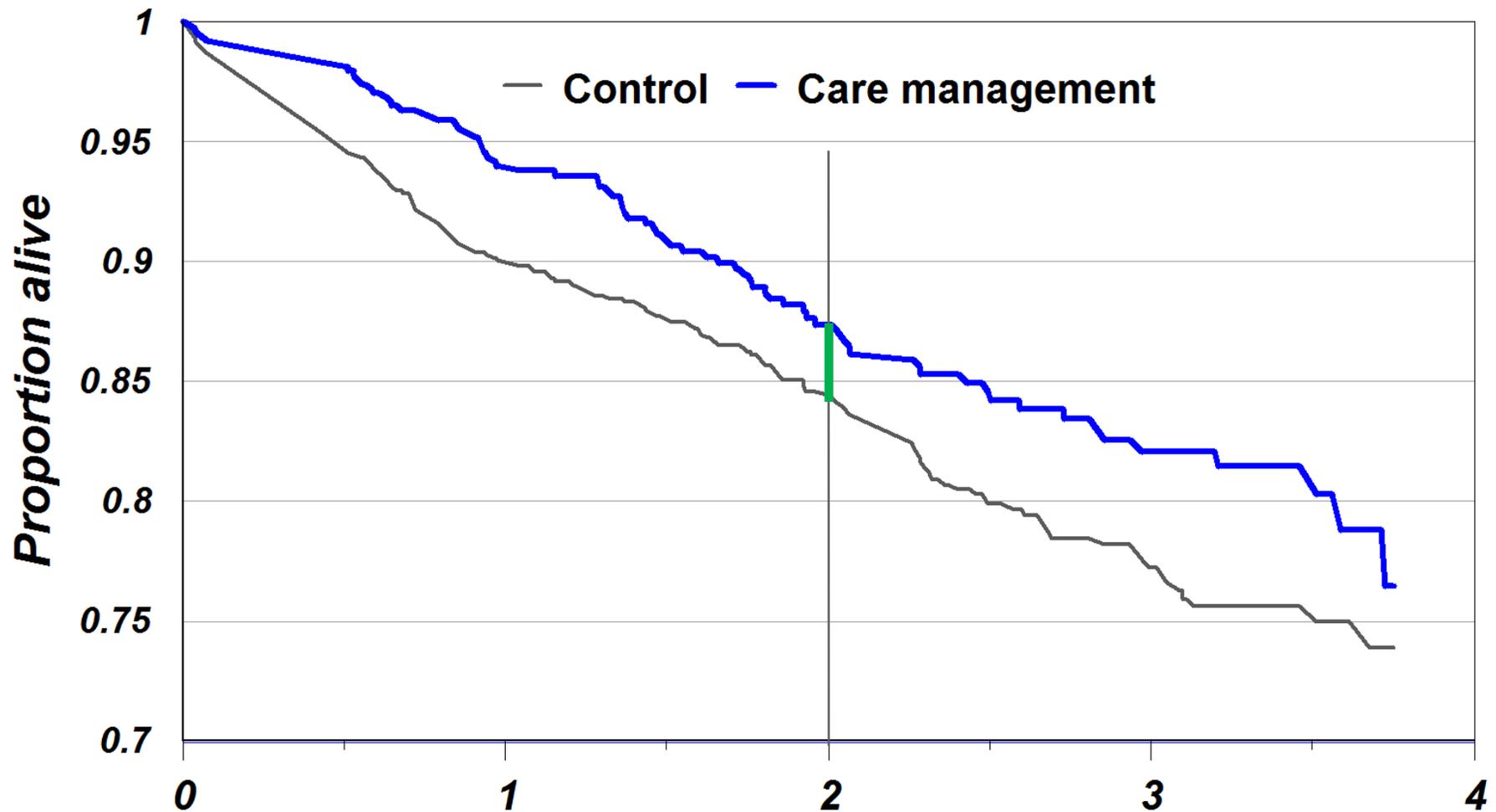
- **~60,000 patients**
- **90+% of all care, delivered by primary care**
- **Supported by 6 specialists** (*diabetic endocrinologists, aided by diabetic educators based in their offices*)
- **A fragmented system** – *more than half of participating primary care physicians were independent; they used many different electronic medical record systems*

