Using Telemedicine to Improve Efficiency and Patient Care

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Geisinger Health System

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Full Disclosure Statement

I have no actual or potential conflict of interest in relation to this presentation. Likewise, my presentation will not include discussions of off-label, experimental or investigational use of any drugs or devices.
Overview

• Geisinger Background

• Our Market: Trends and Challenges

• Building the Strategy

• Developing the Services

• Impact and Lessons Learned
Geisinger Health System: An Integrated Health Services Organization

- **Geisinger Medical Center**
  - Hospital for Advanced Medicine, Janet Weis Children’s Hospital, Women’s Health Pavilion, L1 Trauma, Shamokin Hospital Campus, Ambulatory Surgery

- **Geisinger Northeast (2 campuses)**
  - Geisinger Wyoming Valley Medical Center with Heart Hospital, Henry Cancer Center, Level II Trauma
  - South Wilkes-Barre Adult & Pediatric Urgent Care, Ambulatory Surgery Center, inpatient rehabilitation, pain mgmt, sleep disorders

- **Marworth Alcohol & Chemical Dependency Treatment Center**
  - > 53K admissions/OBS & SORU
  - ~ 820 licensed in-patient beds

- **Managed Care Companies**
  - ~298,000 members (including ~63,000 Medicare Advantage members)
  - Diversified products
  - >28,000 contracted physicians/facilities (including 110 non-Geisinger hospitals)
  - 42 PA counties

- **Physician Practice Group**
  - Multispecialty group
  - ~900 physicians
  - ~520 advanced practitioners
  - ~65 primary and specialty clinic sites (37 community practice sites)
  - 1 Outpatient surgery center
  - >2.1 million outpatient visits
  - ~360 residents and fellows
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
- Work Site Clinic
- Imaging Center
- Wellness

Ambulatory Care & Surgery Center
- Multi-Specialty Clinic
- Community Practice Site

Acute Care
- Tertiary/Quaternary Medical Center
- TeleICU
- Destination Medicine

Post-Acute & Transitional Care
- Inpatient Rehab
- Outpatient Rehab
- Adult Health Program & Day Center
- Home Care
- Hospice
- ProvenHealth Navigator®
Placing telemedicine into a context

Telemedicine: Remote care delivery

eHealth: Remote care support

Telehealth: The combination of telemedicine and eHealth

**Telemedicine**
- Remote care:
  - Diagnostic
  - Therapeutic
  - Async or live

**eHealth**
- Remote support:
  - Portals (patient/MD)
  - Videos and mobile apps
  - Targeted messaging
  - EMR access

**Telemedicine**
- On-line PC encounters
- Critical/emergent services
- Specialty consults
- Remote monitoring

**Prevention and wellness**
- Education and activation
- Anticipatory management
- Proactive outreach

**Remote care:**
- Diagnostic
- Therapeutic
- Async or live

**Remote support:**
- Portals (patient/MD)
- Videos and mobile apps
- Targeted messaging
- EMR access
Why are we doing telemedicine?

• Not easy to provide services across state lines
• Expensive investment (in direct proportion to rural areas)
• Physicians often push-back against concept of remote care
• Many payors don’t cover reimbursement
• Workflow redesign can be challenging
• Perception that we are out to “steal patients”
• Liability concerns
Rural areas face a variety of health care challenges

- 29 of the 31 counties in our primary service area are rural
- According to a Harris national poll, 19.5% of those living in rural areas rate their health as “fair” or “poor” versus 15.6% of those living in urban areas
- The Advisory Board Company estimates that 19% of hospitals will close due to health reform, many in rural areas
- According to the PA Rural Health Association, every 5 jobs in health care generate 4 more jobs in the local economy (and every $1 spent in health care drives another $1.5 spent in a rural community)
- Rural areas consistently lack access to specialty care (IP and ED-based transfers are increasing within our system)
Supply and demand: specialty shortages vs aging population

- Nationally Pennsylvania ranks 3rd in the percentage of people age 65 or older
- This aging/growing population will elevate demand for inpatient and outpatient specialty care, but will increasingly not be able to travel to receive it

Source: Thomson Reuters 2011 Database
Demand is growing for our specialists and services

- We recognize that non-Geisinger physicians, our own primary care physicians, and patients have choices regarding where they seek specialty care.
- Our job is to make our physicians and services easier to access.
Telemedicine strategy needs to reflect the “middle ground”

The “cross roads” of health care reform:
- Conflicting signs
- No single road leads to success
- Different accountable care models
- No specific transition point
- Clear sign post: Need better care coordination
We have recognized that certain services—such as telemedicine—can play a role in both a volume and values-based environment.

