Delivery System Strategies

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Geisinger Health System
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Geisinger Population-Based Care
CY 2007

*All MRNs are defined as inpatient and outpatient for GMC, GWV and GC

Geisinger Hospitals “Hubs” – Provide Primary/Secondary/Tertiary Care

GMC Geisinger Med. Ctr. GWV Geisinger Wyoming Valley GSWP Geisinger South Wilkes-Barre Centre

Geisinger Medical Groups

GHS Service Area
Geisinger Health System

Environment
• 2.6 million in service area
• 35 of PA’s 67 counties
• Rural, aging, non-transient

Anatomy
• Hub & Spoke “Continuity of Care” design
• Medical informatics (strategic commitment)
• Large multi-specialty group practice (> 670 physicians)
• 40 community practice sites; ~200 primary care physicians
• Multiple specialty hospitals and ASCs
• Tertiary/quaternary care medical centers and specialty hospitals
Geisinger Health Plan

- 211,000 members
  - HMO, PPO, diversified products
  - 35,000 Medicare Advantage
- 16,000 empanelled physicians
- 53 non-Geisinger hospitals
- 41 PA counties (of 67)
Hedging Strategy

- GHS patients
  - 30% GHP payor
  - 70% Non-GHP payors

- GHS insurance companies
  - 50% care via Geisinger Clinic
Geisinger Health System

An Integrated Health Service Organization

**Provider Facilities**
- $972M*

  - Geisinger Med. Ctr. (+ Janet Weis Children’s Hospital)
  - Geisinger Wyoming Valley Med. Ctr. w/ Heart Hosp. & Henry Cancer Ctr.
  - Geisinger South Wilkes-Barre Hosp.
  - Marworth Drug & Alcohol Treatment Center
  - 2 ambulatory surgery centers
  - > 30K Admissions, > 800 in-pt beds

**Physician Practice Group**
- $423M*

  - Multispecialty group
  - ~ 700 physicians
  - 40 comm. practice sites
  - > 1.5 million outpatient visits
  - 220 interns and residents

**Managed Care Companies**
- $885M*

  - ~211,000 members
  - Diversified products
  - > 16,000 contracted physicians

*Reflects Budget FY 2008
Electronic Health Record (EHR)

- Decision to implement Epic®: 1995
- > $80M invested (hardware, software, manpower, training)
- Running costs: ~ 4.2% of annual revenue of $2.0B
- Fully-integrated EHR - 40 community practice sites, three hospitals
- > 3 million patient records
  - >90,000 active users of MyGeisinger; goal = 100,000
  - >1,300 non-Geisinger users; secure access (referring physicians)
  - Real-time registries track clinical metrics by dept/physician
  - PACS and web-based image distribution
The Vision for the Second Century
The Next Five Years*

“Striving for Perfection”

• Geisinger Quality
• Innovation
• Market Expansion
• Securing the Legacy

*Predicated on maintaining healthy operations
Targets for the Geisinger Transformation

• Unjustified variation
• Fragmentation of care-giving
• Perverse payment incentives
  – ↑Units of work
  – Outcome irrelevant
Transformation Initiatives*

- Geisinger Medical Home
- Chronic Disease Care Optimization
- Transitions of Care
- ProvenCare℠ for acute episodic care (the “warranty”)

*Achievable only through innovation
ProvenCare℠ for Acute Episodic Care (the “Warranty”)
ProvenCare<sup>SM</sup>: What is It?

*A provider-driven, evidenced-based pay-for-performance program*
Traditional Pay-for-Performance

- “Financial incentive or favorable treatment for guideline compliance, process use, infrastructure availability and/or achievement of satisfaction or outcome targets.”
  - Generally imposed by payer
  - Outpatient, primary care focus
  - Chronic disease management or preventative care emphasis
  - Relatively small incentives
  - Few “penalties”
ProvenCare: A Dramatic Change in Status Quo

• Reliably deliver evidence-based, patient-centered and outcome-focused care:
  – Documented appropriateness
  – Systematically applied; “hard wired” evidence-based care
• Enable, nurture and support an activated, partnered patient/family
• Accept responsibility:
  – Global payment for procedure and all related services
  – “90-day warranty” including care for any related complications, readmissions or follow-up care for 30 days before and 90 days after intervention
  – Eliminates perverse incentives
  – Complements ambulatory chronic disease programs
Core Principles

• Approach is patient-centric and outcome-focused including:
  – Documented appropriateness
  – Enabling and supporting an activated patient
  – Systematically applying evidence-based care
  – Driving process efficiency gains (treatment intensity and complication reduction, through-put enhancement)

• Reimbursement incentives:
  – Restructuring to support and enable optimal outcomes
ProvenCare: Why CABG?

