Measuring the Effectiveness of Mobile Integrated Healthcare Programs

Introduction and Overview

Hosts:

- Brenda Staffan, REMSA
- Dan Swayze, UPMC/Emed Health
- Brian LaCroix, Allina Medical Transport
- Gary Wingrove, Mayo/IRCP/NCEMSI
- Brent Myers, Wake EMS
- Matt Zavadsky, MedStar Mobile Healthcare
Why Outcome Measures?

- Healthcare is moving to outcome-based economic models
- “EMS” is healthcare
- MIH-CP moves even further into the healthcare space
- Key to sustainability is proof
Intent of the Strategy

- Develop uniform measurement
  - Replication of successful programs
  - Build evidence base
  - Increased “N” for evaluation

- Origin
  - Meetings with CMS & CMMI
  - Meetings with AHRQ & NCQA

- Build consortium of MIH programs
The Process...

- **Phase 1**: First draft “Uniform MIH Measures Set”
  - June - September ‘14

Brenda Staffan
Dan Swayze
Matt Zavadsky
The Process...

• Phase 2: Introduce to operating programs via webinar
  – October ’14
  – Feedback process starts

Brian LaCroix
Gary Wingrove
Brent Myers
The Process...

- **Phase 3:** F2F national stakeholder/advocacy group meetings
  - November ‘14 (EMS World/AAA Annual Conference)
  - December ‘14 invitations to join process

- AAA
- NAEMSP
- ACEP
- IAFC
- IAFF
- NEMSMA
- AHRQ
- IHI
- NAEMSE
- NFPA
- NCQA
- NRHA
- IAED
- IAEMSC
- NASEMSO
- Operating MIH/CP Programs
The Process...

• Phase 3.5
  – Rank “Top 10” measures (ok, 17)

• Phase 4: Federal partner introduction
  – April ’15 during EMS On the Hill Day
  – AHRQ, NCQA, & CMS

• Phase 5: Promote payment policy change
  – CMS, national payers, etc.
The Tool...

- Structure
- Layout
  - Structure & CP Intervention 1st
- Domains:
  - Quality of Care & Patient Safety
  - Experience of Care
  - Utilization
  - Cost of Care/Expenditures
  - Balancing
The Tool...

- Formulas
- Measure priorities
- Feedback process
  - Structured
  - Responses
The Measures...
Mobile Integrated Healthcare Program

Measurement Strategy Overview

Aim
A clearly articulated goal statement that describes how much improvement by when and links all the specific outcome measures; what are we trying to accomplish?

Develop a uniform set of measures which leads to the optimum sustainability and utilization of patient centered, mobile resources in the out-of-hospital environment and achieves the Triple Aim® — improve the quality and experience of care; improve the health of populations; and reduce per capita cost.

Measures Definition:
1. Core Measures (BOLD)
   a. Measures that are considered essential for program integrity, patient safety and outcome demonstration.

2. CMMI Big Four Measures (RED)
   a. Measures that have been identified by the CMS Center for Medicare and Medicaid Improvement (CMMI) as the four primary outcome measures for healthcare utilization.

3. MIH Big Four Measures (PURPLE)
   a. Measures that are considered mandatory to be reported in order to classify the program as a bona-fide MIH or Community Paramedic program.

4. Top 17 Measures (highlighted)
   a. The 17 measures identified by operating MIH/CP programs as essential, collectable and highest priority to healthcare partners.

Notes:
1. All financial calculations are based on the national average Medicare payment for the intervention described. Providers are encouraged to also determine the regional average Medicare payment for the interventions described.
2. Value may also be determined by local stakeholders in different ways such as reduced opportunity cost, enhanced availability of resources. Program sponsors should develop local measures to demonstrate this value as well.
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## Structure/Program Design Measures
- **S1**: Executive Sponsorship  
- **S2**: Strategic Plan  
- **S3**: Healthcare Delivery System Gap Analysis  
- **S4**: Community Resource Capacity Assessment  
- **S5**: Integration/Program Integrity  
- **S6**: Organizational Readiness Assessment – Medical Oversight  
- **S7**: Organizational Readiness Assessment - Health Information Technology (HIT)  
- **S8**: HIT Integration with Local/Regional Healthcare System  
- **S9**: Public & Stakeholder Engagement  
- **S10**: Specialized Training and Education  

