Necessity And Innovation: Observation Units In Novel Settings

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Disclosures

• I have no conflicts of interest or disclosures.
Objectives

• Learn how to use observation medicine as an efficient, resource-sparing strategy for healthcare delivery

• Learn how to extend observation medicine beyond the acute care hospital
Necessity in Healthcare

- Underserved
- Disaster
- Rural
- Remote
- Underdeveloped
- Significant transient populations
- Health care policy change/delivery system reform
The Night Of October 29th, 2012
New York City - Manhattan

- 8.6 million people
- 1.6 million people
- 23 square miles
- 71,000 people per sq/mile
Sandy: A Category 2 Hurricane
Catastrophic Flooding
Orders to Evacuate
Lower Manhattan Hospital Evacuation

- NY Downtown Hospital
- Manhattan VA Hospital
- NYU Langone Medical Center
- Bellevue Hospital
Public Health Disaster

- 4 emergency hospital evacuations combined with:
  - 2 recent non-storm related hospital closures
  - Severe disruption outpatient networks from storm

- Only 1 major hospital remaining for all of lower Manhattan
  - Beth Israel Medical Center
    - Increase of 100 additional ambulances/day
    - Avg daily ED volume doubled

FDNY EMS Transports to remaining lower Manhattan Hospitals surged following the closure of local EDs.
Necessity
Necessity and Innovation

News
NYU Langone Medical Center Opens Urgent Care Center As Recovery From Sandy Continues
January 14, 2013 5:26 PM
77 days later…

- Observation Unit launched with Urgent Care Center
  - Restore acute care services
  - Advance overall medical center recovery
  - Maximize patient care with limited resources
  - Rebuild outpatient-inpatient interface in absence of ED

...ED remained closed for additional 16 months…
Urgent Care Center

• First Urgent Care for Department of Emergency Medicine

• Staffed by emergency medicine nurses, physicians, physician assistants
  – Staff recalled from all over NYC
    • Deployed to remaining area hospitals to help with patient volumes

• Patients were dispositioned to observation unit if met criteria
Observation Unit

- Staffed by emergency medicine physicians, physician assistants; and inpatient med/surge nurses

- First observation unit for Department of Emergency Medicine
  - 9-bed dedicated unit on repurposed hospital wing (16th floor)

- Resource-sparing strategy
  - Hospital resources coming back online
  - High demand for ‘observation-type’ care
    - Disrupted primary care networks at various stages of recovery
Inclusion and Exclusion Criteria for UCC Obs Unit

• **Inclusion Criteria**
  • Patients requiring the active management of their condition following the initial UCC visit to determine the need for inpatient admission or discharge

• **Exclusion Criteria**
  • No clear working diagnosis
  • No clear management plan
  • Acute exacerbation of psychiatric condition
  • Acutely altered mental status
  • Hemodynamic instability
  • Sepsis
  • Requirement for nursing evaluation more frequently than every 4 hours
  • Agitated, combative or acutely intoxicated patient (may be placed in Observation Services after clinical sobriety achieved in UCC)
The “First 15” Protocols – Relatively Simple Observation

Protocols at go-live were a best-guess guess of what our patients would be like.
Clinical Resources

• Nursing
  – 4:1 patient to nurse ratio
  – Dedicated to OU care

• APP (NP/PA)
  – Dedicated to OU care
  – Provide OU care under physician supervision

• Attending
  – Reassesses all patients in the OU daily
  – Available 24/7
  – Rounded in OU, then supervised care

• Dedicated Leadership
  – Develop and monitor protocols
  – Update competencies
  – Support flow from UC
  – Monitor utilization and quality
  – Training, support
Collaborating services

- **Cardiology**
  - Chest Pain
  - Atrial tachycardia
  - CHF

- **Neurology**
  - TIA
  - Vertigo
  - Headache

- **Surgery**
  - Abdominal pain

- **Gastroenterology**
  - GI Bleed

- **Diagnostic Services**
  - Priority testing and resulting
  - Streamlined workflows
    - Non-invasive cardiology
    - Radiology

