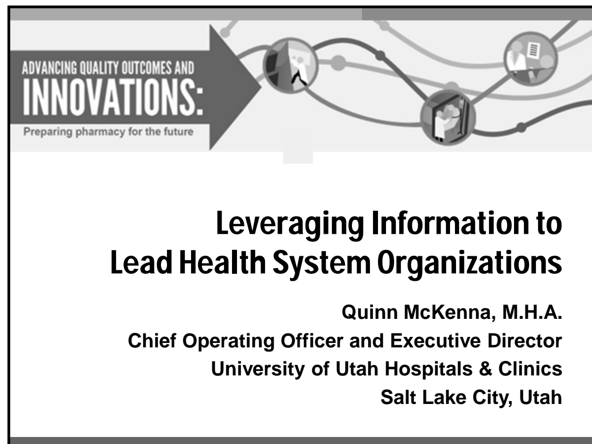
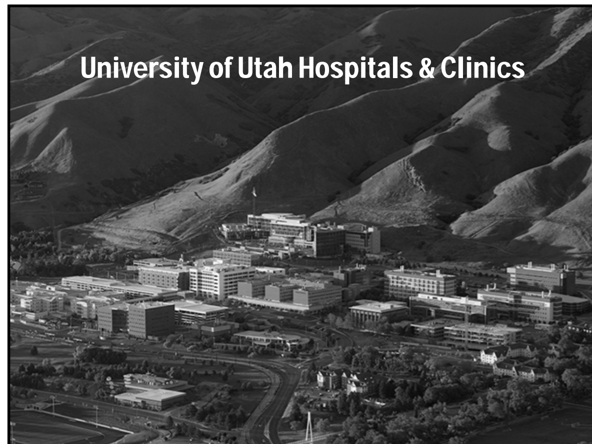
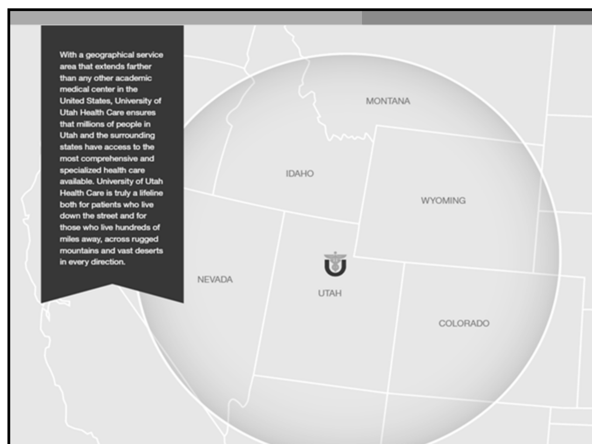


Learning Objectives

- Describe how organizations are using macro and micro data to drive decisions.
- Discuss what analytics mean in today's health care arena.
- Apply business intelligence to the analysis of data.





What Is Our Challenge?

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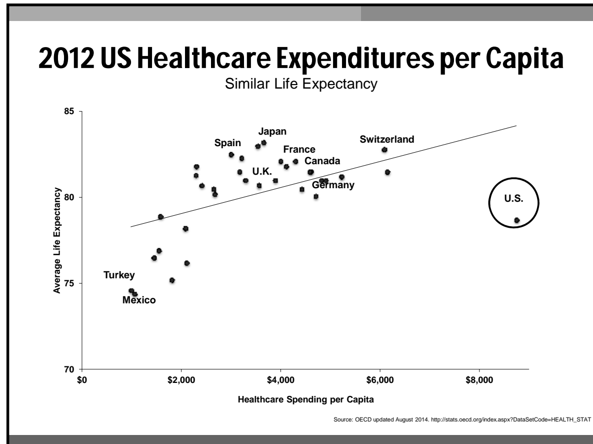
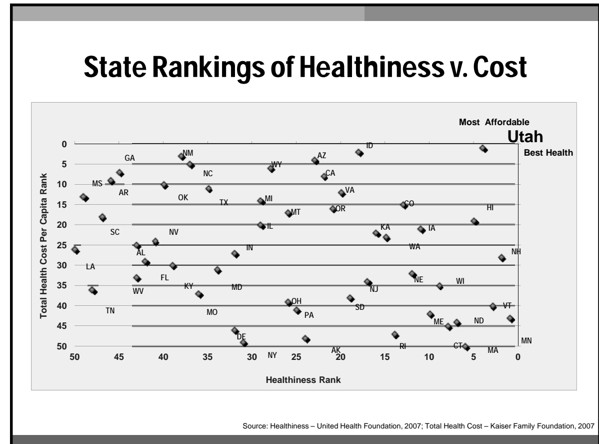
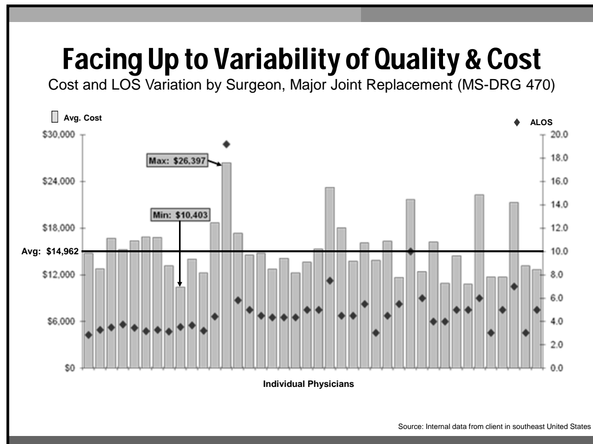
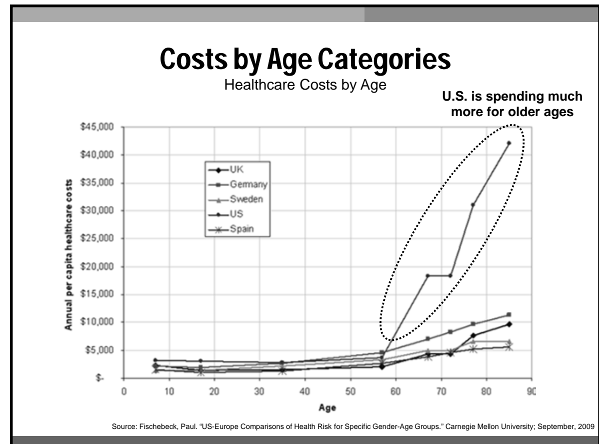








