Geisinger—The Perfect Volume to Value Model. Can it be Scaled?

AMGA/AHA Fellowship
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Chairman, xG Health Solutions
& Past President & CEO, Geisinger Health System 2001 - 2015
Where We Are Now Nationally

- Unjustified variation in quality, access, and cost of care
- Unwarranted and fragmented caregiving
- An addiction to perverse payment incentives
  - Piece rate Medicare/Medicaid payment model
    - Driving up units of work
    - Driving up cost
    - Diminishing value and quality
  - Piece rate quality payments + expanded “Pay & Chase”
- Transition to new payment incentives (but fundamentally hospital-centric delivery models)
- Patients as passive recipients of care
- Post-ACA public payer uncertainties
Where Do We Want to Be?

• Affordable coverage for all
• Payment for value
• Coordinated care
• Continuous improvement/innovation
• Activated/empowered patients
• National health goals, leadership, and accountability
No fundamental change in the triangle
Geisinger Health System
An Integrated Health Service Organization

Provider Facilities
- Geisinger Medical Center and its Shamokin Hospital Campus
- AtlantiCare Regional Medical Center - Mainland and City campuses
- Geisinger Wyoming Valley Medical and its South Wilkes-Barre Campus
- Geisinger Community Medical Center, Scranton, PA
- Geisinger-Bloomsburg Hospital
- Geisinger-Lewistown Hospital
- Holy Spirit Hospital
- Marworth Alcohol & Chemical Dependency Treatment Center
- 8 outpatient surgery centers
- 2 Nursing Homes
- Home health and hospice services covering 20 counties in PA and 3 counties in NJ
- >144K admissions/OBS & SORUs
- 2,720 licensed inpatient beds

But not like Kaiser!

Physician Practice Group
- Multispecialty group
- ~1,500 physician FTEs
- ~970 advanced practitioners
- ~215 primary & specialty clinic sites (101 community practice)
- 1 outpatient surgery center
- ~3.8 million outpatient visits
- ~495 resident & fellow FTEs
- ~475 medical students
- TCMC Medical School

Managed Care Companies
- ~560,000 members (including ~89,000 Medicare Advantage members and ~194,000 Medicaid members)
- Diversified products
- ~68,000 contracted providers/facilities
- 45 PA counties
- Offered on public & private exchanges
- Members in 4 states

Geisinger Health System
An Integrated Health Service Organization

xG Health Solutions, Inc. Confidential and Proprietary Information
### Transforming Healthcare with (not by) Technology

#### Over $200M invested

<table>
<thead>
<tr>
<th>Hardware, software, manpower, training</th>
</tr>
</thead>
</table>

#### Running costs

- ~4.0% of $6 billion in annual revenue

#### Fully integrated EHR

- 46 Community practice sites
- 7 Hospitals
- 7 EDs
- 4 Surgical centers
- Etc...

#### Networked patient portal

- 343,524 active users

#### Outreach Health IT

- 5598 users in 759 non-Geisinger practices

#### Active regional health information exchange (Key HIE)

- 18 hospitals
- 251 physician practices
- 95 long term care facilities
- 30 home health locations
- 2 EMS
- 1 pharmacy
- 1.5M+ consented patients
- 260k patients access monthly

#### E-health (eICU®) programs

- 60k member ACO

#### UDA (Unified Data Architecture)

#### Functional Apps Portfolio

- ...and no longer monogamous
The “Sweet Spot” for Partnership & Innovation

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

Health Plan
- Population analysis
- Align reimbursement
- Finance care
- Engage member and employer
- Report population outcomes
- Take to market

Joint
- Population Health
- Population Served
- EHR / Infrastructure

Clinical Enterprise
- Care delivery
- Identify best practice
- Design systems of care
- Interpret clinical reports
- Continually improve
- Activate patient & family
Strategic Priorities (key to system-wide buy-in)

