Health Care Reform and New Care Models at UPMC

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The Great Challenge for Medicine

- Health Care reform largely Insurance reform
- Spiraling costs of health care will bankrupt our country

### Spending on Health Care Per Person

<table>
<thead>
<tr>
<th>Country</th>
<th>Amount</th>
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<tbody>
<tr>
<td>United States</td>
<td>$7,960</td>
</tr>
<tr>
<td>Norway</td>
<td>5,352</td>
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<tr>
<td>Switzerland</td>
<td>5,144</td>
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<tr>
<td>Netherlands</td>
<td>4,914</td>
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<tr>
<td>Canada</td>
<td>4,363</td>
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<td>Denmark</td>
<td>4,348</td>
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<tr>
<td>Austria</td>
<td>4,289</td>
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<tr>
<td>Germany</td>
<td>4,218</td>
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<td>France</td>
<td>3,978</td>
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<td>Belgium</td>
<td>3,946</td>
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<td>Britain</td>
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<td>Italy</td>
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<td>Spain</td>
<td>3,067</td>
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<td>New Zealand</td>
<td>2,983</td>
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</tbody>
</table>

Contributing Factors

• Chronic disease
• Aging population
• Runaway technology

• Providers
  – poorly coordinated systems of care
  – Mis-aligned incentives
  – end of life care

• Patient Education
  – “more is better” (but little skin in game)
  – unhealthy habits - Marlboros, McDonalds…
“May you live in interesting times”
Worst of times, but also best of times

• Revolutions in computational sciences, genetics/genomics, and other scientific disciplines offers us a unique opportunity to understand the biological underpinnings of disease and allow us to develop new models of care that will improve outcomes and be cost-effective

• Most academic medical centers and hospital systems not incentivized to develop these new models of care
UPMC Solution:
An Integrated Delivery and Finance System (IDFS)

54,000 employees

Enterprise Services

Hospital and Community Services
- 20+ hospitals
- 234,000 admissions
- >4.8M outpatient visits

Physician Services
- 2,900 employed
- 5,000 total

Insurance Services
- >1.6M members

International and Commercial Services
- 18 countries
- Hospitals: Italy, Ireland

CMU
New models of care
*Improved outcomes*
*Cost effective*

Good science
Smart technology
New Models of Care: UPMC’s own workforce health initiatives

**Program Launch**

- **UPMC Total PMPM Cost Trends**
  - Year 1: 11.5%
  - Year 2: 6.9%
  - Year 3: 8.6%
  - Year 4: 7.6%
  - Year 5: 8.4%
  - Year 6: 4.8%
  - Year 7: 7.4%
  - Year 8: 4.3%
  - Year 9: 2.3%
  - Year 10: -0.1%

- **% change**

**Coordinated care**
- Biometric Screening
- Wellness programs
- smoking cessation
- exercise, nutrition
Patient-centered, coordinated, comprehensive, continuous, accountable care

Medical Neighborhood
Evidence-Based Specialty Care

Medical Home
- Home care
- Skilled Nursing Facilities

Patient self-management
Coordinated care

Emergency Dept.
Hospital
- ICU

Re-engineer discharge
Palliative / support care

Hospice
• Medical Cost: In U.S. it’s not how you live but how you die
  – >30% lifetime healthcare costs last yr of life, 20% Medicare $ in ICU
  – Note: PSI not just end of life but…

• Ensure high quality, coordinated care for patients with serious illness by increasing palliative care capacity and expertise across the UPMC continuum of care through consistent education, training, and technical assistance for health care professionals who care for persons with serious illness.

• Promote quality of life for all patients and families living with the burden of serious illness
  – Attentive symptom management
  – Physical, emotional, intellectual, social, and spiritual needs
  – Promote autonomy and choice
  – Promote the patient/family’s values.
Primary Care

- Comprehensive, Coordinated care
  - Team care including health care professionals and Patient
  - Re-engineer responsibilities of team- Preventive – acute – chronic care

- Continuous Care
  - Communication: IT/Telemedicine (biological sensors)
  - Align Incentives: change pay structure – pt panel, quality/outcomes

- Accountable Care: Quality and Outcomes
  - Evidence-based medicine
  - Agreed upon care pathways and metrics
  - Analytics

- Patient Education: Telehealth – “game technology”
• Pick major diseases / procedures for each Department (inter-departmental) accounting for at least 80% of care
• Develop evidence-based guidelines / care pathways
• Focus on patient-safety, variation, appropriateness
• IT: Patient Registries and analytics

• HVI initiatives, Oncology “pathways”…
• Multiple grass-roots pilot projects and innovative practice centers merging
CHF is a growing epidemic

- Over 5 million persons in USA affected
- Annually accounts for:
  - 400,000 deaths
  - $40 billion dollars expenses
  - 5 year survival < 50%
- 550,000 new cases annually
- 1% > age 65 in U.S.
- By 2030, 10 million in U.S.
- National Readmission Rates
  - 18% within 30 days
  - 50% at 3-6 months
CHF Care Re-Design Pilot

• **Overview:**
  – Multidisciplinary team led by Rene Alvarez and Hunter Champion
  – Patients admitted with a primary diagnosis of Heart Failure to Presbyterian unit 3E and followed by the Division of Cardiac Services Heart Failure Team.
  – A tracking database maintained by UPMC Center for Quality and Innovation (CQII) and the UPMC Health Plan care management documentation system.