## Outcome Measures for Community Paramedic Program Component

### Quality of Care & Patient Safety Metrics
- **Q1**: Primary Care Utilization
- **Q2**: Medication Inventory
- **Q3**: Care Plan Developed
- **Q4**: Provider Protocol Compliance
- **Q5**: Unplanned Acute Care Utilization (e.g., emergency ambulance response, urgent ED visit)
- **Q6**: Adverse Outcomes
- **Q7**: Community Resource Referral
- **Q8**: Behavioral Health Services Referral
- **Q9**: Alternative Case Management Referral

### Experience of Care Metrics
- **E1**: Patient Satisfaction
- **E2**: Patient Quality of Life

### Utilization Metrics
- **U1**: Ambulance Transports
- **U2**: Hospital ED Visits
- **U3**: All - cause Hospital Admissions
- **U4**: Unplanned 30-day Hospital Readmissions
- **U5**: Length of Stay
### Cost of Care Metrics — Expenditure Savings
- C1: Ambulance Transport Savings (ATS)
- C2: Hospital ED Visit Savings (HEDS)
- C3: All-cause Hospital Admission Savings (ACHAS)
- C4: Unplanned 30-day Hospital Readmission Savings (UHRS)
- C5: Unplanned Skilled Nursing (SNF) and Assisted Living Facility (ALF) Savings (USNFS)
- C6: Total Expenditure Savings
- C7: Total Cost of Care

### Balancing Metrics
- B1: Provider (EMS/MIH) Satisfaction (Desirable Measure)
- B2: Partner Satisfaction (Desirable Measure)
- B3: Primary Care Provider (PCP) Use
- B4: Specialty Care Provider (SCP) Use
- B5: Behavioral Care Provider (BCP) Use
- B6: Social Service Provider (SSP) Use
- B7: System Capacity — Emergency Department Use
- B8: System Capacity — PCP
- B9: System Capacity — SCP
- B10: System Capacity — BCP
- B11: System Capacity — SSP

**Definitions**
### Structure/Program Design Measures

**Describes the development of system infrastructures and the acquisition of physical materials necessary to successfully execute the program**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description of Goal</th>
<th>Components</th>
<th>Scoring</th>
<th>Evidence-base, Source of Data</th>
</tr>
</thead>
</table>
| Executive Sponsorship | S1: Program has Executive level commitment and the program manager reports directly to the Executive leadership of the organization. | The community paramedicine program plan clearly identifies organizational executive level commitment for the human, financial, capital and equipment necessary to develop, implement, and manage the community paramedicine program both clinically and administratively. | 0. Not Known  
1. There is no evidence of organizational executive level commitment  
2. There is some evidence of limited commitment for the program.  
3. There is evidence of full commitment for the program. | Documents submitted by agency demonstrating this commitment such as approved budgets, organizational chart and job descriptions |
| Strategic Plan        | S2: The program has an executive level approved strategic plan.                      | The strategic plan should be based on the knowledge of improvement science and rapid cycle testing, and include the key components of a driver diagram, specific measurement strategies, implementation milestones and a [financial sustainability plan](#). | 0. Not Known  
1. No evidence of a strategic plan.  
2. A written strategic plan, but it lacks key components.  
3. A written strategic plan that includes all key components. | Institute for Healthcare Improvement |
<table>
<thead>
<tr>
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<th>Description of Goal</th>
<th>Components</th>
<th>Scoring</th>
<th>Evidence-base, Source of Data</th>
</tr>
</thead>
</table>
| Public & Stakeholder Engagement | S9: Care Coordination Advisory Committee                                            | Community paramedicine program, in concert with a multidisciplinary, multi-agency advisory committee meets regularly and advises the program on strategies for improving care coordination. | 0. Not Known
1. There is no care coordination advisory committee.
2. There is an established care coordination advisory committee, but it is missing key stakeholders.
3. There is an established care coordination advisory committee and all key stakeholders are represented. | Adapted from HRSA Community Paramedic Evaluation Tool                                                                               |
| Specialized Training & Education | S10: Specialized original and continuing education for community paramedic practitioners | A specialized educational program has been used to provide foundational knowledge for community paramedic practitioners based on a nationally recognized or state approved curriculum. | 0. Not known
1. There is no specialized education offered.
2. There is specialized education offered, but it lacks key elements of instruction.
3. There is specialized education offered meeting or exceeding a nationally recognized or state approved curriculum. | North Central EMS Institute Community Paramedic Curriculum or equivalent.                                                             |
# Outcome Measures for Community Paramedic Program Component