# Poor HbA1c control



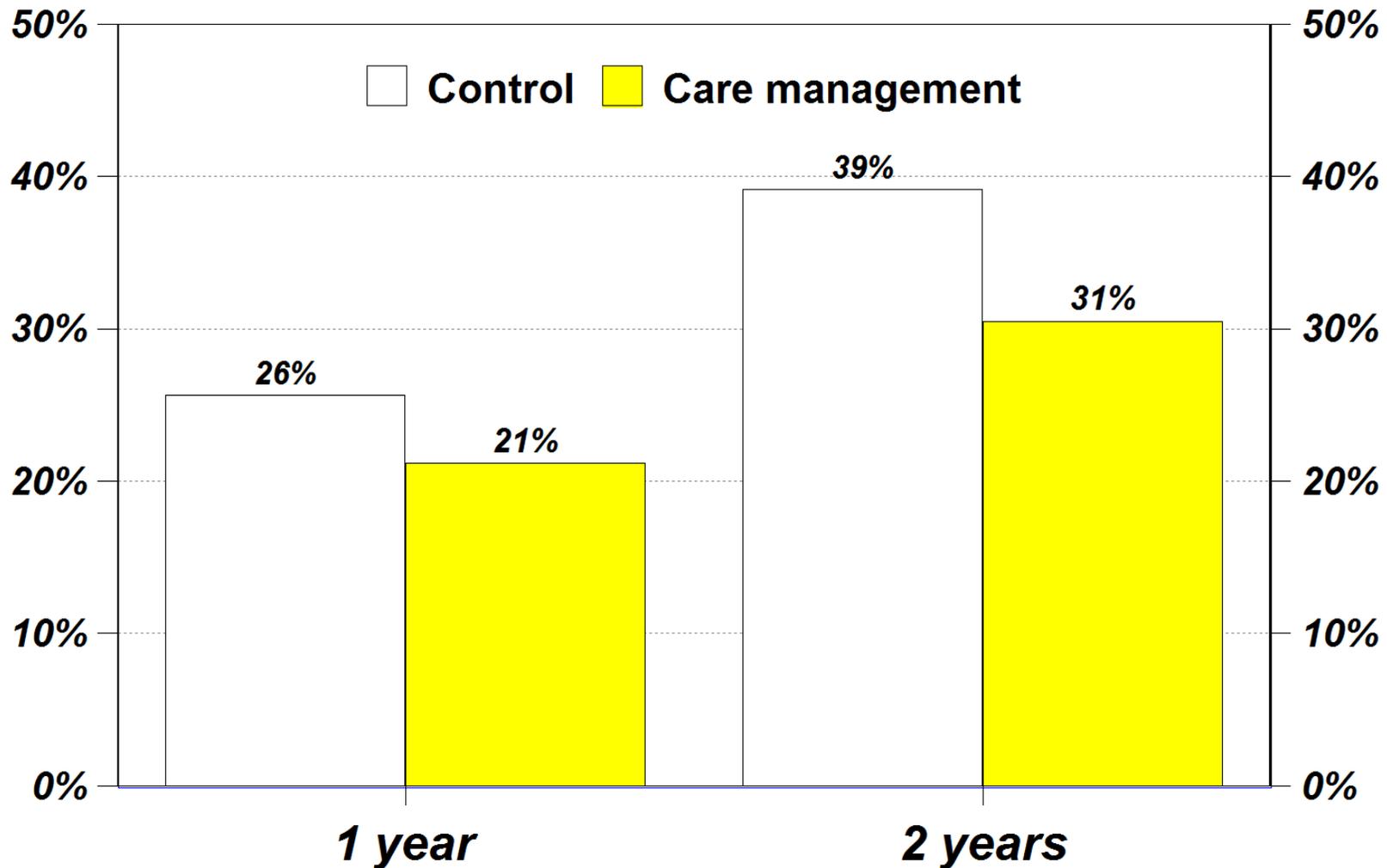
# Diabetes trial – clinical end outcomes

## Complex diabetes patients - mortality rates



# Diabetes trial – financial outcomes

## Complex diabetes patients - hospitalization rates



# 4 tools:

1. ***Action lists***
2. ***Patient worksheets***
3. ***Comparative outcomes***
4. ***Financial incentives***

***Factorial design – we could assess the separate contribution of each tool.***

# Diabetes Patient Follow-Up Worksheet: All Patients

## Report Period April-01-2008 to March-31-2009



Patients that need follow-up are those whose average Blood Pressure > 130/80, last A1c value was > 8.0, last LDL > 100, and/or Triglycerides >= 400, or any of the aforementioned tests were not performed during the reporting period. Please remember "credit" can be given to improve individual scores if patients are contacted by your office but are not compliant or lab information is incorrect.

Provider Name (Provider ID) - Clinic Name					14 Patients That Need Follow-up										
SelectHealth Incentive Benchmark Goals:					50% to 90%			76% to 81%			85% to 90%		54% to 59%		
Total SelectHealth Patients - 21					100%			77%			92%		62%		
SelectHealth Current Diabetes Performance:					Blood Pressure			Lipid Management			HGA1c		MicroAlbuminuria		
SelectHealth Patient Name	IDX MRN	Birthdate	Phone	Last Office Visit	Date	BP	<=130/80	Date	LDL †	HDL	Trig	Date	HGA1c	Date	MicroAlb ‡
				12/18/2006	12/18/2006	130/80	Yes	2/26/2007	105	50	227		Not Tested		Not Tested
Corrections															
				5/31/2007	5/31/2007	131/79	No	1/13/2007	99	30	230	5/31/2007	4.9		Not Tested
Corrections															
				5/11/2007	6/18/2007	108/59	Yes		74		236	1/16/2007	6.9		Not Tested
Corrections															
				5/3/2007	5/3/2007	131/73	No	12/13/2006	99	39	232	3/8/2007	NA		Not Tested
Corrections															
				3/15/2007	3/15/2007	131/83	No		Not Tested			12/14/2006	6.2		Not Tested
Corrections															
				10/2/2006	10/23/2006	131/80	No	10/2/2006	92	53	282	11/13/2006	6.8	10/2/2006	NEG
Corrections															
				6/4/2007	6/4/2007	111/63	Yes		23		115	6/4/2007	10.8		Nephropathy Tx
Corrections															
				2/16/2007	2/16/2007	144/74	No	8/23/2006	92	29	339	2/16/2007	5.9	8/23/2006	POS
Corrections															

Administrative (HEDIS) criteria for diabetes (at least 2 face-to-face contacts in an outpatient facility and an ICD-9-CM code 250.xx; or at least 1 inpatient stay and an ICD-9-CM code 250.xx; or at least 1 prescription for insulin or an oral hypoglycemic agent) in the current measurement period or prior measurement periods.

