Welcome

December 2015
EMS Medicine Live

• Vision
  – Community & Academic EMS Physician Education
    • Information Sharing
    • Board Preparation
  – Group involvement
    • Meet and see our peers
    • Involve your unique experiences and skills
EMS Medicine Live

• Zoom
  – During presentation
    • Everyone will be muted
    • Chat questions to EMS Medicine Live to be answered either during or at the end of the presentation
    • Raise hand virtually in chat window

Knowing changes everything.

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• Zoom
  – Recording

  – Previous Presentations
    Just google EMS Medicine Live
    First link is our web page
    Second link is Facebook page
EMS Medicine Live

• Zoom
  – Questions
    • Questions at the end
      – Unmute yourself to ask a question or
      – Message Knutsen if you have a question and I’ll ask for questions in order.
Today’s Speaker
Kevin Munjal, MD, MPH
- EMS and Disaster Preparedness Fellowship
  New York City Fire Department and
  Long Island Jewish Medical Center.
- Masters in Public Health at Mailman School of Public Health.
- Mount Sinai Medical Center
  - Assistant Professor at Emergency Medicine
  - Assistant Professor at Population Health Science and Policy
  - Associate Medical Director of Prehospital Care at Mount Sinai
    Medical Center in New York
- Founder of the New York Mobile Integrated Healthcare Association
- Supported by National Institute of Health Career Development Grant for his work in community paramedicine.
- Chair of NAEMSP’s Community Paramedicine and Mobile Integrated Healthcare Committee
Introduction to Mobile Integrated Healthcare & Community Paramedicine

EMS LIVE WEBINAR
December 22, 2015

By: Kevin G. Munjal, MD, MPH
Assistant Professor, Emergency Medicine
Assistant Professor, Health Evidence & Policy
Associate Medical Director of Prehospital Care
Mount Sinai Health System
&
Chair, NY Mobile Integrated Healthcare Association
Disclosures

- NIH - NHLBI K12 Career Development Award
- Program Funding for Transport PLUS
  - Center for Medicare & Medicaid Innovation through Geriatric Emergency Department Innovations in Care Through Workforce, Structural, and Informatics Enhancements (GEDIWISE). Grant # 1C1CMS331055
- Program Funding for Telemedicine Enhanced EMS
  - Center for Medicare & Medicaid Innovation through Mobile Acute Care Team (MACT). Grant # TBA
  - Klein Foundation
  - Samuels Foundation
- “Promoting Innovations in EMS” Cooperative Agreement
  - National Highway Traffic Safety Administration, Dept. of Health & Human Services, Dept. of Homeland Security
  - West Foundation
Current Disclosures

- The projects described were supported by Grant Numbers 1C1CMS331334 and 1C1CMS331055 the Department of Health and Human Services, Centers for Medicare & Medicaid Services.

- The contents are solely the responsibility of the authors and do not necessarily represent the official views of the U.S. Department of Health and Human Services or any of its agencies.
State of EMS today

- Emergencies only
- Emphasis on Transport
- Detached from rest of Healthcare system
One Size Fits All

“You call 911, you get an ambulance.”
“Ambulances take patients to the ER.”
EMS Reimbursement Policy

PAYMENT ≡ TRANSPORT
Downstream Costs

$0

$400 EMS + $900 ER
= $1300
Growth in Total Health Expenditure Per Capita, U.S. and Selected Countries, 1970-2008


“EMS of the future will be community-based health management that is fully integrated with the overall health care system.” It will:

- Identify illness and injury risks
- Provide follow-up
- Disease management and community health monitoring
- will be integrated with other healthcare providers and public health
Early Community Paramedicine Programs

- Alaska - Community Health Aides / Practitioners (1950’s to present)
- New Mexico - Red River Project (1990’s)
“Community Paramedics”

Solving the Paramedic Paradox
By Thomas D. Rowley

Rural areas farthest from a hospital have the greatest need for emergency medical services yet have the most trouble maintaining those services.

“It’s the rural

How well the various models work in solving the paradox will depend in large part on their ability to overcome the barriers McGinnis mentioned. Participants at a recent Capital Area Rural Health

wise, a typical rural hospital emergency room, which sees far fewer patients than an urban hospital, has a higher per-visit cost. Why? It takes a certain amount of money to buy, maintain, and operate an ambulance

- Credited to Kevin McGinnis, EMT-P, Program Manager, NASEMSO
Fee For Service Healthcare
Healthcare is Changing

![Diagram showing the transition from Volume-Driven Healthcare to Value-Driven Healthcare on a cost vs. quality graph.](diagram.png)
Healthcare Is Changing

Fee-for-Service Environment
- Individual Payments Reinforce
- Fragmented Care Delivery

Payer

Physician Services
Hospital Services
Post-Acute Services

Paying per Service

Bundled Payment Environment
- Lump Sum Payments Drive Integration
- through Shared Accountability

Payer

Physician Services
Hospital Services
Post-Acute Services

Paying per Episode

Source: Health Care Advisory Board Interviews and analysis.
Opportunity Through Collaboration

A Fragmented Delivery System
“Instead of measuring hospitals by the number of beds filled with patients being treated for illnesses, the hospital of tomorrow will be judged more by its ability to maintain a community’s health. When patients fall ill, we will be equipped and prepared to deliver high quality care. But a key objective of the hospital of the future will be to keep more patients out of the hospital, an optimal outcome for improved communal medical and fiscal health.”

-- Kenneth Davis, MD. CEO Mount Sinai Health System
EMS uniquely positioned to help with care in the community
What is Mobile Integrated Healthcare / Community Paramedicine?

