Overview of the Role of Clinical Innovations, Quality Improvement and Cost Containment in Healthcare

National Congress on Healthcare Clinical Innovations, Quality Improvement and Cost Containment
Sponsored by The Bipartisan Policy Center and The Aspen Institute

October 26, 2011

Sam Nussbaum, M.D.
Executive Vice President, Clinical Health Policy and Chief Medical Officer
A Tale of Health Care in Our Nation

“It was the best of times…”

Unprecedented advances in medical technology, treatments, and pharmaceuticals can improve population health

“It was the worst of times…”

The state of public health, unsustainable health care costs, the quality of medical care delivered and access to services challenge clinical care and overall health

From “A Tale of Two Cities”
By Charles Dickens
Health Care Burning Platform: A System in Need of Change

Critical Issues in Health Care

Affordability of Health Care

Quality / Safety

The Uninsured / Access to Care

State of Public Health
Average Annual Health Insurance Premiums and Worker Contributions for Family Coverage, 2001–2011

2008 version of the National Health Expenditures (NHE) released in January 2010

Healthcare Costs are Concentrated

- **85% of Beneficiaries = 25% Spending**
  - 23 Million Beneficiaries
  - Spending $1,130 each
  - Total Spending = 5% ($26 B)

- **15% of Beneficiaries = 75% Spending**
  - 16.1 Million Beneficiaries
  - Spending $6,150 each
  - Total Spending = 20% ($104 B)

- **7 Million Beneficiaries**
  - Spending $55,000 each
  - Total Spending = 75% ($391 B)

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2010 Medicare
Spending Projection = $522 B
46 Million Beneficiaries
Spending Per Beneficiary = $11,347

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Average Spending
Discovery and Innovation

Statins reduce cardiac deaths

HIV Medications reduce AIDS deaths
Discovery and Innovation

Improved screening and drugs

Personalized Medicine

Cancer in the United States, 1990-2007:
Survival Rising, Mortality Decreasing

Data from the National Cancer Institute on estimated number of cancer survivors and age-adjusted cancer deaths per 100,000 people.
Discovery/Invention and Clinical Care Innovation

- Surgical Robots
- Surgical Checklists
- Evidence-based decision-making
- Payment Reform
- Genomics and Proteomics
- Specialty drug treatments
6 of the top 10 companies in global R&D expenditures are biopharmaceutical companies

Over 2/3 of US patents in biopharma were issued to US-based life science companies

U.S. leads the world in drug discovery: 2/3 new drugs in last 10 years from U.S.; currently 82% of world’s biopharma pipeline from US

“There is an ecosystem of science and biotechnology. Public organizations, patient organizations, universities, Congress, FDA, all of this is an ecosystem that is envied in the rest of the world.”  

E. Zerhouni, Director of NIH

Increasing Specialty Drug Development and Associated Costs

• Highly sophisticated protein structures derived from recombinant DNA technologies, most often given by injection or infusion.

• Specialty pharmaceuticals now represent 24% of all drug costs, projected to 40% by 2014.

• Expenditures exceed $73 billion annually, rising at twice the rate of conventional drugs.

• Average cost per prescription is nearly $2,000, with annual treatment costs ranging from $5,000 to $350,000.

• Over 600 specialty drugs in development for 100 different diseases, including
  • 250 for cancer,
  • 160 for infectious diseases,
  • 60 for autoimmune diseases,
  • 35 for HIV/AIDS.
The Architecture for Innovation

Improved Health Care and Lower Costs

- Payment Innovation
- Care Management Innovation
- Public Health Innovation
- Consumer Innovation

Health Information
Payment Innovation: Improving Value and Affordability

Old Model:
Rate increases not tied to value

- Reward unit cost
- Inadequate focus on outcomes
- Payment sometimes aligned with quality

New Model:
Rate increases tied only to quality, safety, and value

- Align all payment with quality
- Lower cost without adversely affecting outcomes
- Improve quality
Hospital Quality: Q-HIP® Hospital Quality Program

Q-HIP® Hospital Pay-for-Performance rewards quality, safety, outcomes, and patient satisfaction