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

\*\* Avg B/P measure is an average of the last three EMR recorded blood pressure results from home or clinic. Blood pressure data only available for physicians with access to Intermountain EMR.

□ Indicates a patient that has been noted in the EMR as having an in-control blood pressure within the last six months.

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

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

CONFIDENTIAL: This material is prepared pursuant to Utah Code Ann. 26-25-1 et. seq., Idaho Code Ann. 39-1392 et seq., for improvement of the quality of hospital and medical care rendered by hospitals or physicians.



# Diabetes Summary Report

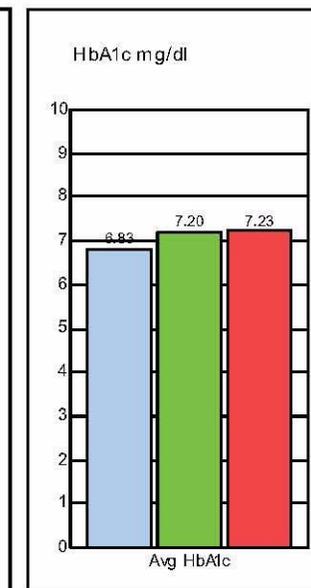
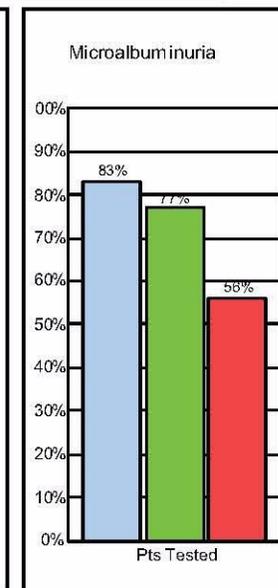
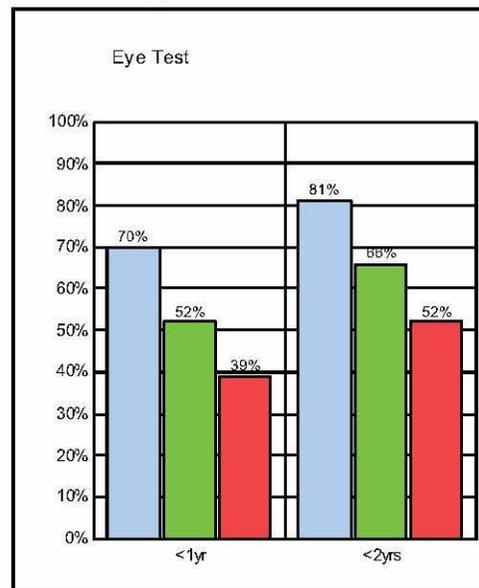
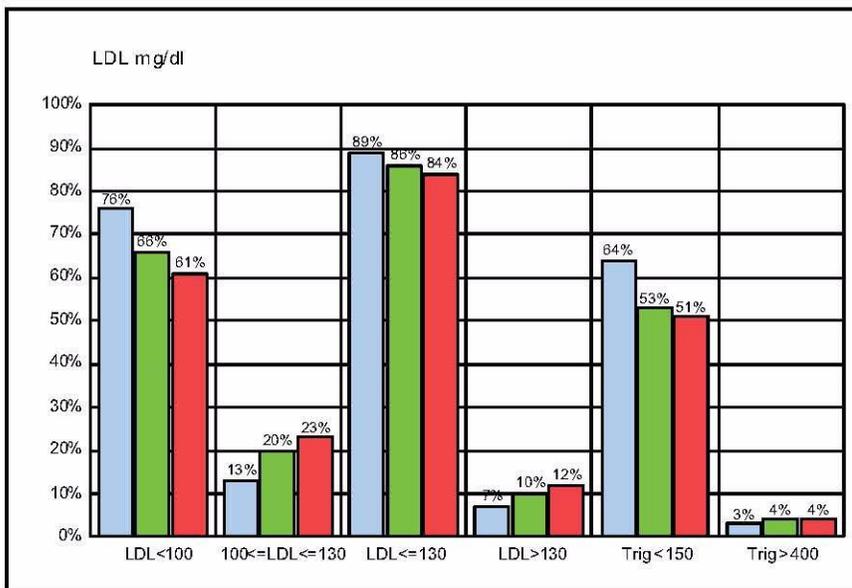
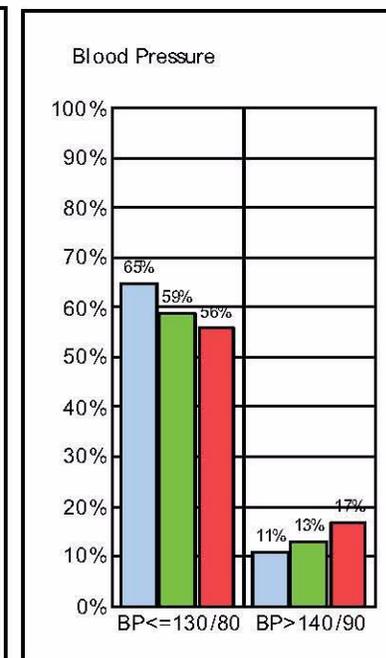
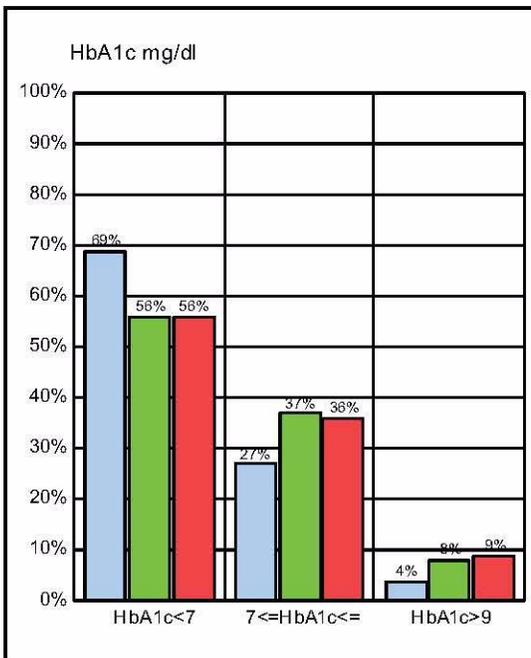
Provider: Towner, Steven (168)

