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

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November 1, 2012
ACO Summit
Los Angeles, CA

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

How is a kilowatt hour of electricity like a day in the hospital?

What is health care value?

Value = Health outcomes (disease + risk + function) / costs over time

Population of Patients

A Health System

Value

Initial Health Status

Healthcare Delivery

New Health Status + $$
Case 1: A Clinical Practice & PROMs Data

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

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

People with healthcare needs

Referral or Visit Request
OrIENTATION & PROs
Initial Work Up
Plan of Care
Acute Care Management
Chronic Care Management
Functional Restoration
Palliative Care

People with healthcare needs met

Feedback

✓ Improvement registry
✓ Public reports website
✓ SPORT & research

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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”

Herniated Disk Outcomes @ 2 Years

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

Going from Concept of value To measured value

Transparency
**Prototype SPORT Calculator**

**Degenerative Spondyloolisthesis Treatment Calculator**

- **Your age:** 35
- **Your sex:** Male
- **Past Symptoms:**
  - Leg pain
  - Weakness of leg or foot
  - Back pain
- **Symptoms:**
  - Pain on standing
  - Pain on walking

**Pain Score After Treatment**

- **Worse:**
  - 0: None
  - 1: Mild
  - 2: Moderate
  - 3: Severe
- **Better:**
- **Months:**

Personalized risk assessment
Based on people like me...
From research back to patient care

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**PRIM in eDH**

**Patient Reported Information & Measures**

**Advantage of Dartmouth-Hitchcock’s model of integrating patient-reported data into care**

- **Patient Care**
  - Patient and provider engagement
  - Whole patient care
  - Informed patient choice
- **Research**
  - Research as part of clinical practice
  - Same system for practice and research
  - Comparative effectiveness research
  - Patient-centered, value-based research
- **Health System**
  - Patient-reported outcomes reporting
  - More efficient, complete visit documentation
  - Practice improvement based on outcomes
  - Value-based payment measures for ACOs*

*Value-based payment measures will be used for Accountable Care Organizations (ACOs); future reimbursements around episode based measures

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**18 Patient Populations & Data Warehouse & Analytics to Support Patient & Population Management**
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

**Case 2: A Health System & Available Data**

**HF Patients’ Journeys**
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.

= received all recommended elements of care
= received some but not all recommended elements of care

Heart Failure Readmission Rate

% Readmitted within 30 days of discharge

Remember what Amory Lovins said about hospital days?
Case 3: A National Health System & PROMs Data

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
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

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

*Black line shows DAS at initial visit and blue after 6 months and turquoise after 12 months.
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
Take Home Points

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

ACOs Must Break into A New High Value Space
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

Case 4

Patient Home Page

PHR
Example of the eHRA Questions

Patient Report Delivered by Web Portal

Chronic care tracking

Risk Status tracking

Next Actions

- Standard serving of one drink:
  - 12 ounces of beer or wine cooler
  - 2 ounces of 80 proof liquor
  - 1.5 ounces of wine
  - 1.75 ounces of liquor

- Alcohol & Drug Use
  Alcohol and other substances can increase your risk for certain health conditions.

- How often do you have a drink containing alcohol?
  - 0 per day
  - 1 per day
  - 2 or 3 per week
  - 4 or more times a week

- How many drinks containing alcohol do you have on a typical day when you are drinking?
  - 0 per day
  - 1 per day
  - 2 to 5 per day
  - 6 or more per day
**Report Delivered to the Clinical Team**

Call to action

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**Health Profile - Primary Care Team Report**

<table>
<thead>
<tr>
<th>Chronic Conditions</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes Type 2</td>
<td>Poor control</td>
</tr>
<tr>
<td>Myopia x 3</td>
<td>None</td>
</tr>
</tbody>
</table>

**Other Issues to Consider:**

- Hypertension
- Diabetes Type 2
- Myopia x 3

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**Clinical References**

- [External Link 1](#)
- [External Link 2](#)