The Southern Regional Disaster Response System (SRDRS) – A Comprehensive Overview

October 19, 2023
HRSA Funded Telehealth Resource Centers

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The Southern Regional Disaster Response System: A Comprehensive Overview

October 19, 2023

AGENDA

Emory Rural Tele-EMS Network – Dr. Michael Carr

Emory Tele-Observation Services – Dr. Michael Ross

Wellstar MCG Health Tele-Critical Care Services – Dr. Matt Lyon

The SRDRS Initiative – Dr. Alex Isakov

Q&A/Discussion
The Emory Rural Tele-EMS Network
And the Southern Regional Disaster Response System

Michael J. Carr, MD FACEP FAEMS
Assistant Professor, Emory University School of Medicine
Department of Emergency Medicine, Section of Prehospital and Disaster Medicine
Principal Investigator / Director, Emory Rural Tele-EMS Network
Email: michael.j.carr@emory.edu
Disclosure

“The Emory Rural Tele-EMS Network is supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) as part of a financial assistance award totaling $1.2 million with 100 percentage funded by HRSA/HHS and zero percentage funded by non-government source(s). The contents are those of Emory University and do not necessarily represent the official views of, nor an endorsement, by HRSA/HHS, or the U.S. Government.”
Just 5 Things
1. OUR “WHY”: PROBLEM? PATIENTS? METRICS & MEASUREMENTS?
2. SOFTWARE, EQUIPMENT, & CONNECTIVITY: VENDOR RELATIONSHIPS? HARDWARE SOLUTIONS?
3. SUSTAINABILITY PLAN: FINANCIAL VIABILITY? GRANT FUNDING? ADAPTABLE? MULTI-USE?
4. SOUTHERN REGIONAL DISASTER RESPONSE: FLEX DAILY USE MODEL SUPPORT LOCAL DISASTER
5. THE VISION FOR ER-TEMS / SRDRS INTEGRATION: EMERGENCY PHYSICIANS & SPECIALTY CONSULTATION
Just 5 THINGS

1

OUR WHY:

WHAT’S OUR:
• Problem?
• Population?
• What will we measure?
• Start up?
1 - FIND YOUR WHY

CHALLENGE

SUCCESS

Rural Georgians (and US) are at a severe disadvantage.

Worse outcomes in time-sensitive conditions:

- Stroke, STEMI, Trauma, Sepsis, Shock, High Risk Labor and Delivery

Prolonged time to definitive care in rural EMS

OUR WHY:

WHAT'S OUR:

• Problem?
• Population?
• What will we measure?
• Start up?
Rural hospital closures since 2005 (180+)

Credit: UNC Cecil G. Sheps Center for Health Services Research
provide early intervention to time-sensitive conditions with proven outcome benefit

- cardiac arrest
- stroke
- labor and delivery
- trauma
- stemi
- sepsis
- serious communicable disease
Current Tele-EMS footprint: Ambulances already deployed, or are in process of installation.
Anticipated expansion over the next year
Future of Tele-EMS

Mountain Plains RDHRS
(Denver Health and Hospital Authority)
Awarded 2020

Region 1 RDHRS
(Massachusetts General Hospital)
Awarded 2018

Southern RDHRS
(Emory Hospital)
Awarded 2021

Region VII Regional Disaster Health Response Ecosystem (RDHRE)
(Nebraska Medicine/University of Nebraska Medical Center)
Awarded 2018

10/19/23
Just 5 Things

2

SOFTWARE, EQUIPMENT, & CONNECTIVITY:
VENDOR RELATIONSHIPS
HARDWARE SOLUTIONS
2 – SOFTWARE, EQUIPMENT, CONNECTIVITY

**CHALLENGE:**
- WHAT SOFTWARE?
- WHAT EQUIPMENT
- CONNECTIVITY:
  - Existing vendor relationships?
  - Specific hardware needs?

**SUCCESS**
- Plan: **30 ambulances** over 4 year grant period
  - swyMed
  - Software solution with experience!
2 – SOFTWARE, EQUIPMENT, CONNECTIVITY

**CHALLENGE:**
- WHAT SOFTWARE?
- WHAT EQUIPMENT
- CONNECTIVITY:
  - Existing vendor relationships?
  - Specific hardware needs?

**SUCCESS**
- DT Research: Durable, antimicrobial, “all in one”
- AXIS Pan-tilt-zoom cameras
- Yamaha speaker
- Zoll X-series monitor
2 – SOFTWARE, EQUIPMENT, CONNECTIVITY

CHALLENGE:
- WHAT SOFTWARE?
- WHAT EQUIPMENT
- CONNECTIVITY:
  - Existing vendor relationships?
  - Specific hardware needs?