Period: Oct 2008 - Sep 2009

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

	Provider	Region	System
HbA1c	234(96%)	1,787(94%)	38,127(85%)
LDL	215(88%)	1,642(87%)	31,764(71%)
Eye Exam	37(70%)	182(52%)	5,448(39%)
Microalbuminuria	203(83%)	1,468(77%)	25,157(56%)
Blood Pressure	243(100%)	1,870(99%)	29,655(94%)
<b>Total Patients</b>	<b>244</b>	<b>1,897</b>	<b>44,705</b>

1. LDL measures represent two years ending in the chosen period. 2. Eye exam % calculated using SelectHealth 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. Measure is an average of the last three EMR recorded blood pressure results from home or clinic. Blood pressure data only available for physicians with access to Intermountain EMR.



CONFIDENTIAL: This material is prepared pursuant to Utah Code Ann. 26-25-1 et. Seq. or Idaho Code Ann. 39-1392 et seq. for improvement of the quality of hospital and medical care rendered by hospitals or physicians.

Steven Towner - Intermountain Salt Lake Clinic - Intermountain Medical Group

# Intermountain Primary Care Clinical Programs: Adult Diabetes Medical Director Summary Report

Reporting Period: 01-Jul-08 To 30-Jun-09

Medical Director:



Intermountain Medical Group

Family Medicine		Hemoglobin A1c Summary: 12 Months					LDL Summary: 12 Months					Blood Pressure:		MA:	
Clinic Location	Diabetes Patient Count	Tested	Tested, result NA	Percentages based on only those with available A1c results			Tested	Tested, result NA	Percentages based on only those with available LDL results			BP Results If Available	BP In Control	MA Tested	
				A1c<7.0	7.0<=A1c<=8.0	A1c>8.0			LDL<100	100<LDL<=130	LDL>130				
<b>Clinic Name: Rain Taylorsville Clinic</b>															
Provider Name															
SelectHealth	98	88 (90%)	1 (1%)	40 (46%)	26 (30%)	21 (24%)	92 (94%)	0 (0%)	60 (65%)	17 (18%)	14 (15%)	97 (99%)	44 (45%)	67 (68%)	
All Other Payers	209	184 (88%)	4 (2%)	94 (52%)	29 (16%)	57 (32%)	178 (85%)	0 (0%)	86 (48%)	50 (28%)	31 (17%)	201 (96%)	74 (37%)	110 (53%)	
Combined	307	272 (89%)	5 (2%)	134 (50%)	55 (21%)	78 (29%)	270 (88%)	0 (0%)	146 (54%)	67 (25%)	45 (17%)	298 (97%)	118 (40%)	177 (58%)	
<b>Family Medicine Summary:</b>															
SelectHealth	98	88 (90%)	1 (1%)	40 (46%)	26 (30%)	21 (24%)	92 (94%)	0 (0%)	60 (65%)	17 (18%)	14 (15%)	97 (99%)	44 (45%)	67 (68%)	
All Other Payers	209	--	--	--	--	--	--	--	86 (48%)	50 (28%)	31 (17%)	--	74 (37%)	--	
Combined	307	272(89%)	5 (2%)	134 (50%)	55 (21%)	78 (29%)	270 (88%)	0 (0%)	146 (54%)	67 (25%)	45 (17%)	298 (97%)	118 (40%)	177(58%)	