**Strategic Priorities and Managing the Transition**

<table>
<thead>
<tr>
<th>Strategic Priorities</th>
<th>Current Environment</th>
<th>Emerging Environment</th>
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</thead>
<tbody>
<tr>
<td>Quality &amp; Innovation</td>
<td>• ProvenCare®</td>
<td>• Cost-effective care</td>
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<tr>
<td></td>
<td>• ProvenHealth Navigator™</td>
<td>• Population health</td>
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<td></td>
<td>• Care gap closures</td>
<td>• Personalized health care</td>
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<td></td>
<td>• Enhanced service</td>
<td>• Perfect patient experience</td>
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<td></td>
<td>• Patient activation</td>
<td>• Self-management</td>
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<tr>
<td>Market Leadership</td>
<td>• Market share capture</td>
<td>• Collaborative relationships</td>
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<td></td>
<td>• Service development</td>
<td>• Shared risks</td>
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<tr>
<td></td>
<td>• Market expansion</td>
<td>• Coordinated care delivery</td>
</tr>
<tr>
<td>Telemedicine Role-Impact</td>
<td>• Improve productivity</td>
<td>• Enable better coordination</td>
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<tr>
<td></td>
<td>• Increase capture</td>
<td>• Reduce unnecessary admits</td>
</tr>
<tr>
<td></td>
<td>• Improve access</td>
<td>• Reduce re-admissions</td>
</tr>
<tr>
<td></td>
<td>• Reduce transfers</td>
<td>• Reduce care costs</td>
</tr>
</tbody>
</table>

We have recognized that certain services—such as telemedicine—can play a role in both a volume and values-based environment.
Our telemedicine vision, strategies and objectives

Telemedicine Vision: Enable patients to receive timely specialty care regardless of location, and help our community partners keep appropriate care in their own areas.

<table>
<thead>
<tr>
<th>Strategic Priority</th>
<th>Telemedicine Objective</th>
<th>Telemedicine Strategy</th>
</tr>
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<tbody>
<tr>
<td><strong>Market Leadership</strong></td>
<td>• Increase presence in select areas</td>
<td>• OP specialty services at select PCP sites</td>
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<td></td>
<td>• Enable provider partnerships</td>
<td>• Develop emergent/critical care/IP consult services</td>
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<td>• Positive financial return for all services</td>
<td>• Secure funding through grants, reimbursement</td>
</tr>
<tr>
<td><strong>Quality and Innovation</strong></td>
<td>• Shift transfer activity to higher CMI</td>
<td>• Reduce lower acuity transfers</td>
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<td>• Reduce unnecessary acute/ED use</td>
<td>• On-line PCP visits with 30-min response</td>
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<tr>
<td></td>
<td>• Improve specialist productivity</td>
<td>• IP consults to reduce unnecessary travel</td>
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Challenge of “systematizing” in a service line environment

• The primary focus of our clinical enterprise planning and execution is on our major service lines.

• Each service line functions as its own business, but operates within a highly matrixed organization.

• This combination of an entrepreneurial, matrixed environment requires extra effort to drive system-based initiatives (such as telemedicine) that cut across services lines and hubs.
Develop and Implement a Multi-Tier Telemedicine Framework:

1. Emergent Care
   • TeleED, TeleStroke

2. Critical Care
   • TeleNICU, TeleICU

3. IP and OP Specialty Consults
   • Any relevant sub-specialty

4. Primary Care
   • On-line care with 30-minute response
Framework of existing and developing services

<table>
<thead>
<tr>
<th>Current Services</th>
<th>In Development</th>
<th>Link to Strategic Objectives?</th>
</tr>
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<tbody>
<tr>
<td>TeleEcho</td>
<td>• TeleED</td>
<td>✓ Reduce low acuity transfers</td>
</tr>
<tr>
<td>TeleEEG</td>
<td>• TeleNeuro</td>
<td>✓ Reduce patient travel</td>
</tr>
<tr>
<td>TeleStroke</td>
<td>• TeleCardio</td>
<td>✓ Improve access</td>
</tr>
<tr>
<td>TelePsych</td>
<td>• TeleNephrol</td>
<td>✓ Improve community partner performance:</td>
</tr>
<tr>
<td>TeleDerm</td>
<td>• TeleEndo</td>
<td>✓ Quality</td>
</tr>
<tr>
<td>TeleRhem</td>
<td>• MFM</td>
<td>✓ Financial</td>
</tr>
<tr>
<td>TelePulm</td>
<td>• eVisit</td>
<td>✓ Community image</td>
</tr>
<tr>
<td>TeleICU</td>
<td></td>
<td>✓ Improve physician productivity</td>
</tr>
<tr>
<td>TeleForensics</td>
<td></td>
<td>✓ Reduce unnecessary admissions</td>
</tr>
<tr>
<td>TeleGenetics</td>
<td></td>
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<tr>
<td>Trauma CT</td>
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</table>
Essential elements of our telemedicine operations

- Epic© Ambulatory (EHR)
- Cadence team (scheduling)
- Telemedicine technology team (IT)
- Hospital System analyst
- Network services
- Primary care providers
- Primary care presenters
- Primary care front desk/schedulers
- Operations managers – specialty/primary care
- Specialists
- Specialty admin support
- Project manager
KeyHIE®: the right information, right now

- Primary Care Physician
  - EMR

- Labs
  - Orders and Results

- Independent Health Facility
  - Imaging
  - Long-term Care
  - Physical Therapy

- Pharmacy
  - ePrescribing
  - Medication History

- Specialty Practice

- Academic Medical Center

- Community Hospital

- Community Connections

- Master Patient Index

- Document Registry

- Document Repository

- Other HIE

- Patient
  - Personal Health Records

- Payers
  - Medicaid/Medicare
  - Private

- Government
  - Quality and Efficiency
  - Public Health

- Community Connections

- KeyHIE®: the right information, right now

- GEISINGER
  - REDEFINING BOUNDARIES

- Strategy & Business Development
One small, missing ingredient: funding!

Actions:

• Analysis of all third-party contracts and targeted inclusion of telemedicine services as renewals approach
• Grant support allocated from our Resource Development Team
• Benchmark with other telemedicine programs for contracted service models
• Capital outlay for deployment within our own acute facilities
ROI modeling specific to our telemedicine objectives

**Telemedicine Objective**

Increase specialty capture at select primary care sites

Increase high acuity transfers from community hospital partners

Increase specialist productivity

**ROI Formula**

Revenue: Visit volume (new/return) – costs (physician FTE/support)

Volume (IP/ED transfers) – costs (physician FTE/support)

# of new/return visits per hour vs. travel time

<table>
<thead>
<tr>
<th>Service Line</th>
<th>Annual Trips</th>
<th>Total Driving Hours</th>
<th>Productivity Loss (Patient Visits)</th>
<th>Gross Revenue (Loss)</th>
<th>Net Revenue (Loss)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicine</td>
<td>132 trips x 4 physicians</td>
<td>528 hours</td>
<td>3 return visits per hour</td>
<td>($) (# visits X rate)</td>
<td>($) (# visits X rate)</td>
</tr>
<tr>
<td>Cardiology</td>
<td>125 trips x 1 physician</td>
<td>125 hours</td>
<td>1 new and 1 return per hour</td>
<td>($) (# visits X rate)</td>
<td>($) (# visits X rate)</td>
</tr>
<tr>
<td>ANNUAL TOTALS</td>
<td>257 trips</td>
<td>653 hours</td>
<td>1709 returns and 125 new</td>
<td>($) (# visits X rate)</td>
<td>($) (# visits X rate)</td>
</tr>
</tbody>
</table>

Productivity Example:

- 1 hour drive from Geisinger Medical Center to another Geisinger hospital
How does telemedicine benefit non-Geisinger physicians?