Describes how the system impacts the values of patients, their health and well-being

<table>
<thead>
<tr>
<th>Domain</th>
<th>Name</th>
<th>Description of Goal</th>
<th>Value 1</th>
<th>Value 2</th>
<th>Formula</th>
<th>Evidence-base, Source of Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of Care &amp; Patient Safety Metrics</td>
<td>Q1: Primary Care Utilization</td>
<td>Increase the number and percent of patients utilizing a Primary Care Provider (if none upon enrollment)</td>
<td>Number of enrolled patients with an established PCP relationship upon graduation</td>
<td>Number of enrolled patients without an established PCP relationship upon enrollment</td>
<td>Value 1</td>
<td>Agency records</td>
</tr>
<tr>
<td></td>
<td>Q2: Medication inventory</td>
<td>Increase the number and percent of medication inventories conducted with issues identified and communicated to PCP</td>
<td>Number of medication inventories with issues identified and communicated to PCP</td>
<td>Number of medication inventories completed</td>
<td>Value 1</td>
<td>Agency records</td>
</tr>
<tr>
<td></td>
<td>Q3: Care Plan Developed</td>
<td>Increase the number and percent of patients who have an identified and documented plan of care with outcome goals</td>
<td>Number of patients with a plan of care communicated with the patient’s PCP</td>
<td>All enrolled patients</td>
<td>Value 1</td>
<td>Agency records</td>
</tr>
<tr>
<td>Domain</td>
<td>Name</td>
<td>Description of Goal</td>
<td>Value 1</td>
<td>Value 2</td>
<td>Formula</td>
<td>Evidence-base, Source of Data</td>
</tr>
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</tr>
<tr>
<td>Experience of Care Metrics</td>
<td>E1: Patient Satisfaction</td>
<td>Optimize patient satisfaction scores by intervention.</td>
<td>To be determined based on tools developed</td>
<td>To be determined based on tools developed</td>
<td>Recommend an externally administered and nationally adopted tool, such as, HCAPHS; Home Healthcare CAPHS (HHCAPHS)</td>
<td>recommendations from various sources such as HCAPHS.</td>
</tr>
<tr>
<td></td>
<td>E2: Patient Quality of Life</td>
<td>Improve patient self-reported quality of life scores.</td>
<td>To be determined based on tools developed</td>
<td>To be determined based on tools developed</td>
<td>Recommend tools (EuroQol EQ-5D-5L, CDC HRQoL, University of Nevada-Reno)</td>
<td>recommendations from various sources such as HCAPHS.</td>
</tr>
<tr>
<td>Domain</td>
<td>Name</td>
<td>Description of Goal</td>
<td>Value 1</td>
<td>Value 2</td>
<td>Formula</td>
<td>Notes</td>
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</tr>
<tr>
<td>Utilization</td>
<td>U1: Ambulance Transports</td>