Intermountain Medical Group

Internal Medicine		Hemoglobin A1c Summary: 12 Months					LDL Summary: 12 Months					Blood Pressure:		MA:	
Clinic Location	Diabetes Patient Count	Tested	Tested, result NA	Percentages based on only those with available A1c results			Tested	Tested, result NA	Percentages based on only those with available LDL results			BP Results If Available	BP In Control	MA Tested	
				A1c<7.0	7.0<=A1c<=8.0	A1c>8.0			LDL<100	100<LDL<=130	LDL>130				
<b>Clinic Name: Rain Holladay Clinic</b>															
Provider Name															
SelectHealth	48	48 (100%)	0 (0%)	31 (65%)	6 (13%)	11 (23%)	47 (98%)	1 (2%)	26 (57%)	13 (28%)	6 (13%)	48 (100%)	31 (65%)	31 (65%)	
All Other Payers	247	240 (97%)	0 (0%)	161 (67%)	49 (20%)	30 (13%)	237 (96%)	0 (0%)	162 (68%)	50 (21%)	21 (9%)	247 (100%)	163 (66%)	165 (67%)	
Combined	295	288 (98%)	0 (0%)	192 (67%)	55 (19%)	41 (14%)	284 (96%)	1 (0%)	188 (66%)	63 (22%)	27 (10%)	295 (100%)	194 (66%)	196 (66%)	
<b>Internal Medicine Summary:</b>															
SelectHealth	48	48 (100%)	0 (0%)	31 (65%)	6 (13%)	11 (23%)	47 (98%)	1 (2%)	26 (57%)	13 (28%)	6 (13%)	48 (100%)	31 (65%)	31 (65%)	
All Other Payers	247	--	--	--	--	--	--	--	162 (68%)	50 (21%)	21 (9%)	--	163 (66%)	--	
Combined	295	288(98%)	0 (0%)	192 (67%)	55 (19%)	41 (14%)	284 (96%)	1 (0%)	188 (66%)	63 (22%)	27 (10%)	295 (100%)	194 (66%)	196(66%)	
<b>Medical Director Summary:</b>															
SelectHealth	146	136(93%)	1 (1%)	71 (53%)	32 (24%)	32 (24%)	139 (95%)	1 (1%)	86 (62%)	30 (22%)	20 (14%)	145 (99%)	75 (52%)	98(67%)	
All Other Payers	456	424(93%)	4 (1%)	255 (61%)	78 (19%)	87 (21%)	415 (91%)	4 (1%)	248 (60%)	100 (24%)	52 (13%)	448 (98%)	237 (53%)	275(60%)	
Combined	602	560(93%)	5 (1%)	326 (59%)	110 (20%)	119 (21%)	554 (92%)	1 (0%)	334 (60%)	130 (24%)	72 (13%)	593 (99%)	237 (53%)	373(62%)	

# 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%**

Please fax corrections to this report to: Steven Towner 355-3746

Employed

# Of the 4 measurement tools shown, *which was most effective in driving change?*

1. **Action lists** *(tools to move from episodic to continuous care)*
2. **Patient worksheets** *(targets of opportunity - embedded, evidence based reminders at every point of contact)*
3. **Comparative outcomes** *(what is possible, who to ask)*
4. **Financial incentives** *(see: Drive by Daniel Pink; intrinsic vs extrinsic motivators, algorithmic vs heuristic work settings)*

# Only one pertinent question:

***Assume that front-line clinicians are***

- as smart you are*
- as dedicated to patients as you are*
- as hard-working as you are*
- as motivated as you are*
- are the only ones with fundamental knowledge of how the front-line process actually works;*

