NLM 25 x 5 Symposium to Reduce Documentation Burden
Session 1 – Current Challenges Related to *What* We Document
– via Zoom –
Friday, 15 January 2021 – 1:00p - 3:00p EST

Quality Measurement for Ranking vs Change – Implications on Expense and Burnout

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Quality Science

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.*

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.

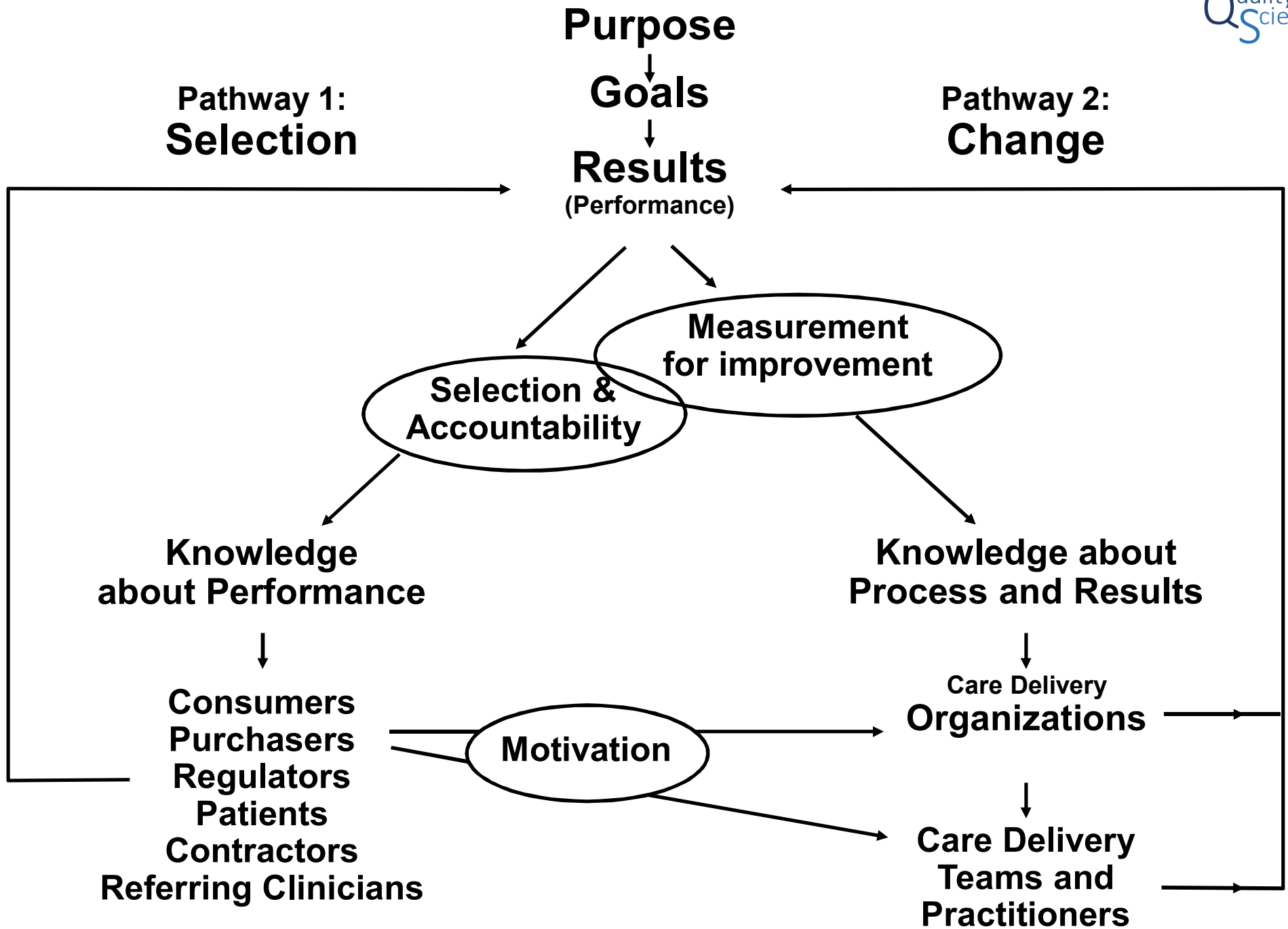# *Aim defines the system.*

Dr. W. Edwards Deming

Two possible primary aims –

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

➢ ***Inside out: change / improvement***
   - *focus on the process; internal operational data*
   - *bottom up*
   - *integrated data capture*
   - *internal aim: make it easy to do it right*