SUCCESS
- Satellite: not good for moving targets
- Cellular:
  - Rural limitations
  - Tower can “see” antenna
  - Antenna can’t “see” tower.
DUAL-SIM and SATELLITE CAPABILITY

Source: FirstNet.gov
SUSTAINABILITY PLAN:

- Financial Viability?
- Ongoing grant funding?
- Adaptable to changing landscape
- Multi-purpose service
3 – SUSTAINABILITY

CHALLENGE:
SUSTAINABILITY PLAN:
• PLAN: 30 ambulances, 24/7/365 coverage
• Cost of coverage: Physician FTE
• Early deployment: low volume

SUCCESS
DUAL SERVICE Model: Overlap with existing workflows
• Tele-Triage / Tele-Observation
ER-TEMS SUSTAINABILITY

FEE FOR SERVICE

MULTI-USE

SUBSCRIBE

STATE FUNDED

PHILANTROPY
Just 5 Things

SOUTHERN REGIONAL DISASTER RESPONSE SYSTEM
Flex daily use model
Support local disaster / MCI
SME and surge capacity
Just 5 Things

The Vision for ER-TEMS / SRDRS Integration

Emergency Physicians & Specialty Consultation - Disaster Response -
PROVIDE EARLY INTERVENTION TO TIME-SENSITIVE CONDITIONS WITH PROVEN OUTCOME BENEFIT

- CARDIAC ARREST
- LABOR AND DELIVERY
- STEMI
- SERIOUS COMMUNICABLE DISEASE
More info: ER-TEMS

Watch the video on our website (in QR link)!
Just 5 Things

1. OUR “WHY”: PROBLEM? PATIENTS? METRICS & MEASUREMENTS?
2. SOFTWARE, EQUIPMENT, & CONNECTIVITY: VENDOR RELATIONSHIPS? HARDWARE SOLUTIONS?
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SUMMARY
TELE-OBSERVATION AND DISASTER PREPAREDNESS: A SUSTAINABLE “WIN-WIN”

SEPTEMBER 20, 2023

Michael A. Ross, MD, FACEP, FACC

Chief of Service, Observation Medicine
Director, Emergency Virtual Care
Professor, Department of Emergency Medicine
Emory University School of Medicine
Adjunct Faculty, Nell Hodgson Woodruff School of Nursing
TELE-OBSERVATION AND DISASTER PREPAREDNESS:

1) Background – nomenclature, what works, and what doesn’t
2) Tele-Observation – the model and the evidence
3) Disaster preparedness – a sustainable “win-win”

Primary clinical reference: CDU Manual
1. OBSERVATION NOMENCLATURE

Observation **Patients** = “6 to 24 hour” patients. Distinct patient population.

Observation **Service** = “management to determine the need for admission”
- 20 – 35% of patients staying in hospitals are “observation” patients

Observation **Settings** – defined by two variables: Protocols + Units
- Protocol driven, observation units are the best “setting”
- 2/3 of U.S. Hospitals do not have an observation unit (CDC data)

![Exhibit 1](image-url)

**Hospital Settings In Which Observation Services Are Provided**

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1</td>
<td>Protocol driven, observation unit</td>
<td>Highest level of evidence for favorable outcomes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Care typically directed by ED</td>
</tr>
<tr>
<td>Type 2</td>
<td>Discretionary care, observation unit</td>
<td>Care directed by a variety of specialists</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unit typically based in ED</td>
</tr>
<tr>
<td>Type 3</td>
<td>Protocol driven, bed in any location</td>
<td>Often called a “virtual observation unit”</td>
</tr>
<tr>
<td>Type 4</td>
<td>Discretionary care, bed in any location</td>
<td>Most common practice</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unstructured care</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Poor alignment of resources with patients’ needs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition / Year / Author</th>
<th>N</th>
<th>Primary Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Syncope / 14 / Sun *</td>
<td>124</td>
<td>↓ admissions and LOS</td>
</tr>
<tr>
<td>2. Chest Pain / 10 / Miller *</td>
<td>110</td>
<td>↓ Cost (stress MRI)</td>
</tr>
<tr>
<td>3. Atrial Fib / 08 / Decker</td>
<td>153</td>
<td>↑ conversion to sinus</td>
</tr>
<tr>
<td>4. TIA / 07 / Ross</td>
<td>149</td>
<td>↓ LOS and cost</td>
</tr>
<tr>
<td>5. Syncope / 04 / Shen</td>
<td>103</td>
<td>↑ established diagnosis, ↓ admissions</td>
</tr>
<tr>
<td>6. Asthma / 97 / McDermot</td>
<td>222</td>
<td>↓ admissions, no relapse ↑</td>
</tr>
<tr>
<td>7. Chest Pain / 98 / Farkouh</td>
<td>424</td>
<td>No difference cardiac events</td>
</tr>
<tr>
<td>8. Chest Pain / 97 / Roberts</td>
<td>165</td>
<td>↓ LOS and cost</td>
</tr>
<tr>
<td>9. Chest Pain / 96 / Gomez</td>
<td>100</td>
<td>↓ LOS and cost</td>
</tr>
</tbody>
</table>