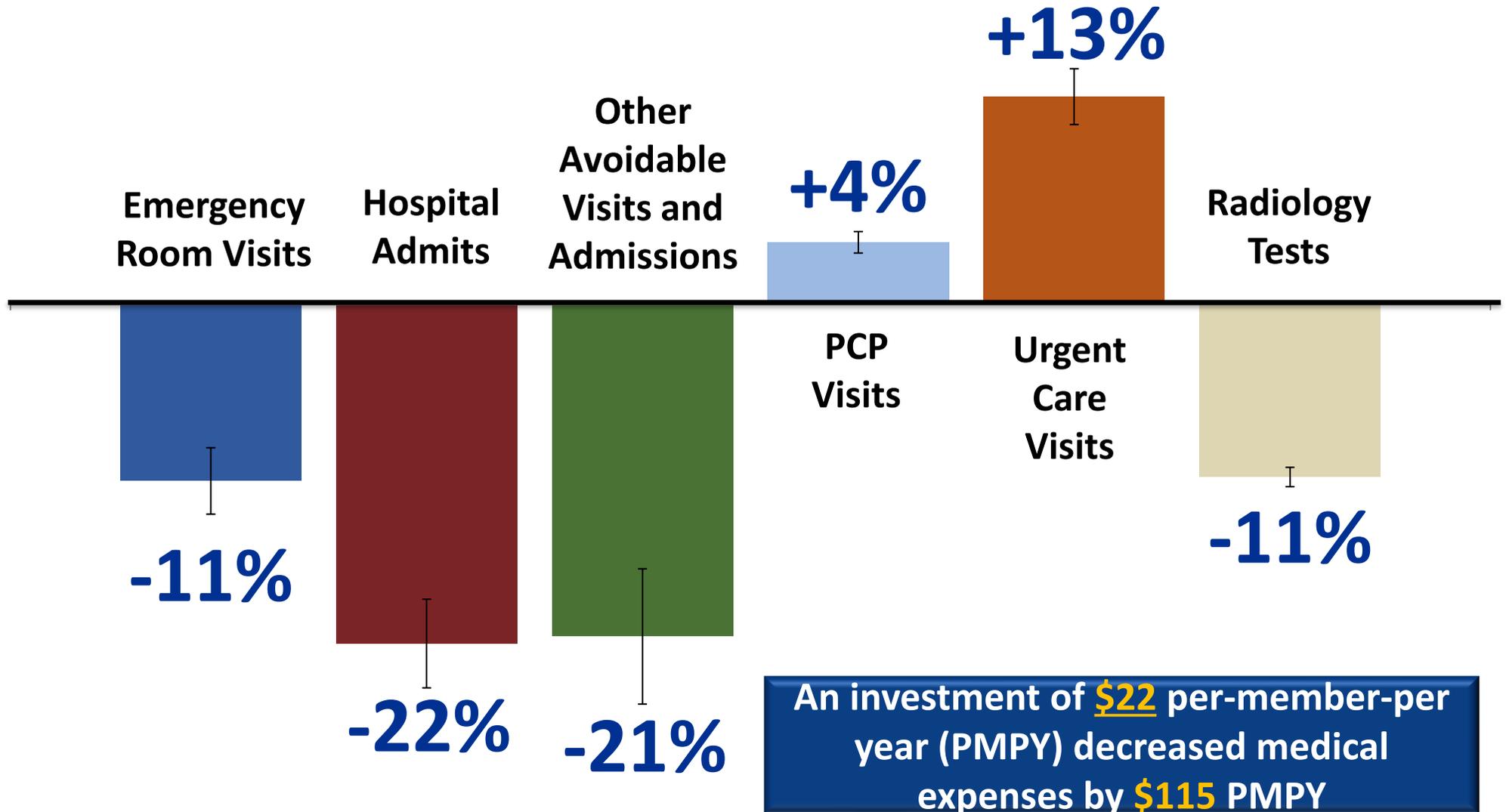
***but they don't control the systems that set the context within which they work ...***