The Problem: Current Growth Rate

10,000

Number of baby boomers turning 65 each day. More than half will have multiple chronic conditions.
Source: Medicare Trustees Report, 2012

$1Trillion

Projected annual cost of Medicare in 2022 — almost double the current cost of $560 billion.
Source: Congressional Budget Office

Amount of lifetime Medicare benefits received vs. Medicare taxes paid per couple: $387,000 / $122,000
Source: The Urban Institute, 2012

Ratio of workers to Medicare beneficiaries
1965
2011
2040
Source: Medicare Trustees Report, 2012

The Fiscal Gap

Unfunded federal obligations, 2014

Social Security $7.7 trillion

National Debt $17.4 trillion

Medicare $38.7 trillion

Total (as a net present value) **= $63.8 trillion+**

Source: Brent C. James, M.D., M.Stat. Executive Director, Institute for Health Care Delivery Research Intermountain Healthcare Salt Lake City, Utah

Is There a Solution?

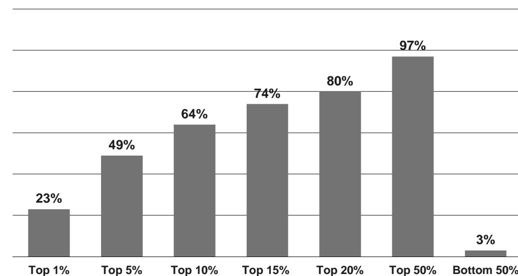
Is your system acquiring other hospitals and/or physicians?

a. Yes
b. No
c. I don't know

Is your system focusing on population health initiatives?

a. Yes
b. No
c. I don't know

Population Percentile Ranked by Health Care Spending



Is your system participating in any insurance risk programs?

a. Yes
b. No
c. I don't know

Is your system focused on cost control more than quality improvement?

a. Yes
b. No
c. Equal emphasis
d. I don't know

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5 Solutions?

- Maintain Health
  – Exercise and Diet
- Disease Prevention
  – Immunization, Unhealthy Practices
- Effective and Efficient Care
- Chronic Disease Management (50% of cost on 5% of patients)
- Societal Choices

5 Solutions?

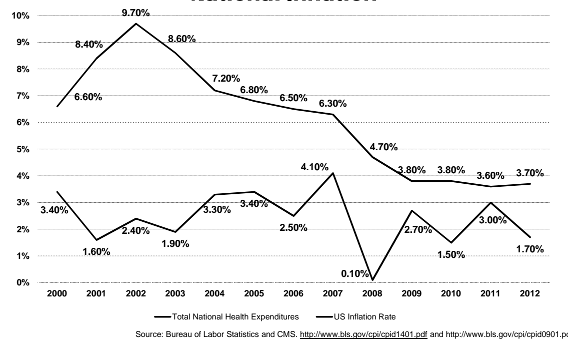
- Maintain Health
  – Exercise and Diet
- Disease Prevention
  – Immunization, Unhealthy Practices
- Effective and Efficient Care
- Chronic Disease Management (50% of cost on 5% of patients)
- Societal Choices

Where is the Government's Focus?

The Game Changers

- American Recovery and Reinvestment Act of 2009 (The "Stimulus")
  – Requires Meaningful Use of Health Information Technology
- Requires Protection and Affordable Care Act of 2010 (Obamacare)
  – Medicaid Expansion
  – Insurance Exchanges
  – High Deductible Health Plans
  – Guaranteed Issue of Health Insurance, Regardless of Pre-Existing Condition
  – Minimum Essential Benefits (Prevention, Maternity, Mental Health)
- Budget Control Act of 2011 (The Sequester)
  – Reduces Medicare Payments to Hospitals, to Help Reduce the Federal Budget Deficit
- American Taxpayer Relief Act of 2013 (The Fiscal Cliff)
  – Reduces Medicare Payments to Hospitals, to Avoid Tax Increases

Healthcare Inflation Continues to Outpace National Inflation



The Market is Changing…

- We are being asked to deliver greater value
  – Improved clinical outcomes
  – Improved experience of our patients
  – Lower cost
- We are being asked to care for the health of a population
- Payment systems and methodologies are changing…rewarding those who accept risk and deliver value
- We are being asked to increase funding in support of the academic mission as other sources of funding are diminished