• **Goals:**
  – Decrease 30-day readmission rate for patients with CHF
  – Improve quality - patient outcomes
  – Improve patient satisfaction
  – Utilize guideline driven pathways

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<th>1</th>
<th>2</th>
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<th>10</th>
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- DC Advocate Call
- Primary Care Physician Visit
- Get Abby call
- Home Health Safe Landing Visit
## CHF Preliminary Results

- **Patient populations**
  - PUH 3E, ICD-9 CHF (Exclude transplant and VAD)
  - Baseline population historical ctrl 2010 = 392 pts
  - Pilot population 9/10 – 9/11

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<tr>
<th></th>
<th>Baseline</th>
<th>Pilot</th>
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<tbody>
<tr>
<td>N</td>
<td>392</td>
<td>160</td>
</tr>
<tr>
<td>CMI</td>
<td>1.85</td>
<td>1.80</td>
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<tr>
<td>Avg LOS</td>
<td>14.3</td>
<td>9.7</td>
</tr>
<tr>
<td>Mortality</td>
<td>6%</td>
<td>0%</td>
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<tr>
<td>Charge/account</td>
<td>$130,000</td>
<td>$134,000</td>
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<tr>
<td>30 day re-admission</td>
<td>22.2 %</td>
<td>13.1%</td>
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- Age, gender ... same
- Median No change
- UPMC comm Hospitals $~25,000
Advanced Heart Failure and LVAD Patients

Telephone or Broadband

User Interface
Cell Phone Applications

TCx-I

IP Server
Applications

Internet Access
(from Anywhere)

Web-based access -
Family Member
Doctors, Nurses, &
Other service providers

BP Instrument

Weight Scale

Blood Glucose Meter

Pulse Oximeter

Spirometer

Robert L. Kormos MD – Presented on March 6, 2011
• Telemedicine
  – 16 service lines
  – 3,000 real time, 110,000 store forward

• Central Platform: Technology Development Center and Alcatel Lucent
  • Allows care at a distance, vendor independent, seamless
  • Registration, matching, scheduling, verification, notification, follow-up, financial

• Activities
  – Site-to-site (Hospital/clinics, employer, SNF)
  – Continuous care Patient-Facing “Apps”
  – Education

• Issues: Technical, Financial, Commercial, Legal
Smart technology: Bring intelligence to information

- $1.4 Billion in past 5 years
- Extensive electronic medical records system covering 5 million unique patient records
- Internal Technology Development Center focused on natural language processing, telemedicine, and mobility
Smart Technology: Bring Intelligence to Information

• Multiple EHR solutions
  – Aggregate, Harmonize data
  – Display in an intuitive, work-flow friendly, visually appealing manner

• Analytics
Central Data Warehouse - Analytics

**Value= Outcomes/Cost**

Data Mining
- Test new models

Machine Learning
- Develop novel ones

**Harmonize:** Structured (db Motion), Unstructured (Nuance)

**Aggregate Data:**
Cerner, Epic, Cognos, Health Planet…

**Analytics**

Automated, real time data at bedside

**Descriptive to Predictive**
Central Data Warehouse

Single source of truth
Appropriate Variation in Care

Clinical Redesign Pilot Projects
“Health Plan Laboratory”

DECREASE variation in population care

Personalized Medicine

INCREASE variation in individual care
Framework for Good Science – Personalized Medicine

Genetics

Environment
diet, infection, smoking, pathogens...

Host

Time: Growth and Development
Adult        Aging

Individual Disease
Susceptibility, Course, Treatment Response

Basic science, drug discovery

Discover New Treatment for Aggressive Disease

biomarkers

Individualized Care
Prevent OverDx/Rx

UPMC LIFE CHANGING MEDICINE
Bring together top-caliber scientists willing to challenge our current understanding of disease to improve patient outcomes and reduce unnecessary treatments. Areas of research focus include:

- **Personalized Medicine** — For complex diseases, identify genetic and environmental factors that determine an individual’s susceptibility to disease, disease course, and most effective of treatment.

- **Cancer Biology** — Rather than approach each cancer in isolation, assess the underlying genetic and environmental underpinnings, focusing on the role of viruses, the immune system, the tumor macro-environment, and the effect of aging.

- **Biology of Aging** — Understand normal and abnormal cellular changes that occur over time to allow us to maximize healthy aging, healing and cancer prevention.
Good science: $300 million for Innovative Science

Areas of research focus include:
- Personalized Medicine
- Cancer Biology
- Biology of Aging
Becoming the Care Manager
Payers Embracing Vertical Integration

Payer Acquisitions of Physician Groups

- Insurer acquiring market-leading primary physician IPA
- Insurer obtaining ownership stake in large multispecialty IPA
- National carrier acquiring local physician group as part of vertical integration strategy
- Local payer managing three physician clinics
- Pittsburgh insurer Highmark acquiring West Penn Allegheny Health System
- Local insurer purchasing chain of primary care physician practices

Source: Health Care Advisory Board interviews and analysis.