- **Care management, PT, SW**
  - Impact on ability to discharge
    - Ancillary service availability
    - Care management and social worker
    - Effective disposition planning
The Urgent Care and Observation Unit

- 55,723 urgent care visits
  - 20% of total hospitalizations cared for in observation unit
  - 5.7% of urgent care center visits were placed in observation
  - Significant need for observation care
  - Major provider of healthcare

- The ‘metrics’ were within target for simple observation
  - <24 hour LOS
  - Conversion rate <20%
~80% of the Observation Volume

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Volume, No.</th>
<th>Length of Stay, hh:mm</th>
<th>Inpatient Conversion Rate, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chest pain</td>
<td>1,255</td>
<td>16:22</td>
<td>9</td>
</tr>
<tr>
<td>Cellulitis</td>
<td>371</td>
<td>18:17</td>
<td>22</td>
</tr>
<tr>
<td>Syncope</td>
<td>235</td>
<td>16:59</td>
<td>11</td>
</tr>
<tr>
<td>Abdominal pain</td>
<td>229</td>
<td>16:13</td>
<td>28</td>
</tr>
<tr>
<td>TIA</td>
<td>90</td>
<td>15:20</td>
<td>9</td>
</tr>
<tr>
<td>Dehydration</td>
<td>96</td>
<td>16:10</td>
<td>17</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>66</td>
<td>17:34</td>
<td>33</td>
</tr>
<tr>
<td>Pyelonephritis</td>
<td>71</td>
<td>13:31</td>
<td>22</td>
</tr>
</tbody>
</table>

*aAbbreviation: TIA, transient ischemic attack.

Majority of care provided with common obs unit protocols
April 22\textsuperscript{nd} 2014….the ED re-opened

- ED re-opened
- Urgent Care closed
- Obs Unit remained
Observation Unit Background

- Observation service delivery more effective when delivered from a type 1 unit

<table>
<thead>
<tr>
<th>Service</th>
<th>OU Type</th>
<th>No. of Pts</th>
<th>Length of Stay (hours)</th>
<th>IP Conversion Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>1223</td>
<td>20</td>
<td>18%</td>
</tr>
<tr>
<td>B</td>
<td>4</td>
<td>827</td>
<td>20</td>
<td>41%</td>
</tr>
<tr>
<td>C</td>
<td>4</td>
<td>223</td>
<td>18</td>
<td>34%</td>
</tr>
<tr>
<td>D</td>
<td>4</td>
<td>90</td>
<td>22</td>
<td>24%</td>
</tr>
</tbody>
</table>
Observation Service Delivery Models

- **Type 1**: only 1/3rd observation services delivered in this model
- **Type 4**: ‘scatter bed’ model, majority of observation services delivered in this model; observation status in an ‘inpatient’ bed, traditional ‘inpatient’ workflows

Ross et al. Health Aff 2013;32:2149-2156
Consistent EDOU growth, innovation, clinical excellence

Shift from ‘simple’ observation to ‘complex’ observation
Necessity, Innovation

Freestanding ED

Urgent Care
Consistent EDOU growth, innovation, clinical excellence
Shift from ‘simple’ observation to ‘complex’ observation
Patient Satisfaction is Higher in a Type 1 OU

Patient satisfaction higher when observation services are provided in a Type 1 OU setting.
### Observation Unit (Type 1) Patient Satisfaction Score Percentiles

(Press Ganey, 1 year sample)

<table>
<thead>
<tr>
<th>Press Ganey Category</th>
<th>Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Rating</td>
<td>99th</td>
</tr>
<tr>
<td>Nurses</td>
<td>99th</td>
</tr>
<tr>
<td>Doctors</td>
<td>99th</td>
</tr>
<tr>
<td>Overall Assessment</td>
<td>99th</td>
</tr>
<tr>
<td>Likelihood of Recommending</td>
<td>99th</td>
</tr>
</tbody>
</table>