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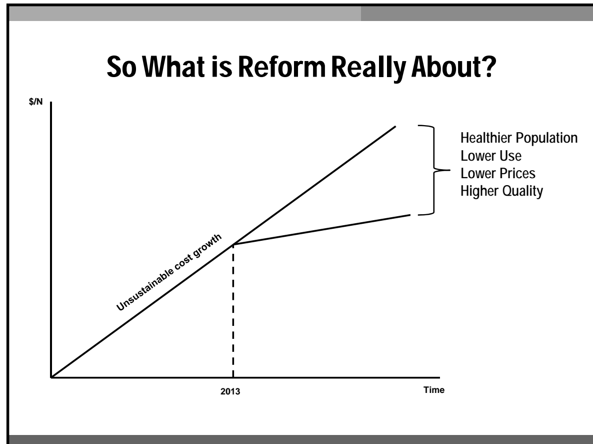
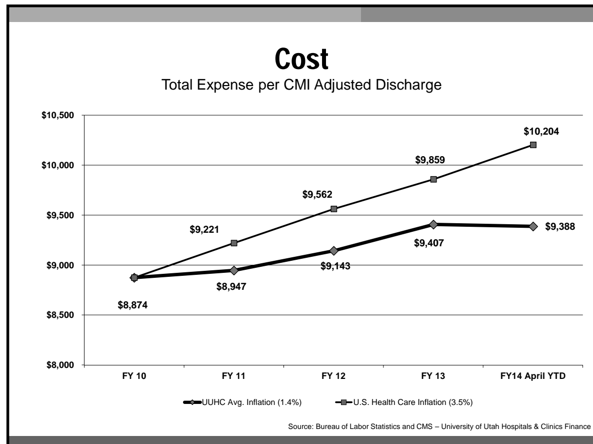


Is your institution increasing costs at a slower rate than CPI?

a. Yes
b. No
c. I don't know



Foundational Problem: Measuring Value

"… A fundamental and largely unrecognized problem: We don't know what it costs to deliver health care to individual patients, much less how those costs compare to the outcomes achieved."

"Understanding costs could be the single most powerful lever to transform the value of health care."

- Robert S. Kaplan & Michael E. Porter

The New York Times
OPINION
Why Medical Bills Are a Mystery
By ROBERT S. KAPLAN and MICHAEL E. PORTER

Is your organization's quality of care better than average?

a. Yes
b. No
c. I don't know

Is your organization's cost of care better than average?

a. Yes
b. No
c. I don't know

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The Role of Information in Decision Making and Moving the Organization

Starting Point

- Do you have a clear vision of where you are going?

Value Equation

$$V_{\text{(VALUE)}} = \frac{Q_{\text{(QUALITY)}} + S_{\text{(SERVICE)}}}{\$_{\text{(COST)}}}$$

Understanding?

- Do you clearly understand how you are currently performing?

The Role of Information is to Help You Understand Where You Are, Assist You in Making the Best Decisions and Reveal Your Progress Toward Your Vision of the Future

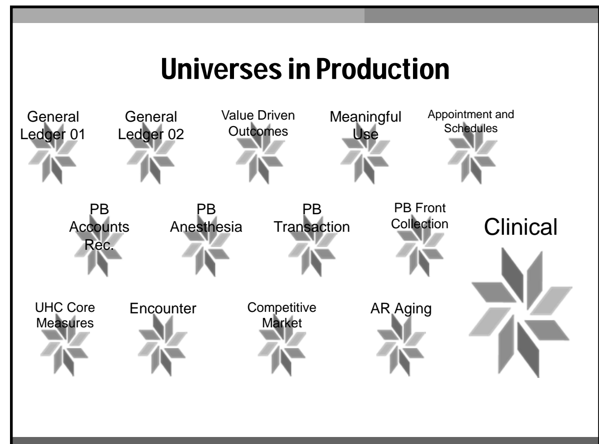
Business Intelligence User Group

Current State of BI

Since June BI User Group

- Users >419 +262 (121%)
- Universes Prod: 27 +13 (93%)
- Reports 5,900 +4,722 (399%)

Universes in Production



FY14 Operational Strategy

- Purpose
  - Track progress toward operational goals
- Features to highlight
  - Navigation
  - Interactivity

Danielle Freeman & Candice Crawford – Decision Support

Clinical Drill Analysis

Click MRN to Drill to Patient Profile

Name
Address
Contact Info
Inpatient History
Outpatient History

Click Vitals to Drill to Vitals Detail

Meaningful Use

- Purpose
  - Provide required reporting to Chairs, Administrators, and Physicians on Meaningful Use requirements
- Universe
  - Meaningful Use
- Features to Highlight
  - Report bursting
  - Filter bar

Decision Support

Thrombosis

- Purpose
  - Report on Major Bleeding events and protocols
- Universe
  - Clinical

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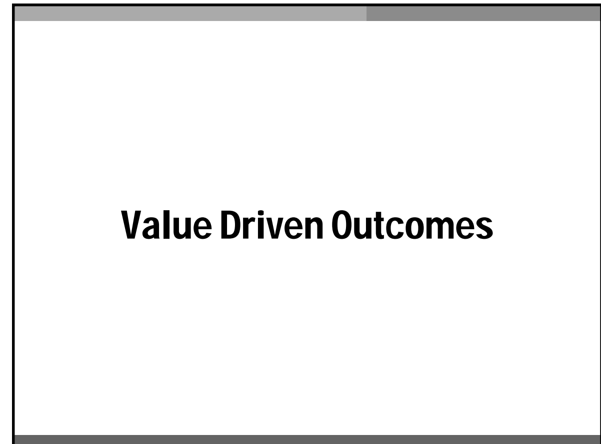

