Making accountable care work through next generation data solutions: a focus on measurably improving value for patients and populations

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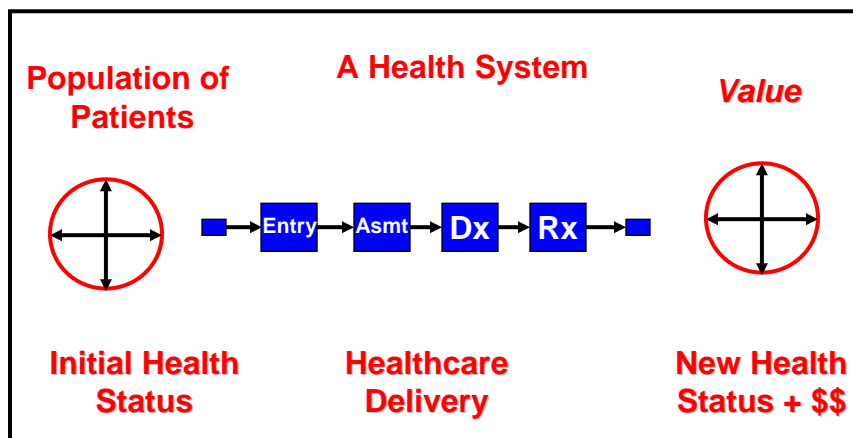**The Dartmouth Institute**

Dartmouth-Hitchcock Health

November 1, 2012

ACO Summit

Los Angeles, CA

3 Cases: Dartmouth Spine Center & D-H Heart Failure & Sweden RA Registry

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How is a kilowatt hour of electricity like a day in the hospital?
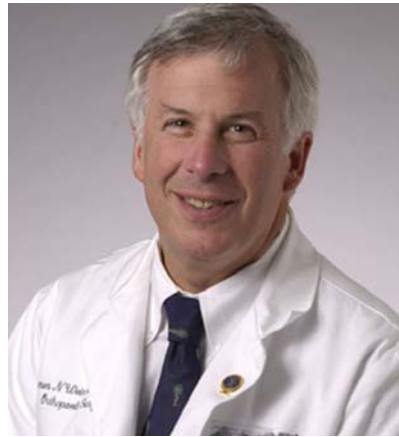
What is health care value?