<table>
<thead>
<tr>
<th>Patient Safety Section (35% of total Q-HIP® Score)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Joint Commission National Patient Safety Goals</td>
</tr>
<tr>
<td>• Computerized Physician Order Entry (CPOE) System</td>
</tr>
<tr>
<td>• ICU Physician Staffing (IPS) Standards</td>
</tr>
<tr>
<td>• NQF Recommended Safe Practices</td>
</tr>
<tr>
<td>• IHI 5 Million Lives Campaign – ADE Medication Reconciliation and WHO Surgical Safety Checklist</td>
</tr>
<tr>
<td>• CDC/APIC Flu and Pneumonia Vaccine Guidelines</td>
</tr>
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<td>• NQF Perinatal Measures</td>
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<table>
<thead>
<tr>
<th>Patient Health Outcomes Section (55% of total Q-HIP® Score)</th>
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<tbody>
<tr>
<td><strong>PCI Indicators</strong></td>
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<tr>
<td>• 5 ACC-NCDR/Indicators for Cardiac Catheterization/PCI</td>
</tr>
<tr>
<td><strong>Joint Commission/CMS Nat’l Hospital Quality Measures</strong></td>
</tr>
<tr>
<td>• Acute Myocardial Infarction (AMI) Indicators</td>
</tr>
<tr>
<td>• Heart Failure (HF) Indicators</td>
</tr>
<tr>
<td>• Pneumonia (PN) Indicators</td>
</tr>
<tr>
<td>• Surgical Care Improvement Project (SCIP)</td>
</tr>
<tr>
<td><strong>NSC Indicators</strong></td>
</tr>
<tr>
<td>• 4 JC/NQF Nursing Sensitive Care Indicators</td>
</tr>
<tr>
<td><strong>CABG Indicators</strong></td>
</tr>
<tr>
<td>• 5 STS Coronary Artery Bypass Graft (CABG) Measures</td>
</tr>
</tbody>
</table>

Member Satisfaction Section (10% of Total Q-HIP® Score)

• H-CAHPS Survey Results
California Patient Safety: 2009-2010

- Sepsis Deaths: -11%
- VAP: -41%
- Central Line Infection: -24%
- CAUTI: -25%
**Highlights of PCMH Results**

**COLORADO**
- Quality improvement in nearly all diabetes measures
- 3.6% decrease in acute IP admissions per 1000 per year
- 6.1% decrease in total ER visits per 1000 per year
- 1.3% increase in persistent medication usage

**NEW HAMPSHIRE**
- IP rate per 1000 between 12% - 23% lower for PCMH providers
- ER rate per 1000 between 11% - 17% lower for PCMH providers
- Total medical and Rx cost for PCMH members was 14.5% lower than for members seeing non-PCMH providers

**NEW YORK**
Improving Primary Care: Comprehensive Primary Care Initiative

- CMS led private-public initiative testing a primary care service delivery and payment model in 5-7 locations

  - Service delivery model:
    - Risk-stratified Care Management
    - Access and Continuity
    - Planned Care for Chronic conditions and Preventive Care
    - Patient and Caregiver Engagement
    - Coordination of Care

  - Payment Model: monthly care management fee to primary care practices for FFS Medicare beneficiaries; potential to share savings in 2-4 years

  - Aligned payment from private insurers
ACOs: The Race to Value-Based Care

Start: Fee For Service

Key Principles for the Race:
• Primary Care is central
• Commit to evidence-based medicine
• Information at the point of care
• Focus on health, prevention, risk reduction for chronic illness
• Coordination of care

Concerns Along the Way:
• Attribution
• Overuse of supply sensitive care increases revenue; optimized FFS revenue model
• Payment shifting to private sector; will gain sharing overpower FFS
• Acquisition of specialty practices

Finish: Value-Based Care
CareMore: Care Innovation

- Care Centers provide a “Healthy Start” initial evaluation and integrated care that offers personalized health planning.
- Specialists intensively manage chronically ill members: approximately 20% of members that account for 60% of medical costs.
- Biometric monitoring.
## Improved Outcomes for Chronic Diseases

<table>
<thead>
<tr>
<th>Condition</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes</td>
<td>7.08 average HbA1c for those attending diabetes clinic</td>
</tr>
<tr>
<td>End Stage Renal Disease</td>
<td>50% reduction in hospital admission rate in 5 months</td>
</tr>
<tr>
<td>Congestive Heart Failure</td>
<td>56% reduction in hospital admission rate in 3 months</td>
</tr>
</tbody>
</table>
Preventing Avoidable Re-Hospitalizations

**Causes**
- No scheduled follow-up
- Poor medication compliance
- Unclear discharge instructions

**Intervention**
- Identify patients with greatest opportunity to impact
- Create discharge plan with patient during hospital stay
- Nurses call to schedule and coordinate follow-up care
Advanced Imaging: Increased Utilization, Costs and Safety Risk