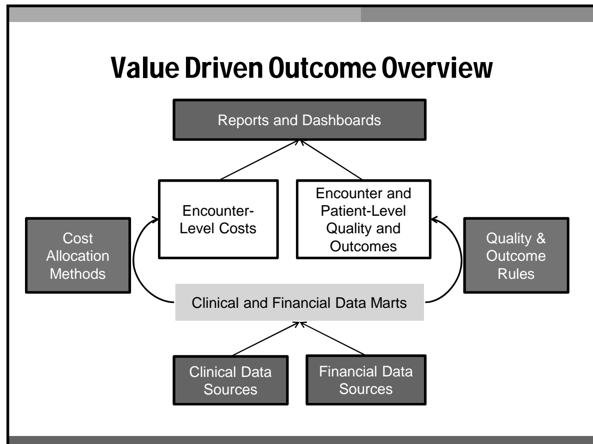

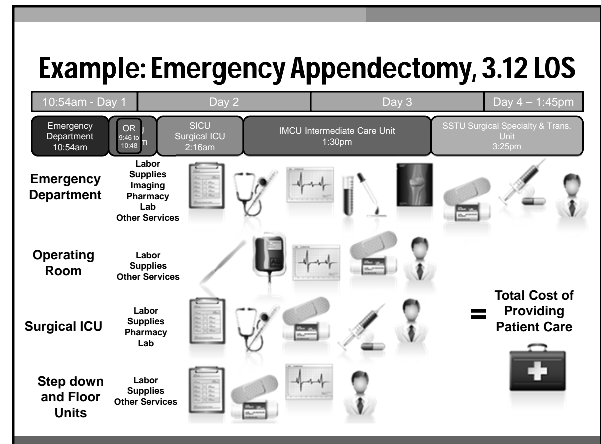

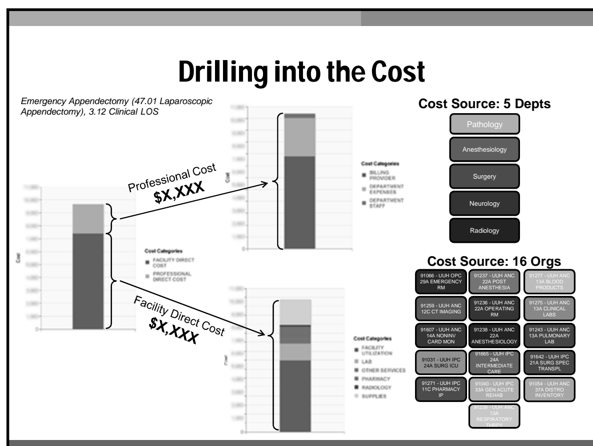

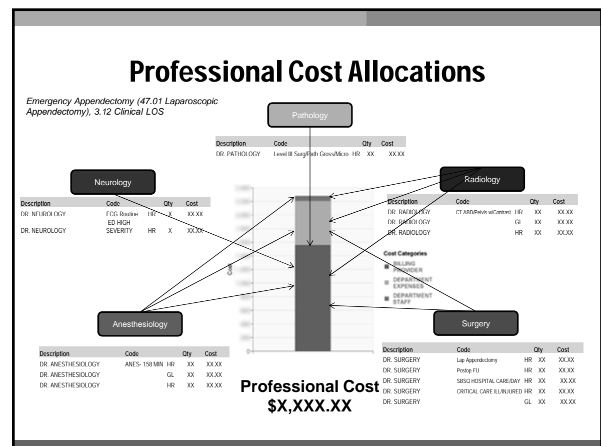

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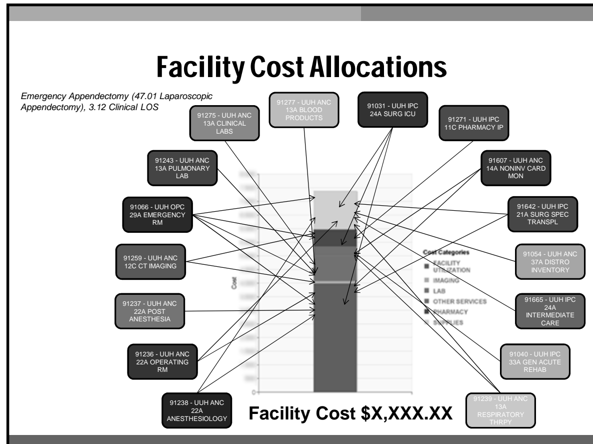
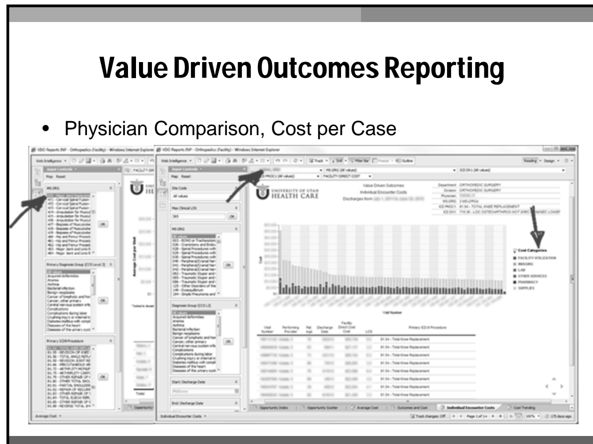
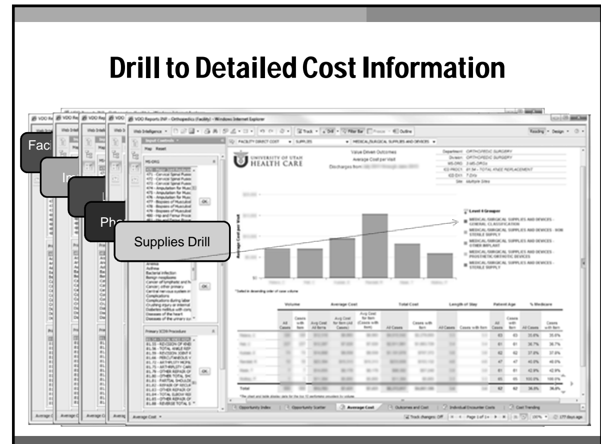
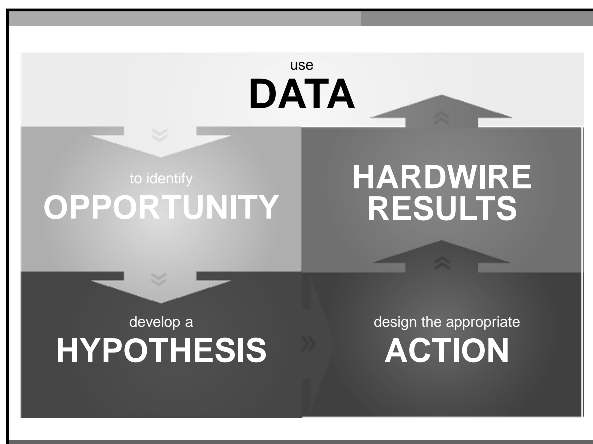


UNIVERSITY OF UTAH HEALTH CARE | Value Driven Outcomes

Value Driven Outcomes Analytics







Engagement is a Key Success Factor

VDO Care Processes

- Sponsor: Chair/Chief
- MD Leader
  Interdisciplinary Team
- Dedicated Support
- 90-Day Timeline

Value Equation

$$V_{\text{(VALUE)}} = \frac{Q_{\text{(QUALITY)}} + S_{\text{(SERVICE)}}}{\$_{\text{(COST)}}}$$

Examples

Joint Replacement

Joint Replacement
Value Driven Care Process

Physician Lead: Chris Pelt, MD
Sponsor: Charles Saltzman, MD

Multidisciplinary Team:
- Nursing
- Physical Therapy
- Ambulatory Clinic
- Case Management
- Value Engineering
- Decision Support