Population of Patients

A Health System

Value

Entry → Asmt → **Dx** → **Rx**

Initial Health Status

Healthcare Delivery

New Health Status + $$

Value = Health outcomes (disease + risk + function) / costs over time 2
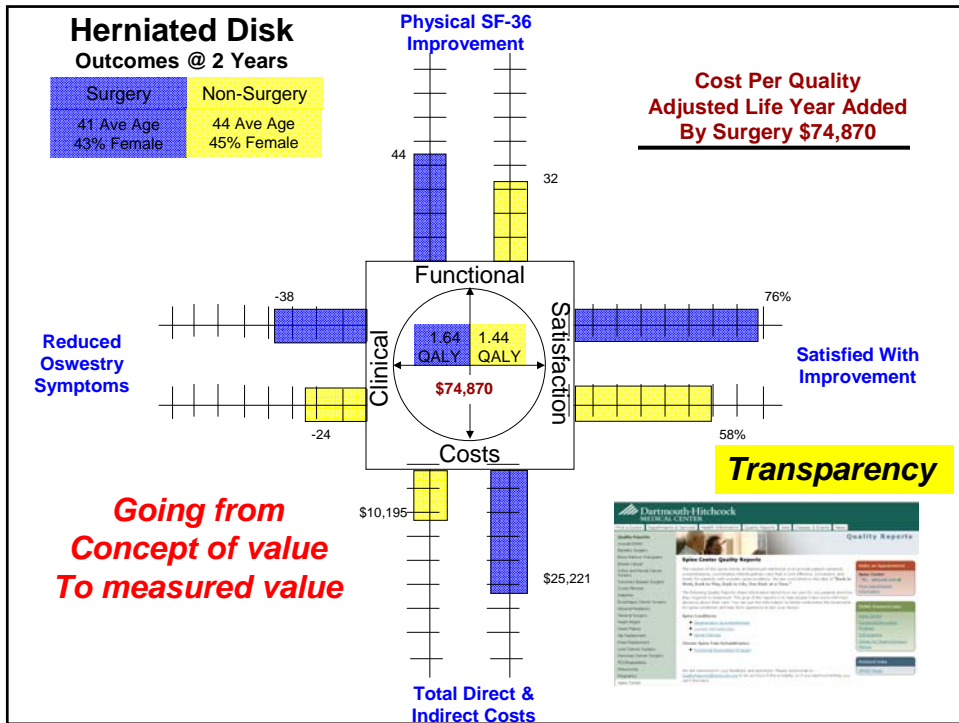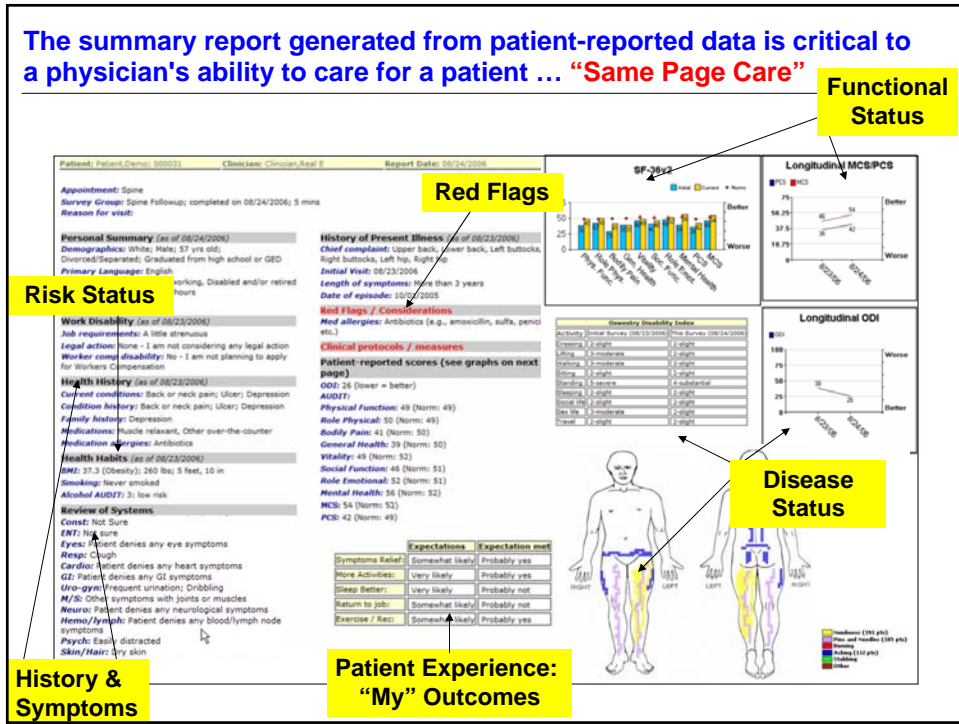
Dartmouth Spine Center

- **Started in 1998 by Jim Weinstein**

- **Innovative interdisciplinary clinical microsystem … 1 stop shopping**

- **"Back to work back to play 1 back at a time." … patient-centered**

- **Better care in real time & better research over time**

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Spine Center: Feed forward (& feedback) system, featuring PROs for engaging patient, shared decision making & making care plan, coordinating care, improving care, measuring, researching & paying for health care value

Feed Forward

Acute Care Management

Chronic Care Management

Functional Restoration

Palliative Care

Referral or Visit Request

Orientation & PROs

Initial Work Up Plan of Care

People with healthcare needs

People with healthcare needs met

Functional & Risk Status

Disease Status

Expectations For good care

Sunk Costs

Feedback

✓ **Improvement registry**
✓ **Public reports website**
✓ **SPORT & research**

Functional & Risk Status

Disease Status

Satisfaction against need

Incremental Costs

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The summary report generated from patient-reported data is critical to a physician's ability to care for a patient … "Same Page Care"