“The provision of healthcare using patient-centered, mobile resources in the out-of-hospital environment.”

It should be performed in a coordinated manner with physicians, hospitals, and other providers and encompasses a myriad of potential expanded roles of EMT’s, Paramedics, and EMS systems to provide higher quality patient-centered care and helping to prevent emergencies before they begin.
What's in a name?

Community Paramedicine

Vs.

Mobile Integrated Healthcare
CP-MIH Spectrum

Community Paramedicine

Mobile Integrated Healthcare

Greater EMS Agency Control

Greater Hospital or Health Plan control
Three Aspects of Mobile Integrated Healthcare (aka Community Paramedicine)

- Patient-Centered Emergency Response
- Integration with Health Care Services
- Integration with Public Health
Patient Centered Emergency Response

[Diagram showing decision flow starting with 911, then asking if medical attention is needed. If yes, it goes to Triage with options: Treat at home, Minute clinic, Primary care physician, ED. If no, it goes to AMA.]
Patients that Call 911

Low Acuity Patients

Patients in Care Management
Acceptability of Alternatives to Traditional Emergency Care: Patient Characteristics, Alternate Transport Modes, and Alternate Destinations

Courtney Marie Cora Jones, PhD, MPH, Erin B. Wasserman, BA, Timmy Li, BA, EMT-B, Manish N. Shah, MD, MPH

Table 2. Acceptability of alternatives to traditional emergency care (N = 1,058)

<table>
<thead>
<tr>
<th>Alternative mode of transport</th>
<th>Acceptable</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport via taxi</td>
<td>333 (31.7)</td>
<td>28.7, 34.3</td>
</tr>
<tr>
<td>Transport via medical transport van</td>
<td>689 (65.1)</td>
<td>62.2, 68.0</td>
</tr>
<tr>
<td>Any alternative transportation method^a</td>
<td>721 (68.2)</td>
<td>65.3, 70.9</td>
</tr>
<tr>
<td>Delayed EMS response time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arrival within 30 minutes</td>
<td>577 (54.5)</td>
<td>51.5, 57.5</td>
</tr>
<tr>
<td>Arrival within 1 hour</td>
<td>167 (15.8)</td>
<td>13.7, 18.1</td>
</tr>
<tr>
<td>Arrival with 2 hours</td>
<td>59 (5.6)</td>
<td>4.4, 7.1</td>
</tr>
<tr>
<td>Alternative destination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport to an urgent care center</td>
<td>562 (53.1)</td>
<td>50.1, 56.1</td>
</tr>
<tr>
<td>Transport to PCP office</td>
<td>559 (52.8)</td>
<td>49.8, 55.8</td>
</tr>
<tr>
<td>Any alternative destination^a</td>
<td>730 (69.0)</td>
<td>66.2, 71.7</td>
</tr>
<tr>
<td>Other alternatives not involving transportation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No transportation, evaluation via telemedicine</td>
<td>332 (31.4)</td>
<td>28.7, 34.2</td>
</tr>
<tr>
<td>No transportation, provided PCP appointment within 24 hours</td>
<td>341 (32.2)</td>
<td>29.5, 35.2</td>
</tr>
</tbody>
</table>

\^a Any alternative transportation method = answered affirmatively to either transportation via taxi or medical transport van; any alternative destination = answered affirmatively to either transport to a urgent care center or transport to their PCP office. CI, confidence interval; PCP, primary care physician; UCC, urgent care center; EMS, emergency medical services.
Are Patients Comfortable with this “Patient Centered” model?

- 71% - “I want EMS to do an evaluation and then advise me whether I need to go to the hospital”

- 68% - “I would prefer being taken to a clinic or primary doctors office rather than to the emergency room if EMS determines that I do not need to go to the hospital”

- 63% - “I would prefer being treated and allowed to stay home rather than be transported to the hospital if EMS determines that I do not need to go to the hospital”

COST & PAYMENT

By Abby Alpert, Kristy G. Morganti, Gregg S. Margolis, Jeffrey Wasserman, and Arthur L. Kellermann

Giving EMS Flexibility In Transporting Low-Acuity Patients Could Generate Substantial Medicare Savings
Innovation Opportunities for Emergency Medical Services:

A Draft White Paper from the

National Highway Traffic Safety Administration (DOT)
Office of the Assistant Secretary for Preparedness and Response (HHS)
Health Resources and Services Administration (HHS)

Published for Comment on July 15, 2013
15.7% of all Medicare ED transports are treatable outside the ED (less emergent)

Data source:

<table>
<thead>
<tr>
<th>COSTS Per Patient (2011 dollars adjusted for inflation by medical CPI)</th>
<th>Less Emergent (32%)</th>
<th>More Emergent (45.1%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambulance</td>
<td>$336.13</td>
<td>$360.21</td>
</tr>
<tr>
<td>ED</td>
<td>$512.71</td>
<td>$735.52</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$848.84</td>
<td>$1,095.73</td>
</tr>
</tbody>
</table>

* Note: Row does not total 100% 19% of visits are for injury, mental health or drug/alcohol and 4% are not classified by the Billings algorithm.

Figure 1. Disposition and Cost of Medicare Patients Accessing the 911 EMS System
Figure 3: Theoretical Medicare Cost Savings: Preventable Transports

911 Call 1,116,894 preventable transports to ED

Savings: $155,707,608
(25% of actual Medicare ED costs for preventable transports ($622,830,432).

Savings: $275,650,036
(50% of actual Medicare ED costs for preventable transports ($622,830,432) minus cost of incentivized physician payment $35,765,180.)