- EDW
- Quality & Patient Safety

Perfect Care Composite: Joint Replacement

National Metrics	Local Metrics
30 day readmission	Early mobility
8 SCIP measures	ED visit within 90 days
35 HAC/PSI metrics	Discharge unit
	Anesthesia technique

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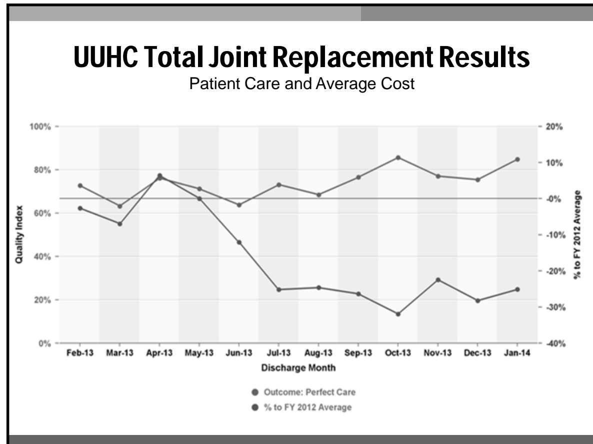
UUHC Total Joint Replacement Results

Patient Care and Average Cost



Hospitalist Lab Utilization

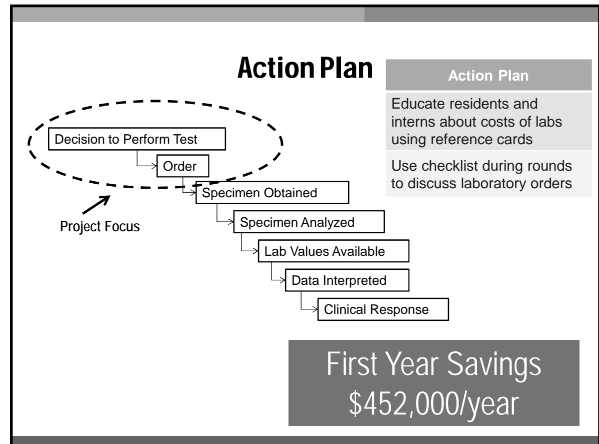
Hospitalist Laboratory Utilization

Opportunity: Average direct cost for labs are high

- Patients do not like laboratory draws
- 30-50% of labs deemed to be unnecessary
- 20-40% reduction obtainable without change in mortality or readmissions

Barie et al. Jo of Trauma 1996;41:714-720

- Goal
  - Reduce average direct cost per discharge for hospitalist labs by 30%
- Measures
  - Average direct cost per discharge
  - CMI adjustment as required
  - Monthly feedback at hospitalist meeting regarding costs per discharge