- Scheduled clinics and on-demand access to Geisinger specialists
- Patients have quicker access to diagnosis and treatment
- Physicians can access patient records through KeyHIE or GeisingerConnect
- Ongoing physician-physician communication

Goals:
- Timelier access to specialty care
- Reduced patient travel
- Reduced need for transfers
- Coordinated clinical decision making
Impact: Outpatient TeleRheum

Objective:

- Remove inefficiencies and accelerate specialty access by seeing the patient when they need to be seen, while reducing the expense and burden of travel

- Physician Challenge: Low initial utilization
  - *Solution:* Increase adoption through education and early intervention. Integrate Primary Care and Specialty operations for better alignment and organization.

- Reimbursement Challenge: Limited number of insurers reimburse for services
  - *Solution:* We have not solved this. Different reimbursement models will need to be built, and/or payors will need to add coverage, so we can bill for services.

Outcomes:

- Initial patient surveys show extremely high satisfaction ratings
- Use rates have increased, through re-worked notifications and reminders
Impact: Outpatient TelePsych

Objective:
• Implement remote psychiatric service in State College for bariatric surgical evaluations

• Physician Challenge: Concern over loss of direct patient interaction
  • Solution: Emphasize time saved (1 hour each way) and benefit to both physicians and patients by reducing travel

• Technical Challenge: How to install patient safety measures
  • Solution: IM link maintained with State College staff during patient evaluation

Outcomes:
• Patients benefited from not having to travel to our quaternary facility, and were satisfied with level of service, interaction and confidentiality

• Physicians benefited from travel-based productivity, and have since deployed additional TelePsych services at other remote locations
Status: TeleICU Program

- Geisinger facilities:
  - Implemented program in February 2010
  - Currently 70 beds are operational
  - Projected additional 20-30 beds
- Community facilities:
  - First community hospital partnership in second half of 2011
    - Currently 4 beds implemented
    - Preliminary data indicates outcomes exceed expectations
  - Two additional, concurrent implementations are underway
    - Community hospital February 2012 (4 beds)
    - Community system (two hospitals) May 2012 (8 beds)
Top lessons learned #1: champions are vital

- Find a physician champion and project manager who are passionate about telemedicine:
  - Creates a knowledge base
  - Enables physician-physician training
  - Supports presenter training
  - Provides workflow input and feedback
Top lessons learned #2: design workflow carefully

- Make sure workflow reflects the care process:
  - If the current workflow is good, mirror that
  - If you have to redesign workflow, cover all the bases at both ends
  - Make sure you have a good mechanism for reporting
  - Let the process drive workflow, not technology
Top lessons learned #3: relationships are crucial

• Ensure the telemedicine service fosters a positive relationship between Specialty and Primary Care:
  • Remember that telemedicine is more about people and process than technology
  • Build a high degree of trust:
    ✓ Remote provider
    ✓ Patient/“bedside”
  • Strive for communication and transparency
Top lessons learned #4: don’t underestimate this

- Understand the resources necessary to implement a telemedicine program:
  - The right team members are key: physicians, operations, technology/IT, systems, presenters, administrative support
  - Patient communication prior to appointment and post-visit feedback
  - Training (for physicians and presenters)
- Integrate with existing workflows wherever possible
- Success begets success!

- Shamokin Community Hospital joined Geisinger on January 2012
- By-laws require that IP consults take place within 24 hours of request
- IP telemedicine consults are being built into workflow
Top lessons learned #5: find the win

- Every organization has different challenges and objectives
- Let your market assessment and strategic planning processes guide you:
  - What gaps or challenges can be addressed through telemedicine?
- Align funding options to your deployment strategy
- Make sure of your ROI and value proposition
- Understand the limitations of telemedicine in your planning

Our PCP panel size must grow, while:
- Increasing access and improving quality
- Reducing unnecessary utilization

Solution through telemedicine: eVisit
- Web-based primary care reduces PCP workload
- Mid-level providers ensure a 30-minute response
Our Legacy

“Make my hospital right, make it the best.”

Abigail Geisinger
1827-1921

“Geisinger Health System – Transforming the Future”