Purpose

↓

Goals

↓

Results
(Performance)

Pathway 1:
Selection

Pathway 2:
Change

Measurement for improvement

Selection & Accountability

Knowledge about Performance

↓

Knowledge about Process and Results

↓

Consumers
Purchasers
Regulators
Patients
Contractors
Referring Clinicians

Motivation

Care Delivery
Organizations

↓

Care Delivery Teams and Practitioners

Berwick, D.M., James, B.C., and Coye, M. The connections between quality measurement and improvement. *Medical Care* 2003; 41(1):I30-39 (Jan).

Measurement for Selection / Ranking

- *Cannot rank accurately* – *it's an underlying mathematical problem, reflected in very wide confidence intervals.*

- *Shifts focus to manipulation of documentation.*

- *Rarely includes all needed measures essential for change* (execution and improvement)*.*

- *Consumes 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, often actively damage quality and block improvement

Measurement for Change / Learning

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*
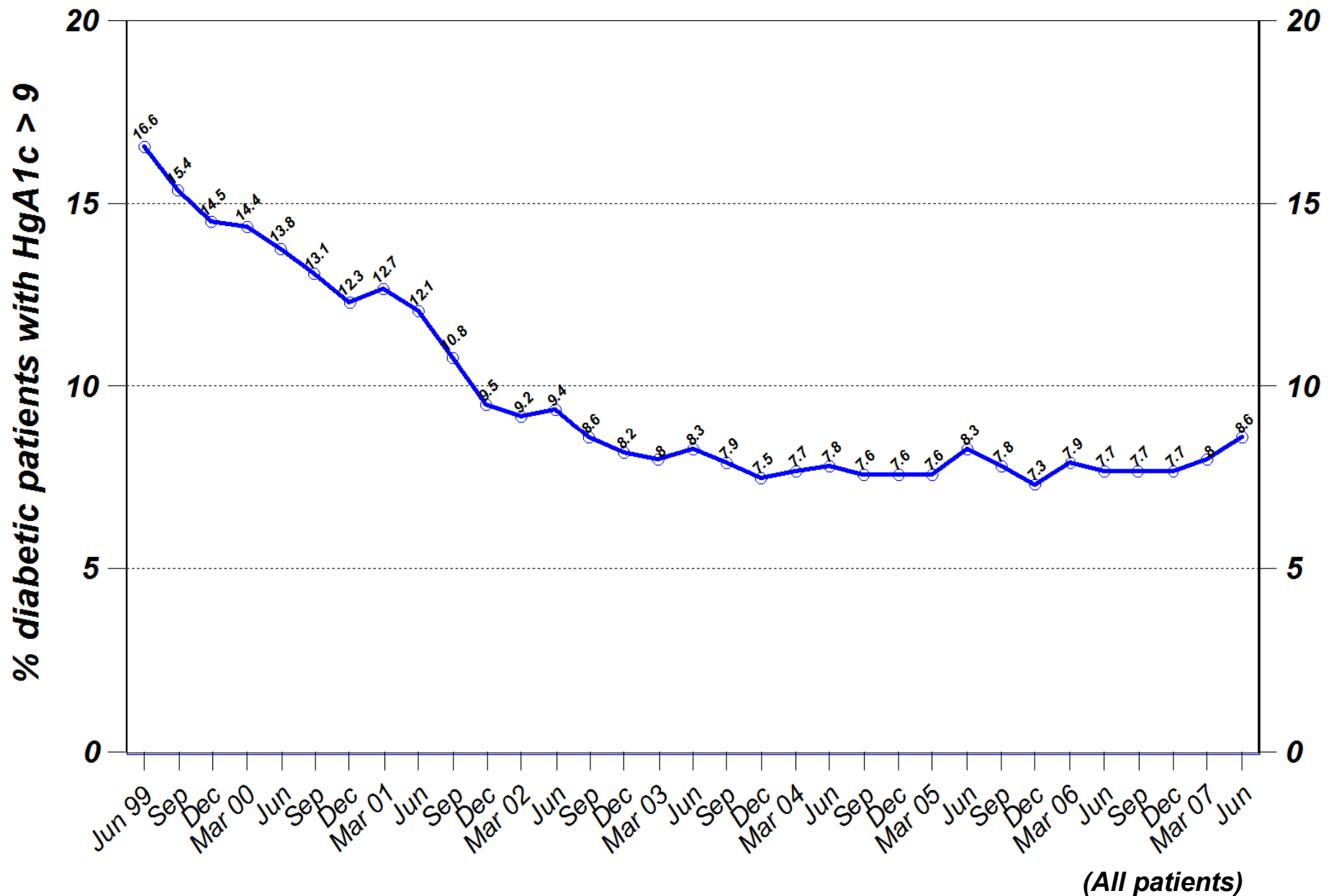
A series of registries
(we had 57, which covered about 80% of all care delivered in the system)