**Quality and Innovation**
- Patient-centered focus
- Patient activation (empowerment)
- Culture of quality, safety, and health
- Value re-engineering

**Market Leadership**
- Extending the GHS brand
- Scaling and generalizing innovation

**The Geisinger Family**
- Personal and professional well-being
The Geisinger Value Proposition

Re-engineering Touchstones:

1) Extract Hurtful Cost
2) ↑ Quality = ↓ Cost
Sweet Spot Innovations

1990s
- EHR Installation
- Medicare Advantage

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

2007-2010
- Value Re-engineering
  - 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
- OpenNotes
- SNFist

2013-
- Launch of xG Health
- Medicaid MCO
- Private/Public Exchanges
- Urgent Care Centers
- CPSL Alternative to ED
- Proven® Biologics
- Geisinger in Motion

2016-
- xG/HTA Partnership
Sweet Spot Innovations

Transforming Healthcare
The Beginning: ProvenCare CABG

ProvenCare

A provider-driven, pay-for-performance program for acute episodic cardiac surgical care

ProvenCare Portfolio

ProvenCare:

- ProvenCare Bariatric Surgery
- ProvenCare Chronic Obstructive Pulmonary Disease
- ProvenCare Coronary Artery Bypass Graft
- ProvenCare Fragility Hip Fracture
- ProvenCare Heart Failure
- ProvenCare Lung Cancer (CoC Collaborative)
- ProvenCare Lumbar Spine
- ProvenCare Percutaneous Coronary Intervention
- ProvenCare Perinatal
- ProvenCare Rectal Cancer
- ProvenCare Total Hip
- ProvenCare Total Knee

In Development:

- ProvenCare Chole
- ProvenCare Crohn’s
- ProvenCare CNS Mets
- ProvenCare Ulcerative Colitis
- ProvenCare Hepatitis C
- ProvenCare Hysterectomy

ProvenCare Evidence-based Guidelines (EBG) (in conjunction with PRIDE):

- Chest Pain—R/O MI (ED)
- Developmental Medicine
- Vent Management
- New Born Protocols
## ProvenCare Biologics

<table>
<thead>
<tr>
<th>Why</th>
<th>Targets</th>
<th>Scope</th>
<th>Approach</th>
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<tr>
<td>Specialty drugs will account for nearly ½ of all drug sales in coming years</td>
<td>Hepatitis C</td>
<td>Identification and management of the population</td>
<td>Process Redesign</td>
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<td></td>
<td>Inflammatory Bowl Disease</td>
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<td>Channel Redesign</td>
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<tr>
<td></td>
<td>Multiple Sclerosis</td>
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<td>Formulary Management &amp; Contracting</td>
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<tr>
<td></td>
<td>Rheumatoid Arthritis</td>
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<td>Total Cost of Care</td>
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<tr>
<td></td>
<td>Oncology</td>
<td></td>
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</tbody>
</table>

**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

**Scope:**
- Identification and management of the population
- Application of most cost effective therapies

**Approach:**
- Process Redesign
- Channel Redesign
- Formulary Management & Contracting
- Total Cost of Care
ProvenCare Chronic Disease

Portfolio of ProvenCare Chronic Disease programs:

• Diabetes
• Heart Failure
• Coronary Artery Disease
• Hypertension
• Chronic Obstructive Pulmonary Disease
• Pediatrics
• Chronic Kidney Disease
• Dementia
• Prevention Set of Performance Measures
# Improving Diabetes Care for 32,268 Patients

