Corporate Health Achievement Award 2007

Integrating Health Promotion and Healthcare Quality

Paul Hodgins MD MPH
Caterpillar Inc.
Caterpillar Inc.

- World’s largest manufacturer of construction and mining equipment, diesel and natural gas engines and industrial gas turbines
- Technology leader in construction, transportation, mining, forestry, energy, logistics and electric power generation
- #1 or #2 for each industry we serve with a 2010 goal of market leadership for every major product group on every continent
Caterpillar Inc.

- Caterpillar Inc., established in 1925 with merger of Holt and Best tractor companies
- First diesel tractor model built in October 1931 in East Peoria, Illinois
- Cat machines served in World War I and II
- World headquarters in Peoria, Illinois
Caterpillar Inc.

- Global Enterprise
  - Nearly 95,000 employees
  - Nearly 300 operations in 40 countries
  - Over 500 products sold in every country

- Fortune 100 Company / Fortune 500 Global Company
  - Sales and revenues of $41.5 billion for 2006
  - Sales and revenues of $50 billion projected by 2010
  - Profit per share of $5.17 in 2006 vs. $4.04 in 2005
  - Invested over $1.35 billion in research & development in 2006
Caterpillar Products

<table>
<thead>
<tr>
<th>Excavators</th>
<th>Backhoe loaders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Track-type tractors</td>
<td>Motor graders</td>
</tr>
<tr>
<td>Trucks</td>
<td>Paving products</td>
</tr>
<tr>
<td>Wheel loaders</td>
<td>Compact construction equipment</td>
</tr>
<tr>
<td>Engines</td>
<td></td>
</tr>
</tbody>
</table>
Caterpillar Services

- Cat Logistics
  - Integrated supply chain services to more than 48 companies in 28 countries
- Cat Financial
  - Offers financing alternatives for Cat equipment
- Cat Remanufacturing
  - Recycling end-of-life components to same-as-new condition
Healthcare cost per covered life

- National Industry Employer HC Inflation PMPY - Indexed
- Goal – Total CPI Inflation from 2002 PMPY

Making Progress Possible
Cost sharing

2005 Healthcare Costs

90% Employer

10% Employee

2006 Healthcare Costs

75% Employer

25% Employee
Healthcare cost per covered life

- National Industry Employer HC Inflation PMPY - Indexed
- Goal – Total CPI Inflation from 2002 PMPY

Quality strategy will eliminate the gap

Making Progress Possible
Poor quality drives costs

- Inconsistency
  - Misuse, Overuse, Underuse

- Rewards for re-work and volume, not outcomes and quality
- Delays in implementing effective new treatments
- Lack of quality data
- Huge opportunity for savings and engagement

Rand study concluded 33% of U.S. healthcare spend is waste
Integration of care

- Improve quality, value and productivity through innovation and partnership
- Participation of all stakeholders
  - Patients: Consumerism
  - Payers: Plan Design
  - Providers: Quality and Efficiency
Integration of care

- Aligning visions
- Six sigma methodology
- Pharmacy and medical claims data
- Existing network
- Health Promotion Programs
An Integrated Care Delivery Model

Identify, prioritize and implement opportunities along a continuum of a disease state

<table>
<thead>
<tr>
<th>Health</th>
<th>Disease</th>
<th>Terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance</td>
<td>Preclinical</td>
<td>Terminal</td>
</tr>
<tr>
<td>Promotion</td>
<td>Symptomatic</td>
<td>Supportive</td>
</tr>
<tr>
<td>Prevention</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Health Risk Assessment

- All payrolls and includes spouses and retirees
- Over 80% employee participation
- Targeted feedback
- Data warehouse
- Follow-up recommendations
Health Promotion Website

- Health risk calculators for diabetes, heart disease, cancer
- Activity Center
- Nutrition Center / Chef’s Corner
- Tobacco cessation
- On-line HRA
- Health topics
- Newsletters
Health Screening Exams

- Hourly, Salaried and Management Employees counseled on risk factors
- Leave with recommendation sheet
- Metrics drive health promotion focus
- Biometrics entered in data warehouse
- Drives disease management and local wellness initiatives
An Integrated Care Delivery Model

**Health Promotion**
- Targeted HRA
- Tailored feedback
- Predictive modeling
- Evidence-based guidelines
- Follow-up reminders