Functional Status

Red Flags

Risk Status

History & Symptoms

Patient Experience: "My" Outcomes

Disease Status

Herniated Disk
Outcomes @ 2 Years

Surgery	Non-Surgery
41 Ave Age	44 Ave Age
43% Female	45% Female

Physical SF-36 Improvement

Cost Per Quality Adjusted Life Year Added By Surgery $74,870

Functional

Reduced Oswestry Symptoms

Clinical

1.64 QALY   1.44 QALY

$74,870

Satisfaction

Satisfied With Improvement

Costs

Transparency

Going from Concept of value To measured value

Total Direct & Indirect Costs

44
32
-38
76%
-24
58%
$10,195
$25,221

Prototype SPORT Calculator

PRIM in eDH

Case 2: A Health System & Available Data

D-H Health System…vision: a sustainable health system with a strategy of measurably improving value & with a Tactical need to take good care of high cost patients

Mortality

| Population | Office Visits | ED Visits | Hospital Stays | HF Hospital Stays | HF Re-Admit |

Costs

HF Patients' Journeys

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D-H HF Medicare Pts.

D-H Avg. Medicare Pts.
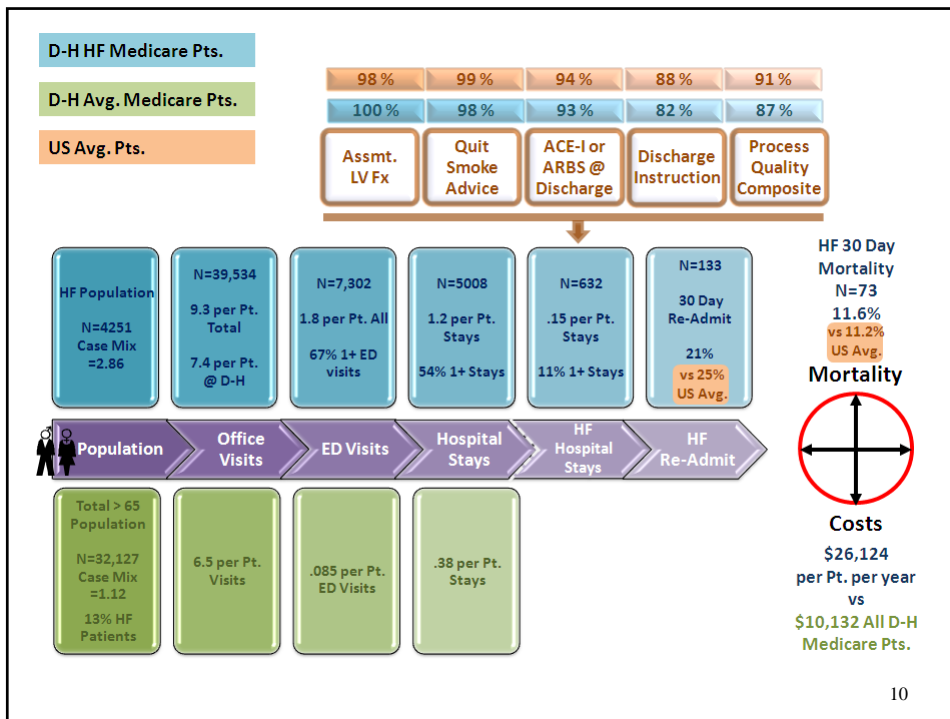
US Avg. Pts.

| 98 % | 99 % | 94 % | 88 % | 91 % |
| 100 % | 98 % | 93 % | 82 % | 87 % |

| Assmt. LV Fx | Quit Smoke Advice | ACE-I or ARBS @ Discharge | Discharge Instruction | Process Quality Composite |

HF Population
N=4251
Case Mix
=2.86

N=39,534
9.3 per Pt. Total
7.4 per Pt. @ D-H

N=7,302
1.8 per Pt. All
67% 1+ ED visits

N=5008
1.2 per Pt. Stays
54% 1+ Stays

N=632
.15 per Pt. Stays
11% 1+ Stays

N=133
30 Day Re-Admit
21%
vs 25% US Avg.

HF 30 Day Mortality
N=73
11.6%
vs 11.2% US Avg.