Savings: $165,663,300
(25% of actual Medicare ED costs for preventable transports ($622,830,432) minus cost of urgent care visit)

Total Savings: $597,020,944

Note: Cost for ambulance fee constant throughout.

Calculations:
- a = 25% actual Medicare ED costs for less emergent patient using Billings algorithm (5% claims sample, 2005-2009)
- b = product of 50% actual Medicare ED costs (5% claims sample, 2005-2009) subtracted from Medicare Physician Office Costs (estimated using low-acuity office visit $70.46 in 2012 minus 20% copay, $56.37 paid by Medicare. 20% incentive added for unscheduled visit.
- C = Urgent care reimbursement is based on physician payment plus procedure code payment and is therefore variable. Published literature estimates an average difference of $2.96 between primary care and urgent care. Thus adding $2.96 to the average low acuity physician office cost, we estimate an average urgent care visit reimbursement of $59.33.
REMSA: Ambulance Transport Alternatives

Launched December 2012
Advanced assessment by EMS → **alternative pathways of care** including transport to:
- urgent care centers
- clinics/medical groups
- community triage center
- mental health hospital
- detoxification center

**Results:** Transported 550 patients to alternative destinations
Saved $2 million in charges (November 2014)
Barriers:
- operating hours of participating facilities
- facility consent to accept patients
- facility acceptance of a patient’s insurance
Wake County, NC

- Alternate destination for mental health and substance abuse patients
  - Excludes patients with:
    - ETOH level > 0.35
    - Injuries with active bleeding or requiring repair
    - No agitation or need for sedation

- 222 patients Redirected in a 12 month period. (32%)
- Reduced ED bed hours by 3,108
- Reduced EMS unit utilization by 120 hours
PARAMEDIC DETERMINATIONS OF MEDICAL NECESITY: A META-ANALYSIS

Lawrence H. Brown, EMT-P, MPH&TM, Michael W. Hubble, PhD, MBA, NREMTP, David C. Cone, MD, Michael G. Millin, MD, MPH, Brian Schwartz, MD, P. Daniel Patterson, PhD, MPH, EMT-B, Brad Greenberg, MD, MPA, Michael E. Richards, MD, MPA

![Graph showing negative predictive value for different studies](image)

**Figure 2.** Primary analysis. For complete reference citations, see the reference list: Pointer JE et al. 2001; Gratton MC et al. 2003; Haines CJ et al. 2006; Zachariah BS et al. 1992; and Hauswald M 2002.
Wake County, NC

- Falls in Assisted Living Facilities (IRB Approved Prospective Study)

- Evaluate safety and cost savings of a Decision Tree for Avoiding Transports for low risk falls

- Retrospective Review found protocol had 96% sensitivity and 97% specificity.
  - Would have avoided transport 70% of the time
  - Estimated cost-savings $2.5 million / yr in One County
Project ETHAN: A Houston Based Telemedicine Initiative

Project Emergency TeleHealth And Navigation

In 2014, the Houston Fire Department received 318,000 calls. 13% of the incidents were real fires. This program emerged as a result to counter ED overcrowding and overuse, unparalleled population growth, and low healthcare accessibility. Enables firefighters to use health care technology to connect patients with nonurgent conditions to a doctor.
Project ETHAN: A Houston Based Telemedicine Initiative

Expanded Role of Fire Fighters:
Connect patients to an ETHAN-affiliated physician at the base station via a Panasonic G1 TOUGHPAD
Transport patients to the ED upon MD referral
Schedule visit to a local clinic
Transport patient to PCP’s office or local clinic via ambulance or taxi voucher
Follow up call
Connects patients with resources as needed
Establishes a medical home

Timeline/Successes:
Established in December 2014
Infrastructure, connectivity, clinic follow-up
Hospice Revocation Avoidance Program
- Patients Pre-registered with EMS
- CP co-responds to call
- Alert sent to Hospice Nurse
- Some additional protocols to comfort patient
REMSA: Nurse Health Line/Nurse Navigators

Launched October 2013

1) Emergency calls through 9-1-1 with no-acuity condition that does not require transport by ambulance to an ED, are transferred to the Nurse Health Line

2) Nonemergency phone number

Registered nurses provide 24/7 medical guidance and triage patients to appropriate healthcare or community services:
  • protocol driven assessment and care guidance
  • recommended level of care
  • 24-hour phone follow-up

Results: 1,149 ED visits and 190 ambulance transports have been avoided
Estimated savings of $4.3 million (November 2014)
Integration with Healthcare Delivery Systems (ACO’s)
Targeted Interventions based on EMS Utilization Patterns

- Homeless Shelters
- Low-Income Housing
- Senior Centers / Assisted Living Facilities
- Mental Health Clinics
Care Transitions

EMS is in the Care Transitions business
Where can EMS add value?