*Added since published after this review
TELEMEDICINE AND TYPE 1 UNITS

A tale of three hospitals . . .
What works and what doesn’t
SCENARIO A: INPATIENT BED – TYPE 4

Length of stay = 33hr
Total Direct Cost = $1,978

Blue Bed = Observation Patient
Black Bed = Inpatient
Pink Bed = New Bed Capacity
SCENARIO B: TYPE 1 SETTING – INPATIENT FLOOR

Length of stay = 28 hr
Total Direct Cost = $1,800

Blue Bed = Observation Patient
Black Bed = Inpatient
Pink Bed = New Bed Capacity
SCENARIO C: TYPE 1 SETTING – NON-IP BEDS, ED RUN OU

Length of stay = 17 hr
Total Direct Cost = $1,342

Blue Bed = Observation Patient
Black Bed = Inpatient
Pink Bed = New Bed Capacity
# Impact of Setting and Service on the Care of Discharged Observation Patients

**Assumptions** (any may be adjusted)

1. An open inpatient bed will backfill with an inpatient
2. Only discharged patients are used (OU admissions differ)
3. ~Ten bed unit – ~1 patient / bed / day
4. Captures 100% of observation patients

<table>
<thead>
<tr>
<th>Setting</th>
<th>Annual Census</th>
<th>LOS (hours)</th>
<th>TDC</th>
<th>Annual Cost</th>
<th>Annual cost savings</th>
<th>Annual Bed Days</th>
<th>Bed days saved - Efficiency</th>
<th>Bed days saved - Efficiency + OP Location</th>
<th>Annual Revenue Enhancement ($1K/bed day)</th>
<th>Cost + Revenue Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - Type 4 setting</td>
<td>3,000</td>
<td>33</td>
<td>$1,978</td>
<td>$5,934,000</td>
<td>0</td>
<td>4125</td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
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<tr>
<td>B - Type 1 IP setting</td>
<td>3,000</td>
<td>28</td>
<td>$1,874</td>
<td>$5,622,000</td>
<td>$312,000</td>
<td>3500</td>
<td>625</td>
<td>625</td>
<td>$625,000</td>
<td>$937,000</td>
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<tr>
<td>C - Type 1 EDOU setting</td>
<td>3,000</td>
<td>17</td>
<td>$1,342</td>
<td>$4,026,000</td>
<td>$1,908,000</td>
<td>2125</td>
<td>2000</td>
<td>4125</td>
<td>$4,125,000</td>
<td>$6,033,000</td>
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</tbody>
</table>

### FROM HYPOTHETICAL TO REAL: ANNUAL EHC EDOU SAVINGS

<table>
<thead>
<tr>
<th>Row Labels</th>
<th>Sum of Cases</th>
<th>LOS</th>
<th>TC</th>
<th>Current TC Savings</th>
<th>Current Bed Days Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCEHM Emory Hospital Midtown</td>
<td>6821</td>
<td>27</td>
<td>$3,204</td>
<td>$6,932,225</td>
<td>3,190</td>
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<tr>
<td>CDU</td>
<td>3918</td>
<td>18</td>
<td>$2,451</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOU</td>
<td>2903</td>
<td>38</td>
<td>$4,220</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCEJJC Emory Johns Creek Hospital</td>
<td>3306</td>
<td>21</td>
<td>$2,631</td>
<td>$6,488,419</td>
<td>1,653</td>
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<tr>
<td>CDU</td>
<td>2516</td>
<td>17</td>
<td>$2,014</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOU</td>
<td>790</td>
<td>33</td>
<td>$4,593</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCEUH Emory University Hospital</td>
<td>5589</td>
<td>24</td>
<td>$3,710</td>
<td>$5,425,184</td>
<td>2,524</td>
</tr>
<tr>
<td>CDU</td>
<td>3260</td>
<td>16</td>
<td>$3,016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOU</td>
<td>2329</td>
<td>35</td>
<td>$4,680</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCSJH Saint Josephs Hospital</td>
<td>7210</td>
<td>25</td>
<td>$2,736</td>
<td>$5,927,706</td>
<td>3,158</td>
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<tr>
<td>CDU</td>
<td>3772</td>
<td>16</td>
<td>$1,986</td>
<td></td>
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<tr>
<td>NOU</td>
<td>3438</td>
<td>36</td>
<td>$3,558</td>
<td></td>
<td></td>
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<tr>
<td>Grand Total</td>
<td>22926</td>
<td>25</td>
<td>$3,097</td>
<td>$24,773,533</td>
<td>10,526</td>
</tr>
</tbody>
</table>

