COMMUNITY PARAMEDICINE

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No Disclosures

No Conflicts of Interest
Objectives

1. Discuss the evolution of EMS in the healthcare system
2. Define community paramedicine
3. Review and synthesize community paramedicine literature
4. Discuss applicability to cardiovascular patients

Take Home Point

Community paramedicine may be a method for adapting emergency medical services to the rapidly evolving healthcare arena
Traditional EMS Systems

- **911 Activation**
- **EMS Response**
- **Treatment/Transport**

How Is EMS Changing?
“How to Pay for Healthcare”
Bundled Payments

“How to Pay for Healthcare”
Bundled Payments

“The Case for Capitation”
Population-Based Payments

SYSTEMATIC REVIEW

Areas of Potential Impact of the Patient Protection and Affordable Care Act on EMS: A Synthesis of the Literature

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Table 1. Sections in the Patient Protection and Affordable Care Act identified via systematic search that relate to EMS.

<table>
<thead>
<tr>
<th>Section</th>
<th>Provision</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>1281</td>
<td>Grants to states for trauma service availability</td>
<td>Sub-section 4 awards funding for enhanced collaboration between trauma centers and EMS services</td>
</tr>
<tr>
<td>1302</td>
<td>Inclusion of emergency services as Essential Health Benefits for exchange-based health plans</td>
<td>Emergency department services are declared core elements of health insurance and insurance coverage is essential</td>
</tr>
<tr>
<td>3021</td>
<td>Establishment of the Center for Medicare and Medicaid Innovation (CMMI)</td>
<td>Test innovative payment and service delivery models that decrease cost and improve quality</td>
</tr>
<tr>
<td>3024</td>
<td>Independence at home demonstration program</td>
<td>Testing of payment incentives and delivery models for home-based care to reduce emergency department visits, improve outcomes, and prevent readmissions and hospitalizations</td>
</tr>
<tr>
<td>3101</td>
<td>Increase in physician payment update</td>
<td>Continued yearly update of the ambulance fee schedule Extension through January 1, 2011, of the rural bonus for ground ambulance transport</td>
</tr>
<tr>
<td>3105</td>
<td>Ambulance Fee Schedule add on payment extension</td>
<td>The Consumer Price Index (CPI) is adjusted downward by the Multifactor Productivity score (MP) to calculate the new Ambulance Inflation Factor (AIF)</td>
</tr>
<tr>
<td>3401</td>
<td>Revision of market-based productivity increases for the ambulance fee schedule</td>
<td>Grant awards for trauma systems, EMS systems and comprehensive care systems</td>
</tr>
<tr>
<td>3304/1204</td>
<td>Design and Implementation of regionalized systems for emergency care</td>
<td>Authorized funding of EMS activities per congressional appropriation</td>
</tr>
<tr>
<td>5603</td>
<td>Reauthorization of the Waverley Emergency Medical Services for Children Program (EMSC)</td>
<td>Establishment of grants for surveillance and threat detection for biologic events</td>
</tr>
<tr>
<td>4304</td>
<td>Epidemiology-Laboratory Capacity (ELC) grants from the Centers for Disease Control and Prevention, Division of Vector-borne Diseases</td>
<td>Support for NIH-funded emergency medicine research</td>
</tr>
<tr>
<td>4900</td>
<td>Support for emergency medicine research</td>
<td>Recognition of the EMS providers as part of the healthcare workforce</td>
</tr>
<tr>
<td>5101</td>
<td>National health care workforce commission</td>
<td>Establishment of the Ready Reserve Corps for emergency service</td>
</tr>
<tr>
<td>5210</td>
<td>Ready Reserve Corps</td>
<td></td>
</tr>
</tbody>
</table>

EMS, emergency medical services. NIH, National Institutes of Health.

Table 2. Diagnoses tracked for the Hospital Readmission Reduction Program (HRRP).

<table>
<thead>
<tr>
<th>Year in effect</th>
<th>Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013-2014</td>
<td>Myocardial infarction</td>
</tr>
<tr>
<td></td>
<td>Congestive heart failure</td>
</tr>
<tr>
<td></td>
<td>Pneumonia</td>
</tr>
<tr>
<td>2015</td>
<td>Elective hip arthroplasty</td>
</tr>
<tr>
<td></td>
<td>Elective total knee arthroplasty</td>
</tr>
<tr>
<td></td>
<td>Chronic obstructive pulmonary disease</td>
</tr>
<tr>
<td>2016</td>
<td>Stroke</td>
</tr>
<tr>
<td>2017</td>
<td>Coronary artery bypass graft</td>
</tr>
</tbody>
</table>
WHAT IS COMMUNITY PARAMEDICINE?
Community Paramedicine and Mobile Integrated Healthcare