➢ ***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***
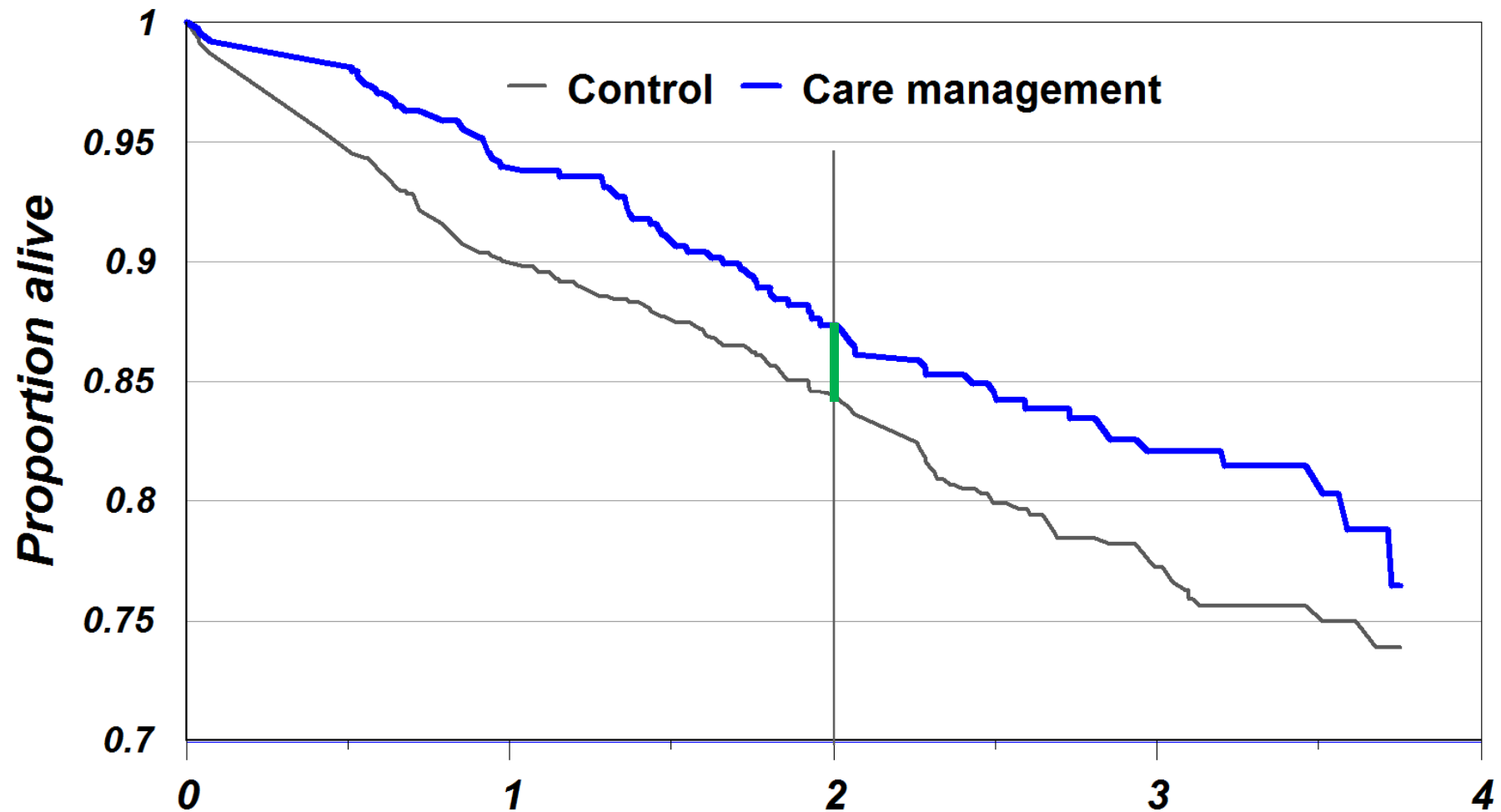
➢ ***Secondary aim: accountability***