Patient satisfaction scores are in the highest (favorable) percentiles.
Necessity, Innovation

NYU Langone moves ahead with Lutheran Medical Center merger
Restructuring delivery of observation into a type 1 observation unit resulted in performance metrics that are equal to or better than national benchmarks.
Post-discharge Follow-up Center

- All discharged patients called for follow-up within 12-72 hours based on risk
  - Staffed with RNs & APPs
  - Review of all lab/imaging results
    - Post-discharge reassessment
    - Patient education
    - Follow-up appointments
    - Transition of care to community
    - Provide feedback directly to the leadership team

- Designed to improve quality of care, reduce readmissions/revisits, and improve patient satisfaction.
Value-Based Management

• When observation services are provided in a dedicated, protocol-driven observation unit versus a scatter bed model, there is:
  • Improved length of stay per observation case
  • Improved observed-to-expected length of stay (O:E)
  • Improved charge capture per observation case

\[ \text{Value} = \frac{\text{Quality}}{\text{Cost}} \]
Necessity and Innovation: Observation Units in Novel Settings
Necessity in Healthcare

• Underserved
• Disaster
• Rural
• Remote
• Underdeveloped
• Significant transient populations
• Health care policy change/delivery system reform
Case Example

- 52 year-old male with a history of diabetes presents with erythema on the right leg, febrile to 101 at home. Vitals are currently stable. The exam is consistent with cellulitis (there is no suggestion for a worse underlying disease process). Point of care testing is unremarkable (ie. CBC, lactate, electrolytes, blood gas). You decide the patient requires IV antibiotics…

[Image: Cellulitis infection]
Necessity and Innovation: Observation Units in Novel Settings

- Home
- Freestanding ED
- Microhospital
- Primary Care
- Telehealth

Acuity (and cost)
Urgent Care Centers
Urgent Care Centers

- > 10,000 urgent care (UC) centers in the United States by the end of 2017

- On average, each UC will treat approx 15,300 patients/year by 2021
  - 153 million UC patient encounters/year
An Urgent Care Center is:

- Walk-in, ambulatory medical facility
- Generally not open 24/7
- Not staffed or equipped to provide emergency care
- Variable in the range of care they can provide
  - Minor to urgent
  - Lab testing (ie. send-out vs point of care), Xray
- Can be confusing to patients
Observation Care and Urgent Care Centers

• Observation care will be needed for some urgent care patients
  – Examples:
    • Urinary tract infection: intravenous antibiotics, antiemetics, analgesia, intravenous fluids
    • Cellulitis: intravenous antibiotics, analgesia
    • Pneumonia: intravenous antibiotics, analgesia, pulse oximetry, incentive spirometry

• Emergency department care may not always be needed
Innovative Observation Care

Observation Unit

Acuity (and cost)

Home
Freestanding Emergency Departments
Freestanding Emergency Departments

• Currently hundreds of FSEDs

• Recent growth driven by:
  – Innovations in technology (EHR, POC testing, telehealth)
  – Need for 24/7 care
  – Extend emergency services in new markets
    • Lower cost than building entire hospital
A Freestanding Emergency Department is:

- Separate/distinct (from hospital ED) facility providing emergency care
- Generally open 24/7 staffed with physician, RN, APP
- Capable of:
  - Labs (send-out and point of care)
  - Basic and advanced imaging (X-ray, CT, ultrasound)
  - Specialty consultation (local specialist, telehealth)
Freestanding EDs in Healthcare Systems

- FSED patients will need observation care

- FSED/Observation Unit
  - Equip the FSED to care for the patient
  - Keep patients local
  - Preserve beds at the ‘main hospital campus’
  - Augment outpatient care/reduce unnecessary hospitalization
  - Triage patient requiring inpatient care to the right hospital at the right time
    - Multiple transfer agreements
  - Many states have examples of this model (ie. California, Colorado, Florida, Ohio, North Carolina)