Mortality

| Population | Office Visits | ED Visits | Hospital Stays | HF Hospital Stays | HF Re-Admit |

Total > 65 Population
N=32,127
Case Mix =1.12
13% HF Patients

6.5 per Pt. Visits

.085 per Pt. ED Visits

.38 per Pt. Stays

Costs

$26,124
per Pt. per year
vs
$10,132 All D-H Medicare Pts.

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HF Composite

**Overall performance for heart failure care (composite)**

Our goal is to provide all the recommended elements of care to heart failure patients. Patients with heart failure should get:
- Assessment of left ventricular function
- A prescription for ACE inhibitors or ARB medications at discharge.
- Complete discharge instructions
- Advice to quit smoking.

A multi-specialty clinical team has been working to evaluate and improve the care of patients admitted to the hospital with a still looking for ways to improve how care is delivered.

At DHMC from January 2010 to March 2010, 87% of 71 heart failure patients got all the recommended elements of care, rat

OVERALL PERFORMANCE FOR HEART FAILURE CARE (COMPOSITE) (%)

At DHMC, 87% of heart failure patients got all the recommended elements of care, rather than most or some of the recommended elements of care.
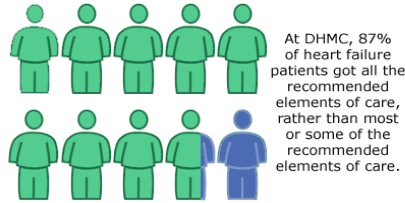
We are interested in your feedback and questions. Please send something you can't find here.

= received all recommended elements of care

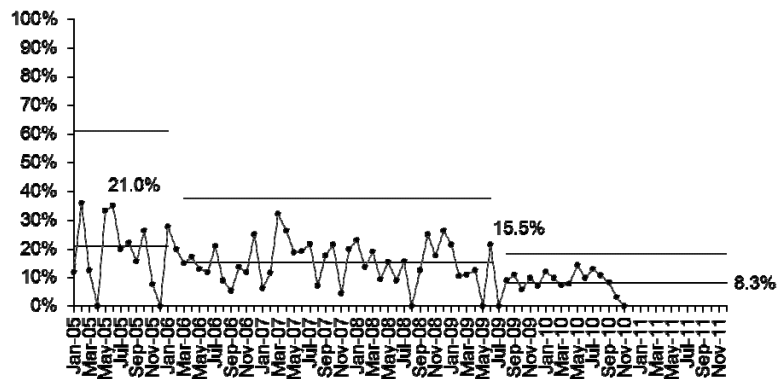= received some but not all recommended elements of care

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Heart Failure Readmission Rate
% Readmitted within 30 days of discharge

21.0%

15.5%

8.3%

Remember what Amory Lovins said about hospital days?

Sweden's Rheumatoid Arthritis (RA) Registry

- **Started in 2002 by Staffan Lindblad & Helena Hvitfeldt (& patient care-designer joined team later)**

- **Aim: to build the Swedish RA registry using PROMs feed forward & feedback design … better care & better research**

- **Has spread to 22 out of 64 centers**

- **Innovation: fundamental change in way care is being delivered … active co-design of care plan by patient, nurse and doctor & novel web enabled PROMs data system**

- **Michael Porter's advice to Sweden's government … a model for all of Sweden on measurably improving value & gaining a strategic competitive advantage**