<table>
<thead>
<tr>
<th>Metric</th>
<th>3/06</th>
<th>12/15</th>
<th>11/16</th>
<th>12/16</th>
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<tbody>
<tr>
<td>Number of Patients</td>
<td>20,178</td>
<td>30,294</td>
<td>32,020</td>
<td>32,268</td>
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<tr>
<td>Diabetes Bundle Percentage</td>
<td>2.4%</td>
<td>20.24%</td>
<td>13.24%</td>
<td>13.07%</td>
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<tr>
<td>% Pneumococcal Vaccination</td>
<td>59%</td>
<td>81%</td>
<td>74%</td>
<td>74%</td>
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<tr>
<td>% Microalbumin Result</td>
<td>58%</td>
<td>77%</td>
<td>73%</td>
<td>73%</td>
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<tr>
<td>% HgbA1c at Goal</td>
<td>33%</td>
<td>51%</td>
<td>49%</td>
<td>48%</td>
</tr>
<tr>
<td>% On High/Moderate Intensity Statin *Changed July 2016</td>
<td>50%</td>
<td>66%</td>
<td>69%</td>
<td>69%</td>
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<tr>
<td>%BP at Goal</td>
<td>39%</td>
<td>79%</td>
<td>79%</td>
<td>79%</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>84%</td>
<td>84%</td>
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<tr>
<td>% On Active at Least 81mg Aspirin *New measure July 2016</td>
<td></td>
<td></td>
<td></td>
<td>74%</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!
## Improving CAD Care for 18,854 Patients

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<thead>
<tr>
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<th>9/06</th>
<th>12/15</th>
<th>11/16</th>
<th>12/16</th>
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<tr>
<td><strong>Number of Patients</strong></td>
<td>13,688</td>
<td>17,866</td>
<td>18,723</td>
<td>18,854</td>
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<tr>
<td><strong>CAD Bundle Percentage</strong></td>
<td>8%</td>
<td>26%</td>
<td>31%</td>
<td>28%</td>
</tr>
<tr>
<td>% On High/Moderate Intensity Statin</td>
<td>38%</td>
<td>70%</td>
<td>85%</td>
<td>85%</td>
</tr>
<tr>
<td>% ACE/ARB in LVSD, DM, HTN</td>
<td>65%</td>
<td>77%</td>
<td>77%</td>
<td>77%</td>
</tr>
<tr>
<td>% BP &lt; 140/90</td>
<td>74%</td>
<td>76%</td>
<td>77%</td>
<td>77%</td>
</tr>
<tr>
<td>% Antiplatelet Therapy</td>
<td>89%</td>
<td>94%</td>
<td>93%</td>
<td>94%</td>
</tr>
<tr>
<td>% Beta Blocker use S/P MI</td>
<td>97%</td>
<td>96%</td>
<td>96%</td>
<td>96%</td>
</tr>
<tr>
<td>% Documented Non-Smokers</td>
<td>86%</td>
<td>86%</td>
<td>84%</td>
<td>84%</td>
</tr>
<tr>
<td>% Influenza Vaccination</td>
<td>60%</td>
<td>68%</td>
<td>70%</td>
<td>64%</td>
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## Improving Preventive Care for 266,835 Patients

