Atlantic General Hospital
MHCC Telehealth Project

A collaborative effort between Atlantic General Hospital and Berlin Nursing & Rehabilitation Center with the focus of implementing telehealth services to prevent avoidable transfers, readmissions, and to improve patient outcomes.

Presenters

Atlantic General Hospital:
Jennifer Light, RN – Telehealth Coordinator

Berlin Nursing & Rehabilitation Center:
Michelle Shores, RN – Nurse Educator
### History

- Located in Worcester County, MD
- Founded in 1993
- 62 bed acute care hospital
- 7 primary care offices located in MD and DE
- Patient Centered Medical Home

### Demographics

**Acute Care Services:**
- 19 bed ER
- General surgery
- Medical surgical services
- 8 bed ICU

**Hospitalists program:**
- 9 physicians
- 3 mid-level providers

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### Vision

To create a coordinated care delivery system that will provide patients with quality care, personalized services and education to improve individual and community health.
Berlin Nursing and Rehab Center

History

• Founded in 1981
• Restructure – Mid-Atlantic Health Care 1983
• Services:
  - 63 long term care beds
  - 38 short term rehab beds
  - 35 certified Alzheimer /dementia beds
  - 12 bed ventilator / pulmonary care unit

Demographics

• Average daily census of 137
• Rated 5 star facility by CMS rating system

Project Goals

• Acquire and operationalize telemedicine equipment for achieving the objectives.
• Develop connectivity and interfaces between BNRC and AGH for secure telecommunication and two-way sharing of electronic health information.
• Development of Coordinated Care Plans for Disease Management for BNRC residents.
• Develop patient / family and caregiver satisfaction and feedback survey instrument for patients receiving care via telemedicine at BNRC and those providing the care.
Clinical Goals

- Reduce all inpatient admissions from BNRC to AGH.
  Goal 13%
- Reduce all transfers from BNRC to AGH.
  Goal 16%
- Identification of LACE scores for patients discharged from AGH to BNRC compared with those who are readmitted within 30 days.
  TBD
- Utilize telemedicine physician consultations as part of pre-transfer protocols.
  Goal 100%
- Reduce readmissions from BNRC to AGH for patients initially discharged from AGH.
  Goal 53%

Care Integration

Hospital / Nursing Home Collaboration

- Existing monthly clinical meetings.

- Initiated weekly team meetings.

- Patient Centered Medical Home integration.
Clinical Algorithm

Nursing Home Resident Condition Changes → RN Notifies Nursing Home On-Call MD

Algorithm and Clinical Condition Drive Next Steps

YES

Consider Transfer to AGH

BRNC Provider Initiates call & Implements Telehealth Consultation with AGH Hospitalist → Telehealth conference confirmed → Continue to monitor or Transfer to AGH

NO

Continue to Monitor

Patient Remains at Nursing Home

MedVision Telemedicine

Vendor
Challenges

- Identifying the most appropriate providers to render services.
- Physician engagement – hospital and nursing home providers.
- Coordinating meetings / training to meet physician needs.
Successes

• Community partnership
• Multidisciplinary approach to achieve goals.
• Patient focused interventions.
• Enhanced awareness of readmission efforts across both organizations.