- Direct placement from FSED to OU
  - Avoid sending patient to hospital-ED
# Freestanding ED Obs Profile

<table>
<thead>
<tr>
<th></th>
<th>Volume</th>
<th>Conversion Rate</th>
<th>Length of Stay (hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grand Total</td>
<td>942</td>
<td>12%</td>
<td>21</td>
</tr>
</tbody>
</table>

Only 12% of patients receiving observation care subsequently required inpatient admission.
Top 10 Protocols Account for 80% Freestanding ED Observation

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Chest Pain</td>
</tr>
<tr>
<td>General</td>
</tr>
<tr>
<td>Cellulitis</td>
</tr>
<tr>
<td>Abdominal Pain</td>
</tr>
<tr>
<td>Syncope</td>
</tr>
<tr>
<td>TIA</td>
</tr>
<tr>
<td>Asthma</td>
</tr>
<tr>
<td>Back Pain</td>
</tr>
<tr>
<td>Pneumonia</td>
</tr>
<tr>
<td>Transfusion</td>
</tr>
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Focusing on these 10 protocols allows care for the majority of observation patients.
## Freestanding ED Obs Unit

<table>
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<tr>
<th>DIAGNOSTIC PROTOCOL</th>
<th>THERAPEUTIC PROTOCOL</th>
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<tbody>
<tr>
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<td>Cellulitis</td>
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<td>Pneumonia</td>
</tr>
<tr>
<td></td>
<td>Transfusion</td>
</tr>
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</table>

**Diagnostic Protocols**
- Chest Pain: exercise stress, coronary CTA, stress echo
- Abdominal Pain: CT, Ultrasound
- Syncope: echo, telemetry
- TIA: CT, carotid doppler, +/- MRI/MRA

**Therapeutic Protocols**
- Cellulitis: antibiotics
- Abdominal pain: analgesia, antiemetic, fluids, antacids
- Asthma: bronchodilators, steroids, peak flow, pulse ox, Xray
- Back pain: analgesia
- Pneumonia: antibiotics, pulse ox
- Transfusion: blood products
Innovative Observation Care

Observation Unit

Freestanding ED Observation Unit

Home

Acuity (and cost)
Microhospital
A Microhospital is:

- Small, 24/7 inpatient facilities, usually with comprehensive emergency services
  - Middle ground between ambulatory care centers and acute care hospital
    - More capabilities than a FSED or UC
    - Include inpatient beds (like a FSED with beds)
  - 12-16 bed hospital

- More common in some states (ie. Texas, Colorado, Nevada, Arizona)

- Right-size healthcare to needs of communities
  - ED – quicker access to local emergency care than traveling to distant hospital
  - Observation unit – cost-effective, efficient care for certain conditions, avoids need for transfer
  - Inpatient services – care for inpatient conditions, avoids need for transfer
  - Labs, radiology, diagnostics
  - Specialty consultation, telehealth
Innovative Observation Care

- Longer inpatient care
- Observation Unit/Short-term inpatient care
- Microhospital
- Home

Acuity (and cost)
Innovation

• Emergency medicine is society’s health care safety net
• Observation medicine extends this safety net through the delivery of short-term, acute care that is:
  – Flexible
  – Adaptive
  – Scalable
  – High-quality
  – Cost-effective
  – Value-based
  – Resource-sparing
Innovation: What started as a 9-bed simple OU in the wake of a natural disaster…

- Dedicated observation medicine attending physician group

- Multiple observation units
  - Observation Unit at NYU Langone Tisch
    - 35 bed, protocol-driven, dedicated observation unit
    - 33 evidence-based clinical protocols in use
      - Expanded 4-fold in size and 6-fold in quarterly volume since implementation
  - Observation unit at NYU Langone Brooklyn
    - 12 bed, protocol-driven, dedicated observation unit
    - 22 evidence-based clinical protocols in use

- Freestanding ED

- Urgent Care

- Inpatient care…
THANK YOU

I hope to hear from you!

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