76%
Patients 50 or older left a physicians office or hospital confused about what to do next\(^1\)

40%
Patients Over 60 fall during the 6 months following a hospitalization\(^2\)

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### The Discharge Comprehension Assessment

<table>
<thead>
<tr>
<th>Discharge Comprehension</th>
<th>Patient or Caregiver Refused</th>
<th>Reason:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Partially Aware, Information NOT Found**
- **Partially Aware, Plan Reinforced**
- **Aware of Plan**

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>How were you instructed to treat your condition at home?</td>
<td>✔</td>
</tr>
<tr>
<td>Which symptoms would be a reason for you to seek care?</td>
<td>✔</td>
</tr>
<tr>
<td>How will all of your prescriptions get filled?</td>
<td>✔</td>
</tr>
<tr>
<td>Tell me about changes to your medications, including names and dosages?</td>
<td>✔</td>
</tr>
<tr>
<td>Tell me about your follow up doctor visit, how are you getting there?</td>
<td>✔</td>
</tr>
<tr>
<td>Do you know who to call if you have questions regarding your discharge plan?</td>
<td></td>
</tr>
<tr>
<td>Did someone already go over these instructions with you?</td>
<td>Yes (✔) No ( )</td>
</tr>
<tr>
<td>Was it helpful for us to go through these instructions with you?</td>
<td>Yes (✔) No ( )</td>
</tr>
</tbody>
</table>
# The Home Fall Risk Assessment

## Not Performed (indicate reason above):

<table>
<thead>
<tr>
<th></th>
<th>Kitchen</th>
<th>Living Room</th>
<th>Bathroom</th>
<th>Bedroom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clutter</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Throw rugs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carpet frayed, torn or folded</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wires or cords as fall hazard</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor Lighting poses fall hazard</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nightlights</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presence of Low Toilet</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presence of Grab-Bars</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presence of Non-Slip Bath-Mat</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High reach for supplies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walkway fall hazard</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Discharge Comprehension Assessments (n=406)

- Deficiency Identified: 89 (21.9%)
- Plan Reinforced: 74 (18.2%)
- Unable to Reinforce:
  (Incomplete D/C Info): 15 (3.7%)*

- DCA Was Helpful: 340 (83.7%)

*Research team calls back hospital staff to attempt to resolve gap in care plan.
Home Fall Hazard Assessments (n=320)

Mean # of Unique Hazards: 2.54

<table>
<thead>
<tr>
<th>Hazards</th>
<th># Patients with Hazard</th>
<th>% Patients with Hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nightlights Absent</td>
<td>264</td>
<td>82.50%</td>
</tr>
<tr>
<td>Low Toilet</td>
<td>152</td>
<td>47.50%</td>
</tr>
<tr>
<td>Grab-bars Absent</td>
<td>115</td>
<td>35.94%</td>
</tr>
<tr>
<td>Non-slip Bathmat Absent</td>
<td>115</td>
<td>35.94%</td>
</tr>
<tr>
<td>Throw Rugs</td>
<td>86</td>
<td>26.88%</td>
</tr>
<tr>
<td>Clutter</td>
<td>82</td>
<td>25.63%</td>
</tr>
<tr>
<td>Poor Lighting</td>
<td>70</td>
<td>21.88%</td>
</tr>
<tr>
<td>Walkway Fall Hazard</td>
<td>68</td>
<td>21.25%</td>
</tr>
<tr>
<td>Wires or cords</td>
<td>50</td>
<td>15.63%</td>
</tr>
<tr>
<td>High Reach for Supplies</td>
<td>37</td>
<td>11.56%</td>
</tr>
<tr>
<td>Carpet Frayed, torn or folded</td>
<td>33</td>
<td>10.31%</td>
</tr>
</tbody>
</table>

1 Month Follow Up:

- 90.5% (180/199) found Transport PLUS Falls Hazard Assessment Helpful or Very Helpful
- 45.7% (118/258) reported making a change to the home environment (i.e. removing a hazard) based on EMS recommendations.*
Fall Hazard Assessment - 1 Month F/U

- 90.5% (180/199) found Transport PLUS Falls Hazard Assessment Helpful or Very Helpful

- 45.7% (118/258) reported making a change to the home environment (i.e. removing a hazard) based on EMS recommendations.*
3. CHF Program

- Reduce Readmissions (30d Program)
- Check VS, Weight, Med compliance, edema
- In consultation w/ PMD or Cards, do point of care testing, diuresis.
- Protocol driven process

![MedStar Emergency Medical Services Logo]

**Readmit Program Analysis**

*Patient Enrollments (1, 3) 7*

<table>
<thead>
<tr>
<th></th>
<th>October 2013 - October 2015</th>
<th>NTSP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>30 Day ED Visits</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Rate</td>
<td>28.6%</td>
<td>28.6%</td>
</tr>
<tr>
<td>Rate Reduction (2)</td>
<td>71.4%</td>
<td>71.4%</td>
</tr>
<tr>
<td><strong>30 Day Admissions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expenditure per Occurrence (4)</td>
<td>$969.00</td>
<td>$10,500.00</td>
</tr>
<tr>
<td>Occurrences Avoided</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Expenditure Savings</td>
<td>$4,845.00</td>
<td>$52,500</td>
</tr>
<tr>
<td>Expenditure Savings Per Patient</td>
<td>$692.14</td>
<td>$7,500</td>
</tr>
</tbody>
</table>
Western Pennsylvania

- Safe Landing Program
  - 1-2 home visits after discharge
    - Medication Reconciliation
    - Personal Medical Record
    - Symptom Response Plan
    - PCP follow-up appointment
- Of 134 patients,
  - Reduced readmissions by 16
  - 81 fewer days in hospital
  - $1.2 million in hospital charges
Integration with the Public Health Infrastructure
Public Health Opportunities
Western Pennsylvania

- Immunization despite legislative prohibition
  - Workaround - Medical Practice Act allowed delegation of practice to technicians
  - Board of Medicine authorized EMT’s as technicians under this Act.
Three Potential Settings of Innovative Models of EMS Care

- Within 911 Response
- Urgent non-911 Response
- Scheduled / Non-emergent Care
Clinical & Technological Integration of EMS