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Patient Registering Data on Swollen and Tender Joints on a Touch Screen
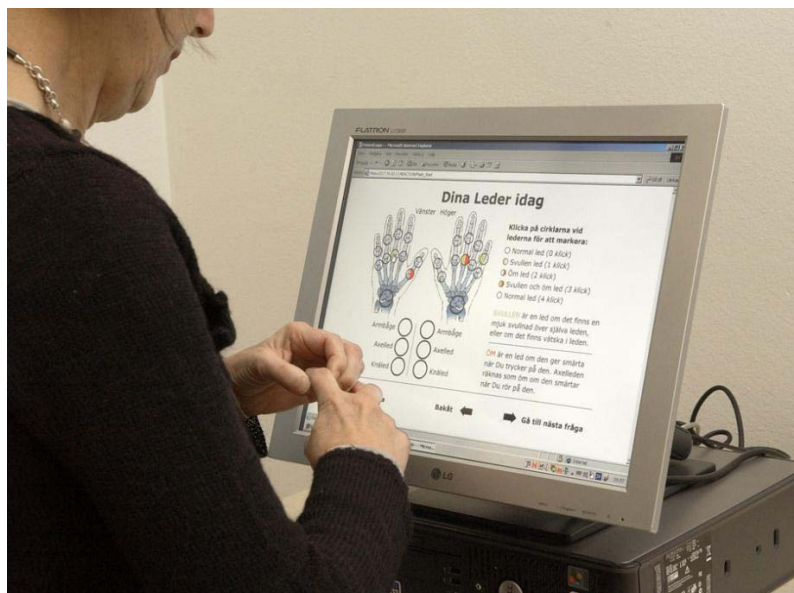
Summary Overview of a Rheumatology Patient

Case in point: Swedish National RA Registry …
This patient is doing better …
N of 1 experiment…
Dropped 2 meds

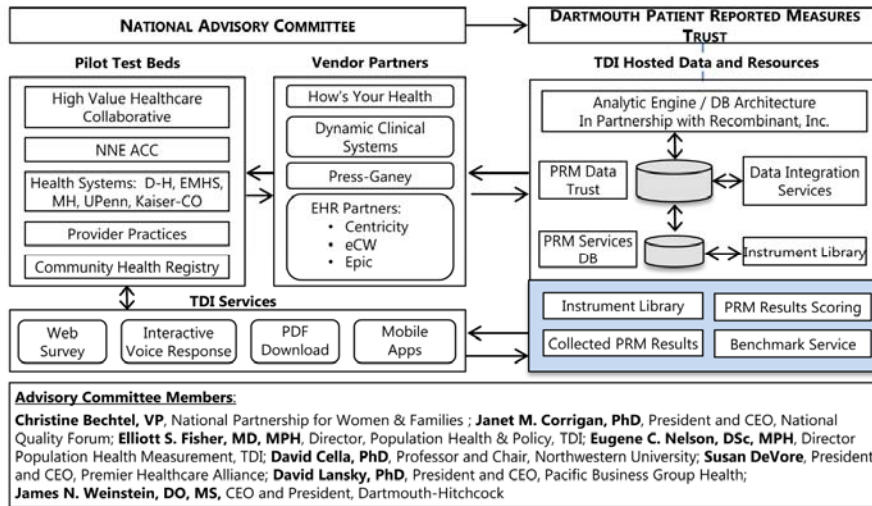| År	2010 05-Jan	2010 23-Feb	2010 28-Mar	2010 03-Jun	2010 05-Sep	2010 08-Dec
Dag Månad	05-Jan	23-Feb	28-Mar	03-Jun	05-Sep	08-Dec
Årskontroll						
Månads-Kontroll	0	2	3	5	8	11
MK-grupp	1	3	3	6	9	12
Arbetsförmåga	/	/	/	/	/	/
Allmän hälsa	75	75	71	35	35	36
SR	54	63	48	25	15	5
Läkarbedömning	Hög	Hög	Hög	Måttlig	Låg	Låg
EQ5D	-0,045		-0,045		0,808	0,931
CRP	35	35	20	8	2	1
Spond.artrit, Ank.spond.						
BASFI						
Svullna leder (66)						
Ömma leder (68)						
Daktylit						
Entesit						
Funktionsneds. - HAQ	1,75	1,75	1,63	0,88	0,88	0
Smärta	81	80	75	40	30	27
Svullna leder (28)	12	12	11	2	0	1
Ömma leder (28)	12	12	11	3	1	2
TIRA						
Trombocyter						
DAS28	6.75	6.86	6.49	4.11	2.95	2.7
BASDAI						
DAS28CRP	6.21	6.21	5.84	3.61	2.41	2.79
NSAID	COX1	COX1	COX1	COX1	COX1	COX1
KORT	PRE	PRE	PRE	PRE	PRE	PRE
KORT dos	10/1d	15/1d	10/1d	10/1d	10/1d	10/1d
DMARD 1	MTX	MTX	MTX	MTX	MTX	MTX
DMARD 1 dos	20/1v	20/1v	20/1v	20/1v	20/1v	20/1v
DMARD 2	SAL	SAL				
DMARD 2 dos	2000/1d	2000/1d				
DMARD 3						
DMARD 3 dos						
DMARD 4						
DMARD 4 dos						
Uppföljd månad				0	3	6
Uppföljt läkemedel			ENB	REM	REM	REM
Läkemedelsdos			50/1v	200/8v	200/8v	200/8v