**Health Promotion Benefits**
- Plan design
- Outcome metrics

**Quality**
- Provider metrics/ feedback
- Standards of care determination
- Address efficiency, effectiveness, reduce re-work
- Lean manufacturing principles
- Development of integrated programs
- End of life decision-making
Six Sigma Projects

Initiated projects which will integrate health promotion and healthcare delivery

Projects focus on:

- Data / Metrics
- Clinical Best Practices / Research
- Shared Decision-Making
- Communications / Behavior Change
- Quality
Desired State

- Incentives are aligned and driving healthy behaviors
  - Providers paid for educating members, supporting prevention and maintaining wellness
  - Members encouraged (premium reductions) to live a healthy lifestyle
Goals

1. Reduce the incidence of targeted conditions:
   - Colorectal cancer
   - Atherosclerosis
2. Improve quality of care delivered
3. Improve efficiency
4. Seek patient and physician feedback
5. Metrics
Colon cancer

- Second leading cause of U.S. cancer deaths
- 70-80 percent preventable/curable
- Majority diagnosed today are not curable
- Chemotherapy/biologicals, radiation and surgery prolong life at great expense
- 139,000 new cases diagnosed annually in the U.S.
**An Integrated Care Delivery Model: Colon Cancer**

Identify, prioritize and implement opportunities along a continuum for colon cancer and measure results

<table>
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<th>Disease</th>
<th>Terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance</td>
<td>Prevention</td>
<td>Symptomatic</td>
</tr>
<tr>
<td>Promotion</td>
<td>Preclinical</td>
<td>Late cancer</td>
</tr>
<tr>
<td>Risk Assessment</td>
<td>Benign early cancer</td>
<td>Quality Metrics</td>
</tr>
<tr>
<td>Behavioral change</td>
<td>Primary</td>
<td>*Living Wills</td>
</tr>
<tr>
<td></td>
<td>Secondary</td>
<td>Power of Attorney</td>
</tr>
<tr>
<td></td>
<td>- aspirin</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- screening</td>
<td>Hospice</td>
</tr>
<tr>
<td></td>
<td>Fecal Occult Blood Test</td>
<td></td>
</tr>
<tr>
<td></td>
<td>*Colonoscopy</td>
<td></td>
</tr>
</tbody>
</table>

*Initial Quality 6 Sigma Projects*
Quality Quest

Continent of Care
Colorectal Cancer (CRC)

Health
Stratification
Maintenance
Promotion
Prevention

Disease
Preclinical
Symptomatic
Supportive

Preventive Strategies

Risk Stratification
Low risk
Average risk
Above average
High risk

Polyps
Hyperplastic
Adenoma
Dysplastic
CRC

Acute Care
Cancer staging
Adjuvant Rx
Chemo, Biologies, Radiation
Quality
Surgical
Pathology
Hospital
Oncology

Surveillance
Chronic Care
End of Life Care

Health Risk Appraisal
Community Health

Project 1: Data Analysis for Baseline and Risk Stratification

Project 2: Patient and Physician Education

Project 3: Procedure quality

Goal: Reduce incidence of Colorectal cancer

Health

Total fat intake
Saturated fat
Physical activity
Fiber, fruits, veggies
Weight control

High Risk
Primordial
All

Secondary
Avg risk (50-54)
FOBT annual
Negative
Positive
(Rx screening)

Avg risk (55-64)
Screening >65
(Medicare)

High risk (screening @ <55)
Project 1:

Calcium supplements
ASA / NSAIDs

Risk Stratification

Primordial
Low risk

Secondary
Average risk
Above average

High risk
Above average

End of Life Care

Making Progress Possible
23
CATERPILLAR CONFIDENTIAL: Green
Atherosclerosis

- Leading cause of morbidity and mortality
- High cost
- Potential to reduce risk factors
- Most patients with CV risk factors are not at treatment goals
Quality Quest

Continuum of Care
Atherosclerosis

Health
- Stratification
- Maintenance
- Promotion
- Prevention

Disease
- Preclinical
- Symptomatic
- Supportive

Primordial
- Total fat intake
- Saturated fat
- Physical activity
- Fiber, fruits, veggies
- Aspirin
- Avoid tobacco
- Limit calories

Secondary
- Hyperlipidemia
  - Diet
  - Activity
  - Drug Rx
  - LDL control
- BP screening
- Diabetes screening
- Tobacco use ID
- Tobacco cessation

