New Models for Healthcare Delivery

Healthcare Innovation Symposia Series IV
Emory-Georgia Tech Healthcare Innovation Program (HIP)
Clinical & Translational Science Institute (ACTSI)
Atlanta, GA
April 2, 2015

Glenn Steele, Jr., MD, PhD
President & CEO
Geisinger Health System
Where We Are Now (Nationally)

- Unjustified variation in quality, access, and cost of care
- Unwarranted and fragmented care-giving
- An addiction to perverse payment incentives
  - Piece rate Medicare/Medicaid payment model
    - Driving up units of work
    - Driving up cost
    - Diminishing value and quality
- Transition to new payment incentives (predicated on fundamentally new care delivery models)
- Patients as passive recipients of care
Where Do We Want to Be?

- Affordable coverage for all
- Payment for value
- Coordinated care
- Continuous improvement/innovation
- Patient activation (empowerment)
- National health goals, leadership, accountability
Geisinger Health System
An Integrated Health Service Organization

Provider Facilities
- Geisinger Medical Center and its Shamokin Hospital Campus
- Geisinger Wyoming Valley Medical and its South Wilkes-Barre Campus
- Geisinger Community Medical Center, Scranton, PA
- Geisinger-Bloomsburg Hospital
- Geisinger-Lewistown Hospital
- Holy Spirit Health System
- Marworth Alcohol & Chemical Dep Treatment Center
- 4 outpatient surgery centers
- 2 Nursing Homes
- Home health & hospice services covering 22 counties
- >100K admissions/OBS & SORUs
- 2,045 licensed inpatient beds
- Pending: AtlantiCare Health System

Physician Practice Group
- Multispecialty group
- ~1,220 physician FTEs
- ~750 advanced practitioners
- 113 primary & specialty clinic sites (60 community practice)
- 1 outpatient surgery center
- ~2.8 million outpatient visits
- ~430 resident & fellow FTEs
- ~335 medical students

Managed Care Companies
- ~500,000 members (including ~100,000 Medicare Advantage members and ~132,000 Medicaid members)
- Diversified products
- ~50,000 contracted providers/facilities
- 43 PA counties
- Offered on public & private exchanges
- Members in 5 states

Moody’s Aa2/Stable
Standard & Poor’s AA/Stable
Transforming Healthcare with Technology

- > $200 M invested (hardware, software, manpower, training)
- **Running costs**: ~4.0% of annual revenue of > $3.9 Billion annual revenue
- **Fully-integrated EHR**: 46 community practice sites; 7 hospitals; 7 EDs; 4 Surgical Centers; 17 (includes CareWorks retail-based and urgent care clinics, walk-in and after hours clinics)
  - Acute and chronic care management
  - Optimized transitions of care
- **Networked Patient Portal** - ~268,386 active users (41% of ongoing patients)
  - Patient self-service (self-scheduling, patient-entered data)
  - Home monitoring integrated with Medical Home
- **“Outreach Health IT”** – 10,221 users in 865 non-Geisinger practices
  - Remote support for regional ICUs
  - Telestroke services to regional EDs
- **Active Regional Health-Information Exchange (KeyHIE)**
  - 22 hospitals, 175 practices, ~1M patients consented, publish 700,000+ documents monthly, participants access ~89K patients monthly
- **e-health (eICU®) Programs**
- **Keystone Beacon Community**
  - HIT-enabled, Community-wide care coordination in 5 rural counties
- **CDIS (Clinical Decision Intelligence System)**
  - **Clinical EDW**: Clinical/Financial/Operational/Claims Data available to 3000+ Geisinger users running over 80M queries per month
  - **GHP**: Data since 2006 and forward of 40M Health Plan Medical Claims for about 1M members. The Health Plan has ~120 analytical users accessing the EDW.
- **Functional ‘Apps’ Portfolio**
Geisinger Health System Coverage Area
Strategic Priorities

• Quality and Innovation
  – Patient centered focus
    • Patient activation (empowerment)
    • Culture of quality, safety and health
  – Value Re-engineering
    • Transformational changes – embedding innovations

• Market Leadership
  – Collaboration/partnerships
    (local, regional, national)
  – The GHS Brand
    • Scaling and generalizing

• The Geisinger Family
  – Personal and professional well being
The “Sweet Spot” for Partnership & Innovation

Aligned objectives between the health plan & clinical enterprise, with each organization contributing what it does best.