<td>Reduce rate of <em>unplanned ambulance transports</em> to an ED by enrolled patients</td>
<td>Number of <em>unplanned</em> ambulance transports up to 12 months post-graduation</td>
<td>Number of <em>unplanned</em> ambulance transports up to 12 months pre-enrollment</td>
<td>(Value 1-Value 2)/Value 2</td>
<td>Monthly run chart reporting and/or pre-post intervention comparison</td>
</tr>
<tr>
<td>Metrics</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>U2: Hospital ED</td>
<td></td>
<td>Reduce rate of ED visits by enrolled patients by intervention</td>
<td>ED visits up to 12 months post-graduation</td>
<td>ED visits up to 12 months pre-enrollment</td>
<td>(Value 1-Value 2)/Value 2</td>
<td>Monthly run chart reporting and/or pre-post intervention comparison</td>
</tr>
<tr>
<td>Visits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Value 1</td>
<td></td>
</tr>
<tr>
<td>U3: All - cause</td>
<td></td>
<td>Reduce rate of all-cause hospital admissions by enrolled patients by intervention</td>
<td>Number of hospital admissions up to 12 months post-graduation</td>
<td>Number of hospital admissions up to 12 months pre-enrollment</td>
<td>(Value 1-Value 2)/Value 2</td>
<td>Monthly run chart reporting and/or pre-post intervention comparison</td>
</tr>
<tr>
<td>Domain</td>
<td>Name</td>
<td>Description of Goal</td>
<td>Value 1</td>
<td>Value 2</td>
<td>Formula</td>
<td>Evidence-base, Source of Data</td>
</tr>
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</tr>
<tr>
<td>Balancing</td>
<td><strong>B1:</strong> Practitioner (EMS/MIH) Satisfaction</td>
<td>Optimize practitioner satisfaction scores</td>
<td>To be determined based on tools developed</td>
<td></td>
<td>Recommend externally administered</td>
<td></td>
</tr>
<tr>
<td>Metrics</td>
<td><strong>Desirable Measure</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>B2: Partner</td>
<td><strong>B2:</strong> Partner Satisfaction</td>
<td>Optimize partner (healthcare, behavior health, public safety, community) satisfaction scores</td>
<td>To be determined based on tools developed</td>
<td></td>
<td>Recommend externally administered</td>
<td></td>
</tr>
<tr>
<td>Satisfaction</td>
<td><strong>Desirable Measure</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>B3: Primary</td>
<td><strong>B3:</strong> Primary Care Provider (PCP) Use</td>
<td>Optimize Number of PCP visits resulting from program referrals during enrollment</td>
<td>Number of PCP visits during enrollment</td>
<td>Value 1</td>
<td>Network provider or patient reported</td>
<td></td>
</tr>
<tr>
<td>Care Provider</td>
<td><strong>Desirable Measure</strong></td>
<td></td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>
**Definitions**

