Building Quality Care: A New Outlook for Humanity

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The content of this presentation does not relate to any product of a commercial entity; therefore, I have no ethical conflicts or relationships to report. I have no financial relationships beyond my employment at Intermountain Healthcare.
The roots of reform ...

- 46 million people without health insurance
- cost increases that are bankrupting the country
1. **The opportunity** (care falls short of its theoretic potential)

1. **Well-documented, massive, variation in practices** (beyond the level where it is even remotely possible that all patients are receiving good care)

2. **High rates of inappropriate care** (2 - 32% of all care delivered, depending on specific condition examined)

3. **Unacceptable rates of preventable care-associated patient injury and death**

4. **A striking inability to "do what we know works"**

5. **Huge amounts of waste** (>50%, by best recent measures), spiraling prices, and limited access (46.6 million uninsured Americans, increasing rates of under-insured, employers exiting the insurance market, medical tourism)
2. The cause  *(we know why)*

(1) Continued reliance on the "craft of medicine"
   (clinicians as stand-alone experts)

   runs up against

(2) Clinical uncertainty

   in the context of

(3) Payment that encourages utilization
Each physician an independent expert

- placing her patient's health care needs before any other end or goal,
- drawing on extensive clinical knowledge gained through formal education and experience

Can craft

- a unique diagnostic and treatment regimen customized for that particular patient.

Medicine's promise:

This approach will produce the best result possible for each patient.
Clinical uncertainty

1. **Lack of valid clinical knowledge** regarding best treatment (poor evidence)

2. **Exponentially increasing new medical knowledge** (doubling time has decreased to ~8 years; at current rates, a clinician will need to learn, unlearn, then relearn half of their medical knowledge base 5 times during a typical career)

3. **Continued reliance on subjective judgment** (subjective recall is dominated by anecdotes, and notoriously poor when estimating results across groups or over time)

4. **Limitations of the expert mind when making complex decisions**
   - Miller, 1956: The magic number 7, plus or minus 2: some limits on our capacity for processing information
   - Eddy: "The complexity of modern medicine exceeds the capacity of the unaided human mind"

Which, combined with the craft of medicine, leads to:
- **Enthusiasm for unproven methods** … Mark Chassin, MD
- **The maxim, "If it might work, try it"** … David Eddy, MD, PhD
- **Quality means "spare no expense"** … Brent James, MD, MStat
3. We have found proven solutions

**Shared baselines** (a form of Lean Production) -
A multidisciplinary team of health professionals:

1. Select a high priority care process

2. Generate an evidence-based "best practice" guideline

3. **Blend the guideline into the flow of clinical work**
   - staffing
   - training
   - supplies
   - physical layout
   - educational materials
   - measurement / information flow

4. Use the guideline as a shared baseline, with clinicians free to vary based on individual patient needs

5. Measure, learn from, and (over time) eliminate variation arising from professionals; retain variation arising from patients ("mass customization")
When abstract guidelines hit real patient care, experience clearly shows that (with very rare exceptions)

No protocol fits every patient;

more important,

No protocol (perfectly) fits any patient.
Sepsis bundle compliance

- **ER bundle**
- **ICU bundle**
- **All components**

% compliance

Month

- 07 Jan
- 08 Jan
- 09 Jan
- 10 Jan
- Mar
- Apr
- May
- Jun
- Jul
- Aug
- Sep
- Oct
- Nov
- Dec
Sepsis mortality - ER-ICU transfers

~116 fewer inpatient deaths per year
<table>
<thead>
<tr>
<th>Patient ID</th>
<th>Patient Name</th>
<th>IDX MRN</th>
<th>Telephone</th>
<th>DOB</th>
<th>Last PCP Visit</th>
<th>Endocrinologist</th>
<th>Last LDL: (24 mths) Value**</th>
<th>Last A1c: Date</th>
<th>Value**</th>
<th>Microalbuminuria: Date</th>
<th>Result**</th>
<th>Eye Exam Date</th>
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<tbody>
<tr>
<td>54320</td>
<td>*</td>
<td>1765154</td>
<td></td>
<td></td>
<td>12/20/2004</td>
<td></td>
<td>12/20/2004 136 †</td>
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<td></td>
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<td>39339</td>
<td>*</td>
<td>1847555</td>
<td></td>
<td></td>
<td>4/13/2004</td>
<td>James Grua</td>
<td>11/7/2003 88</td>
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** NA-Result Not Available

Note: Higher Risk Patients are those whose last A1c value was >8.0, last LDL > 100, Triglycerides > 400, or not tested during the reporting period.