**Current savings:**
- Avoided inpatient bed use= 13,466 patients
- Applying NOU LOS and TC
- Gain over no CDU
EMORY HEALTHCARE OBSERVATION
PATIENTS BY SETTING: CENSUS, LOS, COST

Graphs:
- Census
- Ave Length of Stay
- Total Direct Cost

Settings:
- CDU – Clinical Decision Unit
- Non-OU – Inpatient bed

CDU consistently outperforms the inpatient / NOU setting
THE OBSERVATION UNIT SUSTAINABILITY CONUNDRUM

• **Works for hospitals** => GREAT!!!
  – Emergency Medicine run EDOUs outperform all other settings
  – Lower costs, LOS, admit rates. Improved inpatient bed availability, etc.

• **Doesn’t always work for physicians** – Depending on billing and practice model, not sustainable:
  – CPT / payer structure
    • One service model: Must forfeit emergency CPT codes, bill observation CPT codes
    • Two service model: Able to bill both
  – Hospital subsidy often needed
  – When providing two services (emergency and observation):
    • Physicians need to be able to bill for both
    • Need an essential number of beds (20+)
• Methods: Monte Carlo simulation by billing models.
• Data source: literature, national survey data, payer data

One service model: Not sustainable. Net negative cash flow at any number of beds

Two service model: Sustainable. Net positive cash flow at 20 beds or more.
2. TELEMEDICINE FOR OBSERVATION MEDICINE

- Optimize Observation Unit availability—
  - Meet the “20-bed threshold” to support single service staffing
  - Help struggling hospitals with staffing, cost, quality
  - Share CDU protocols
  - Develop physician – APP staffing model
  - Develop quality / utilization / financial performance metrics

- Telemedicine works best for “Evaluation and Management Services”
  - CPT E/M services:
    - Clinic Visit – Proven and established
    - Critical Care – Proven and established
    - Emergency Visit – Proven and established
    - Observation = opportunity!
    - Inpatient
ENTER COVID PANDEMIC: FULL SPECTRUM OF TELE-EMERGENCY CARE

Pre-hospital
- Tele-EMS
- ER-TV nurse call line

Triage
- ER-TV triage

ED visit

CDU

Tele-CDU

Post-d/c visits

Post-Acute Care
HYPOTHETICAL TO REAL: ED OBSERVATION UNITS - “CLINICAL DECISION UNITS”

- 2004 – 2006 – EUHM (8 beds), Grady (8 beds), EUH (5 beds)
  - Following site visit to Beaumont.
- 2008 – EUH: 5 => 8 beds
- 2016 – ESJH: 12 beds
- 2018 – EJCH: 10 beds
- 2019 – EUHM: 8 => 16 beds; EUH 8 beds => 13 beds
- 2022 – EDH: 12 beds

<table>
<thead>
<tr>
<th>CY 2021, 2022 Metrics</th>
<th>Annual # visits</th>
<th>Ave Obs LOS(hrs)</th>
<th># EDOU beds</th>
<th>Combined visit</th>
<th>Combined beds</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. HCEHM Emory Hospital Midtown</td>
<td>4,777</td>
<td>18.8</td>
<td>16</td>
<td>8,713</td>
<td>29</td>
</tr>
<tr>
<td>2. HCEUH Emory University Hospital</td>
<td>3,936</td>
<td>17.1</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. HCEJC Emory Johns Creek Hospital</td>
<td>3,069</td>
<td>17.1</td>
<td>10</td>
<td>7,295</td>
<td>22</td>
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<tr>
<td>4. HCSJH Saint Josephs Hospital</td>
<td>4,226</td>
<td>16.1</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EHC Total</td>
<td>16,007</td>
<td>17.4</td>
<td>51</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grady</td>
<td>5,374</td>
<td></td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emory Total</td>
<td>21,381</td>
<td></td>
<td>71</td>
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<td></td>
</tr>
</tbody>
</table>
Tele-CDU Workflow