• Motivated, collaborative clinicians
• Consensus and evidence-based guidelines
• Established predictive models (STS Database)
• Robust data collecting systems
• Appropriate volumes
• Relevant outcomes and intervention areas
• Financially important to system
• Excellent baseline performance
  – PHC4 data
PA CABG Mortality Rates (2004)
PA Readmission Rates (2004)
Best Practice Design

• Established “Guideline” team
  – Adopted 2004 AHA/ACC Guidelines for CABG
  – Surgeons assigned to each of 12 Class I and 8 Class IIa guidelines
    • Translation to 40 verifiable, actionable behaviors with clear definitions
    • Developed unanimity and “buy-in”
      – Educated all surgeons at all sites
• Clinical Effectiveness professionals defined existing care processes and flows
Document Appropriateness

- Elective CABG based on defined, unambiguous, authoritative medical criteria (ACC/AHA 2004 Guideline Update for CABG Surgery)
  - If documented Class I or Class IIa, proceed to surgery (33 total indications)
  - If documented Class IIb, will have second surgical review and require unanimous agreement (3 indications)
  - If documented Class III or no indication, NO surgery (9 “indications”)

GEISINGER
Deliver Evidence-Based Care

- ACC/AHA Class I Recommendations
  - Pre-op antibiotics
  - Pre-op carotid doppler studies
  - Aspirin
  - Epiaortic echocardiography to identify atherosclerotic ascending aorta
  - Aggressive debridement and revascularization for deep sternal wound infections
  - Perioperative beta blockers (or amiodarone) to reduce atrial fibrillation
  - Statins
  - Smoking cessation education and pharmacotherapy
  - Cardiac rehab
  - Withholding of clopidogrel for 5 days pre-op
  - Left internal mammary artery as graft for the LAD artery

- ACC/AHA Class II Recommendations
  - Pre-operative use of a CABG operative mortality risk model
  - Anticoagulation for recurrent/persistent postoperative Afib
  - Anticoagulation for postoperative anteroapical MI with persistent wall motion abnormality
  - Carotid endarterectomy for carotid stenosis that is symptomatic or >80%
  - Intra-aortic counter pulsation for low LV ejection fraction
  - Blood cardioplegia
  - Delay operation for patients with recent inferior MI with significant RV involvement
  - Tight peri-operative glucose control
Patient Activation

• Clinical, executive, and legal team developed a “Patient Compact” to engage patients
  – Reflects bilateral commitment to optimize outcomes
• Education work group revised all patient education materials to comply with ProvenCare concepts
Patient Agreement

- Engage as a “partner” in care process
- Make preferences known (facilitated)
- Ask questions, expect answers
- Comply with recommended medications
- Complete cardiac rehabilitation
- Stop smoking (best efforts)
- Manage weight (best efforts)
Financial Terms

• Package price for entire “Episode of Care”
  – GHS will not charge for related care within 30 days prior or 90 days post if provided by a Geisinger clinician or at a Geisinger facility
• Related and unrelated examples:
  – Related: Sternal wound infection, CHF from perioperative infarct
  – Not related: auto accident, diverticulitis, hip fracture, pre-existing CHF
• Global fee includes variable discount with “locked-in” savings on historical readmissions
ProvenCare℠ CABG: Reliability

ProvenCare CABG

% patients receiving all ProvenCare components

Feb-06  Apr-06  Jun-06  Aug-06  Oct-06  Dec-06  Feb-07  Apr-07  Jun-07  Aug-07  Oct-07  Dec-07
# Quality