Telemedicine Enhanced EMS

- Consulting Physicians
- Primary Physician
- Medical Home Care Team
- Hospice Care

Health System Command Center

EMS Evaluation At Home
On-Scene Decision Support for Primary Care

Urgent Evaluation by EMS Coordinated with the PMD
Unscheduled Care Needs!!
We like to think it’s easy

**Minor illness or injury**
- Colds, cough, sore throat or flu
- Fever
- Minor cuts
- Sprain
- Skin rashes

**Major emergency**
- Major injury (a head injury)
- Severe shortness of breath
- Loss of consciousness
- Bleeding that doesn’t stop after 10 min of direct pressure

**Life threatening**

**CLINIC**

**URGENT CARE**

**Emergency**

**DIAL 911**
But In Reality ....
The New Acute Complaint
Choices?
Clinical & Technological Integration of EMS

Telemedicine Enhanced EMS

Consulting Physicians
Primary Physician
Medical Home Care Team
Hospice Care

Health System Command Center

EMS Evaluation At Home
Telemedicine Physician
Scheduled Care / Non-Emergency Care
1. Community Paramedic Program (APP)
   - (Frequent Fliers)
   - Help navigate the health system
   - System Abuser Program - with OLMC, triaged to more appropriate care setting.

Estimated savings of $13.5 million reduction in ED and EMS charges over a 2 year period

Reduced ED bed use by >14,000 hrs; reduced 911 use by 58% in 12 months after enrollment
REMSA: Community Health Paramedics

Launched June 2013

**Aim:** Reduce costly readmissions and post discharge complications through:
- community health surveillance education
- home safety and injury prevention

Specially trained community paramedics provide in-home services to improve the transition from hospital to home, including:
- medical care plan adherence
- medication reconciliation
- medical lab tests
- personal health literacy

Physicians can contact the community paramedics for after-hours visits to prevent 9-1-1 calls.

Emphasis on frequent 9-1-1 users.

**Results:** Hospital readmission reduced from 18% to 13% (November 2014)
Enrolled 444 patients; over 2,020 in-home visits
- Certification Approved by EMS Regulatory Board
- Able to bill for the services provided

- Dedicated providers
- Housed within PMD offices.
- Asked to do home visits for high risk medical recall patients
- Some programs focused on NH and assisted living facilities in rural parts of the state
Mesa, AZ Fire and Medical Department

**Funding Awarded**: $12,515,727  
**Year Awarded**: 2014

**Main Idea**:  
- Implementation of a new type of delivery system which addresses the following:  
  - Impact of chronic diseases, falls prevention, self-management skills, medication adherence  
  - The Community Care Response Initiative  
    - Four 24 hour operating units; Physician extender unit

**Goals**:  
- Improve delivery of Healthcare services  
  - Lower costs of medical services to those enrolled in Medicare, Medicaid and the Children’s Health Insurance Program (CHIP)  
  - reduce high-risk patient returns post discharge  
    - provide more appropriate healthcare services

Southern Washington and Northeastern Rensselaer County MIH Initiative

Collaboration between 4 EMS agencies
  The Cambridge Valley Rescue Squad
  Easton-Greenwich Rescue Squad
  Salem Rescue Squad
  Town of Hoosick Rescue Squad

Funding
  5 year grant from the Mary McClellan Foundation $93,000+

Programs
  Newborn Safety Kit
    home safety education, care seat safety inspection, CPR classes
    for new families
    fee-for service
  Concussion Awareness for Youth Sports
  Fall Prevention Workshop
    collaborated with County Sheriff Department and Visiting Nurses
  Elder Check Program
    medication reconciliation, vitals, physical exams, etc and findings
    reported to PCP
Preventing the ER Visit

- Chronic Disease
- Uncontrolled Disease
- Acute Exacerbation
- Self Triage

PCMH, Population Health
Disease Management
Improved Access
Symptom Mgmt Plan, Nurse Advice Lines
Patient Centered Out-of-Hospital Care

CP Preventative Visit
MIH Urgent Response
ER Visit
NAEMT/JNEMSLF
MIH/CP Survey

Matt Zavadsky, MS-HSA, EMT
Director-At-Large
National Association of EMTs
Survey results at-a-glance

• **3,781** total responses were received
  – Total responses were evenly dispersed across all types of EMS delivery models.

• **232** unique MIH/CP programs were reported
  – (6% of responses).

• **566** respondents (15%) indicated that their EMS agencies were in the process of developing a MIH/CP program.
MIH/CP program models

Frequent EMS User: 66%
Readmission avoidance: 46%
Primary care/physician extender model: 28%
See and refer to alternate destination after assessment: 24%
911 Nurse Triage: 8%
Participants in initial MIH/CP program assessment

- Medical Director: 77%
- Hospital: 77%
- Other EMS services: 44%
- Public health: 41%
- Home health: 21%
- Other: 7%
Who participates in providing patient care

- Paramedics: 94%
- EMTs: 54%
- AEMTs: 25%
- Nurses: 24%
- Physicians: 21%
- Nurse Practitioners: 12%
- Physician Assistants: 12%
MIH/CP practitioners

• Are practitioners paid a higher rate than traditional roles?
  
  YES: 37%
  NO: 63%

• Do practitioners have an advanced scope of practice?
  
  YES: 11%
  NO: 89%
Are agencies that provide CP-MIH services required to have medical directors specifically for that activity?

Answered: 46  Skipped: 3

<table>
<thead>
<tr>
<th>Answer Choices</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>52.17%</td>
</tr>
<tr>
<td>No</td>
<td>47.83%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
</tr>
</tbody>
</table>
### Is online medical direction commonly available for CP-MIH activities?