* Indicates a new patient on the list from last reporting period.
† Indicates an IHC Health Plans patient who has a pharmacy benefit, is over 40 years old with an LDL test above 100, and is not on a lipid lowering drug.
‡ Indicates an IHC Health Plans patient who has a pharmacy benefit, a positive microalbuminuria test and is not on ACEI or ARB medication.

Please make corrections in the shaded area and fax this report form to Jennifer Davis at 442-3026.
Problems and chronic conditions

Medication profile

Preventive care summary

General patient status information

Disease specific information

Pertinent labs

Pertinent exams

Passive reminders organized by illness
Diabetes Summary Report
Provider: Towner, Steven (168)
Period: Jan 2005 - Dec 2005

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

<table>
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<tr>
<th>Test</th>
<th>Provider</th>
<th>Region</th>
<th>System</th>
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<tbody>
<tr>
<td>HbA1c</td>
<td>138(97%)</td>
<td>1,582(90%)</td>
<td>25,429(83%)</td>
</tr>
<tr>
<td>LDL</td>
<td>190(98%)</td>
<td>1,658(94%)</td>
<td>26,040(85%)</td>
</tr>
<tr>
<td>Eye Exam</td>
<td>159(82%)</td>
<td>399(23%)</td>
<td>6,509(21%)</td>
</tr>
<tr>
<td>Microalbuminuria</td>
<td>159(82%)</td>
<td>1,236(70%)</td>
<td>14,969(49%)</td>
</tr>
<tr>
<td>Blood Pressure</td>
<td>183(97%)</td>
<td>1,248(71%)</td>
<td>15,344(55%)</td>
</tr>
<tr>
<td>Total Patients</td>
<td>194</td>
<td>1,757</td>
<td>30,470</td>
</tr>
</tbody>
</table>

1. LDL measures represent two years ending in the chosen period. 2. Eye exam % calculated using Health Plans 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 nepropathy. 4. Blood pressure data only available for physicians with access to Clinical Workstation and/or Results Review.

LDL m/dl

<table>
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<tr>
<th>LDL</th>
<th>LDL&lt;100</th>
<th>LDL&lt;130</th>
<th>LDL&lt;130</th>
<th>LDL&gt;130</th>
<th>Trig&lt;150</th>
<th>Trig&lt;150</th>
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<tbody>
<tr>
<td></td>
<td>91%</td>
<td>81%</td>
<td>82%</td>
<td>83%</td>
<td>81%</td>
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Eye Test

<table>
<thead>
<tr>
<th>Test</th>
<th>Fr</th>
<th>&lt;1 yr</th>
<th>&lt;2 yr</th>
<th>Plt Tested</th>
<th>Avg HbA1c</th>
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<tr>
<td></td>
<td>60%</td>
<td>45%</td>
<td>35%</td>
<td>50%</td>
<td>6.55</td>
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Microalbuminuria

<table>
<thead>
<tr>
<th>Test</th>
<th>Fr</th>
<th>&lt;1 yr</th>
<th>&lt;2 yr</th>
<th>Plt Tested</th>
<th>Avg HbA1c</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>92%</td>
<td>70%</td>
<td>70%</td>
<td>80%</td>
<td>7.05</td>
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CONFIDENTIAL: This material is prepared pursuant to Utah Code Ann. 26-25-1 et. Seq. or Idaho Code Ann. 39-1302 et seq. for improvement of the quality of hospital and medical care rendered by hospitals or physicians.
1.) Diabetes, HbA1c Testing

The percent of patients with diabetes who had a HbA1c test within the last 12 months.