## Clinical Outcomes - (18. mos)

<table>
<thead>
<tr>
<th></th>
<th>Before ProvenCare&lt;sup&gt;SM&lt;/sup&gt; (n=132)</th>
<th>With ProvenCare&lt;sup&gt;SM&lt;/sup&gt; (n=181)</th>
<th>% Improvement/ (Reduction)</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-hospital mortality</td>
<td>1.5 %</td>
<td>0 %</td>
<td>21 %</td>
</tr>
<tr>
<td>Patients with any complication (STS)</td>
<td>38 %</td>
<td>30 %</td>
<td>21 %</td>
</tr>
<tr>
<td>Patients with &gt;1 complication</td>
<td>7.6 %</td>
<td>5.5 %</td>
<td>28 %</td>
</tr>
<tr>
<td>Atrial fibrillation</td>
<td>23 %</td>
<td>19 %</td>
<td>17 %</td>
</tr>
<tr>
<td>Neurologic complication</td>
<td>1.5 %</td>
<td>0.6 %</td>
<td>60 %</td>
</tr>
<tr>
<td>Any pulmonary complication</td>
<td>7 %</td>
<td>4 %</td>
<td>43 %</td>
</tr>
<tr>
<td>Blood products used</td>
<td>23 %</td>
<td>18 %</td>
<td>22 %</td>
</tr>
<tr>
<td>Re-operation for bleeding</td>
<td>3.8 %</td>
<td>1.7 %</td>
<td>55 %</td>
</tr>
<tr>
<td>Deep sternal wound infection</td>
<td>0.8 %</td>
<td>0.6 %</td>
<td>25 %</td>
</tr>
<tr>
<td>Readmission within 30 days</td>
<td>6.9 %</td>
<td>3.8 %</td>
<td>44 %</td>
</tr>
</tbody>
</table>
Value
Financial Outcomes - (18 months)

• Average total LOS fell 0.5 days (6.2 vs 5.7)
• Hospital net revenue grew 7.8%
• Contribution margin of index hospitalization grew 16.9%
• 30 day readmission rate fell 44%
"ProvenCare<sup>SM</sup>"

A Provider-Driven Pay-for-Performance Program for Acute Episodic Cardiac Surgical Care

*Alfred S. Casale, MD, Ronald A. Paulus, MD, Mark J. Selna, MD, Michael C. Doll, PA-C, Albert E. Bothe, Jr., MD, Karen E. McKinley, RN, Scott A. Berry, MS, Duane E. Davis, MD, Richard J. Gilfillan, MD, Bruce H. Hamory, MD, and Glenn D. Steele, Jr., MD*

**Objective:** To test whether an integrated delivery system could successfully implement an evidence-based pay-for-performance program for coronary artery bypass graft (CABG) surgery.

**Methods:** The program consisted of 3 components: (1) establishing implementable best practices; (2) developing risk-based pricing; (3) establishing a mechanism for patient engagement. Surgeons reviewed all class I and IIa “2004 American Heart Association/American College of Cardiology Guidelines for CABG Surgery” and translated them into 40 verifiable behaviors. These were embedded within a new ProvenCare<sup>SM</sup> program and “hardwired” within the electronic health record system, including order sets, templates, and “time outs”. Concurrently preoperative, inpatient, and postoperative care within 90 days was packaged into a fixed price. A Patient Compact was developed to highlight the importance of patient activation. All elective CABG patients treated between February 2, 2006 and February 2, 2007 were included (ProvenCare<sup>SM</sup> Group) and compared with 137 patients treated in 2005 (Conventional Care Group).

**Results:** Initially, only 59% of patients received all 40 best practice components. At 3 months, program compliance reached 100%, but fell transiently to 86% over the next 3 months. Reliability subsequently increased to 100% and was sustained for the remainder of the study period. The overall trend in reliability was significant at \( P = 0.001 \). Thirty-day clinical outcomes showed improved trends (Table 1) but only the likelihood of discharge to home reached statistical significance. Length of stay decreased by 16% and mean hospital charges fell 5.9%.

Healthcare delivery in the United States faces significant quality and cost problems. Medical care is often inappropriate when judged against accepted standards with numerous examples of excess utilization and conversely, appropriately indicated care is frequently not provided. This inconsistency leads to wide, unexplained variation in rates of procedures, expenditures, and outcomes. Landmark publications by the Institute of Medicine and the Rand Corporation have focused increased professional and public attention on these issues. Nevertheless, healthcare providers continue to be paid for units of care delivered independent of quality or results achieved. Poor outcomes, such as postoperative complications that require reoperation, often result in more payment.

Care reliability is inconsistent. Best practice guidelines are sometimes based on equivocal evidence, and are often ignored or poorly applied. Translation of even the best guidelines into actual behavior is difficult and slow-paced. The fragmentation of our delivery systems and the influence of diverse and often opposing economic factors can overwhelm the influence of science and well-meaning intentions in determining acceptance and dissemination of best practices.