**Health Plan**
(500K members and ~50K providers)
- Population analysis
- Align reimbursement
- Finance care
- Engage member and employer
- Report population outcomes
- Take to market

**Clinical Enterprise**
(~585K unique MR#)
- Care delivery
- Identify best practice
- Design systems of care
- Interpret clinical reports
- Continually improve
- Activate patient & family

**Joint**
- Population Health
- Population Served
- EHR / Infrastructure
  (36% of GHS patients are GHP members)
Sweet Spot Innovations

**2000-2006**
- Non-proprietary EHR
- Patient Portal
- Value Reengineering
  - ProvenCare® Acute
  - ProvenCare® Chronic
- PGP Demo (ACO Precursor)
- Data Warehouse
- Quality Incentives
- PPO

**2007-2010**
- Value Reengineering
  - ProvenHealth Navigator®
- Practice-based CM
- Clinical decision support

**2011-2012**
- Robust Care Gap Program
- Transition of Care Bundle
- Specialty PCP integration
- Natural Language Processing
- Proof of generalizability beyond Central PA
- Open Notes
- SNFist

**1990’s**
- EHR Installation
- Medicare Advantage

**2013-2014**
- Launch of xG Health
- Medicaid MCO
- Private/public exchanges
- Urgent care centers
- CPSL alternative to ED
- Proven® Biologics
- Geisinger in Motion
Geisinger Patient-Centered Continuum of Care

Community-Based Care
- Specialty Outreach ("Face-to-face" & Telemedicine)
- Urgent Care Center
- After-Hours Care Center
- Retail Clinic
- Lab Outreach Site
- Retail Pharmacy
- E-Visit MyGeisinger
- ProvenHealth Navigator

Acute Care
- Tertiary/Quaternary Medical Center
- eICU
- Inpatient Rehab
- Adult Health Program & Day Center
- Outpatient Rehab
- Home Care Hospice
- ProvenHealth Navigator

Post-Acute & Transitional Care
- Community Practice Site
- Imaging Center
- Wellness
- Work Site Clinic
- Nursing Homes/SNF

Geisinger Health System - Proprietary
Not for reuse or distribution without permission
Disruptive Innovation & Value Reengineering

- Patients and Conditions
- Population Identification
- Bundle Development
- Populations
- 100% Care Processes and Protocols (Digital)
- Low -> Efficiency and Reliability -> High
- Regular Care
- Workflow Modification
- Delegation and Algorithms
- Automation
- Patient Activation

Geisinger Health System - Proprietary
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THE GEISINGER VALUE
RE-ENGINEERING “TOUCHSTONES”
The Quality of Health Care Delivered To Adults In the United States


BACKGROUND
We have little systematic information about the extent to which standard processes involved in healthcare—a key element of quality—are delivered in the United States.

METHODS
We telephoned a random sample of adults living in 12 metropolitan areas in the United States and...received written consent to copy their medical records...to evaluate performance on 439 indicators of quality of care for 30 acute and chronic conditions as well as preventative care...

RESULTS
Participants received 54.9 percent of recommended care.