***How will your proposed intervention***

***make it easier for them to do it right?***

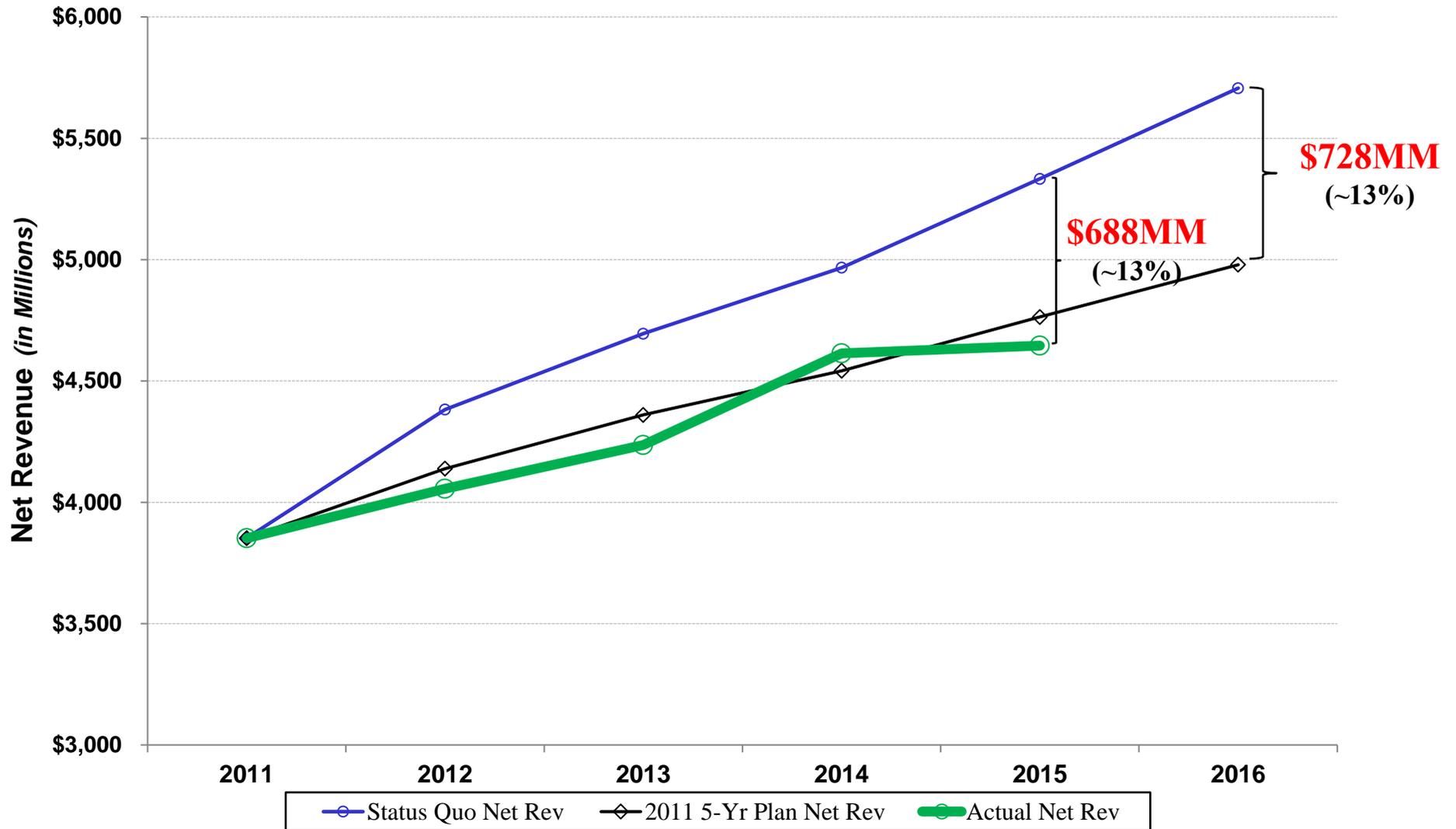
# Team-Based Care

(3<sup>rd</sup> generation patient-centered medical home)



Reiss-Brennan B, Brunisholz KD, Dredge C, Briot P, Grazier K, Wilcox A, Savitz L, and James B. Association of integrated team-based care with health care quality, utilization, and cost. *JAMA* 2016; 316(8):826-34 (Aug 23/30).

# Financial impact of clinical quality improvement at one large system



James Brent C and Poulsen Gregory P. The case for capitation: It's the only way to cut waste while improving quality. *Harv Bus Rev* 2016; 94(7-8):102-11, 134 (Jul-Aug).