Spine Surgery

Spine Surgery Improvements

- Established a University-wide Ortho, Neuro, and PMNR Spine Governance Group
- Establishing a single market facing presence to include both Ortho and Neuro
  - i.e. One website, One phone number, One marketing campaign
- Pricing agreement with reduced number of vendors
- More lumbar and cervical fusions and less scoliosis (multi-level fusions)

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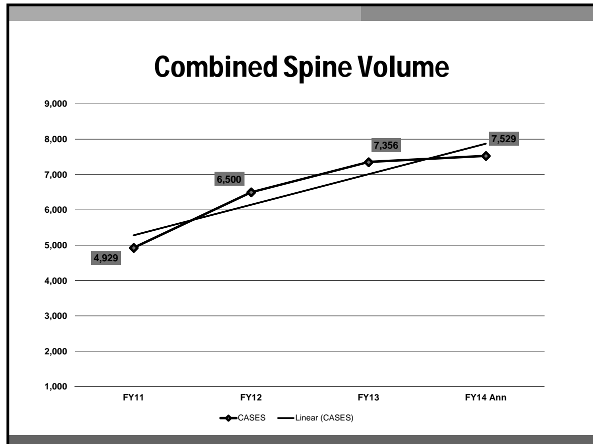
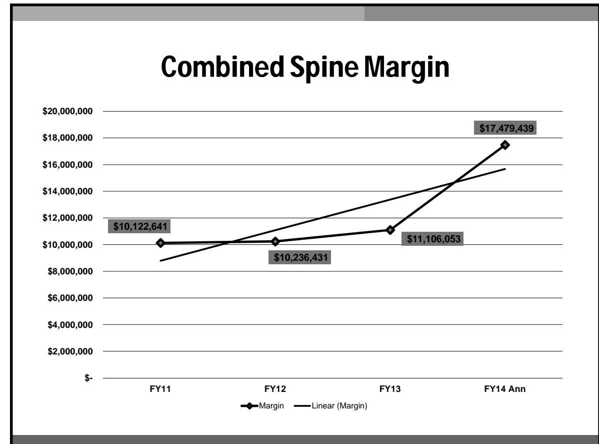
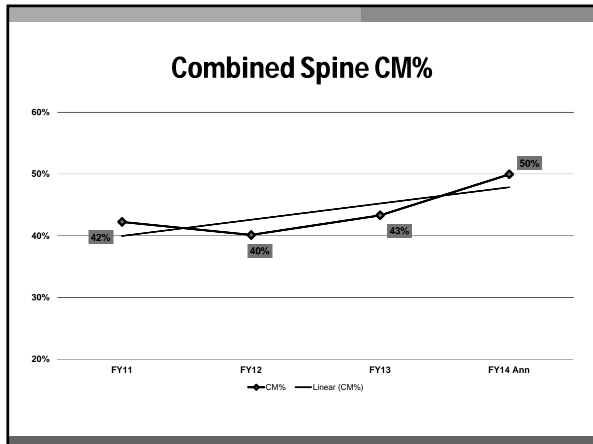
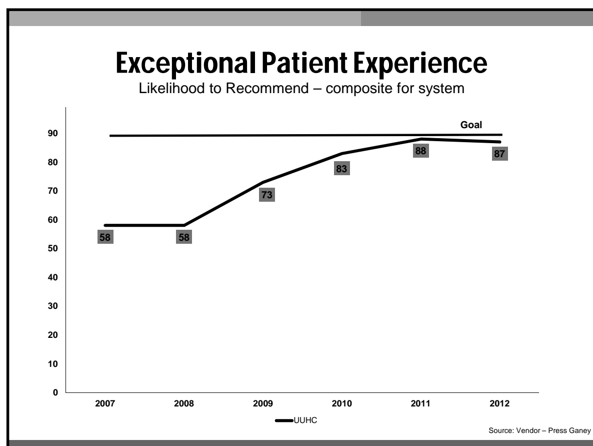






Exceptional Patient Experience



Patient Satisfaction

Exceptional Patient Experience

Patient satisfaction scores among the **BEST IN THE U.S.**

88% overall system-wide

"Every medical system in the country should embrace online reviews."

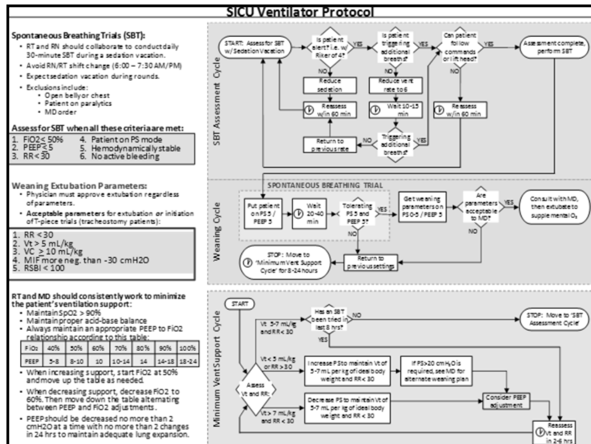
medpage TODAY's KevinMD.com
Social media's leading physician voice