### Monthly Clinical Goal Report

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</thead>
<tbody>
<tr>
<td>Reduce all inpatient admissions from BNRC to AGH</td>
<td>Numerator: Current Month BNRC admissions to AGH 12/14</td>
<td>23 (12 months ending November, 2014)</td>
<td>22</td>
<td>11</td>
<td>17</td>
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<td>Reduce all transfers from BNRC to AGH</td>
<td>Numerator: Monthly Transfers from BNRC to AGH 12/14</td>
<td>28 (12 Months ended 11/2014)</td>
<td>36</td>
<td>24</td>
<td>31</td>
<td>19</td>
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<td>20.4%</td>
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<td>25%</td>
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<td>16%</td>
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<td>Use telemedicine physician consultation as part of the pre-transfer protocol for BNRC patients</td>
<td>Numerator: Total Monthly Transfers from BNRC to AGH to avoid having Inpatient Consult</td>
<td>N/A</td>
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<td>Percent</td>
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<td>100%</td>
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<td>N/A</td>
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<tr>
<td>Reduce readmissions from BNRC to AGH for patients initially discharged from AGH to BNRC</td>
<td>Numerator: Monthly Admissions from AGH to BNRC 11/14</td>
<td>108 (12 Months ended 11/2014)*</td>
<td>13</td>
<td>13</td>
<td>5</td>
<td>4</td>
<td>3</td>
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<td>Denominator: Monthly Admissions from AGH to BNRC 11/14*</td>
<td>171</td>
<td>129</td>
<td>128</td>
<td>131</td>
<td>121</td>
<td>127</td>
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<td></td>
<td>Percent</td>
<td>78%</td>
<td>58%</td>
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<td>Denominator: Total Monthly Transfers from BNRC to AGH</td>
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<td>N/A</td>
<td>N/A</td>
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<td>100%</td>
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<td>129</td>
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<td>28%</td>
<td>13%</td>
<td>15%</td>
<td>11%</td>
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</tbody>
</table>

* Did not incorporate patients admitted to BNRC Rehabilitation program, only to the Nursing Home/Skilled Nursing program. Future data to be evaluated.
** New baseline being researched. Begin reporting results on February report.

Number of patients that received the telehealth intervention: 1
Number of patients that received the telehealth intervention and were transferred to AGH: 1
Number of patients that received the telehealth intervention and remained at Berlin: 0
Total number of patients that were transferred to AGH: 27

### Average LACE Score

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Reduce readmissions from BNRC to AGH for patients initially discharged from AGH to BNRC</td>
<td>Average LACE Score of Readmitted patients (at time of first transfer)</td>
<td>6 Months ended 12/2014**</td>
<td>11.9</td>
<td>16.2</td>
<td>15.1</td>
<td>13.4</td>
<td>18.5</td>
<td>11.3</td>
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<tr>
<td></td>
<td>Average LACE Score of All Patients Transferred from AGH to BNRC</td>
<td>6 Months ended 12/2014**</td>
<td>12.7</td>
<td>13.7</td>
<td>9.97</td>
<td>9.8</td>
<td>12</td>
<td>10.5</td>
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<tr>
<td></td>
<td>Difference in Average LACE Score</td>
<td>0.80</td>
<td>2.5</td>
<td>5.1</td>
<td>3.6</td>
<td>8.5</td>
<td>0.6</td>
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</tr>
</tbody>
</table>

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Number of patients that received the telehealth intervention and were transferred to AGH: 1
Number of patients that received the telehealth intervention and remained at Berlin: 0
Total number of patients that were transferred to AGH: 27
Ottawa Hospital Research Institute
LACE Index Scoring Tool for Risk Assessment of Death and Readmission

Step 1. Length of Stay
Length of stay (including day of admission and discharge): ________ days

<table>
<thead>
<tr>
<th>Length of stay</th>
<th>Score (circle as appropriate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
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<tr>
<td>1-6</td>
<td>1</td>
</tr>
<tr>
<td>7-13</td>
<td>2</td>
</tr>
<tr>
<td>14+</td>
<td>3</td>
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</table>

Step 2. Acuity of Admission
Was the patient admitted to hospital via the emergency department? If yes, enter “A” in Box A, otherwise enter “0” in Box A