Your Achievement: 76%
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 an 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

Attended a Clinical Learning Day Program in 2003 or 2004

Your Score in this area is: 100%

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% to 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%
Poor HbA1c control

% diabetic patients with HgA1c > 9

(All patients)
CPM with clinic care managers

Complex diabetes patients - hospitalization rates

Percent readmissions

- Control
- Care management

1 year
- Control: 26%
- Care management: 21%

2 years
- Control: 39%
- Care management: 31%
CPM with clinic care managers

Complex diabetes patients - mortality rates

Proportion alive

Years

Control
Care management
Physician productivity (WRVUs - work relative value units)

Physicians with embedded care management support were significantly (8%) more productive than controls.
In most circumstances

better care is cheaper care

(higher quality = lower operating costs)
Aligning incentives

- Neonates > 33 weeks gestational age who develop respiratory distress syndrome
- Treat at birth hospital with nasal CPAP (prevents alveolar collapse), oxygen, +/- surfactant
- Transport to NICU declines from 78% to 18%.
- Financial impact (NOI; ~110 patients per year; raw $):

<table>
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<tr>
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<th>Before</th>
<th>After</th>
<th>Net</th>
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<tbody>
<tr>
<td>Birth hospital</td>
<td>84,244</td>
<td>553,479</td>
<td>469,235</td>
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<tr>
<td>Transport (staff only)</td>
<td>22,199</td>
<td>-27,222</td>
<td>-49,421</td>
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<tr>
<td>Tertiary (NICU) hospital</td>
<td>958,467</td>
<td>209,829</td>
<td>-748,638</td>
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<tr>
<td>Delivery system total</td>
<td>1,064,910</td>
<td>736,086</td>
<td>-328,824</td>
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<tr>
<td>Integrated health plan</td>
<td>900,599</td>
<td>512,120</td>
<td>388,479</td>
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<tr>
<td>Medicaid</td>
<td>652,103</td>
<td>373,735</td>
<td>278,368</td>
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<tr>
<td>Other commercial payers</td>
<td>429,101</td>
<td>223,215</td>
<td>205,886</td>
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<tr>
<td>Payer total</td>
<td>1,981,803</td>
<td>1,109,070</td>
<td>872,733</td>
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4. Real reform: Organized care

Core infrastructure:

1. **Tools to change culture** *(clinical and administrative)*
2. **Tools for quality control** *(a.k.a. quality management)*
3. **Knowledge management** *(the key organizational advantage)*
4. **Administrative follow-through on clinical savings**
Culture change that pays its way

**Formal QI training programs:**

- **Facilitator Workshop Series (FWS)** - 8 days in 4 sessions
- **Advanced Training Program (ATP)** - 20 days in 4 sessions
- **miniATP** - 9 days in 4 sessions
- **others** *(MD intro course, lab series, etc.)*

**that**

- **teach methods** *(key: hands-on projects - creates quality zealots)*
- **change culture** *(key: early adopters)*
- **improve front-line work** *(key: organizational learning that rolls ahead; concrete examples where others can "see the wheels turning")*
- **pays its own way** *(savings from projects provide a net ROI)***
Quality control foundation

Manage
- Technically, Quality Control (Juran)
- Build essential infrastructure
  - key process identification
  - performance tracking (outcomes)
  - organizational structure
- Accountability - e.g., monthly review

Improve
- 100% participation vs. breakthrough models
- Identify/prioritize opportunities:
  - voice of the customer,
  - voice of the process
- Rapid Cycle Improvement
- TPS: A3 analysis, w/ coaching
- 6Σ: Define, measure, analyze, improve, control (DMAIC)

Design
- Lean design
- TPS: Value stream analysis
- 6Σ: Define, measure, analyze, design, verify (DMADV)

Quality control foundation
Building infrastructure
to make it easy to do it right ...

(Education programs: A learning organization)
(A shared vision for a future state)

1996: (strategic) Key process analysis

1997: Integrated management information systems
(an outcomes tracking system)

1998: Integrated clinical / operations
management structure

1999: Integrated (aligned) incentives
   - cost structure vs. net income (mediated by payment mechanisms)
   - integrated facility / medical expense budgets

2000: Full roll-out and administrative integration
Implementing EBM

Clinical Operations Leadership Team
- Sr VP - hospitals, clinics, MDs
- Clinical Program leaders
- Finance
- Senior admin execs
- Support staff

Clinical Program Guidance Council
- Clinical Program MD leader (+ 1/4 FTE)
- Clinical ops administrator
- Info Systems
- Finance
- Regional Clinical Program MD, nurse admin leaders
- Support staff
- Regional administrators