All Clinics - Quarterly
Press Ganey Survey Questions

All scores are All Facilities percentile rank by received date

	FY11	Q1FY12	Q2FY12	Q3FY12	Q4FY12	Q1FY13	Q2FY13	QTD
	n = 28274	n = 10104	n = 10510	n = 10136	n = 12080	n = 13070	n = 15542	n = 10072
Overall	32	37	45	49	54	56	73	77
Access	32	38	44	44	49	56	70	71
Ease of getting clinic on phone	27	37	40	37	46	56	66	64
Convenience of our office hours	30	30	31	38	40	47	59	58
Ease of scheduling appointments	29	34	39	41	43	46	59	65
Courtesy of registration staff	50	64	76	80	75	80	87	90
Moving Through Your Visit	21	24	35	39	51	49	65	69
Information about delays	24	29	42	50	59	57	72	78
Wait time at clinic	21	22	31	34	43	40	62	64
Nurse/Assistant	34	50	56	57	56	59	75	77
Friendliness/courtesy of nurse/asst	36	54	60	61	58	61	75	79
Concern of nurse/asst for problem	32	48	54	55	54	57	75	76
Care Provider	38	53	54	59	50	56	69	77
Friendliness/courtesy of CP	41	54	53	59	48	56	69	76
CP explanations of prob/condition	36	48	51	51	46	53	64	73
CP concern for questions/worries	38	52	53	58	49	57	69	73
CP efforts to include in decisions	38	55	56	60	52	60	70	76
CP information about medications	36	49	50	51	51	54	69	76
CP instructions for follow-up care	32	43	45	51	41	47	63	67
CP spoke using clear language	51	67	68	72	61	69	77	88
Time CP spent with patient	32	40	46	49	50	51	70	79
Patients' confidence in CP	47	62	59	67	56	61	69	78
Likelihood of recommending CP	40	55	54	62	50	55	67	75
Personal Issues	34	47	49	59	55	62	77	79
How well staff protect safety	28	41	47	54	50	60	78	78
Our sensitivity to patients' needs	32	43	47	57	53	58	74	76
Our concern for patients' privacy	37	48	52	63	57	67	80	83
Cleanliness of our practice	41	49	48	59	56	66	73	77
Overall Assessment	34	48	51	59	52	55	66	75
Staff worked together	26	42	44	51	48	53	64	72
Likelihood of recommending practice	39	52	56	65	54	57	70	75

Vent 48



Vent 48 Total Value Results

Basis	Savings Rate	12 mo. total	Notes
8,747 fewer vent hours DC of a vent hour according to RT operational statement	$10.99 per vent hour	$96K	For UHPP Only, not in total
8,747 fewer vent hours Regression analysis: • Vent Hours → DC	$37.22 per vent hour	$325.6K	Wrongly assumes LOS is independent of Vent hours
1458 fewer LOS days Regression analysis: • Vent Hours → LOS → DC	$88.21 per vent hour	$771.6K	Vent to LOS correlation not as strong as Vent to DC correlation
Capacity Created by 1458 acute days	$1117 per acute day	$1,628.4K	Capacity Creation
18 fewer VAP cases	$23.6K per VAP case	$425K	Cost Avoidance: Based on difference in DC
Total		**$3,151K**	

The Role of Pharmacy

How Can Pharmacy Add More Value?

- Alignment – Value Equation
- Quality – Competitive Outcomes
- Employee Effectiveness – Simplify, Consistent
- Clinical Effectiveness – Process Redesign
- Financial Effectiveness – Leverage Pharmacy

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Medication Reconciliation

Medication Reconciliation

- Program
  - Inpatient pharmacy review of all medications prior to discharge
- Results
  - Pharmacist called provider to address a medication error 40-50% of the time, 90-100% at HCH
  - Decreased readmission rate in CHF patients by 39% when added weekend coverage
  - Improved patient satisfaction
    - Talked with pharmacist about medications 71% to 82%
    - Wait time for discharge medications 73% to 84%

Outpatient Drugs to Inpatients

Just Ask the CMO

Fiscal Year	Inpatient Drug Expense (Restricted Medications)	Inpatient Revenue Lost (Restricted Medications)
FY10	$475,000	$1.3 million
FY11	$85,000	$240,000

- Initiative reduced drug expense
  - Limiting dispensing of restricted medications in inpatient setting
  - Maximize 340b purchases

CASE STUDY UHC.

University of Utah Hospitals and Clinics Uses UHC Clinical Data Base/Resource Manager™ to Achieve Cost Savings

AT A GLANCE

ORGANIZATIONAL PROFILE

University of Utah Hospitals and Clinics (UUHC) in Salt Lake City, Utah, is a 4-hospital system (650 beds) that includes University Hospital, Huntsman Cancer Institute, University Neuropsychiatric Institute, University Orthopaedic Center, and 10 community health centers.

USE OF UHC DATA AND RESOURCES

UUHC routinely uses the UHC Clinical Data Base/Resource Manager™ to identify pharmacy-related savings opportunities. For this initiative, the UUHC team reviewed medications in the inpatient setting and associated expenditures. The data provided evidence for practice change and contributed to the evaluation of outcomes.

CONTACT INFORMATION

University of Utah Hospitals and Clinics:
Kavish Choudhary
Director, Pharmacy Support Services
(801) 585-0186, kavish.choudhary@hsc.utah.edu

UHC:
Gary Schumacher
Director, Membership and Business Development
(312) 775-4323, schumacher@uhc.edu

KEY TAKEAWAYS

- Share information with administrators and physicians that outlines why change needs to happen.
- Use information technology, such as computerized physician order entry alerts, to get the point across.

Problem Statement/Goal

In 2010, University of Utah Health Care (UUHC) observed an increase in overall inpatient drug costs and revenue loss and wanted to identify savings opportunities in pharmacy by reviewing high-cost medications in the inpatient setting and associated expenditures.