Step 3. Co-morbidities

<table>
<thead>
<tr>
<th>Condition (definitions and notes on reverse)</th>
<th>Score (circle as appropriate)</th>
</tr>
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<tbody>
<tr>
<td>CVA</td>
<td>1</td>
</tr>
<tr>
<td>Uncontrolled diabetes</td>
<td>1</td>
</tr>
<tr>
<td>Weight loss (less than 10% of ideal weight)</td>
<td>1</td>
</tr>
<tr>
<td>Previous MI</td>
<td>1</td>
</tr>
<tr>
<td>CVA/MI</td>
<td>1</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>1</td>
</tr>
<tr>
<td>Vomiting</td>
<td>1</td>
</tr>
<tr>
<td>Cancer</td>
<td>1</td>
</tr>
<tr>
<td>Attempted suicide (euthanasia)</td>
<td>1</td>
</tr>
<tr>
<td>Arterial pulse</td>
<td>1</td>
</tr>
<tr>
<td>Moderately severe disease</td>
<td>1</td>
</tr>
<tr>
<td>Readmission within 30 days</td>
<td>1</td>
</tr>
<tr>
<td>Moderate disease</td>
<td>1</td>
</tr>
</tbody>
</table>

TOTAL

Step 4. Emergency department visits
How many times has the patient visited an emergency department in the six months prior to admission (not including the emergency department visit prior to admission)? Enter this number or 0 (whichever is smaller) in Box E

Add numbers in Box L, Box A, Box C, Box E to generate LACE score and enter into box below. If the patient has a LACE score that is greater than or equal to 16, the patient will be referred to PCMH and/or community-based resources post discharge.

LACE

Atlantic General Hospital / Berlin Nursing and Rehabilitation
Telehealth Patient Satisfaction Survey

Your feedback helps us to continuously improve the services we provide. Thank you for taking the time to complete this survey and for participating in our telehealth program.

Instructions:
Listed below are a number of questions about your recent telehealth experience. Please answer each question by marking the box that best indicates your opinion.

Rating Scale:  A = Agree
                   B = Neutral
                   D = Disagree

I received an explanation of why the equipment was being used.

I was able to communicate adequately with the specialist during the telehealth visit.

My privacy and confidentiality were respected and protected during the consultation.

I was confident with the telehealth exam that was performed.

The nurse was very helpful during the telehealth visit.

I am confident that the telehealth visit was helpful in managing my care.

The next time I would prefer to see the specialist “in person”

Additional comments:

Thank you for taking the time to complete this survey. Please return this form to Terry Dukes at Berlin Rehabilitation and Nursing Center.

Patient’s Name__________________________
Provider Survey

Atlantic General Hospital / Berlin Nursing and Rehabilitation

Telehealth Provider Survey

Please complete each time telemedicine is utilized for patient care. Send completed forms to Chuck Gizara at Atlantic General Hospital via FAX (410) 641-9277.

DATE OF SERVICE: ____________________ TIME OF SERVICE: ____________________

PATIENT LAST NAME: ____________________

Check all modalities used during this encounter:

___ Telephone conference  ___ Telemedicine Equipment  ___ Exam camera  ___ Stethoscope

Rating Scale:  A= Agree  N= Neutral  D= Disagree

1. Equipment check above worked properly.  A N D

2. Telehealth equipment was easy to use.  A N D

3. I had adequate access to this patient’s records/test results.  A N D

4. I was able to communicate adequately with the patient.  A N D

5. The tools adequately supported my examination.  A N D

6. I felt the privacy of the session was respected.  A N D

7. I felt the patient was satisfied with the encounter.  A N D

8. Overall, I was satisfied with today’s encounter.  A N D

Additional thoughts:

__________________________________________________________

RN / Physician Last Name: ____________________

PATIENT DISPOSITION:  ___ Remained at Nursing Home  ___ Sent to Emergency Department
INTEGRATING VIRTUAL VISITS AND REMOTE MONITORING TO IMPROVE TRANSITIONS OF CARE BETWEEN DIMENSIONS HEALTHCARE SYSTEM FACILITIES AND COMPREHENSIVE CARE FACILITIES

Carnell Cooper, M.D., FACS
Samaria Washington, NHA, MBA
Leliveld Emeni, ZaneNetworks

Participating Partners
Dimensions Healthcare System

- Integrated, not-for-profit healthcare system in Prince George’s County, Maryland
- Largest provider of healthcare services in Prince George’s County
- Serving approximately 180,000 patients annually
- Partnered with University of Maryland Medical System, the State of Maryland, Prince George’s County and the University System of Maryland – to achieve the goal of transforming health care in the region