- Commercial market average annual growth rate = 15%
- Medicare imaging 2000-2006
  - Costs per Medicare beneficiary increased 52%
  - Advanced imaging grew at twice the rate of standard imaging
    - Average annual growth rate = 13%
- Unnecessary radiology services increase radiation exposure risks
- WellPoint program: imaging trend 0%-5%

Imaging Safety: Coronary CT

Exam: Coronary CT or CTA

Exposure: Estimated Effective Dose

| 16 mSv | 800 X-Ray(s) | 4.38 Year(s) |

Medicare FFS Imaging Expenses

2000 2001 2002 2003 2004 2005 2006

- Total Imaging
- Standard Imaging
- Advanced Imaging
Personalizing Care Management

Case Mgmt via Web Cam

Wireless Biometrics

Mobile-to-Mobile Video Chat

HDTV Case Management
Potential of Artificial Intelligence

Artificial Intelligence offers unique value for clinical input

- Ability to manage **large amounts of unstructured data**, even in natural language form (e.g. a normal journal article or an MD clinical summary)
- Influence **evidence-based care** by providing real-time, value-added, actionable insights to clinicians
- Unique **capability to learn**, train, and optimize its own algorithms from historical decisions

- **Probability based diagnosis and treatment recommendations**
- **Defined by Evidence Based Medicine**
- **Streamlined authorization/approval of procedures and treatment**

**MEDLINE-indexed articles published per year**

- **Over 21 million articles in Medline**
- **Almost 1 million new articles per year**
- **1.6 billion searches in 2010**
IBM Watson has the potential to help doctors make better decisions—faster

Potential Knowledge Sources May Include:
- Latest medical research
- Population health info
- Patient medical history
- Lab results
- Data analysis
- Complex treatment protocols

Our data
Extensive provider networks

IBM Watson analyses millions of pages/second
Targeted treatment options

IBM Watson technology to assist by analyzing data and providing responses
# The Need for Evidence-Based Medicine

## History: Bone Marrow Transplant
- Bone marrow transplantation (BMT) for breast cancer entered medical market in the 1980s before meaningful effectiveness studies were done.
- Between 1988-1998, 30,000 procedures and $5 Billion in medical costs.
- Congress and States enacted mandatory coverage legislation in 1994.
- 1999 research showed no difference in survival and lower quality of life.
- Delayed research and introduction of promising therapies.

## Today: HER2 Genetic Testing
- 215,000 new breast cancer cases annually; 25-30% of women with breast cancer express the HER2 protein.
- Trastuzumab (Herceptin®) is a recombinant DNA monoclonal antibody that targets tumor cells that over express the HER2 protein.
- In 2005, two new major clinical trials expanded indications for this biotechnology.
Diagnosis and Treatment of Prostate Cancer is Controversial

Even among radiation treatments, there is variation in cost and potential outcomes

Comparative effectiveness can assess outcomes, quality of life, and survival
Back Pain Treatment Options, Risks, and Benefits

• **Facts on Back Pain**
  - 9 of 10 Americans experience back pain
  - #1 cause of lost work productivity
  - $90B spent nationally on treatment
  - Most pain resolves within 6 weeks independent of treatment

• **Study of 172,000 Anthem Members in 6 States**
  - 1,000 surgeries during first 6 weeks
  - 35,000 imaging procedures within first 6 weeks
  - Care dependent on initial treating physician

• **Value and Benefits**
  - Collaboration with American Academy of Family Physicians
  - New payment models including bundling of payments
  - Educate members/physicians on treatment options
WellPoint Position: CER Promotes Value and Innovation

Collaboration amongst health care system stakeholders is central to making CER work

- **Address unsustainable health care costs**
  - Limited resources threaten innovation
- **Help patients choose more effective treatments**
  - Fewer unnecessary services = health system savings
- **Quality first, then affordability**
  - Superior treatments deserve our nation’s investment
  - Comparable treatments should be chosen on value
  - Selectively effective personalized treatments should be managed by physicians and patients
  - Remove inappropriate/ineffective treatments

SUPERIOR

COMPARABLE

PERSONALIZED

INEFFECTIVE
### Closing Gaps in Evidence-Based Care

**Your Medical & Prescription Claims**
Your recent medical and prescription claims as of **May 23, 2008**

<table>
<thead>
<tr>
<th>Date</th>
<th>Service/Prescription</th>
<th>Qty</th>
<th>Days</th>
<th>Doctor/Prescriber(*)</th>
<th>Paid(***)</th>
</tr>
</thead>
<tbody>
<tr>
<td>05/23/08</td>
<td>Office Visit</td>
<td>--</td>
<td>--</td>
<td>Lynn, Samuel F.</td>
<td>$85.00</td>
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<tr>
<td>05/17/08</td>
<td>Office Visit</td>
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<td>Wilson, Michelle L.</td>
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<td>--</td>
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<td>04/12/08</td>
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<td>--</td>
<td>Jones, Terry M.</td>
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<tr>
<td>02/02/08</td>
<td>Office Visit</td>
<td>--</td>
<td>--</td>
<td>Wilson, Michelle L.</td>
<td>$195.00</td>
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</table>

