In-Home Remote Patient Monitoring

Breaking Old Paradigms for a New Telehealth Model

Kentucky Telehealth Summit
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David Cattell-Gordon
Director, UVA Telemedicine
Senior Advisor, Healthy Appalachia Institute
Faculty, UVA Nursing and Public Health

Karen S. Rheuban Center for Telehealth
Objectives

- Who we are – our bon fides
- Why we do telehealth – our values
- The ways we do telehealth – our models
- The emerging new models – changes
- What is rpm?
- The future state- transformation
• **Program:** Launched comprehensive, integrated program in 1994 that is *centrally managed*, and crosses all the service lines and Health System entities

• **Mission:** Using telehealth technologies, provide excellence and innovation in healthcare, research, education and community service

• **Services:** clinical consultations, follow-up visits, health professional and patient education, local, regional, national and international outreach projects. Support for telemedicine as a research core. Note: *We began remote monitoring in earnest two years ago*

• **Resources:** The Mid-Atlantic Telehealth Resource Center
The delivery of patient care, consultations and education supported by telecommunications technologies, including live interactive videoconferencing, store and forward technologies, remote patient monitoring, mHealth

**Not a specialty in and of itself**

**Patients & Families**
- Timely access to locally unavailable services
- Improves chronic disease management
- Reduces the burden and cost of transportation for care

**Health Professionals**
- Access to consultative services
- Supports team based, collaborative care delivery models

**Hospital Systems**
- Facilitates appropriate transfers, keeps patients local when appropriate
- Decreases readmissions through remote patient monitoring tools
- Supports population health models of care delivery

**Communities**
- Enhances partner hospital viability, and as such, supports local workforce
Offer more than 64,000+ patient encounters in Virginia

– Offer services in >60 subspecialties
– Provide resources across the continuum of care
– integrated with teleradiology & EPIC
– Emergency (special pathogen) preparedness
– Partner with Telehealth Management LLC for data analytics

Accelerated focus on remote patient monitoring......
<table>
<thead>
<tr>
<th>Telemedicine Specialty Services</th>
<th>Total = 60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiology</td>
<td>Neurology: Child Neurology</td>
</tr>
<tr>
<td>Cardiology: Heart Health @ Home (3H)</td>
<td>Neurology: General</td>
</tr>
<tr>
<td>Dermatology</td>
<td>Neurosurgery</td>
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<tr>
<td>Diabetes Education</td>
<td>Nutrition</td>
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<tr>
<td>Digestive Health</td>
<td>Obstetrics &amp; Gynecology</td>
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<tr>
<td>Emergency Medicine</td>
<td>Obstetrics &amp; Gynecology: Colposcopy</td>
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<tr>
<td>Endocrinology</td>
<td>Obstetrics &amp; Gynecology: High Risk Obstetrics</td>
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<tr>
<td>Ear, Nose, and Throat (ENT)</td>
<td>Oncology</td>
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<tr>
<td>Faculty &amp; Employee Assistance</td>
<td>Ophthalmology: Retinopathy</td>
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<tr>
<td>Gastroenterology</td>
<td>Pain Management</td>
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<tr>
<td>Genetics</td>
<td>Pediatrics: Children’s Fitness Clinic</td>
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<tr>
<td>Geriatrics</td>
<td>Pediatrics: Critical Care</td>
</tr>
<tr>
<td>Hematology</td>
<td>Pediatrics: Developmental Disabilities</td>
</tr>
<tr>
<td>Hepatology</td>
<td>Pediatrics: Endocrinology</td>
</tr>
<tr>
<td>Home Monitoring</td>
<td>Pediatrics: Gastroenterology</td>
</tr>
<tr>
<td>Infectious Disease</td>
<td>Pediatrics: Infectious Disease</td>
</tr>
<tr>
<td>Mobile Mammography</td>
<td>Pediatrics: Neonatology</td>
</tr>
<tr>
<td>Nephrology</td>
<td>Pediatrics: Orthopedics</td>
</tr>
<tr>
<td>Neurology: ALS</td>
<td>Pediatrics: Rheumatology</td>
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</tbody>
</table>
• Community Hospitals (including CAHs)
• FQHCs
• Rural clinics/free clinics
• CSBs
• Medical practice sites
• Virginia Department of Health sites
• Correctional facilities
• Assisted living, skilled nursing and rehabilitation facilities
• Schools
• International sites

Building DTC capabilities for our employees and patients
Locus-Health partnership in the home
• Health System (including academic) classical hub and spoke
• Veterans Health Administration
• Telemedicine Services Companies
• Specialty Care
• Retail Clinics
• Workplace Clinics
• School-based Clinics
• Aging-in-Place Models
• Project ECHO Models
• Direct to Consumer Models
• Payer Developed & Independent Subscription Models
DISCOVERING THAT THE LIGHT AT THE END OF THE TUNNEL IS NEW JERSEY
Telemedicine Partner Network
153 sites
Telehealth Mediated Healthcare