Comprehensive Care Facilities

- Sanctuary at Holy Cross
- A Trinity Senior Living Community
- SavaSeniorCare
- Patuxent River Health and Rehabilitation Center
- Genesis HealthCare
- Crescent Cities Center
Maryland Emergency Medicine Network

- National leader in academic and community-based emergency medicine
- Affiliated with the University of Maryland Medical System
- Manages the emergency departments in 14 locations throughout the state of Maryland

Mission:

To serve public and private entities by solving complex problems using innovative technologies in the areas of health information technologies (HIT), unified communications and collaborative technologies (including voice, data and video conferencing), medical staffing and print and online health communications

Clients:

- Certified 8(a) Company and Small and Woman-Owned Disadvantaged Business (SDB)
- Maryland MBE Certified woman owned SBD registered in the District of Columbia
- Accreditation by the Maryland Healthcare Commission to serve as a Management Service Organization (MSO)
- Certified Professionals in Health Information Technology (CPHIT)
- Clinical Implementation Specialists and Project Management Professionals
- Writers, Editors & Graphic Designers
- VTC Engineers and Technicians
Objectives

• Reduce Readmissions
  – Effective Post-Discharge Transfer
  – Periodic Post-Discharge Follow-up
  – Provider to Provider Consults

• Reduce Unnecessary Emergency Department Visits

• Reduce Unnecessary Hospital Admissions/Reduce Hospital Stay

• Improve Patient Experience

TELEHEALTH PROCESSES
Post Discharge Follow-Up

- Provider to Provider Consult
  - Physician Advisors
  - Case Management
  - Nursing Facility Staff (M.D./R.N.)
- Patient Interview
- Effective Transfer
  - Patient Status
  - Review of Discharge Instructions
  - Review of Prescriptions/Medications
  - Review of Overall Care Plan
- Scheduled Periodic Follow up (as appropriate)

Emergency Department Consults

- Change in Resident Condition Requires Physician Intervention
- Nursing Facility Physician (e.g. On Call) orders Emergency Department (ED) Consult
- Pre-Assessment and Preparation for E-Consult
- Nursing Facility contacts Dimensions “One Call”
Emergency Department Consults

- One Call coordinates consultation
- ED Provider reviews info and interviews patient
- ED Physician makes recommendations and notifies Nurse at facility
  - On site intervention(s) and treatment
  - Transport to ED
- Nurse communicates ED recommendations to On-Call Physician
- On-Call Physician orders Interventions/Transport

TELEHEALTH TOOLS
Hardware

• Surface Pro 3 Tablets and IPADs were considered as hardware options
• Surface Pro 3 Tablet was selected because it provides full window desktop capabilities along with the versatility of a tablet
• Surface Pro 3 USB port can support future integration of devices (stethoscope, examination camera, BP cuff, etc.)
Hardware: JACO Carts

• The JACO Cart was chosen for mobility and ease of use for end users
• The Surface Pro 3 tablets can be mounted to the JACO carts, providing greater security for the hardware
• With the JACO Cart clinicians can easily navigate between patients rooms to conduct telehealth visits

Software: HouseCall

• HouseCall created by ZaneNetworks, a Maryland State Designated Management Service Organization credited through ENHAC
• HouseCall is a cloud-based software service, hosted in a HIPAA certified data center
• Telehealth Calls are encrypted and sent through the internet, securely
• HouseCall is provider-centered and supports provider-to-provider video conferencing
• ZaneNetworks currently developing direct integration to allow providers to send Direct Messages with documents using HouseCall
CRISP ENS and Direct Messaging

- CRISP - the Maryland Health Information Exchange - is leveraged for the project to facilitate data-related transition of care
- ENS is used to monitor patient readmissions at hospitals outside of the Dimensions network
- The CRISP query portal allows both facilities to view and download any information available from patient visits at local hospitals
- CRISP Direct Messaging is used to collaborate and share information between Facilities
- SBAR communications are sent directly via the secure CRISP HISP