- **Answered:** 42
- **Skipped:** 7

#### Answer Choices

<table>
<thead>
<tr>
<th>Answer Choices</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes (If yes, explain who provides this medical direction in the box below.)</td>
<td>61.90% (26)</td>
</tr>
<tr>
<td>No</td>
<td>38.10% (16)</td>
</tr>
</tbody>
</table>

**Total**

42
Show me the data

- Community Paramedicine visit reduced likelihood of an ER visit within next 4 weeks by 28%.
- Increased patient satisfaction by 16%
- No adverse effect on mortality

- 40% reduction in falls among patients not transported and referred by EMS to community falls prevention group.

- Increased costs in the prehospital system, but lowered costs / QALY by £684.
**Expanding Paramedic Scope of Practice in the Community: A Systematic Review of the Literature**

Blair L. Bigham, MSc, ACPh, Siobhan M. Kennedy, MA, ACPh, Ian Drennan, BSc, PCPh, Laurie J. Morrison, MD, MSc

### Table 1. Summary of the 11 Included Articles

<table>
<thead>
<tr>
<th>Citation</th>
<th>Method</th>
<th>N</th>
<th>Population</th>
<th>Intervention</th>
<th>Control</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooper et al. (2008)</td>
<td>Constructivist methodology</td>
<td>4 ECPs</td>
<td>11 standard paramedics</td>
<td>Qualitative reports on the ECP experience</td>
<td>ECP training</td>
<td>Standard paramedics</td>
</tr>
<tr>
<td>Snooks et al. (2008)</td>
<td>Prospective cohort study</td>
<td>797</td>
<td>1:251 C: 537</td>
<td>9-9-9 calls that met 24 a priori illness codes during a 4-month period</td>
<td>Response by paramedics trained in triage and resuscitation protocols</td>
<td>Standard paramedic response</td>
</tr>
<tr>
<td>Mason et al. (2007)</td>
<td>Cluster RCT (week) Qualitative survey</td>
<td>3,015</td>
<td>1,254 C: 1,469</td>
<td>All 9-9-9 patients &gt;60 years of age who called EMS between 0600 and 2000 and had a problem within the scope of practice of a PP during a 56-week period</td>
<td>Paramedic practitioner</td>
<td>Standard paramedic care</td>
</tr>
<tr>
<td>Cooper et al. (2008)</td>
<td>Prospective cohort study</td>
<td>25 ECPs</td>
<td>25/63 extended care practitioners responded to the survey by completing 611 patient care reports</td>
<td>ECP training</td>
<td>Standard paramedic</td>
<td>Favorable towards community paramedicine</td>
</tr>
<tr>
<td>Gray and Walker (2008)</td>
<td>Prospective cohort study</td>
<td>3,955</td>
<td>All ECP-identified calls to 9-9-9 during a 12-month period</td>
<td>N/A</td>
<td>Calls where an ECP, or rarely a dispatcher, took control</td>
<td>Favorable towards community paramedicine</td>
</tr>
<tr>
<td>Mason et al. (2008)</td>
<td>Cluster RCT</td>
<td>2,025</td>
<td>All 9-9-9 patients &gt;60 years of age who called EMS between 0600 and 2000 and had a problem within the scope of practice of a PP during a 56-week period</td>
<td>Paramedic practitioner</td>
<td>Standard paramedic care</td>
<td>Favorable towards community paramedicine</td>
</tr>
<tr>
<td>Reeve et al. (2008)</td>
<td>Qualitative survey tool</td>
<td>16/20</td>
<td>Graduates of a one-year extended paramedic program</td>
<td>N/A</td>
<td>N/A</td>
<td>Favorable towards community paramedicine</td>
</tr>
<tr>
<td>Dixon et al. (2009)</td>
<td>Economic analysis as part of a cluster RCT</td>
<td>3,015</td>
<td>All 9-9-9 calls that were part of a larger RCT (Mason)</td>
<td>Paramedic practitioner</td>
<td>Standard care paramedic</td>
<td>Favorable towards community paramedicine</td>
</tr>
<tr>
<td>Martin-Mesener et al. (2009)</td>
<td>Longitudinal mixed methods</td>
<td>n = 86 (year 1); n = 85 (year 2); n = 59 (year 3)</td>
<td>Adult English-speaking permanent residents of the geographic area, age 40 years or more, or with a diagnosis of at least one chronic illness</td>
<td>A nurse practitioner–paramedic model of health care delivery</td>
<td>Previous emergency paramedic care</td>
<td>Favorable towards community paramedicine</td>
</tr>
<tr>
<td>Shah et al. (2010)</td>
<td>Patient screening questionnaire</td>
<td>9-1-1 calls n = 1,444</td>
<td>EMS screened n = 1,231 In-home assessment n = 158</td>
<td>Paramedic referred to PCP or social services</td>
<td>None</td>
<td>Favorable towards community paramedicine</td>
</tr>
<tr>
<td>O’Keeffe et al. (2011)</td>
<td>Quasi-experimental, non-RCT</td>
<td>Pediatric patients &lt;16 years of age</td>
<td>ECPs</td>
<td>Other health care providers (GP, NIC)</td>
<td>No significant difference between intervention and control</td>
<td></td>
</tr>
</tbody>
</table>

C = control; ECP = extended care practitioner; EMS = emergency medical services; GP = general practitioner; I = intervention; NPh = nurse practitioner; PP = paramedic practitioner; RCT = randomized controlled trial.
For community paramedicine services to gain widespread acceptance and qualify for reimbursement, evidence of impact is needed.