**Prescriptions**

<table>
<thead>
<tr>
<th>Date</th>
<th>Service/Prescription</th>
<th>Qty</th>
<th>Days</th>
<th>Doctor/Prescriber(*)</th>
<th>Paid(***)</th>
</tr>
</thead>
<tbody>
<tr>
<td>05/01/08</td>
<td>Metformin - 500 mg</td>
<td>30</td>
<td>30</td>
<td>Jones, Terry M.</td>
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<tr>
<td>03/23/08</td>
<td>Metformin - 500 mg</td>
<td>30</td>
<td>30</td>
<td>Wilson, Michelle L.</td>
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<tr>
<td>02/10/08</td>
<td>Lisinopril - 20 mg</td>
<td>30</td>
<td>30</td>
<td>Lynn, Samuel F.</td>
<td>$85.95</td>
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<tr>
<td>01/18/08</td>
<td>Lisinopril - 20 mg</td>
<td>60</td>
<td>30</td>
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<tr>
<td>02/28/08</td>
<td>Accupril - 20 mg</td>
<td>60</td>
<td>30</td>
<td>Lynn, Samuel F.</td>
<td>$66.99</td>
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<tr>
<td>01/12/08</td>
<td>Accupril - 20 mg</td>
<td>60</td>
<td>30</td>
<td>Lynn, Samuel F.</td>
<td>$66.99</td>
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<td>02/12/08</td>
<td>Nexium - 20 mg</td>
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<td>30</td>
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<td>30</td>
<td>Lynn, Samuel F.</td>
<td>$115.50</td>
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</tbody>
</table>

**Other Medical Services**

<table>
<thead>
<tr>
<th>Date</th>
<th>Service/Prescription</th>
<th>Qty</th>
<th>Days</th>
<th>Doctor/Prescriber(*)</th>
<th>Paid(***)</th>
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</thead>
<tbody>
<tr>
<td>05/23/08</td>
<td>Cholesterol Panel</td>
<td>--</td>
<td>--</td>
<td>LabCorp Laboratories</td>
<td>$110.40</td>
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<tr>
<td>04/26/08</td>
<td>Medical Equipment</td>
<td>--</td>
<td>--</td>
<td>Lynnwood Medical Mart</td>
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<tr>
<td>03/28/08</td>
<td>Ambulatory ER Visit</td>
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<td>St. Lucy's Hospital ER</td>
<td>$766.50</td>
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<tr>
<td>03/29/08</td>
<td>Metabolic Panel</td>
<td>--</td>
<td>--</td>
<td>LabCorp Laboratories</td>
<td>$110.40</td>
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<tr>
<td>02/04/08</td>
<td>CT X-Ray, Sinuses</td>
<td>--</td>
<td>--</td>
<td>Radiology Assoc. - SFSL</td>
<td>$854.35</td>
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<tr>
<td>01/15/08</td>
<td>CT X-Ray, Sinuses</td>
<td>--</td>
<td>--</td>
<td>Mercy Hospital - Rad</td>
<td>$854.35</td>
</tr>
</tbody>
</table>

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* Doctor/Prescriber listed may be another name from that medical office/practice.
** This amount is the total paid by you and your health plan.

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**Suggestions for You**
Suggestions are based on your available claims as of **May 23, 2008**

**Ask your doctor about blood thinner medication**
Your medical claims show you have a heart condition called atrial fibrillation, and your prescription claims show you are not taking a blood thinner medication. Atrial fibrillation is an uneven heartbeat that can cause blood clots and strokes. Blood thinners can prevent blood clots and lower your risk of a stroke. Ask your doctor soon if you should take a blood thinner.

**Keep taking Metformin as directed**
Your prescription claims show you take metformin. Although you recently refilled your prescription, your claims show you are not refilling it as often as you should. This drug can help lower your risk of heart disease, stroke and blindness. If you think your medication is not helping you, or if you are worried about cost or side effects, talk to your doctor soon. Keep taking metformin as directed until you talk to your doctor.

**Save $396 - Ask your doctor about switching from Accupril**
Your prescription claims show you take Accupril. You can save money if you take quinapril, a generic drug that is as safe and effective as Accupril. Ask your doctor if quinapril is right for you.