Acute Care
- ER chest pain
- ACS
- Acute MI
- Rehab
- Stenting
- Renal
- PVD
- Carotid
- CVA
- OP imaging
- EST
- Doppler
- Angiography
- Chronic Care
- CHF
- Follow-up care

Project 1: Data Analysis for Baseline and Risk Stratification

Project 2: Lipid management

Project 3: Patient and Physician Education

Project 4: Procedure quality

Health Risk Appraisal

Community Health

Metrics
- Quality of Care

End of Life Care

Goal: Reduce cardiovascular events

Making Progress Possible

CATERPILLAR
TODAY’S WORK. TOMORROW’S WORLD.
## Measure

*Dose Conversion Table for Statins:*

<table>
<thead>
<tr>
<th>LDL Reduction</th>
<th>Lovastatin Mevacor</th>
<th>Simvastatin Zocor</th>
<th>Pravastatin Pravachol</th>
<th>Fluvastatin Lescol</th>
<th>Atorvastatin Lipitor</th>
<th>Rosuvastatin Crestin</th>
<th>Simvastatin/ezetimibe Vytorin</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-32%</td>
<td>20 mg</td>
<td>10 mg</td>
<td>20 mg</td>
<td>40 mg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31-39%</td>
<td>40 mg</td>
<td>20 mg</td>
<td>40 mg</td>
<td>80 mg</td>
<td>10 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37-45%</td>
<td>80 mg</td>
<td>40 mg</td>
<td>80 mg</td>
<td></td>
<td>20 mg</td>
<td>5 mg</td>
<td>10/10 mg</td>
</tr>
<tr>
<td>48-52%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>40 mg</td>
<td>10 mg</td>
<td>10/20 mg</td>
</tr>
<tr>
<td>55-60%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>80 mg</td>
<td>20 mg</td>
<td>10/40 mg</td>
</tr>
<tr>
<td>60-63%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>40 mg</td>
<td>10/80 mg</td>
</tr>
</tbody>
</table>

**Green**—Available Generically by July 2006
**Blue**—Brands that will have dose equivalent generics available
**Red**—Brands that have will have no equivalent generics available
Aspirin Project

- Health Promotion Newsletter addressed aspirin chemoprevention
- HRA identified those at risk of MI
- Tailored feedback based on primary or secondary prevention, contraindications and readiness to change
- 1714 non-users with no contraindications
- 600 (35%) reported starting daily aspirin
# Health Scorecard

## Self-Reported Data for Health Promotion Eligible Employees

<table>
<thead>
<tr>
<th></th>
<th>Corporation</th>
<th>Facility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>30,463</td>
<td>259</td>
</tr>
<tr>
<td>Female</td>
<td>8,663</td>
<td>517</td>
</tr>
<tr>
<td>Average Age</td>
<td>42</td>
<td>45</td>
</tr>
<tr>
<td>Participation Rate</td>
<td>81%</td>
<td>90%</td>
</tr>
<tr>
<td>Self-Reported Blood Pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>6%</td>
<td>5%</td>
</tr>
<tr>
<td>BP Unknown</td>
<td>23%</td>
<td>17%</td>
</tr>
<tr>
<td>Body Mass Index</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal</td>
<td>28%</td>
<td>39%</td>
</tr>
<tr>
<td>Overweight</td>
<td>42%</td>
<td>34%</td>
</tr>
<tr>
<td>Obese</td>
<td>30%</td>
<td>26%</td>
</tr>
<tr>
<td>Smoking Rate</td>
<td>16%</td>
<td>8%</td>
</tr>
<tr>
<td>Physically Inactive (Leisure Time)</td>
<td>35%</td>
<td>36%</td>
</tr>
<tr>
<td>High Fat Diet</td>
<td>28%</td>
<td>16%</td>
</tr>
</tbody>
</table>

## Disease Specific Data (2005)

<table>
<thead>
<tr>
<th></th>
<th>Corporation</th>
<th>Facility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Employee Cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes Prevalence</td>
<td>5.74%</td>
<td>3.36%</td>
</tr>
<tr>
<td>Medical Cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coronary Artery Disease Prevalence</td>
<td>5.45%</td>
<td>3.74%</td>
</tr>
<tr>
<td>Medical Cost</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
MAKING PROGRESS POSSIBLE

Health and Productivity Management

- Integrate all elements
  - Healthcare, Plan design, Health promotion, Occupational health, Disability management
- Metrics and goals
- Cultural change
- Involve the leadership
We have a great opportunity to deliver quality improvements and enterprise value.

Thank You