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*
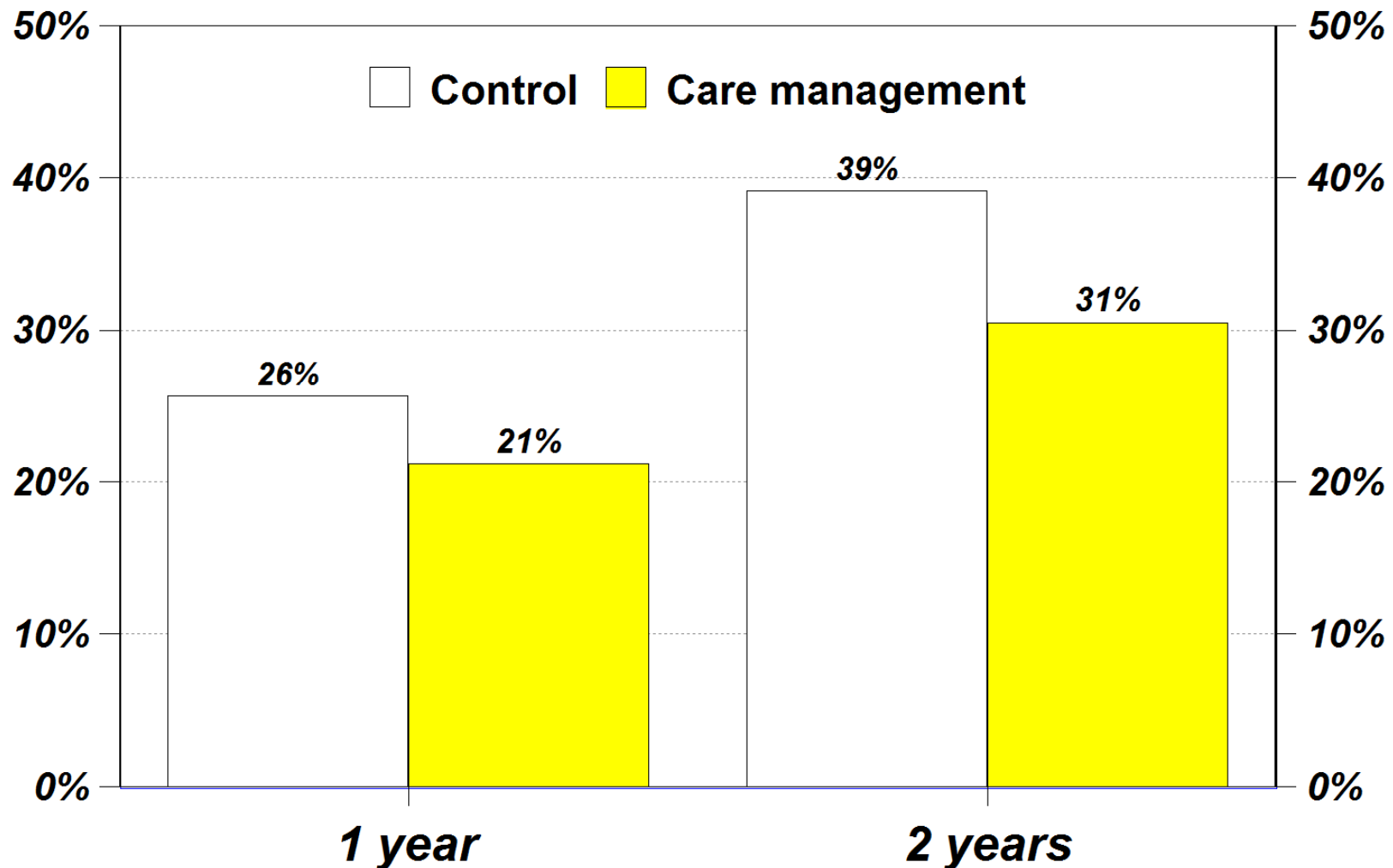
Poor HbA1c control