What are the top priority research questions about community paramedicine that will demonstrate its impact on healthcare processes and outcomes in terms of...
...effectiveness (does it produce the desired effect)?
...value (does it reduce costs with comparable or better outcomes)?
...safety (does it reduce patients’ risks)?
...access (does it connect patients to needed care)?

- Program Development
- Technology
- Education and Competencies
- Workforce Supply
- Patient Satisfaction
- Medical Oversight

- Integration with other Services
- System Impacts and Value
- Patient Safety
- Health Outcomes
- Metrics & Methodology
Considerations
Can We Do That?

Expanding the Roles of Emergency Medical Services Providers: A Legal Analysis

astho™
NASEMSO Survey

Have you interpreted your EMS enabling statute as allowing community paramedicine (within your scope of EMS practice for those individuals) to be provided in the State?

Answered: 49  Skipped: 0

<table>
<thead>
<tr>
<th>Answer Choices</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>51.02%</td>
</tr>
<tr>
<td>No</td>
<td>28.57%</td>
</tr>
<tr>
<td>No Interpretation</td>
<td>20.41%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
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</tbody>
</table>
ACEP Position Statement on CP/MIH Medical Control

“Assurances that if a person calls 911 (or similar emergency number) for a patient’s apparent emergency medical condition or medical emergency and requests an ambulance, the patient has a right to a medical screening examination and stabilizing treatment by a qualified medical person in accordance with EMTALA. For the purposes of an EMTALA-mandated medical screening examination, paramedics and community paramedics are not believed to be qualified medical persons.”
## Dedicated Provider vs. Systems Approach

<table>
<thead>
<tr>
<th></th>
<th>Dedicated Model</th>
<th>Systems Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td># of CP Providers</td>
<td>Few</td>
<td>Many</td>
</tr>
<tr>
<td>Extra Training</td>
<td>Extensive</td>
<td>Minimal</td>
</tr>
<tr>
<td>Available for Traditional EMS</td>
<td>No (maybe)</td>
<td>Yes</td>
</tr>
<tr>
<td>Autonomy</td>
<td>More</td>
<td>Less</td>
</tr>
<tr>
<td>Scope</td>
<td>Broad</td>
<td>Narrow (protocol specific)</td>
</tr>
</tbody>
</table>
Education

• What certification is needed for innovative programs
  • Advanced Paramedic (Community Paramedic)
    • Additional Training?
      • One Size fits all vs. Protocol specific?
Medical Director Role in CP/MIH

- To assure the success of a CP Program an engaged and accessible Medical Director should:
  - Be an advocate for the program and liaise with other specialties and community groups
  - Have an interest / background in Primary Care, Community Health or Public Health
  - Assist in program development and implementation
  - Develop Protocols / Guidelines to direct the care of patients and to address the “What if” questions.
  - Design policies and procedures to involve other specialists into the oversight of a MIH/CP program
  - Select an appropriate curriculum for providers entering your program
  - Collect data / Perform CQI / Provide CME
<table>
<thead>
<tr>
<th>Domain</th>
<th>Name</th>
<th>Description</th>
<th>Value 1</th>
<th>Value 2</th>
<th>Source of Data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rate of Hotline Use</td>
<td>How often do MACT patients or staff utilize MACT hotline</td>
<td># of Calls to Hotline</td>
<td># of Calls to Hotline</td>
<td>EPIC Log / MACT Program Log</td>
</tr>
<tr>
<td></td>
<td>Rate of New Urgent Medical Complaints</td>
<td>How often do patients experience urgent medical complaints while in MACT</td>
<td># of Calls to Hotline for Urgent Medical</td>
<td># of Calls to Hotline for Urgent Medical</td>
<td>EPIC Log / MACT Program Log</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Complaint</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rate of 911 Use</td>
<td>How often was 911 activated by patients or caregivers?</td>
<td># of 911 Calls</td>
<td># of 911 Calls</td>
<td>MACT Log / EPIC Log</td>
</tr>
<tr>
<td></td>
<td>Rate of CP Dispatches</td>
<td>How often do enrolled patients receive an urgent CP visit?</td>
<td># of MACT CP Dispatches</td>
<td># of MACT CP Dispatches</td>
<td>EPIC Log / MACT Program Log</td>
</tr>
<tr>
<td></td>
<td>Rate of RN Dispatches</td>
<td>How often do enrolled patients receive an urgent RN visit?</td>
<td># of urgent RN Dispatches (unscheduled)</td>
<td># of urgent RN Dispatches (unscheduled)</td>
<td>EPIC Log / MACT Program Log</td>
</tr>
<tr>
<td></td>
<td>Rate of Physician Managed Complaints</td>
<td>How often do physicians handle urgent complaints via telephone?</td>
<td># of calls to hotline for urgent medical</td>
<td># of calls to hotline for urgent medical</td>
<td>EPIC Log / MACT Program Log</td>
</tr>
<tr>
<td></td>
<td></td>
<td>complaint that do not result in a dispatch</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rate of CP dispatches per Urgent Complaint</td>
<td>How often do physicians dispatch a CP visit?</td>
<td># of MACT CP dispatches</td>
<td># of MACT CP dispatches</td>
<td>EPIC Log / MACT Program Log</td>
</tr>
<tr>
<td></td>
<td>Rate of RN dispatches for Urgent Complaint</td>
<td>How often do physicians dispatch an RN for an urgent complaint?</td>
<td># of RN dispatches</td>
<td># of RN dispatches</td>
<td>EPIC Log / MACT Program Log</td>
</tr>
<tr>
<td></td>
<td>Telemedicine</td>
<td>How often was Telemedicine successfully activated</td>
<td># of Telemedicine Activations</td>
<td># of CP dispatches</td>
<td>EPIC notes, CP notes</td>
</tr>
<tr>
<td>Standing Order Medications</td>
<td>How often were standing order medications administered</td>
<td># of CP visits where standing order medications were administered</td>
<td># of CP dispatches</td>
<td>CP notes</td>
<td></td>
</tr>
<tr>
<td>---------------------------</td>
<td>-------------------------------------------------------</td>
<td>----------------------------------------------------------------</td>
<td>-------------------</td>
<td>---------</td>
<td></td>
</tr>
<tr>
<td>OLMC Medications</td>
<td>How often did the physician order medications as Medical Control Option or as Discretionary Orders</td>
<td># of CP visits where physician used OLMC authority to order medications</td>
<td># of CP dispatches</td>
<td>CP notes</td>
<td></td>
</tr>
<tr>
<td>Diagnostics</td>
<td>How often were EMS diagnostics (e.g. Finger Stick, EKG) performed?</td>
<td># of CP visits where EMS diagnostic was performed</td>
<td># of CP dispatches</td>
<td>CP notes</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operations</th>
<th>Time of CP making patient contact</th>
<th>Time of CP request</th>
<th>TransCare Log</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response Time</td>
<td>Time of CP making patient contact</td>
<td>Time of CP request</td>
<td>TransCare Log</td>
</tr>
<tr>
<td>Time on Scene</td>
<td>Time of CP clearing scene</td>
<td>Time of CP making patient contact</td>
<td>TransCare Log</td>
</tr>
<tr>
<td>Total Task Time</td>
<td>Time of CP clearing scene</td>
<td>Time of CP request</td>
<td>TransCare Log</td>
</tr>
</tbody>
</table>