**Definition:** community-based healthcare delivery utilizing EMS personnel and systems

<table>
<thead>
<tr>
<th>EMS Today (1996)</th>
<th>EMS Tomorrow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isolated from other health services</td>
<td>Integrated with the healthcare system</td>
</tr>
<tr>
<td>Reacts to acute illness and injury</td>
<td>Acts to promote community health</td>
</tr>
<tr>
<td>Financed for service to individuals</td>
<td>Funded for service to the community</td>
</tr>
</tbody>
</table>
Community Paramedicine

History of Community Paramedicine

- Rural Healthcare Access
- 1996 EMS Agenda for the Future
- 2012 NAEMSO Formal Definition
- 2014 NAEMSP Consensus Panel

**Describe Existing Community Paramedicine Programs**

11 Articles

**Conclusions**

1. RCT: safe, system performance, patient outcomes
2. Others: favorable conclusions regarding CP

**Benefits**
1. Community Health Deficiencies
2. Manpower and Mobility
3. Community Trust

**Challenges**
1. Implementation
2. Traditional EMS Structure
3. Efficacy, Cost and Safety?


**Critical Issues**
1. Workforce
2. Integration and Coordination
3. Reimbursement and Regulations
4. Policies
5. Effect on Patient and Population Health

“In light of growing concerns about the high cost of emergency care and heavy use of EDs, assessing EMS transport options should be a high-priority topic for outcomes research.”


Proponents of Community Paramedicine:
1. Potential favorable impacts on access, quality and costs
2. EMS providers are trained to function in out-of-hospital setting
3. Facilitate more appropriate ED use
4. Enhance access to primary care

“These claims require close scrutiny, however, as the effect of CP on ED utilization, cost savings, and enhanced primary care access is still being assessed, and to date, limited data exist to support these claims.”

Concerns Regarding Community Paramedicine:
1. Risk of paramedic under-triage
2. Alternative transport destinations for complex patients
3. Standard paramedic practice focused on life-threats
4. ED: stabilization, evaluation, diagnosis, and disposition

“The ED, contrary to most or all alternative destinations, has extensive diagnostic and therapeutic resources to help ferret out the occult medical emergency.”

COMMUNITY PARAMEDICINE: GERIATRICS LITERATURE
Zozula et al. Prehospital emergency services screening and referral to reduce falls in community-dwelling older adults: a systematic review. EMJ. 2015.

**EMS Screening and Referral to Fall Prevention Programs**

- 6 Studies Evaluated
- High Risk of Bias in All Studies

**Conclusions**

- No High Quality Evidence Exists
- Appears Feasible

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**Community Paramedicine within an Advanced Illness Management Program**

- Telehealth + Community Paramedicine
- 1,602 Patients with median 56 ADL Dependencies

**Results**

1. **Community Paramedicine Transport Rate:** 22%
2. **Admission Rates:**
   - CP Transports: 82%
   - Traditional EMS Transport: 68.9%

**Light Duty Paramedics Weekly Drop-In Sessions**
Focus: Cardiovascular, Diabetes and Fall-Risk
Health Education and Referral to Local Resources
Reports Faxed to Primary Care Physicians

**Conclusions**
1. Reduction in EMS Calls (25%)
2. Reduction in Blood Pressure and Diabetes Risk

COMMUNITY PARAMEDICINE: SPECIFIC PROGRAMS
Pillars of Success – Community Paramedicine

<table>
<thead>
<tr>
<th>Fully Integrated</th>
<th>Educational</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaborative</td>
<td>Financially Sustainable</td>
</tr>
<tr>
<td>Patient-Centered</td>
<td>Legally Compliant</td>
</tr>
<tr>
<td>Practice of Medicine</td>
<td>Supplementary</td>
</tr>
<tr>
<td>Team-Based</td>
<td>IHI Triple Aim</td>
</tr>
</tbody>
</table>

From: Vision Statement on Mobile Integrated Healthcare (MIH) and Community Paramedicine


**Project ETHAN (Emergency Telehealth and Navigation) – Houston**

Telehealth + Social Services + Alternative Transportation

5,570 Patients Over 12 Months

**Transports to ED (p < 0.001)**

ETHAN Group: 18%
Control Group: 74%

56% Absolute Reduction in Ambulance Transports to ED
http://www.medstar911.org
Readmission Program Overview

CHF Utilization Analysis

2013 National Readmission Rate ~ 23%

Readmission Prevention Program
16.3% Readmission Rate
$30,434 Medicare Charge Avoidance
$7,620 Payment Avoidance
High-Risk Patients: Referred Because of Anticipated Readmission

<table>
<thead>
<tr>
<th>Readmit Program Analysis</th>
<th>Patient Enrollments (1, 3)119</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>30 Day ED Visits</strong></td>
<td><strong>30 Day Admissions</strong></td>
</tr>
<tr>
<td>Count</td>
<td>43</td>
</tr>
<tr>
<td>Rate</td>
<td>36.1%</td>
</tr>
<tr>
<td>Rate Reduction</td>
<td>63.9%</td>
</tr>
<tr>
<td>Expenditure per Admission</td>
<td>$10,500.00</td>
</tr>
<tr>
<td>Admissions Avoided</td>
<td>86</td>
</tr>
<tr>
<td>Expenditure Savings</td>
<td>$(903,000)</td>
</tr>
<tr>
<td>Admission Savings Per Patient</td>
<td>$(7,588)</td>
</tr>
</tbody>
</table>