% diabetic patients with HgA1c > 9

Data points: 16.6, 15.4, 14.5, 14.4, 13.8, 13.1, 12.3, 12.7, 12.1, 10.8, 9.5, 9.2, 9.4, 8.6, 8.2, 8, 8.3, 7.9, 7.5, 7.7, 7.8, 7.6, 7.6, 7.6, 8.3, 7.8, 7.3, 7.9, 7.7, 7.7, 7.7, 8, 8.6

X-axis: Jun 99, Sep, Dec, Mar 00, Jun, Sep, Dec, Mar 01, Jun, Sep, Dec, Mar 02, Jun, Sep, Dec, Mar 03, Jun, Sep, Dec, Mar 04, Jun, Sep, Dec, Mar 05, Jun, Sep, Dec, Mar 06, Jun, Sep, Dec, Mar 07, Jun

(All patients)

Diabetes trial – reduced mortality

Complex diabetes patients - mortality rates

Diabetes trial – lower cost of care

Complex diabetes patients - hospitalization rates

Bar chart legend: Control (white), Care management (yellow)

1 year: Control 26%, Care management 21%
2 years: Control 39%, Care management 31%

Dorr DA, Wilcox A, Donnelly SM, Burns L, Clayton PD. Impact of generalist care managers on patients with diabetes.
  Hlth Serv Res 2005; 40(5):1400-21 (Oct).

Four decision support tools:

1. *Action lists*

2. *Patient worksheets*

3. *Comparative outcomes*

4. *Financial incentives*

Diabetes Patient Follow-Up Worksheet: All Patients
Report Period April-01-2008 to March-31-2009

Intermountain℠ Medical Group

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 remenber "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	SelectHealth Current Diabetes Performance:	100%	77%	92%	62%

SelectHealth Patient Name	IDX MRN	Birthdate	Phone	Last Office Visit	Blood Pressure Date	BP	<=130/80	Lipid Management Date	LDL †	HDL	Trig	HGA1c Date	HGA1c	MicroAlbuminuria 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.

Patient Worksheet

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

Problems

Hyperthyroidism   Hypertension
Diabetes mellitus type 2 insulin treated

General patient status information

Disease specific information

Problems and chronic conditions

Active Medications

1. - Digitoxin, 0.1mg, Tablet; 3 TABLE
2. - Entex LA (Guaifenesin/PPA

Medication profile

Preventive Care

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

Preventive care summary

Clinical Laboratory Data

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

Pertinent labs

Serum Cr		Serum K		Lipid Profile	LDL (<100)	Trig (<200)	HDL (>35)	CHOL (<200)
04/26/2003	1.1	04/26/2003	6.0	04/06/2003	154	85	41	212
10/25/2002	2.0	02/05/2003	6.0	02/24/2003	149	151	41	220
02/27/2002	1.6	10/25/2002	4.5	02/06/2003	168	189	33	239
10/03/2001	2.3	01/29/2002	6.1					

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	02/25/2003	127
04/06/2003	5.2	10/02/2002	37.7 %	02/24/2003	1.2 mg/l			12/19/2002	127
02/24/2003	5.4	08/23/2002	45.0 %					01/02/2002	127
02/06/2003	7.2	07/19/2002	29.9 %					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			

Pertinent exams

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 after 3 consecutive negative annual 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.