<table>
<thead>
<tr>
<th>Service</th>
<th>11/07</th>
<th>12/15</th>
<th>11/16</th>
<th>12/16</th>
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<tbody>
<tr>
<td>Number of Patients</td>
<td>203,074</td>
<td>264,530</td>
<td>266,487</td>
<td>266,835</td>
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<tr>
<td>Adult Preventive Bundle</td>
<td>9.2%</td>
<td>19%</td>
<td>21%</td>
<td>18%</td>
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<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>73%</td>
</tr>
<tr>
<td>Cervical Cancer Screening (q 3 yr Age 21-29) (q 5 yr Age 30-64)</td>
<td>64%</td>
<td>73%</td>
<td>71%</td>
<td>71%</td>
</tr>
<tr>
<td>Colon Cancer Screening (Colonoscopy q 10 yrs Age 50-74 or FOBT yearly)</td>
<td>44%</td>
<td>66%</td>
<td>67%</td>
<td>66%</td>
</tr>
<tr>
<td>Lipid Screening (Every 5 yr M &gt; 35, F &gt; 45)</td>
<td>75%</td>
<td>88%</td>
<td>88%</td>
<td>88%</td>
</tr>
<tr>
<td>Diabetes Screening (Every 3 yr &gt; 45)</td>
<td>85%</td>
<td>93%</td>
<td>92%</td>
<td>92%</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>79%</td>
<td>78%</td>
<td>78%</td>
</tr>
<tr>
<td>Pneumococcal Immunization (Once Age &gt; 65)</td>
<td>84%</td>
<td>85%</td>
<td>84%</td>
<td>85%</td>
</tr>
<tr>
<td>Influenza Immunization (Yearly Age &gt; 18) <strong>Change in age from Age&gt;50 to Age&gt;18 February 2013</strong></td>
<td>47%</td>
<td>40%</td>
<td>43%</td>
<td>38%</td>
</tr>
<tr>
<td>Chlamydia Screening (Yearly Age 18-25)</td>
<td>22%</td>
<td>38%</td>
<td>37%</td>
<td>37%</td>
</tr>
<tr>
<td>Osteoporosis Screening (every 7 ye Age &gt; 65)</td>
<td>52%</td>
<td>77%</td>
<td>77%</td>
<td>77%</td>
</tr>
<tr>
<td>Zoster Vaccine (Age &gt;60) <strong>New Measure February 2013</strong></td>
<td>48%</td>
<td>50%</td>
<td>50%</td>
<td>50%</td>
</tr>
</tbody>
</table>
ProvenHealth Navigator (Advanced Medical Home) Results

Acute care admissions
- 27.5% decrease

All cause 30-day re-admissions
- 34% decrease

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

Patients say quality of care improved when they worked with a case manager
- 72% improvement

ED Visits Remain Flat
Disruptive Innovation & Value Re-engineering

- Patients and Conditions
- Population Identification
- Bundle Development
- Populations
  - 100% Care Processes and Protocols (Digital)
- Efficiency and Reliability
  - Low
  - Regular Care
  - Delegation and Algorithms
  - Automation
  - Patient Activation
- High
Keys to Accomplishing Innovation

**Buy-In**
- Top down insistence
- Bottom up professional pride of purpose

**Aligned Incentives**
- Structural:
  - payer/provider
  - practice group/hospital
  - employed/non-employed
  - specialists/generalists
- All GHS family members “at risk” together

**GHS Differentiation**

**Early Wins**
GHS Evolution

Structure → Function

Evolving Structure → Evolving Function
Innovation — A Done Deal

Scaling/Generalizing — In Progress

• xG Health Solutions
• HTA
Scaling and Generalizing

Geisinger Health Plan

Research

Geisinger Support Services

Clinical Enterprise

Innovation & Transformation

Quality & Safety

IP Development & Refinement

IP

xG Health IP Productization

Transformation Roadmap

Leadership & Governance

Care Design/Delivery

Analytics Services

EHR Optimization

Multi-Payer Solutions

Reduced Cost of Care

Improved Quality and Coordination of Care

Improved Clinical Outcomes

Improved Patient & Provider Satisfaction

PRODUCT DEVELOPMENT & SERVICE DELIVERY

Mission: Generalize / Disseminate / $ Return

CORE OPERATIONS

Mission: Execute Core Business / Innovate

xG Health Solutions, Inc. Confidential and Proprietary Information
xG Health Solutions®
Strong Foundation, Accelerating Growth

MISSION: Help providers committed to high-quality, value-based care succeed under risk-based payment

Launched in 2013

Investors:

30 clients
70+ employees

GEISINGER
What matters is results

Customer

Eastern Maine Health System
- 8 hospitals; 950 beds; 1,970 employed and affiliated MDs
- ~6,400 employees
- Target population: ~12K self-insured lives; Pioneer ACO ~8300 attributed lives

Services deployed
- TPA services
- 5 patient-centered medical homes
- Population health analytics
- Embedded case managers
- Best practice sharing

Results
- Reductions in Utilization
  - 32% Med-Surg Admits/1000
  - 72% Med-Surg Readmits/1000
  - 7% ED Visits/1000