CONCLUSIONS
The deficits we have identified in adherence to recommended processes for basic care pose serious threats to the health of the American public. Strategies to reduce these deficits are warranted.
Cost/Quality “Correlation”

MD Longitudinal Cost Efficiency Index
(total cost per case mix-adjusted treatment episode)

Low Efficiency
High Quality

Low Efficiency
Low Quality
(Nightmare Suppliers)

High Efficiency
High Quality
(Dream Suppliers)

Lower Efficiency/
Higher Cost

Higher Efficiency/
Lower Cost

Adapted from Regence Blue Shield; Arnie Milstein, MD - Mercer
Cost $\downarrow$ = Quality $\uparrow$
2006-2010
GHS Innovations

Cost/Quality $\neq R$
2003

Cost $\downarrow$ or Quality $\uparrow$
1993-1994
Hillary-Care ‘Debate’
The Beginning: ProvenCare® CABG

“ProvenCare℠”
A Provider-Driven Pay-for-Performance Program for Acute Episodic Cardiac Surgical Care

Why: Specialty drugs will account for nearly ½ of all drug sales in coming years.

Targets:
- Hepatitis C
- Inflammatory Bowl Disease
- Multiple Sclerosis
- Rheumatoid Arthritis
- Oncology
- Psoriasis

Scope:
- GHS projected 2014 expense avoidance of $58M
- GHP expected to avoid expenses of $172M

Approach:
- Process Redesign
- Channel Redesign
- Formulary Management & Contracting
- Total Cost of Care

Provencare® Biologics
ProvenCare® Portfolio

ProvenCare®:
- ProvenCare® Autism
- ProvenCare® Bariatric Surgery
- ProvenCare® Cellulitis
- ProvenCare® COPD
- ProvenCare® Coronary Artery Bypass Graft (CABG)
- ProvenCare® CNS Mets
- ProvenCare® Epilepsy
- ProvenCare® Fragility Hip Fracture
- ProvenCare® Heart Failure
- ProvenCare® Hepatitis C
- ProvenCare® Hysterectomy
- ProvenCare® Inflammatory Bowel
- ProvenCare® Lung Cancer (CoC Collaborative)
- ProvenCare® Lumbar Spine
- ProvenCare® Migraine
- ProvenCare® Multiple Sclerosis
- ProvenCare® Percutaneous Coronary Intervention (PCI)
- ProvenCare® Perinatal
- ProvenCare® Psoriasis
- ProvenCare® Rectal Cancer
- ProvenCare® Rheumatoid Arthritis
- ProvenCare® Total Hip
- ProvenCare® Total Knee

ProvenCare® Evidence-Based Guidelines (EBG) (in conjunction with PRIDE):
- Chest Pain – R/O MI (ED)
- Kidney Stone (ED)
- Newborn Protocols
- Pediatric Abdominal Pain (R/O Appendicitis (ED))
- Pediatric Head Injury (ED)
- Pediatric Pulmonary Embolism (ED)
- Sepsis (ED) & Sepsis (Med/Surg)
- Vent Management
ProvenCare® CHRONIC DISEASE

Portfolio of ProvenCare® Chronic Disease Programs

- Diabetes
- Congestive Heart Failure
- Coronary Artery Disease
- Hypertension
- COPD
- Prevention Bundle
# Improving Diabetes Care for 30,005 Patients

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<th>3/06</th>
<th>1/14</th>
<th>12/14</th>
<th>1/15</th>
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<tbody>
<tr>
<td><strong>Number of Patients</strong></td>
<td>20,178</td>
<td>27,459</td>
<td>29,805</td>
<td>30,005</td>
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<tr>
<td><strong>Diabetes Bundle Percentage</strong></td>
<td>2.4%</td>
<td>13.7%</td>
<td>19.1%</td>
<td>18.5%</td>
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<tr>
<td>% Pneumococcal Vaccination</td>
<td>59%</td>
<td>79%</td>
<td>80%</td>
<td>80%</td>
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<tr>
<td>% Microalbumin Result</td>
<td>58%</td>
<td>80%</td>
<td>76%</td>
<td>76%</td>
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<tr>
<td>% HgbA1c at Goal</td>
<td>33%</td>
<td>47%</td>
<td>50%</td>
<td>49%</td>
</tr>
<tr>
<td>% LDL at Goal</td>
<td>50%</td>
<td>60%</td>
<td>65%</td>
<td>65%</td>
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<tr>
<td>*Change to @ Goal on patient list July 2014</td>
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<tr>
<td>% BP at Goal</td>
<td>39%</td>
<td>79%</td>
<td>76%</td>
<td>76%</td>
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<tr>
<td>*Change to @ Goal on patient list July 2014</td>
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<tr>
<td>% Documented Non-Smokers</td>
<td>74%</td>
<td>85%</td>
<td>85%</td>
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</table>
ProvenCare® Type 2 Diabetes
Value Driven Care Outcome Improvements