***The key functional element was  
transparency at the front line;***

***That transparency depended on  
data systems designed primarily for  
execution / improvement,***

***with a secondary aim of accountability.***

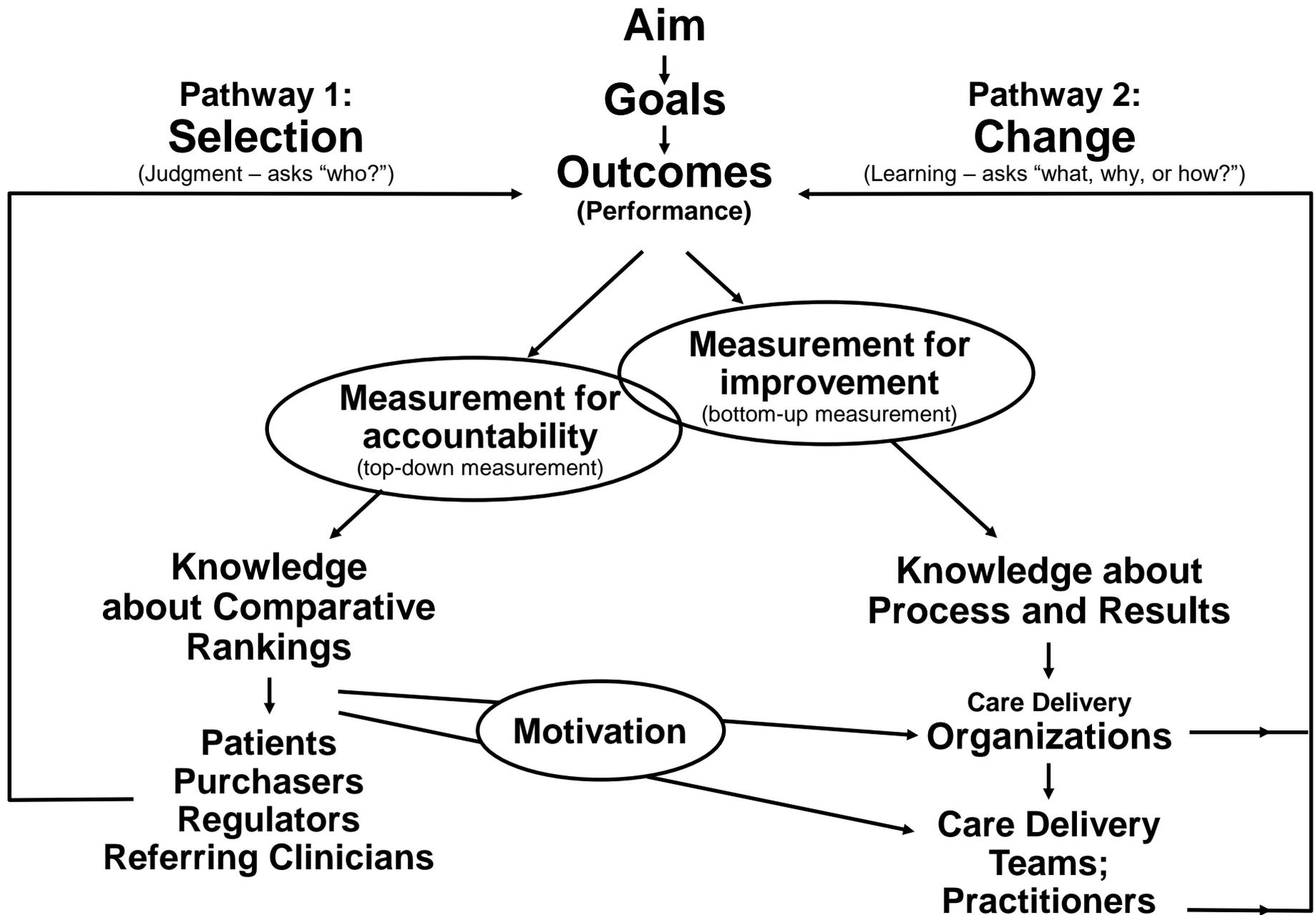
# Two viewpoints

## ➤ **Outside in: selection**

- *focus on the person, a.k.a. Taylorism, judgment*
- *top-down*
- *accountability*
- *unfunded data mandates*
- *Internal aim: motivate/incentivize care providers*

## ➤ **Inside out: improvement**

- *focus on the process; internal operational data*
- *bottom up*
- *integrated data capture*
- *internal aim: make it easy to do it right*



modified from: Berwick, D.M., James, B.C., and Coye, M. The connections between quality measurement and improvement. *Medical Care* 2003; 41(1):130-39 (Jan).

# Selection measures

- *Rarely include all needed measures essential for execution and improvement;*
- *consume large amounts of resources, often through “after the fact” data abstraction;*
- *leaving no resources for actual performance management and improvement*

*Thus,*

*Selection measures, imposed in the name of accountability and quality, can actively damage care quality and block improvement*

# Change / Learning measures

1. **Generates very different data sets** than Selection
  - strong, evidence-based method derived from RCT data design
  - intermediate and final clinical, cost, and satisfaction outcomes
  - optimized for process management and improvement
  - more extensive, clinically focused than typical Selection measures
2. **Is parsimonious** (no “recreational data collection” while avoiding *availability bias*)
3. **Minimizes burden** - integrates into clinical workflow; tends to be what clinical teams must generate to deliver care
4. **"Contains" selection measures** - produces robust patient outcomes measures suitable for public accountability

# Transparency - a series of registries

*(we had 57, which covered about 80% of all inpatient and outpatient care delivered )*

- **Disease specific** *(e.g., Type II diabetes mellitus, heart failure, pregnancy/labor/delivery, acute myocardial infarction/AMI – heart attack)*
- **System wide** – *captures data from all care delivery locations*
- **Intermediate and final clinical and cost outcomes** – *need both clinical and cost outcomes to measure “value”*
- **Primary aim: support care delivery**
- **Secondary aims: research; compliance & accountability**

# Designing the data system

***What indicators did we track?***

*(it was really a formal method to identify key indicators)*

# Identifying data to track

## 3 general methods:

1. **Use what we have** – mostly financial claims data; called **“availability”**
2. **Ask the experts** – assemble a group of specialists, and ask them what is important; major risk of **“recreational data collection”** (missing critical cofactors and entry, exclusion, and stratification elements; other data elements that turn out to have no utility)
3. **Structured expert opinion** – derived from proven methods to design data systems for randomized, controlled, trials

# Measures for clinical management

- ◆ **We already had "sophisticated" automated data**
  - **financial systems** (*claims data*)
  - **time-based Activity Based Costing** (*since 1983*)
  - **clinical data for government reporting** (*JCAHO, CMS Core Measures, etc.*)
  - **other automated data** (*first in nation continuous EMR: lab, pharmacy, blood bank, etc.*)
  - **Danger! Availability bias!**
- ◆ **Still missing 30 - 50% of data elements essential for clinical management** (*and the primary reason that the 2 initial Intermountain initiatives for clinical management failed*)
- ◆ **We deployed a methodology to identify critical data elements for clinical management, then built them into clinical workflows** (*Danger! Recreational data collection!*)

# Structured expert opinion

1. **Build a conceptual model** – *a workflow-level flowchart*
2. **Generate a list of desired reports**
  - ◆ *use conceptual model plus outcomes heuristic*
  - ◆ *format: annotated run charts / SPC charts*
  - ◆ **test** *with target end users*
3. **Generate a list of data elements**
  - ◆ *use list of desired reports; think numerators and denominators*
  - ◆ *format: coding manual --> self-coding data sheets*
  - ◆ **test** *(crosswalk) final self-coding data sheets against report list*
  - ◆ **test** *manually, at front lines*
4. **Negotiate what you want with what you have**
  - ◆ *identify data sources for each element: existing/new, automated/manual*
  - ◆ *consider value of final report vs. cost of getting necessary data*
5. **Design EDW structure** *(data marts, data flows, manual data, etc.)*
6. **Program analytic routines, display subsystems**
7. **Test final reporting system**

# Think in terms of 3 types of reports

1. *What information does the front-line care delivery team need to properly manage each individual patient?*
2. *What does the care delivery team need to know at the level of operational processes? (rates, mostly)*
3. *What data / reports are needed for external data collaborations and accountability reporting?*

# Blend data capture into the EMR

- *Real-time data, typically available for use within minutes or hours*
- *It will be things that the front-line team needs to do their job =  
**not an externally-imposed burden***
- *Data that get used at the front-line tend to be much more complete and accurate*