June 2012 - June 2015

Congestive Heart Failure Community Paramedicine Research
Community Paramedicine for Heart Failure Readmission Reduction

Prospective pilot study 1 December 2015 – 31 March 2017

**Population**
- Age 18 years and older s/p index admission for heart failure
- Risk stratified by LACE score

**Intervention**
- Community paramedicine visit within 72 hours of discharge

**Control**
- Historical cohort of heart failure patients

**Outcomes**
- Primary: 30-day readmission rate
- Secondary: patient satisfaction and barriers to self-care

### Components of the Community Paramedicine Follow Up Visits

<table>
<thead>
<tr>
<th>Reason for Hospitalization</th>
<th>Exercise Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptoms Following Discharge</td>
<td>Smoking Cessation</td>
</tr>
<tr>
<td>Vital Signs</td>
<td>Daily Weight Monitoring</td>
</tr>
<tr>
<td>Physical Examination</td>
<td>Transportation Confirmation</td>
</tr>
<tr>
<td>Medication Review</td>
<td>Physician Follow Up Review</td>
</tr>
<tr>
<td>Dietary Review</td>
<td>General Heart Failure Education</td>
</tr>
</tbody>
</table>
Patient Satisfaction Survey

The Program:
1. Do you feel that this program is worth your time?  
   Y   N   N/A
2. Do you feel this program is helpful?  
   Y   N   N/A
3. Do you feel this program should be continued?  
   Y   N   N/A
4. If continued, would you still be in the program?  
   Y   N   N/A

Patient Satisfaction Survey

The Employees:
1. Were the employees clean and neat?  
   Y   N   N/A
2. Were the employees professional and polite?  
   Y   N   N/A
3. Did the employees seem knowledgeable in the evaluation?  
   Y   N   N/A
4. Did the employees listen to and answer your questions?  
   Y   N   N/A
5. In your opinion, were employees skilled in their assessment?  
   Y   N   N/A
Patient Satisfaction Survey

**Equipment:**
1. Did the employees have the right equipment?  
   Y  N  N/A
2. Did you or the employees have any issues with the equipment?  
   Y  N  N/A
3. Did the equipment meet your expectations?  
   Y  N  N/A

Patient Satisfaction Survey

**After the Visit:**
1. Were questions answered after speaking with the team?  
   Y  N  N/A
2. Did you feel satisfied with the paramedic’s/doctor’s skills?  
   Y  N  N/A
3. If you are a clinic patient, did you make your next CHF clinic visit?  
   Y  N  N/A
4. Did you need to call the CHF clinic, your doctor or 911 before your scheduled visit?  
   Y  N  N/A
5. Would like to see the program continued to have more visits?  
   Y  N  N/A
Patient Selection Process

84 Patients Approached by Study Personnel
   37 patients refused to participate

47 Patients Consented to Participate
   21 visits not completed
   CP team unavailable

26 Community Paramedicine Visits Completed

Results – Primary Outcome

Risk Stratification
   High LACE scores = 14 Patients
   Moderate LACE scores = 12 Patients

30-Day Readmission Rate
   Overall: 19%
   High LACE: 100% (baseline 23%)
   Moderate LACE: 0% (baseline 16%)
Results – Secondary Outcomes

Identified Barriers to Self Care

- Poor understanding of clinical condition
- Misuse of prescribed medications
- Self-care and transportation issues
- Lack of scales for daily weight monitoring

Patient Satisfaction

- 100% positive responses

Conclusions

“Community paramedicine visits aimed at heart failure readmission reduction may be most effective for moderate-risk patients. Further research is needed to optimize CP team provider type, medical direction, reimbursement and employment structure.”
CP – Additional Considerations

• EMS-Based vs. Hospital Based

• Goals of Community Paramedicine
  Patient
  Community
  Healthcare System

• Medical Direction, Protocols and Scope of Practice

• Efficacy, Safety and Value
The reimbursement will be offered for HCPCS A0998-coded 9-1-1 responses in California, Colorado, Connecticut, Georgia, Indiana, Kentucky, Maine, Missouri, Nevada, New Hampshire, New York, Ohio, Virginia, and Wisconsin. The company hopes to include its Medicare and Medicaid plans as well, though there are varying state requirements to navigate first. Due to those differences, not all 14 states officially began January 1.

Payment will be at around 70% of the average reimbursement for an ambulance run in each state—“Less than the payment for an emergent response with transport, but not a lot less,” says Moore. “And the resource utilization is presumably lower.”

In the future that might involve procedures such as non-9-1-1 home visits, medication checks, and more, but for now the hope is a modest reduction in unnecessary ED transports, which Moore hopes to trim by 5%.

**Take Home Point**

Community paramedicine may be a method for adapting emergency medical services to the rapidly evolving healthcare arena