**Specific Metric Definitions:**

**Expenditure:** The amount **PAID** for the referenced service. Expenditures should generally be based on the national and regional amounts paid by Medicare for the covered services provided.

<table>
<thead>
<tr>
<th>Service</th>
<th>Cost to Provide the Service by the Provider</th>
<th>Amount Charged (billed) by the Provider</th>
<th>Average Amount Paid by Medicare</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambulance Transport</td>
<td>$350</td>
<td>$1,500</td>
<td>$420</td>
</tr>
<tr>
<td>ED Visit</td>
<td>$500</td>
<td>$2,000</td>
<td>$969</td>
</tr>
<tr>
<td>PCP Office Visit</td>
<td>$85</td>
<td>$199</td>
<td>$218</td>
</tr>
</tbody>
</table>

**National CMS Expenditure by Service Type:**

<table>
<thead>
<tr>
<th>Service</th>
<th>Average Expenditure</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency Ambulance Transport</td>
<td>$419</td>
<td>Medicare Tables from CY 2012 as published</td>
</tr>
</tbody>
</table>
**General Definitions**

- **Adverse Outcome**: Death, temporary and/or permanent disability requiring intervention
- **All Cause Hospital Admission**: Admission to an acute care hospital for any admission DRG
- **Average Length of Stay**: The average duration, measured in days, of an in-patient admission to an acute care, long term care, or skilled nursing facility
- **Care Plan**: A written plan that addresses the medical and psychosocial needs of an enrolled patient that has been agreed to by the patient and the patient’s primary care provider
- **Case Management Services**: Care coordination activities provided by another social service agency, health insurance payer, or other organization.
- **Core Measure**: Required measurement for reporting on MIH-CP services
- **Critical Care Unit Admissions or Deaths**: Admission to critical care unit within 48 hours of CP intervention; unexpected (non-hospice) patient death within 48 hours of CP visit
- **Desirable Metric**: Optional measurement
- **Enrolled Patient**: A person who is enrolled with the EMS/MIH program through either: 1) a 9-1-1 or 10-digit call; or 2) a formal referral and enrollment process.
- **Evaluation**: Determination of merit using standard criteria
- **Financial Sustainability Plan**: A document that describes the expected revenue and/or the economic model used to sustain the program.
- **Guideline**: A statement, policy or procedure to determine course of action
- **Hotspotter/High Utilizers**: Any patient utilizing EMS or ED services 12 times in a 12 month period, or as defined by local program goals.
- **Measure**: Dimension, quantity or capacity compared to a standard
- **Medication Inventory**: The process of creating the most accurate list possible of all medications a patient is taking — including drug name, dosage, frequency, and route — and comparing that list against the physician’s admission, transfer, and/or discharge orders, with the goal of providing correct medications to the patient at all transition points within the hospital.
- **Metric**: A standard of measurement
- **Payer Derived**: Measure that must be generated by a payer from their database of expenditures for a member patient
- **Pre and Post Enrollment**: The beginning date and ending date of an enrolled patient.
<table>
<thead>
<tr>
<th>Measure # and Title</th>
<th>Recommendation for Change</th>
<th>Rationale</th>
</tr>
</thead>
</table>
| S1 Executive Sponsorship         | Scoring of “There is no evidence ..” should be changed to 0 or perhaps be equivalent to “Not Known” | No evidence of organizational executive level commitment could potentially mean there is a lack of interest and support and perhaps even resistance or other barriers to success coming from inside the organization. This is potentially worse than being “Not Known” perhaps because key conversations have not yet occurred.  
Depending on how the scores are being used, it may be unfairly weighting the same element. Perhaps the scale for S1 should be able to go up to 5 or 6.  
Again, scores 0 and 1 are equivalent.                                                                                                                                                                                                                           |
| S2 Strategic Plan                | Overlap with S1.  
Scores 0 and 1 should be combined.                                                           | S2 seems dependent on S1. Full commitment of executive leadership is a pre-requisite to having a strategic plan approved. Should these really be separate measures or should a Strategic Plan be the required evidence in measure S1.  
Depending on how the scores are being used, it may be unfairly weighting the same element. Perhaps the scale for S1 should be able to go up to 5 or 6.  
Again, scores 0 and 1 are equivalent.                                                                                                                                                                                                                           |
| S3 Healthcare Delivery System Gap Analysis | Should be down weighted. Maybe no more than 2 points.  
Add expiration date.                                                                 | This is obviously outside the scope of the EMS agency. If they are fortunate that one has been performed, they are not all created equal. When does a GAP analysis expire? 5 years? 10 years?  
Better phrasing overall. Seems to be more achievable by individual agency. No specific change but would shift emphasis from S3 to S4.                                                                                                                                                                                                                                     |
| S4 Community Resource Capacity Assessment | Overlap with S3.                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| S8 HIT Integration with Local / Regional Healthcare System | Make data exchange bi-directional                                                              | It seems that this measure is only assessing the information from the CP encounter being available to administrators (and at level 3) to primary care and others. Either in this measure or in a separate measure, CP / EMS providers should receive meaningful and relevant information from the healthcare system prior to / during their encounter.                                                                                                                                                                                     |
Next Steps

- CP Process Measures workgroup
- Outcome Measure workgroups for other MIH interventions
  - 9-1-1 Nurse Triage
  - Ambulance Transport Alternatives
  - Alternative Response Models
    - NP/PA, etc.?