| Epidemiology              | Chief Complaint                   |  | 
|---------------------------|-----------------------------------|  | 
| Chief Complaints          | What types of urgent medical complaints were experienced by MACT patients. | Chief Complaint | Epic Log / VNS records / CP records |
| Time                      | Time of Day and Day of Week of urgent medical complaints | Time of Day | Day of Week | Epic Log / VNS records / CP records |
| Medications               | Which Medications were commonly used? | Medication | CP records, EPIC notes |
| Diagnostics               | Which EMS diagnostics were commonly used? | Diagnostic Test | CP records, EPIC notes |
| Transports                | How often were patients transported to the ED? | # of Transports | # of CP dispatches | CP records, EPIC notes |
| Non-Transports            | How often were patients not-transported? | # of RMA signings | # of CP dispatches | CP records, EPIC notes |
| Alternative Interventions | What Other Care Interventions were Initiated? | 0 – none | 1 – Urgent RN visit | Epic Log / VNS records | 2 – Urgent MD visit | 9 – Other |
Community Paramedicine Evaluation Tool - HRSA (2012)
Are Patients Comfortable with EMS Sending & Receiving Data?

- 91% - “When treated by EMS, the EMS professionals should have access to my medical history in order to treat me correctly”

- 91% - “I would feel comfortable with EMS sending information about my care electronically to my doctor of hospital’s health records.”

Culture

- Fragmentation
  - Home Rule vs Regional Coordination
  - Identity Politics (Fire vs. Hospital vs. Commercial, etc.)
- Not enough Management Training
- Resistance to change

- Not enough Medical Director involvement
- Not outcome driven
  - Emotional arguments, without data
- Lacking Just Culture
  - Overly punitive
- Lack of entrepreneurial spirit
Where to get more information?

- NAEMT Resource Center
- Community Paramedicine Insights Forum
- NYMIHA.org or nycommunityparamedicine.org
Seeking to Provide Higher Quality Patient-Centered Out-of-Hospital Care and Helping to Prevent Emergencies Before They Begin.
PLUG NAEMSP MIH Preconference
Wed, Jan 13th 2016
8a-12p

Questions: email kevin.munjal@nycommunityparamedicine.org
EMS Medicine Live

Questions?
# EMS Medicine Live

## 2016 EML Schedule

<table>
<thead>
<tr>
<th>Month</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>Open</td>
</tr>
<tr>
<td>February</td>
<td>Open</td>
</tr>
<tr>
<td>March</td>
<td>Christian Martin-Gill, UPMC, Regionalization of EMS Care</td>
</tr>
<tr>
<td>April</td>
<td>Dan O'Donnell, IU, Pediatric Mass Casualty Case</td>
</tr>
<tr>
<td>May</td>
<td>Darren Braude, U NM, Extraglottic Airway or</td>
</tr>
<tr>
<td></td>
<td>Medication assistant airway management</td>
</tr>
<tr>
<td>June</td>
<td>Mary Mercer, UCSF-SFHG, Mass Gathering Medicine</td>
</tr>
<tr>
<td>July</td>
<td>Open</td>
</tr>
<tr>
<td>August</td>
<td>Cray Cooley, UT San Antonio, Board Review Topic</td>
</tr>
<tr>
<td>September</td>
<td>Jeff Lubin, Penn State, Prehospital Hemostasis</td>
</tr>
<tr>
<td>November</td>
<td>Chad Nesbit, Penn State, Mechanical CPR Devices</td>
</tr>
<tr>
<td>December</td>
<td>Open</td>
</tr>
</tbody>
</table>

*Last Tuesday of the month at 1 PM Eastern with flexibility*