Heart Attack
– Less than 3 years
– 306 prevented with estimated savings of $27,111/case = $8.3M!

Stroke
– Less than 3 years
– 141 prevented with estimated savings of $2,921/case = $412K!

Retinopathy
– Less than 3 years
– 166 cases prevented!
– Quality of life maintained
– Savings…priceless!

Primary Care Diabetes Bundle Management: Three-Year Outcomes for Microvascular and Macrovascular Events (FBloom; TGraf; WStewart; GSteele, et. al., June 2014 (20(6); 175-182)
## Improving CAD Care for 18,501 Patients

<table>
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<th>12/14</th>
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<tr>
<td><strong>Number of Patients</strong></td>
<td>13,688</td>
<td>16,892</td>
<td>18,422</td>
<td>18,501</td>
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<tr>
<td><strong>CAD Bundle Percentage</strong></td>
<td>8%</td>
<td>25%</td>
<td>30%</td>
<td>30%</td>
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<tr>
<td>% LDL &lt;100 or &lt;70 if High Risk</td>
<td>38%</td>
<td>61%</td>
<td>70%</td>
<td>70%</td>
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<tr>
<td>% ACE/ARB in LVSD,DM, HTN</td>
<td>65%</td>
<td>79%</td>
<td>78%</td>
<td>79%</td>
</tr>
<tr>
<td>% BMI measured</td>
<td>79%</td>
<td>99%</td>
<td>99%</td>
<td>99%</td>
</tr>
<tr>
<td>% BP &lt; 140/90</td>
<td>74%</td>
<td>80%</td>
<td>79%</td>
<td>79%</td>
</tr>
<tr>
<td>% Antiplatelet Therapy</td>
<td>89%</td>
<td>95%</td>
<td>95%</td>
<td>95%</td>
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<tr>
<td>% Beta Blocker use S/P MI</td>
<td>97%</td>
<td>97%</td>
<td>97%</td>
<td>97%</td>
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<tr>
<td>% Documented Non-Smokers</td>
<td>86%</td>
<td>86%</td>
<td>86%</td>
<td>86%</td>
</tr>
<tr>
<td>% Influenza Vaccination</td>
<td>60%</td>
<td>75%</td>
<td>72%</td>
<td>73%</td>
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<tr>
<td>Service</td>
<td>11/07</td>
<td>1/14</td>
<td>12/14</td>
<td>1/15</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>-------</td>
<td>------</td>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td>Number of Patients</td>
<td>203,074</td>
<td>242,122</td>
<td>260,367</td>
<td>261,726</td>
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<tr>
<td>Adult Preventive Bundle</td>
<td>9.2%</td>
<td>18%</td>
<td>19%</td>
<td>20%</td>
</tr>
<tr>
<td>Breast Cancer Screening (q 2 yrs 50-74) (discuss q 2 yrs 40-49)</td>
<td>46%</td>
<td>73%</td>
<td>74%</td>
<td>74%</td>
</tr>
<tr>
<td>Cervical Cancer Screening (q 3 yr Age 21-29) (q 5 yr Age 30-64)</td>
<td>64%</td>
<td>75%</td>
<td>73%</td>
<td>73%</td>
</tr>
<tr>
<td>Colon Cancer Screening (Colonoscopy q 10 yrs Age 50-74 or FOBT yearly)</td>
<td>44%</td>
<td>65%</td>
<td>65%</td>
<td>65%</td>
</tr>
<tr>
<td>Lipid Screening (Every 5 yr M &gt; 35, F &gt; 45)</td>
<td>75%</td>
<td>87%</td>
<td>87%</td>
<td>87%</td>
</tr>
<tr>
<td>Diabetes Screening (Every 3 yr &gt; 45)</td>
<td>85%</td>
<td>91%</td>
<td>93%</td>
<td>91%</td>
</tr>
<tr>
<td>Documented Non-Smokers</td>
<td>75%</td>
<td>79%</td>
<td>79%</td>
<td>79%</td>
</tr>
<tr>
<td>Tetanus Diphtheria Immunization (every 10 yr)</td>
<td>35%</td>
<td>76%</td>
<td>77%</td>
<td>77%</td>
</tr>
<tr>
<td>Pneumococcal Immunization (Once Age &gt;65)</td>
<td>84%</td>
<td>84%</td>
<td>84%</td>
<td>84%</td>
</tr>
<tr>
<td>Influenza Immunization (Yearly Age &gt;18)</td>
<td>47%</td>
<td>44%</td>
<td>43%</td>
<td>44%</td>
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<tr>
<td>Chlamydia Screening (Yearly Age 18-25)</td>
<td>22%</td>
<td>40%</td>
<td>40%</td>
<td>40%</td>
</tr>
<tr>
<td>Osteoporosis Screening (every 7 yr Age &gt;65)</td>
<td>52%</td>
<td>78%</td>
<td>77%</td>
<td>77%</td>
</tr>
<tr>
<td>Zoster Vaccine (Age &gt;60) <strong>New Measure February 2013</strong></td>
<td>37%</td>
<td>40%</td>
<td>40%</td>
<td>43%</td>
</tr>
</tbody>
</table>