Strategies to improve this system have included mandates from regulators, federal and state agencies, and payers. Public reports of outcome measures are often derived from administrative databases and have typically had only modest
May 17, 2007

In Bid for Better Care, Surgery With a Warranty

By REED ABELSON

What if medical care came with a 90-day warranty?

That is what a hospital group in central Pennsylvania is trying to learn in an experiment that some experts say is a radically new way to encourage hospitals and doctors to provide high-quality care that can avoid costly mistakes.

The group, Geisinger Health System, has overhauled its approach to surgery. And taking a cue from the makers of television sets, washing machines and consumer products, Geisinger essentially guarantees its workmanship, charging a flat fee that includes 90 days of follow-up treatment.

Bypass by the Book

Geisinger Health System has devised an approach to elective heart bypass surgery, which it calls ProvenCare, that includes a 46-item checklist to ensure that patients get recommended treatments. A Geisinger study of the first-year results of the program found that fewer patients returned to the intensive care unit and that they were more likely to go directly home from the hospital rather than to a nursing home.

**ProvenCare checklist for heart bypass surgery**

1. Before admission
   - 12 checks, including screening for stroke risk.
2. Just before and during surgery
   - 6 checks, including confirming that the patient received the correct doses of medications and was screened for hypoglycemia.
3. After surgery
   - 10 checks, including tobacco screening and counseling.
4. Before being discharged

**Some results of using ProvenCare**

<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th>After</th>
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<tbody>
<tr>
<td>Patients with any complication</td>
<td>39.0%</td>
<td>35.0%</td>
</tr>
<tr>
<td>Supplemental blood products used</td>
<td>23.0%</td>
<td>16.0%</td>
</tr>
<tr>
<td>Discharged not to home</td>
<td>19.0%</td>
<td>9.0%</td>
</tr>
<tr>
<td>Readmission within 30 days</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>
Not Just CABG…

% of patients receiving ALL ProvenCare components

ProvenCare Cataract

Mar-07 Apr-07 May-07 Jun-07 Jul-07 Aug-07 Sep-07 Oct-07 Nov-07 Dec-07 Jan-08 Feb-08
### Not Just Surgery...

<table>
<thead>
<tr>
<th>Epo CKD (n=62)</th>
<th>Control (n=74)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median days to goal = 47.5 days</td>
<td>Median days to goal = 62.5 days</td>
</tr>
<tr>
<td>% Time in goal = 69.8%</td>
<td>% Time in goal = 43.9%</td>
</tr>
<tr>
<td>% Time below goal = 13.7%</td>
<td>% Time below goal = 39.7%</td>
</tr>
<tr>
<td>% Time above goal = 16.5%</td>
<td>% Time above goal = 16.4%</td>
</tr>
<tr>
<td>Avg Epo Units/week = 6,698*</td>
<td>Avg Epo Units/week = 12,000</td>
</tr>
<tr>
<td>Home/Clinic = 58.1%/41.9%</td>
<td>Home/Clinic = 39.2%/60.8%</td>
</tr>
<tr>
<td>Expanded Dose Utilization = 40%</td>
<td>Expanded Dose Utilization = 16%</td>
</tr>
<tr>
<td>Avg Hgb at start = 9.6 mg/dl</td>
<td>Avg Hgb at start = 10.0 mg/dl</td>
</tr>
<tr>
<td>Avg T-Sat at start = 18%</td>
<td>Avg T-Sat at start = 18%</td>
</tr>
</tbody>
</table>

* Savings $3,860/pt/year @ $0.014/unit of Epo (p<.001)
ProvenCareSM Portfolio

• ProvenCare:
  – CABG
  – Angioplasty
  – Angioplasty + AMI
  – Hip replacement
  – Knee
  – Cataract
  – EPO
  – Perinatal
  – Bariatric surgery
  – Minimally invasive surgery
Requirements for ProvenCare<sup>SM</sup>

- Tight operational linkage of physicians with hospital
- Consensus on guidelines
- Real time measurement and feedback of performance data
- Alignment of financial incentives
Limitations/Caveats

- Scalable?
- Applicable to non-IDS?
- Applicable in absence of real-time EHR?
- Applicable in fee-for-service settings?
- Pending wider use in marketplace
Potential Markets

- Business (direct or modified TPA)
- Other providers (re-engineering care)
- Other insurers (quality/value stratification)
- Integrated health system market expansion