<table>
<thead>
<tr>
<th>Drug Name</th>
<th>Your Cost</th>
<th>Your Annual Cost</th>
<th>You Save</th>
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</thead>
<tbody>
<tr>
<td>Accupril - 20 mg</td>
<td>$40</td>
<td>$480</td>
<td>- - -</td>
</tr>
<tr>
<td>Quinapril - 20 mg</td>
<td>$7</td>
<td>$84</td>
<td>$396</td>
</tr>
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**More Information For You From Harvard Medical School**
Visit http://harvard.resolutionhealth.com/ and enter the number shown in [ ] to get information on your conditions, treatments and medications.
Anthem Care Comparison: Cost and Quality Information for Consumers

Consumer can see side-by-side comparisons of inpatient and outpatient procedures; diagnostic tests and office visits; and provider service frequency.

Cost and Quality Included
Anthem Care Comparison: Variance in Cost for Spinal Fusion

This report compares providers within 5 miles of Washington, DC for Spinal Fusion (Posterior). This is just one of several sources you should consult to select a service provider; always consult your physician about what decision is right for you.

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Distance</th>
<th>Typical Cost Low</th>
<th>Typical Cost High</th>
<th>Number of Services/Year</th>
<th>Blue Distinction Center</th>
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<tbody>
<tr>
<td>George Wash Univ</td>
<td>800 23rd St NW Washington, DC 20037 202-715-4000</td>
<td>2 mi</td>
<td>$41,805</td>
<td>$47,030</td>
<td>N/A</td>
<td>Blue Distinction Spine Surgery</td>
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<tr>
<td>Washington Hospital Center</td>
<td>216 Michigan Ave NW Washington, DC 20017 202-877-7000</td>
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<td>$41,805</td>
<td>$47,030</td>
<td>N/A</td>
<td>Blue Distinction Spine Surgery</td>
</tr>
<tr>
<td>Georgetown Univ</td>
<td>3800 Reservoir Rd NW Washington, DC 20007 202-444-1400</td>
<td>3 mi</td>
<td>$62,707</td>
<td>$67,933</td>
<td>N/A</td>
<td>Blue Distinction Spine Surgery</td>
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<tr>
<td>Montgomery General Hospital</td>
<td>18101 Prince Philip Dr Olney, MD 20332 301-774-8882</td>
<td>17 mi</td>
<td>$38,807</td>
<td>$43,119</td>
<td>N/A</td>
<td>Blue Distinction Spine Surgery</td>
</tr>
<tr>
<td>Fair Oaks Hospital</td>
<td>3600 Joseph Siewick Dr Fairfax, VA 22033 703-391-3600</td>
<td>19 mi</td>
<td>$50,213</td>
<td>$54,579</td>
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<td>Blue Distinction Spine Surgery</td>
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<tr>
<td>Baltimore Washington Medical Center</td>
<td>301 Hospital Dr Glen Burnie, MD 21061 410-787-4000</td>
<td>27 mi</td>
<td>$25,921</td>
<td>$29,624</td>
<td>N/A</td>
<td>Blue Distinction Spine Surgery</td>
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<tr>
<td>Saint Agnes Hospital</td>
<td>900 Caton Ave Baltimore, MD 21229 410-366-6000</td>
<td>31 mi</td>
<td>$47,350</td>
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<tr>
<td>Mercy Medical Center Inc</td>
<td>301 Saint Paul St Baltimore, MD 21202 410-332-9000</td>
<td>34 mi</td>
<td>$34,436</td>
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<td>Blue Distinction Spine Surgery</td>
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<tr>
<td>University of Maryland Medical Center</td>
<td>22 S Greene St Baltimore, MD 21201 800-373-4111</td>
<td>34 mi</td>
<td>$38,741</td>
<td>$43,045</td>
<td>N/A</td>
<td>Blue Distinction Spine Surgery</td>
</tr>
</tbody>
</table>
National Drug, Vaccine, and Biologic Safety

34 million members’ claims, pharmacy, and laboratory data enables population safety and public health research

- FDA Vaccine and Biologics Safety Surveillance
- FDA Sentinel Initiative Coordinating Center
- FDA Drug Safety Surveillance
- National Institutes of Health Challenge Grant
- HHS Contract to Monitor National H1N1 Vaccine Safety
“Your time is limited, so don’t waste it living someone else’s life. Don’t be trapped by dogma – which is living with the results of other people’s thinking. Don’t let the noise of others’ opinions drown out your own inner voice. And most important, have the courage to follow your heart and intuition.”

– Steve Jobs