CHALLENGES & SUCCESSES
# Key Challenges

<table>
<thead>
<tr>
<th>The Challenge</th>
<th>The Solution</th>
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<tbody>
<tr>
<td>• Coordination between Organizations</td>
<td>• Project management facilitated collaboration &amp; communication</td>
</tr>
<tr>
<td>• Technology Infrastructure</td>
<td>• Technical expertise provided critical advice &amp; support</td>
</tr>
<tr>
<td>‒ Procurement</td>
<td>• Quantifiable benefits show project value (consistent with population health and GBR goals)</td>
</tr>
<tr>
<td>‒ Deployment</td>
<td>• Reimbursement would allow alignment of quality and business objectives</td>
</tr>
<tr>
<td>‒ Training</td>
<td>• Demonstrable value outweighs identified risks</td>
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<tr>
<td>‒ CRISP</td>
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<tr>
<td>• Viability</td>
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<td>‒ Reimbursement</td>
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<td>‒ ROI</td>
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<td>• Risk Management</td>
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<td>‒ Malpractice</td>
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<td>‒ Provider Mindset</td>
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# Key Successes

- Effective Team Established
- Timely Implementation and Deployment
- Initial Positive Feedback
- Expansions to Additional Nursing Facilities
- System Interest in Exploring Other Telehealth Applications
The Future

• Clear reimbursement reform will ensure viability and sustainability
  – Eliminate Medicare restrictions related to patient location
  – Reduce Medicaid administrative processes
• Expanded communication between facilities to timely manage patient care
• Consults to ambulatory care sites to address emergent/critical concerns and facilitate transfers to higher level of care
• Subspecialty consults to ambulatory providers
• Provider/patient consults (“HouseCalls”) to manage high risk patients and reduce hospital visits

Questions
Reducing Unnecessary Hospital Utilization in CCF Population

University of Maryland–Upper Chesapeake Health Telehealth Program

Presenters

- J. Wayne Brannock
  COO, Lorien Health Systems
- Colin Ward
  Vice President, UM Upper Chesapeake Health
Project Participants

- University of Maryland Upper Chesapeake Health
  - Acute Care Hospital (ACH)
- Lorien Health Systems, Bel Air
  - Continuing Care Facility (CCF)
- Life Bot Inc.
  - Telehealth Technology Vendor
- Maryland Emergency Medicine Network

Overview

- Project, Objectives, Goals and Current Status
- Clinical Enhancements
- Clinical Workflow Integration
- Challenges, Successes & Case Studies
- Key Takeaways
Project Overview and Goals

- **Project**
  - Pair Treatment Protocols and Technology with Emergency Management Expertise

Clinical Measures

- Reduction in 30-day readmissions for all patients discharged from ACH to CCF
  
  _Goal 25% reduction from 13.6% to 10.2_

- Reduction in ACH admission rate for all conditions for residents admitted from CCF
  
  _Goal 25% reduction from 4.2 to 3.2_

- Reduction in ED utilization from ambulance transfers from CCF to ACH
  
  _Goal 25% reduction from 6.2 to 4.7_

- Patient and family satisfaction/feedback
Current Status

- Program implemented 12/3/14 with on-going utilization
- Weekly Transfer and Utilization Reviews
- Monthly Medical Team Reviews
- Medical Director and Attending MD meetings

New Lorien Capabilities due to LifeBot

- ePCR Electronic Patient Call Report
- ECG 12 Lead
- Peripheral Pulse
- Pulse Oximeter
- Respirations
- End Tidal CO2
- Two Temperatures
- NIBP and Mean BP
- Heart Rate
- Ultra Sound
New Lorien Testing and Clinical Enhancements

- Expanded Clinical Expertise of CCF
  - Point of service labs
  - Stat X-Rays
  - IV Med/Fluids/Antibiotics
  - PICC Insertion/Management
  - Isolation
  - Surgical Drain Management
  - Tracheostomy Management
  - Vapotherm
  - Q-Ball
  - Central Line Management
  - SCDs
  - SBAR Communication