Passive reminders organized by illness

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 - Dialated 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.
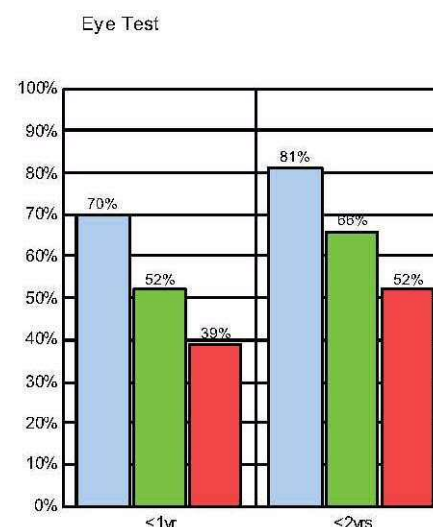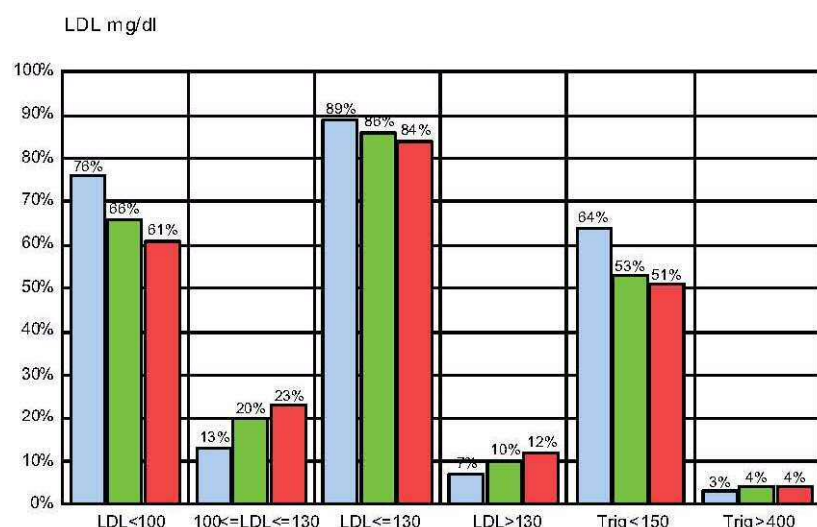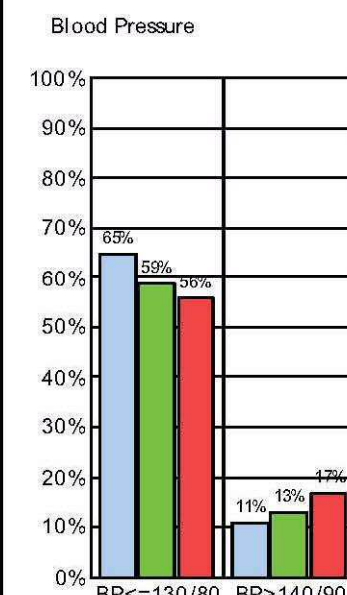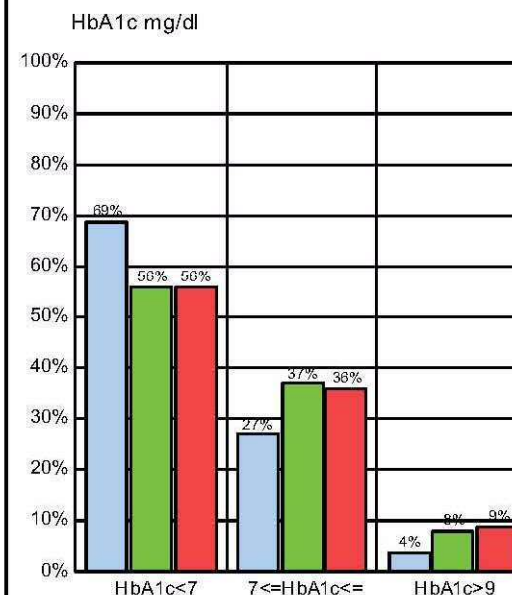
Diabetes Summary Report

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%)
Total Patients	**244**	**1,897**	**44,705**

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/creatine 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.