Interventions

Data analysis. UUHC used the UHC Clinical Data Base/Resource Manager™ (CDB/RM) to identify pharmacy resource utilization patterns in the inpatient setting. Specifically, the data highlighted several high-cost medications that were administered in the inpatient setting but could be administered at lower cost in the outpatient setting with minimal clinical impact. With the chief medical officer's support, the pharmacy team identified possible solutions that took into account the reimbursement limitations for high-cost drugs in the inpatient and outpatient settings. A list of potential "outpatient-only" medications was presented to the Pharmacy and Therapeutics Committee for review.

Policy reminder. UUHC developed an addendum to an existing policy for outpatient drugs: "Medications on the outpatient-only list may not be used in the inpatient setting without chief medical officer (CMO) or designee approval. These medications are typically used to manage chronic diseases that may be unrelated to the patient's admission and are not required on an emergent basis."

"The CDB/RM is a great tool that enables you to get an idea of how your institution utilizes resources compared to other similar institutions. We were able to use the tool to identify a large number of opportunities at UUHC and are constantly using the comparison tools to identify areas where we can optimize our resources."
Kavish Choudhary, Director, Pharmacy Support Services, University of Utah Hospitals and Clinics

Alerts were set up in the organization's computerized physician order entry system to remind physicians that they should either consider holding the medication in question until the patient is discharged or obtain approval for inpatient use from the CMO or designee.

© 2013 UHC. All rights reserved. For more information about the Clinical Data Base/Resource Manager™, visit uhc.edu

Central Refill Authorization

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Central Refill Authorization Utilization

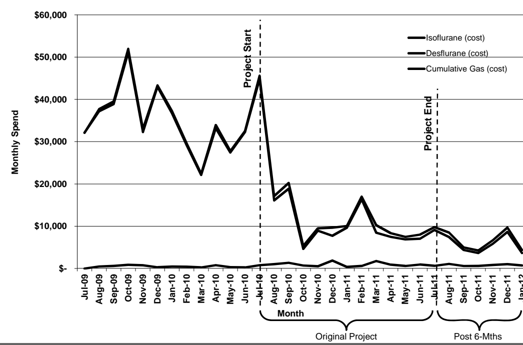
Opportunity: Improve timeliness and efficiency of refilling prescriptions
- Current process requires more FTEs
- No standard process for refill authorization
- Current workflow takes clinic staff away from patient care

- Goal
  - Create central refill authorization center
  - Take over refill request from clinic pharmacies
- Projected benefit
  - $300,000 – Salary and benefits
  - Increased clinic staff availability
  - Decreased waiting time for refills
  - Decreased refill request to providers

Anesthesia

"Green Anesthesia" 6-Mnth Post Award Review

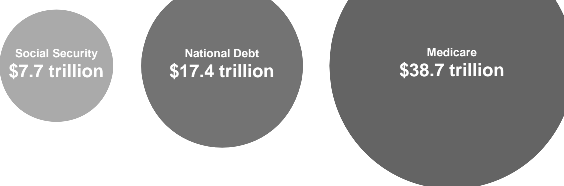
Isoflurane & Desflurane Spend: July 1, 2009 – December 31, 2011



Understanding

The Fiscal Gap

Unfunded federal obligations, 2014

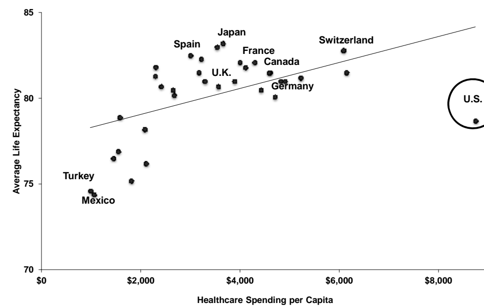


Total (as a net present value) **= $63.8 trillion+**

Source: Brent C. James, M.D., M.Stat. Executive Director, Institute for Health Care Delivery Research Intermountain Healthcare Salt Lake City, Utah

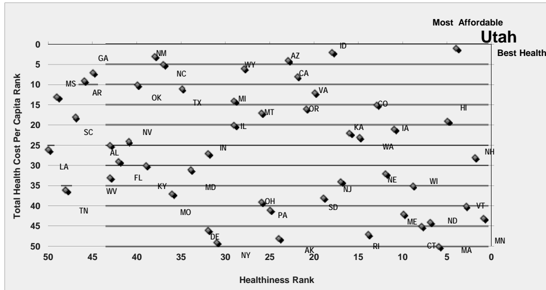
2012 US Healthcare Expenditures per Capita

Similar Life Expectancy



Source: OECD updated August 2014. http://stats.oecd.org/index.aspx?DataSetCode=HEALTH_STAT

State Rankings of Healthiness v. Cost



Source: Healthiness – United Health Foundation, 2007; Total Health Cost – Kaiser Family Foundation, 2007

"The Salt Lake City benchmark results in the greatest estimated reduction in acute care hospital spending. If, over the four years of our study, hospital utilization rates had been at the level of Salt Lake City, Medicare spending for inpatient care would have been reduced by 32.4%."

- The Dartmouth Atlas of Healthcare, 2007, 2008

Clear Vision of the Future

$$V_{\text{(VALUE)}} = \frac{Q_{\text{(QUALITY)}} + S_{\text{(SERVICE)}}}{\$_{\text{(COST)}}}$$

Understanding is the Key

There is a way to do it better – find it.

-Thomas Edison