**Change in age from Age>50 to Age>18 February 2013**
ProvenHealth Navigator® Results

- Acute care admissions: 27.5%
- All cause 30-day readmissions: 34%
- Patients say quality of care improved when they worked with a case manager: 72%
- ED visits remain flat

Demonstrated improvement in the risk of heart attack, stroke, and retinopathy in individuals with diabetes:
- 3-year results in 25,000 patients:
  - 305 MIs prevented
  - 140 strokes prevented
  - 166 cases of retinopathy prevented

*Outcomes represent the period 2007—2012 and more than 80,000 Geisinger Health Plan members in Geisinger Health System practices.
ProvenHealth Navigator®
Innovations in Management of Elderly

- “SNFist” model in targeted 20 nursing homes
- Redesigned care model
- Focused on transitions of care and length of stay

**2013-2014 Results**

- SNF readmission rate reduced from 13.4% to 12.1%*
- SNF ALOS reduced from 25.1 to 19.3

* Baseline readmission rate when program (2008) started - 30%
Reengineering Primary & Specialty Care Integration

PCP & specialists coordinated patient management
- CKD/ESRD high risk management
- Psychiatric care management
- Neurology/Dermatology/Endocrine/Cardiology/Autism

Convenient Care redesign of primary care/emergency medicine
- 14 urgent care/after hours care sites
- Coordinated low cost alternative to ED
TRANSFORMING HEALTHCARE WITH TECHNOLOGY
Activating Patients through Transparency: “Open Notes”

**Background**
- 12-month research project started in 2010

**Results**
- 99% of patients requested continuation of the pilot

**Current Status**
- >1400 Geisinger providers are live,
- >220,000 patients
Innovations in Personalized Medicine

- Regeneron partnership to advance genomic medicine
- Clinical data warehouse grows
- Data analytics deployed to identify care gaps, permitting clinical intervention
- Focused population health research initiatives: Obesity, Autism, etc.
- Institute for Advanced Application
- Geisinger in Motion