HbA1c mg/dl

Blood Pressure

LDL mg/dl

Eye Test

Microalbuminuria

HbA1c mg/dl

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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℠ Healthcare

Family Medicine

Clinic Location / Provider Name	Diabetes Patient Count	Hemoglobin A1c Summary: 12 Months					LDL Summary: 12 Months					Blood Pressure:		MA:
		Tested	Tested, result NA	A1c<7.0	7.0<=A1c<=8.0	A1c>8.0	Tested	Tested, result NA	LDL<100	100<LDL<=130	LDL>130	BP Results If Available	BP In Control	MA Tested
Clinic Name Intermountain Taylorsville Clinic														
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%)
Family Medicine Summary:														
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%)

Internal Medicine

Clinic Location / Provider Name	Diabetes Patient Count	Hemoglobin A1c Summary: 12 Months					LDL Summary: 12 Months					Blood Pressure:		MA:
		Tested	Tested, result NA	A1c<7.0	7.0<=A1c<=8.0	A1c>8.0	Tested	Tested, result NA	LDL<100	100<LDL<=130	LDL>130	BP Results If Available	BP In Control	MA Tested
Clinic Name Intermountain Holladay Clinic														
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%)
Internal Medicine Summary:														
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%)
Medical Director Summary:														
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%	**Your Score in this area is:**	**100%**
Managed Care Incentive Goal:	55%		

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%	**Your Score in this area is:**	**100%**
Managed Care Incentive Goal:	87%		

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

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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

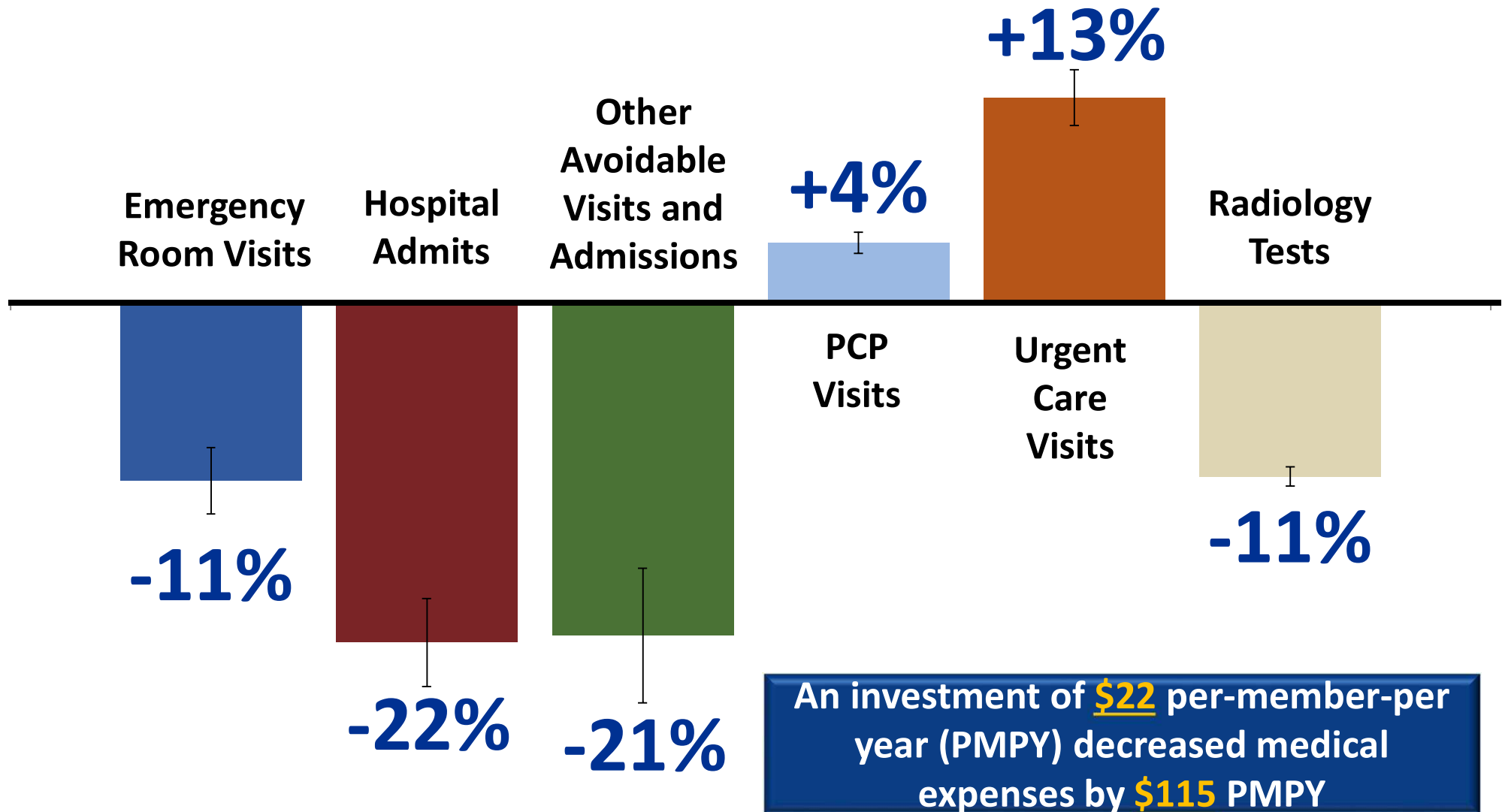**Your Total Managed Care Incentive Score is: 75%**