**Telehealth Opportunities Red**

**Community-based care**
- Home
- Internet/WebMD
- Retail Clinic
- Physician office
- Community ED
- Community Hospital
- eICU
- ED consult and triage
- Community Kiosk
- e-visit

**Acute Care**
- UK ED
- UK Hospital
- Inpatient Rehab
- Skilled Nursing Facility
- Outpatient Rehab
- Home Care
- Community site specialty consult
- Vital signs monitoring in the home
- Stepdown/discharge planning
- Post-Acute Care

**System of Care – Sg2**
Monitoring outside of conventional settings

- Increase access to care
- Decrease care delivery costs
- Advance health education
- Improve quality of life
- Increase self-care
- Monitoring falls, diet, gate
• Identification of Patient – Penalty Conditions
• In-hospital Evaluation and Connection
• Go Home with RPM – Home visit with 24 hrs.
• Set up and Train on Technology
• Follow Patient per Medical Protocol
• Regular Phone Check-ins
• Tracking in Media Tab in Epic
• Green-Yellow-Red Algorithms
• Immediate Nursing Follow-up
Locus Health
Home Monitoring
April 2017

<table>
<thead>
<tr>
<th>Enrolled Patients (based on Discharge Date)</th>
<th>April 2017</th>
<th>Year to Date</th>
<th>Program to Date</th>
</tr>
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<tbody>
<tr>
<td>Enrolled (5-condition)</td>
<td>299</td>
<td>3,169</td>
<td>6,186</td>
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</table>

16%
Benchmark historical 30-day readmission rate for UVAMC

9%
C3 30-day readmission rate

Readmission Rates for the enrolled SOW2 All-Payer population (in penalty coded conditions) reflect readmissions **back to all acute care facilities** in the current year (01/01/2017 – 03/31/20167 compared to SOW2 target readmission rates.)
The Evidence

NHS 2009 National Study (n =6191)

• 45% reduction in mortality rates
• 20% reduction in emergency admissions
• 15% reduction in A&E visits
• 14% reduction in elective admissions
• 14% reduction in bed days
Studies that compared data from the year before entering the VA rpm program and six months post enrollment show a **25 percent reduction in bed days of care**, a **20 percent reduction in number of admissions**, and a **mean satisfaction score rating of 86 percent**.

Decreases in health resource utilization were largest in highly rural (50.1%) and urban (29.2%) areas, for mental health-related conditions, and for patients with multiple conditions.
Encounters FY14

- Peds Echo: 40%
- Home Monitoring: 14.6%
- Psychiatry - Child And Family: 6.3%
- Cogyn: 9%
- Retinopathy: 9%
- Psychiatry - Adult: 11.9%
- Mobile Mammography: 5.9%
- Diabetes Education: 5.6%
- Others: 4.8%

Encounters FY17 YTD*

- Home Monitoring: 43.7%
- Psychiatry - Child And Family: 19.4%
- Retinopathy: 15.6%
- Neurology - Stroke: 6.3%
- Psychiatry - Adult: 3%
- Others: 11.9%

*Incomplete data – awaiting final psychiatry numbers
• Post-acute Care
• Home Hemodialysis
• Sleep Studies
• Skilled Nursing Homes
• Workplace
• Chronic Disease Management
• Travel
• Passive Monitoring
• End of Life Care
• Aging in Place
• Complex Pediatric Care
• Educational Support
• Smart Homes
• Urgent Care – Facial Response in Stroke
Traditional Healthcare Model

Patient with Chronic Disease(s)

PCP in Brick and Mortar Setting

Manage Patient through PCP-directed Team (Medical Home Model)

Referral to Specialists

Healthcare 2020

Patient with Chronic Disease(s)

Self Monitoring Home Monitoring

PCP in Data Network

Treatment Initiated and Referral to IPU

Specialized IPU

Regular feedback
Reinforcement
Appropriate level intervention

Reports

Social Support

Education
Diet Planning
Exercise Rx
Medication Adjustment

Wearable Technology
Home Monitoring
Health Apps
Social Network Development
Where Are We Headed

- More Patients
- The Desire for Immediate Answers
- Mobile Care
- Expanded PCP Teams
- Patient as Consumer
- Use of Big Data
- Pay for Meeting Goals
- Everywhere as the site of Care
- Group and on-line visits
- Different Payment Models
- Immersion Technologies
- Consolidated Systems
- Transfer Management
- Personalized Medicine
- Population Health Focus
- Special Pathogen Concerns
- And on and on....