Urban North Region
- Medical director (1/4 FTE)
- Clinical ops admin (full time)

Urban Central Region
- Medical director (1/4 FTE)
- Clinical ops admin (full time)

Urban South Region
- Medical director (1/4 FTE)
- Clinical ops admin (full time)

- Cardiovascular
- Neuromusculoskeletal
- Women & Newborn
- Primary Care
- Oncology
- Intensive Medicine
- Intensive Peds
- Surgical Specialties
Development Team structure

- **Team leader**
  - respected physician leader, in active practice
  - functionally a knowledge expert

- **Core work group**
  - knowledge experts
  - build initial Care Process Model
  - provide academic detailing, run referral clinic
  - geographically base

- **Front line clinicians**
  - physicians, nurses, clerks, techs, etc.
  - first level review; keep knowledge experts grounded
  - 2-way street: fundamental knowledge up, ownership down
  - geographic representation

- **Staff support**
  - flow charter, statistician, data manager, clinical ops administrator
Managing clinical knowledge

Core work group (knowledge expert) responsibility - build and maintain the Care Process Model:

Initial development phase
1. Generate initial evidence-based best practice guideline (flowchart)
2. Blend the guideline into clinical workflow (clinical flow sheets, standing order sets, etc.)
3. Design outcomes tracking reports (using electronic data warehouse)
4. Design and coordinate decision support (electronic medical record)
5. Design patient and professional education materials

Maintenance phase
6. Keep the Care Process Model current (research pipeline; protocol variations; outcomes; improvement suggestions)
7. Academic detail front-line teams (Clinical Learning Days)
8. Run the referral clinic (last step in treatment cascade)
9. Manage specialist care managers
5. The profession is changing

From **craft-based practice**
- *individual physicians, working alone* (housestaff ::= apprentices)
- *handcraft a customized solution for each patient*
- *based on a core ethical commitment to the patient and*
- *vast personal knowledge gained from training and experience*

To **profession-based practice**
- *groups of peers, treating similar patients in a shared setting*
- *plan coordinated care delivery processes* (e.g., standing order sets)
- *which individual clinicians adapt to specific patient needs*
- *early experience shows*
  - *less expensive* (facility can staff, train, supply an organize to a single core process)
  - *less complex* (which means fewer mistakes and dropped handoffs, less conflict)
  - *better patient outcomes*
Why "profession-based" practice?

1. *It produces better outcomes for patients*

2. *It eliminates waste, reduces costs, and increases available resources for patient care*

3. *It puts the caring professions back in control of care delivery*

4. *It is the foundation for useful shared electronic data -- an important next step in care delivery improvement*
Mortality amenable to health care

Deaths per 100,000 population

# Wells Fargo Inflation Summary, 1988-2006

## December 2006

### COST OF LIVING INDEX

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<th>Wasatch Front</th>
<th>National</th>
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<td><strong>All Categories</strong></td>
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<td>Recreation</td>
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<td>Education &amp; Comm.</td>
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<td>116.2†</td>
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<tr>
<td>Other Goods &amp; Svcs.</td>
<td>104.3**</td>
<td>243.3</td>
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</table>

- **Index**: March 2006 = 100
- **% Change**: 6 Mos. vs. 1 Mos. Prior
- **(Non-Season. Adj.)**: 1 Mos. Prior

*Last six-month percentage change compared with same period one year ago.

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†(Dec. 1997=100 base)
Research at Dartmouth Medical School suggests that if everyone in America went to the Mayo Clinic, our annual health-care bill would be 25% lower (more than $500 billion!), and the average quality of care would improve. If everyone got care at Intermountain Healthcare in Salt Lake City, our healthcare costs would be lowered by one-third.

Of course, not everyone can get treatment at Mayo or Intermountain. But why are these examples of efficient, high-quality care not being replicated all across the country? The answer is that high-quality, low-cost care is not financially rewarding. Indeed, the opposite is true. Hospitals and doctors can make more money providing inefficient, mediocre care.
"I am sorry for you, young men (and women) of this generation. You will do great things. You will have great victories, and standing on our shoulders, you will see far, but you can never have our sensations. To have lived through a revolution, to have seen a new birth of science, a new dispensation of health, reorganized medical schools, remodeled hospitals, a new outlook for humanity, is not given to every generation."

-- Sir William Osler