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)*

Team-Based Care
(3rd generation patient-centered medical home)

Emergency Room Visits — **-11%**

Hospital Admits — **-22%**

Other Avoidable Visits and Admissions — **-21%**

PCP Visits — **+4%**

Urgent Care Visits — **+13%**

Radiology Tests — **-11%**

An investment of **$22** per-member-per year (PMPY) decreased medical expenses by **$115** PMPY

Quality Science

What does "transparency" mean?

Institute of Medicine x2:

a situation in which those involved in health care choices *(patients, health professionals, payers)* **have sufficiently accurate, complete, and understandable information about expected clinical results to make wise decisions.**

➤ *Such choices involve not just the selection of a hospital or a physician, but also the series of testing and treatment decisions that patients routinely face as they work their way through diagnosis and treatment.*

➤ *Most patients consume medical information in the context of a relationship with a trusted clinician* (wise counselor, trusted advisor).

➤ *Most clinicians don't know* (don't measure, or have easy access to) *their own short- and long-term clinical outcomes. As a result, they cannot accurately advise patients regarding treatment choices.*

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.*

Extra slides – just in case related questions arise

In other industries *(e.g., the SEC / stock market)*

Financial **data are generated as part of internal operations**;

then

used for external reporting.

It does require an audit function:

- GAAP *(generally-accepted accounting principles)*
- GAAS *(generally-accepted accounting standards)*
- an independent, certified CPA uses GAAS to audit financial reports

Care delivery performance version:

The care generates the data –
 - *it identifies useful and necessary data*
 - *then generates and captures those data*
   (data capture integrated into care delivery processes)

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**

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**

Ties very closely to EMR

We were not able to
        show a return on investment
        for our electronic medical record systems

until we

combined them with our clinical improvement

Informatics builds the tools;
Clinical quality improvement builds the content.

Enterprise Data Warehouse (EDW)

➤ **58 clinical registries aligned to specific conditions** *representing about 80% of all care delivered within Intermountain*

➤ **follows every patient longitudinally over time** *condition-specific clinical, cost, and service intermediate and final outcomes*

➤ **about 3 petabytes** *(million gigabytes)* **of storage**

➤ **primary use: routine clinical management**

The Learning Health Care System

1. *Build a system to manage care*

2. *Justify the required major financial investment on the basis of care delivery performance* -- *"the best clinical result at the lowest necessary cost"*

3. *Use the resulting clinical management data system to:*
   (a) *Generate true transparency at the clinician-patient level, rolling up to the national level*
   (b) *"Learn from every patient" - integrate clinical effectiveness research into front-line care*

2015 "Type 1" learning production

- ***Women & Newborn: 84 peer-reviewed articles***

- ***Cardiovascular*** *(2103 data)*:
  - **64 peer-reviewed articles**
  - **67 abstracts**
  - **15 "other" - book chapters, editorials, etc.**

- ***Other Clinical Development Teams also published***
  (just not as prolific as Women & Newborn and CV -- ~400 total articles)

- ***Cumulative impact on cost of operations: ~$688 million***

Goal: **1,000** *peer-reviewed Type 1 publications in a single year*