- Chart round with APP to review preliminary plan of care for all patients
- Obtain verbal consent for tele-med visit from patient
- Review plan of care with patient
- Review updates to items that require follow up and preferred method of communication for follow up issues
- Document participation and include tele-med patient consent

Start of CDU rounds shift

APP
- Connect with tele-doc by tablet at start of shift. If needed, call cell.
- Round to patient room with tablet connected to tele-doc
- Perform focused exam
- Depart patient's room

Tele-doc

Step performed by provider in tele-doc role
Step performed by APP with tablet
TELE-OBSERVATION MEDICINE NON-INFERIORITY: The Impact of Virtual Care in an Emergency Department Observation Unit

Atherine Abiri, DNP, ENP-C*; Matthew Keadey, MD, MHA; George Hughes, MD; Stephen R. Pitts, MD; Tim P. Moran, PhD; Michael A. Ross, MD

• Methods: Retrospective diff-in-diff before-after analysis
• Timeframe: Jan 2019 – Feb 2021

• Population:
  – 20,861 EDOU patients
  – 23,055 non-EDOU observation patients

• Outcomes:
  – Adjusted length of stay – no difference (26.4 vs 23.5 hr)
  – Inpatient admit rate – no difference (20.9% vs 22.4%)
  – Adjusted total cost – no difference
  – Adverse events (ICU/death) – no difference

• Conclusion:
  – Using tele-obs to manage observation patients in an ED observation unit was not associated with significant differences in length of stay, admission rate, adverse events, or total direct cost.
Figure 1. Census by setting flow chart (figures represent discharged and admitted EDOU patients over study periods)

Tele-Obs Intervention Hospitals

**Hospital A**
Licensed inpatient beds: 658
ED visits: 86,220 (39 ED beds)
Total observation visits: 10,882
- NOU visits: 4,962
  - EDOU visits: 5,920 (13 beds)
  - Median cost ($) 1,807
  - Median LOS (h): 18.3
  - 18.9% inpatient admission

**Hospital B**
Licensed inpatient beds: 532
ED visits: 121,112 (66 ED beds)
Total observation visits: 16,144
- NOU visits: 7,860
  - EDOU visits: 8,284 (16 beds)
    - Median cost ($) 1,738
    - Median LOS (h): 19.7
    - 15.6% inpatient admission

**Hospital C**
Licensed inpatient beds: 348
ED visits: 69,903 (35 ED beds)
Total observation visits: 16,313
- NOU visits: 9,656
  - EDOU visits: 6,657 (12 beds)
    - Median cost ($) 1,390
    - Median LOS (h): 19.2
    - 15.8% inpatient admission

Control hospital

**Control (15 months)**
NOU census = 7,453
EDOU census = 5,012
- Median cost ($) 1,347
- Median LOS (h): 19.2
- 15.9% inpatient admission

**Control (6 months)**
NOU census = 2,203
EDOU census = 1,645
- Median cost ($) 1,541
- Median LOS (h): 18.7
- 15.6% inpatient admission

**Pre-Intervention (15 months)**
NOU census = 9,584
EDOU census = 10,618
- Median cost ($) 1,732
- Median LOS (h): 19.2
- 16.8% inpatient admission

**Post-Intervention (6 months)**
NOU census = 3,238
EDOU census = 3,586
- Median cost ($) 1,890
- Median LOS (h): 19.1
- 17.5% inpatient admission

**TELE-OBSERVATION MEDICINE** **SUPERIORITY DATA:**

**THE BENEFIT OF TELE-OBSERVATION OVER TRADITIONAL OBSERVATION SERVICES**

- Methods: Retrospective observational cohort study
- Timeframe: 24 consecutive months (9/2020 to 8/2022)
- Setting: Two academic teaching hospitals
  - EDOU (aka “Clinical Decision Unit” or CDU)
  - Non-Observation Unit (aka, type 4, inpatient bed setting)
- Population: 31,223 observation patients
  - Tele-EDOU = 17,424 patients
  - Traditional setting = 13,799 patients