New Lorien Lab Capabilities

- Point of Service Lab
  - WBC
  - Hb
  - Hct
  - Chem 7
  - INR
  - Routine UA
Updated Lorien IV Inventory

- 0.9% Normal Saline 1000 ml
- 0.9% Normal Saline 250 ml
- 0.9% Normal Saline 50 ml
- D5W 1000 ml
- D50 50 ml
- Normal Saline Flushes 100 ml
- Heparin Flush 10 units/ml
- Dextrose 5% + .45% Normal Saline
- Dextrose 5% with 20 KCL
- Dextrose 5% + .45% NS with 20 KCL
- 0.9% Normal Saline with 20KCL
- Dextrose 5% with 40kcl
- Dextrose 5% + 0.45% NS with 40KCL
- 0.9% Normal Saline with 40KCL

Lorien– UCMC Matching Medication Options

- Emergency Medication Box
  - Aspirin 81mg Chewable
  - Dextrose 50% injection
  - Atropine 1mg/ml injection
  - Heparin 10,000 units/ml injection
  - Diphenhydramine 50mg/ml injection
  - Epinephrine 1:1000 (1mg/ml) injection
  - Furosemide 10mg/ml 4ml injection
  - Intaglucose/ Glucose 15
  - Nitorquick (nitroglycerin)0.4mg tab
  - Vitamin K injection 10mg/ml
  - Naloxone (narcan) 0.4mg/ml injection
  - Ativan Injection
  - Vancomycin IV
  - Ancef 1 gm
  - Levaquin IV
  - Rocephin IV
  - Levaquin IV
  - Zithromax IV

- Clindamycin IV
- Unasyn IV
- Zosyn
- Decadron IV
- Haldol
- Albuterol
- Atrovent
Supporting Clinical Information

- Electronic Medical Record Access
  - CRISP (Health Information Exchange)
  - Millennium (Electronic Medical Record)
  - Point Click Care (EMR)

Clinical Workflow Integration

- Resident Condition Changes
- RN Notifies Attending or On-Call MD
- New Algorithm and Clinical Condition Drive Next Steps
  - Physician orders ED Transport
  - Physician treats on-site
  - Physician orders telehealth consult
Clinical Workflow Integration

- Collaboration in developing clinical algorithms
- Ongoing Education of Bel Air Attending and On-Call physicians
- Ongoing Education of ED physicians on command center, tablet consultations and Lorien capabilities
Program Successes

- Secured Medical Malpractice Insurance for ACH ED Physicians
- Addressed consultation reimbursement
- CCF clinical enhancements including laboratory
- Utilization of CRISP
- Additional LifeBot enhancements under development including stethoscope
- Successfully avoided hospital activity for multiple patients (preventable admissions)

Program Success Continued

- Avoided 14 costly & time consuming ED transfer steps
  - Nurse calls on-call physician
  - Nurse calls family/responsible party
  - Nurse call for transportation
  - Nurse gathers documentation to be sent
  - Nurse staff prepares patient for transfer
  - Nurse documents the transfer
  - Ambulance arrives for transfer
  - Patient transported to ED $
  - ED triages and registers patient
  - ED nurse and physician assessment of patient
  - Labs complete $
  - EKG complete $
  - X-Ray complete $
  - WAIT

- Documentation and billing requirements at every step of the way
Program Challenges

- On-going consultation reimbursement
- Telehealth equipment costs
- CRISP Integration

Case Study

- Change in Condition:
  - Received abnormal lab potassium 6.7
- Diagnosis:
  - CABG x 3, diabetic, acute on chronic renal failure
- Telehealth Evaluation:
  - Monitoring of ECG, BP, lab Chem profile
- Treatment:
  - Kayexalte, 500 cc of saline and repeated labs
- Outcome:
  - Patient returned to room and discharged to home 7 days later
Key Takeaways

- Physician education – EDs, On–Calls, Attending’s
- Supporting Clinical Capabilities (Lab/ RX)
- Need for reimbursement
- Regulatory considerations – i.e. Assisted Living

Questions?