Savings
- $8.6MM reduction in total cost of care

Significant Reduction in Utilization at Eastern Maine Health System.
What matters is results

Customer
West Virginia United Health System—largest system in West Virginia
- 8 hospitals; 1,286 beds; 866 physicians
- 4,700 employees
- Population: 10K self-insured lives

Services deployed
- TPA
- 3 PCMHs with our embedded case managers
- Pop. health data analytics
- Utilization management (hospitalizations, high end radiology; transitions of care)
- Condition management

Results
- Reductions in Utilization
  - 17% Med-Surg Admits/1000
  - 20% Med-Surg Readmits/1000
  - 33% 1-Day Med-Surg Admits/1000
  - 10% ED Visits/1000

Savings
- $3M to $6M reduction in spending + additional $1.4M to $2.8M in savings due to increased worker productivity

Significant Reduction in Utilization at West Virginia Health System
Quality + Cost = Value
Predicting the Future
Predicting the Future — Insurance

Public Payer

“Repeal” ACA
- Medicaid?
- Medicare?
- Public Exchange?

Volume ➔ Value ➔ (MACRA stays)

Commercial Consolidation ➔
Cost Shift ➔ ➔

Uninsured
Unfunded Care
Population Disease Burden?
Predicting the Future
Post ACA Baseline – Providers

- Integrated Care (fact or fiction?)
- Vertical Integration
  - Structural
  - Virtual (ACOs, DSRIPs, etc.)
- Consolidations
  - Value Based (fact or fiction?)
- Physician Groups
  - Employed
  - Self Employed
  - For Profit or Not (Any Difference?)
Predicting the Future — Providers

Under Extreme Pressure
Predicting the Future

— Pharma
— Devices
— Innovative Solutions
Predicting the Future Disruptive Forces

P.O.C. Alternatives
“Self” Care
Defined Benefit → Defined Contribution???
Transparent / Understandable Value?
  — Insurance Products
  — Provider Products
Behavioral “Carve-in”?
Functional Apps on Transactional EHRs?
Global Healthcare Budgets
Predicting the Future
Fundamental Issues for Innovative Technologies

• Fee for service to episodic or population based payment
• Transactional EHRs – the one stop solution or…?
• Fundamental changes in the business model:
  • For providers
  • For payers
  • For purchasers
  • For “vendors”
• Activated patients
Health Transformation Alliance

The Sleeping Giant Awakens?
HTA Founders

40 self insured employers

6.5 – 7 million sponsored members
HTA Mission

Access to Data

Analysis of highest cost/suboptimal outcome

Analysis of variation

Leveraging best practice

Leveraging value-based purchases

- Price per unit
- Unnecessary or hurtful units
HTA Mission

Creating the right narrative

- Internal with employees
- External with or without willing stakeholders
HTA Mission

Beta Test Markets
- Anchor providers
- Anchor purchasers

Analytic Use Cases ASAP
- 2-3 Pharma
- 3-5 Medical services
HTA Mission

Analytic Use Case Choice:

- High visibility/high frequency/high cost/high variability with suboptimal outcome
- Market selections
  - Employee aggregation
  - Biggest value delta
  - Fastest value delta
HTA’s BIG Transformative Ideas

<table>
<thead>
<tr>
<th>Innovative businesses <strong>actually</strong> working together to leverage value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Truly</strong> integrated providers</td>
</tr>
<tr>
<td>Health care + claims data used to increase value</td>
</tr>
<tr>
<td>Purchasers and providers working together</td>
</tr>
<tr>
<td>Patients/employees actively engaged</td>
</tr>
<tr>
<td>New roles for payers/PBMs</td>
</tr>
<tr>
<td>Narrow network/high value versus “keep your own doctor” decisions should end</td>
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Enabling Behavior Change

Providers and Patients
Quality + Cost = Value

FFS and/or PBP