<table>
<thead>
<tr>
<th>Row Labels</th>
<th># visits</th>
<th>Ave Obs - Hours</th>
<th>Ave Enc Total LOS - Hours</th>
<th>Ave Enc - Total Costs</th>
<th>Admit Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDU</td>
<td>17,424</td>
<td>18.0</td>
<td>36.0</td>
<td>$4,746</td>
<td>18%</td>
</tr>
<tr>
<td>INPATIENT</td>
<td>3,117</td>
<td>16.0</td>
<td>120.1</td>
<td>$13,743</td>
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<tr>
<td>OBSERVATION PT</td>
<td>14,307</td>
<td>18.5</td>
<td>17.7</td>
<td>$2,786</td>
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<tr>
<td>NOU</td>
<td>13,799</td>
<td>38.6</td>
<td>60.1</td>
<td>$7,739</td>
<td>25%</td>
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<tr>
<td>INPATIENT</td>
<td>3,488</td>
<td>39.8</td>
<td>127.6</td>
<td>$16,819</td>
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<tr>
<td>OBSERVATION PT</td>
<td>10,311</td>
<td>38.2</td>
<td>37.3</td>
<td>$4,668</td>
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<tr>
<td>Grand Total</td>
<td>31,223</td>
<td>27.1</td>
<td>46.7</td>
<td>$6,069</td>
<td></td>
</tr>
</tbody>
</table>

**Savings per case:**
- All CDU: $2,993; 24.2 hours
- Discharged CDU: $1,882; 19.7 hours

**Total 2-year savings:**
- $52,154,700
- 17,547 bed-days
TELE-OBSERVATION SUMMARY

• Supports Type 1 EDOUs
  – Has become routine EDOU model at EUH, EUHM for three years now
  – Superior to traditional care in an inpatient bed

• Improves observation care
  – Non-inferior to in person rounding
  – Superior to traditional care in an inpatient bed
  – Addresses issues with single service conundrum
    • Improve staffing availability and flexibility
    • Improved faculty satisfaction and engagement
    • Improve consultant availability
  – Improve hospital disaster preparedness and response
    • Develop observation protocols for unique disaster conditions (i.e., radiation)
    • Improve subject matter expert availability
3. DISASTER PREPAREDNESS AND OBSERVATION UNITS

- Detroit Receiving Hospital; May 15, 1986
  - Inhalation disaster, district courthouse; 74 patients
- Riverside Methodist, Columbus; 1996
  - Influenza epidemic, 1996 – avoided EMS diversion
- William Beaumont Hospital; 2003, 2005
  - August 14, 2003 – power grid failure
    - https://www.history.com/this-day-in-history/blackout-hits-northeast-united-states
  - March 6, 2005 – Swimming pool CO exposure – 54 patients
- NYU Langone Medical Center; 2016
  - Type 1 unit allowed NY hospital to survive and treat patients following a hurricane disaster
    - https://www.researchgate.net/publication/301508981_Observation_Services_Linked_With_an_Urgent_Care_Center_in_the_Absence_of_an_Emergency_Department_An_Innovative_Mechanism_to_Initiate_Efficient_Health_Care_Delivery_in_the_Aftermath_of_a_Natural_Disaster
- Emory Johns Creek Hospital; Feb – June 2020
  - Converted type 1 unit into a COVID unit to allow hospital to function
SRDRS: TELE-OBSERVATION AND DISASTER PREPAREDNESS

1. **Support “daily use”** of telemedicine equipment and workflow that can be rapidly deployed in a disaster.

2. Develop **EDOU protocols** for CBRNE disaster patients:
   - Chemical, Biological, Radiation, Nuclear, Explosive
   - Limited to “6-24” hour patients = a large portion of disaster patients

3. Provide immediate **subject matter expertise** for unique disaster management (radiation, chemical, biological) when needed

4. Provide **flexible provider staffing** pool for sudden surges in patient volumes

5. **Preserve scarce resources** in a disaster (i.e., PPE, inpatient beds, etc.)
QUESTIONS?

maross@emory.edu
Rural Hospital Virtual Care Network
Matt Lyon, MD
The Rural Community Hospital
Negative Revenue Cycle

High Transfer Rate
Decreased Patient Volume

Decreased Revenue
Decreased Services

Less Community Confidence

Community Health Care Leakage
Negative Revenue Cycle

Effect on Disparities?