January - March

June - December

Key point: Swedish health system is doing better:
All Patients in the SRQ, from 1994 – 2006*

Patients sicker at 1st visit

Patients better at 6 & 12 months
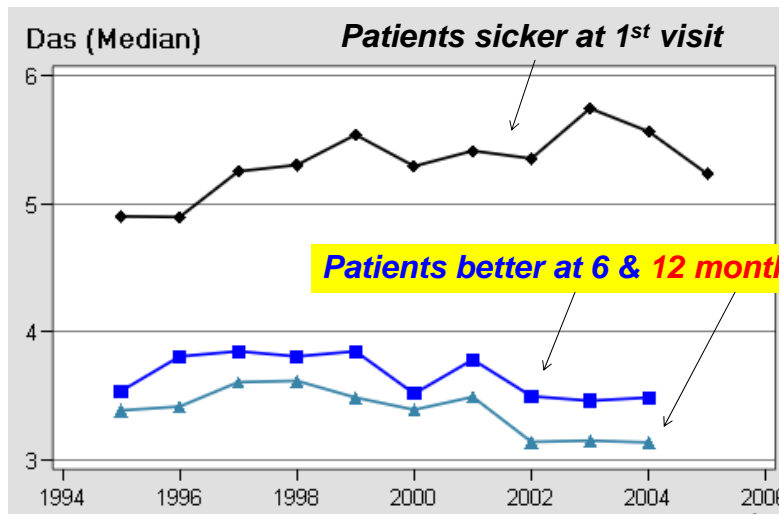
*Black line shows DAS at initial visit and blue after 6 months and turquoise after 12 months.

Dartmouth PROMs Trust:

a collaboratory with every patient a data point

Obstacles & Opportunities

- **EHRs have not been developed for patient value-focused longitudinal care (but IHC & IORA are both building own EHR to support innovative care & Epic is making headway)**

- **PROMs measures and tracking over time vital for value improvement but no standard, widely accepted measures (but PROMIS is potential solution)**

- **Patients do not have expectation for use of patient-centered measures and data as part of routine care (but they like it when they experience it)**

- **Providers have not been trained to make use of patient centered measures and data as part of routine care (but Jim Weinstein says he can't be a good doctor without it)**

- **Telehealth: 24/7/365 shared self-management by "me" and "my team"**

- **Transparency: Value-based accountability & purchasing**

- **Precision & parsimony: Computerized adaptive testing**

- **Self-care: Patient engagement & empowerment**

- **EHRs & PHRs: Electronic medical records & patient-controlled health records**

- **Innovation Testing: Use to test impact of new care models e.g. IORA, ACOs, bundled payments**

- **Collaboratories & Warehouses: Measure trusts combining patient reported data with other streams (clinical, genetics, biomarkers, treatments, costs, etc.) & analytics**

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Take Home Points

ACOs Must Break into
A New High Value Space

1. ACOs must focus on "end user value"
2. ACO data systems need to support real time delivery of high value care to individual patients and measuring value of care delivered to patients & populations
3. Build patient-centered, value focused data solutions into processes and care flows to improve outcomes & efficiency & to be measurably accountable for value

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spares

Group Health: Primary Care

- Started in **2006** by Rob Reid & colleagues
- Strategy: redesign a failing primary care system
- Tactic: use patient-reported data to improve preventive & chronic care
- Integrated with Epic electronic medical record
- **>70%** primary care patients using feed forward data with their primary care teams

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PHR   # Patient Home Page

Example of the eHRA Questions

Patient Report Delivered by Web Portal

Report Delivered to the Clinical Team