- Higher incidence of poorly controlled disease
- Increase in Delay in Emergency Conditions
- Delays in Specialty Treatments
- Less Coordination Care
- Higher Morbidity and Mortality
Rural Community Hospital - Focused Telemedicine
Community-Focused Telemedicine

High Transfer Rate
Decreased Patient Volume

Decreased Revenue
Decreased Services
Less Community Confidence

LESS Transfers
Increased Patient Volume
Increased Community Health Care
Increased Reputation
Increased Revenue
Increased Ability for Complex Care

Community Health Care Leakage
AU Health Virtual Care Works in a Spoke and Hub Fashion

CONNECTING
Rural Communities to an Academic Medical Center

Telemedicine Ecosystem Providing Specialized Care Remotely with the Goals:

- Decreasing Health Care Disparity
- Keeping Rural Patients in Rural Hospitals, if Possible
- Increasing Rural Hospital In-patient Volume for Financial Viability
- Expediting Transfer to Higher Level of Care When Necessary
- Decreasing Unnecessary Hospital Transfers
- Better Coordinated Care
- Providing Educational Support for Higher Complexity of Care
Rural Hospital Virtual Care Network

ED-ED  Tele-Critical Care  Tele-Hospitalist  Tele-Education

Phase 1
- ER to ER Telemedicine Consults
- Avoidance of Unnecessary Transfers
- Expedited Transfer when Necessary

Phase 2
- Inpatient/Critical Care Telemedicine Consult
- Increase Rural Hospital Average Daily Census (ADC)
- Fill Complex Care Gap

Phase 3
- Post-Acute Care Relationship
- Return of transferred patients
- Increase Rural Hospital Average Daily Census (ADC)

Phase 4
- Optimize Relationship
- Regional Care Coordination
- Increase Opportunities for MCG Learners in Rural Medicine
<table>
<thead>
<tr>
<th></th>
<th>FY2021</th>
<th>FY2022</th>
<th>FY2023</th>
<th>FY Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Patients</td>
<td>724</td>
<td>1186</td>
<td>976</td>
<td>2886</td>
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<tr>
<td>Total Encounters</td>
<td>3097</td>
<td>4203</td>
<td>2332</td>
<td>9632</td>
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<tr>
<td>Overall Transfer Rate</td>
<td>21.55%</td>
<td>27.40%</td>
<td>33.71%</td>
<td>28.07%</td>
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<tr>
<td>Transfer Rate to AUMC</td>
<td>90%</td>
<td>67%</td>
<td>77%</td>
<td>76%</td>
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<tr>
<td>End of Life Care</td>
<td>7.68%</td>
<td>10.06%</td>
<td>0.85%</td>
<td>6.61%</td>
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</table>
“This is a phenomenal program and is the future for rural hospitals in the state of Georgia.” – Damien Scott, CEO, Emanuel Medical Center

“As one of Georgia’s 66 rural hospitals, we continue to work closely with other healthcare partners to ensure access to quality care is available and affordable for our community. Our partnership with AU Health and their telehealth platform has been extraordinary. The teamwork, collaboration, and dedication of the staff and physicians have ensured hundreds of patients in our region had immediate access to specialty care to ultimately improve their outcomes. I am excited about our expanded partnership with our Intensive Care Unit as patients in the region present with higher acuity illnesses, limiting the need for transport to receive state of the art care close to home.” Bill Lee, CEO, Evans Memorial Hospital

“At Candler County Hospital, our hospital was able to recognize a 35% increase in net revenue through our collaboration with AUMC by utilization of the acute care telemedicine program. We decreased our transfers by 50%, were able to justify more acute inpatient days and we are on track for a positive operating margin in FY22. We appreciate the team approach that Dr. Lyon and Lauren have established through this very meaningful program.” Michael Purvis, CEO, Candler County Hospital
Why Is this Important In Disaster Preparedness?

- **Increased Ability for Complex Care**
  - More equipment and supplies
  - Better trained staff

- **Increased Connectivity**
  - Disaster Coordination
  - Surge management
  - Better understanding of capabilities
  - Avenues for education and training

- LESS Transfers
- Increased Patient Volume
- Increased Revenue
- Increased Ability for Complex Care
- Increased Reputation
Questions, Comments, Discussion
Executive Committee

Alexander Isakov, MD, MPH – Emory University – SRDRS Principal Investigator
Senem Hinson, MPH – Emory University – SRDRS Program Director
Keith Wages – Emory University – SRDRS Associate Program Director
Curtis Harris, PhD – University of Georgia Institute for Disaster Management – SRDRS Executive Director
Richard Schwartz, MD – Augusta University Health System – SRDRS Medical Director
Ziad Kazzi, MD – Emory University – SRDRS Associate Medical Director
Kelly Nadeau, RN, MN, EMHP – Georgia DPH- Healthcare Preparedness Program Director
Lori Wood, MBA, MSEM, EMHP–Grady Health System–Emergency Management Executive Director
Where are the RDHRS Sites?

ASPR has awarded four demonstration sites to address health care preparedness challenges, establish promising practices for improving disaster readiness across the health care delivery system, demonstrate the potential effectiveness of an RDHRS, and make progress toward building a national system for readiness built on regional collaboration.

**Region VII Regional Disaster Health Response Ecosystem (RDHRE)**
- Nebraska Medicine/University of Nebraska Medical Center
- Awarded 2018

**Region 1 RDHRS**
- Massachusetts General Hospital
- Awarded 2018

**Mountain Plains RDHRS**
- Denver Health and Hospital Authority
- Awarded 2020

**Southern RDHRS**
- Emory Hospital
- Awarded 2021

- **Build** a partnership for disaster health response
- **Align** plans, policies, and procedures related to clinical excellence in disasters
- **Increase** statewide and regional medical surge capacity, coordinate regional medical response, expand specialty care
- **Improve** statewide and regional situational awareness
- **Develop** readiness metrics to integrate measures of preparedness
- **Test** capabilities through exercises
SRDRS Aims

Augment
Augment horizontal and vertical integration of key stakeholders
• Champion public-private partnerships
• Align preparedness and response plans, policies, and procedures

Improve
Improve bidirectional communication and situational awareness
• CBRNE response
• Health care organizations and government partners

Facilitate
Facilitate greater access to highly specialized clinical expertise and capabilities to improve medical surge capacity
SRDRS Select Initiatives

- Develop regional partnerships
- Develop a medical operations coordination cell (MOCC) capability
  - Track out-of-hospital patient movement
  - Improve visibility of health system capabilities and capacities by enhancing an existing health systems dashboard
  - Support patient destination decisions based on patient need and hospital capability and capacity
  - Improve access to highly specialized clinical expertise in CBRNE mass casualty management
- Expand telemedicine systems
  - Tele-Critical Care, Tele-Emergency Medicine, Tele-Observation Medicine, and Tele-EMS
  - Telephonic consultation services offered by the regional poison centers
- Develop and maintain a repository of resources for CBRNE mass casualty management
Medical Operations Coordination Cell (MOCC)

Housed at Georgia Coordinating Center (GCC)

• GCC will serve as the MOCC to:
  1. Monitor bed availability in and around their operational area to assure a common level of saturation.
  2. Provide policies that guide actions when a facility is considered overwhelmed compared to others, resulting in load-balancing.

• Partnership with ImageTrend (currently under development) will increase the capabilities and capacity of the GCC/MOCC by:
  1. Enabling SRDRS specialist connectivity with prehospital personnel to assist with out-of-hospital care.
  2. Providing triage to hospitals based on level of care needed in a CBRNE incident.

• Mobile app will launch in the next quarter
  1. Identifies EMS location and closest appropriate resources.
  2. Prefills trip report for those agencies using ImageTrend.
Collaborative Goals:

The goals of the SRDRS R4P3C are to increase the surge capacity and enhance the capability of Region IV poison control centers in providing technical and clinical consultation to medical providers, public health, emergency management, and the public during and after chemical or radiological disasters.
Building:

• Partnership with RITN, RITN Centers, Radiation Control Program Officers, and Poison Control Centers

• Roster of radiation expert volunteers through SRDRS
Biothreat SMEs in Region 4

Regional Treatment Centers

NETEC

Emory University Hospital / Children’s Healthcare of Atlanta

University of North Carolina at Chapel Hill

Southern Regional Disaster Response System
Building a Partnership for Disaster Health Response

Partners for collaboration include:

- Designated trauma centers
- Burn centers
- Pediatric specialty care centers
- Regional Emerging Special Pathogens Treatment Center (RESPTC)
- Radiological Injury Treatment Network Center (RITN)
- Georgia Poison Center
- National Disaster Life Support Education Consortium
- NETEC
- Health Care Coalitions (HCC)

Collaboration Leaders

- Emory University
- Augusta University Health System
- UGA Institute for Disaster Management
- Georgia DPH
THANK YOU

How can we work together?
Tell us by emailing us or visiting our website.

✉️ srdrs@emory.edu
🌐 www.srdrs4.org
Our Next Webinar

The NCTRC Webinar Series

Occurs 3rd Thursday of every month.

Telehealth Topic: Telehealth in Libraries
Hosting TRC: Southwest Telehealth Resource Center (SWTRC)
Date: November 16, 2023
Times: 11 AM – 12 PM (PT)

*Please check the NCTRC website for more information on the upcoming webinar.
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