Why EMS, Criminal Justice, HUD & Hospitals Need to Co-mingle Data

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Case

55 y/o male with PMHx of Substance Use and Serious Mental Illness

EMS Services at least 80 times a year

Multiple encounters with Law Enforcement

Numerous ED visits

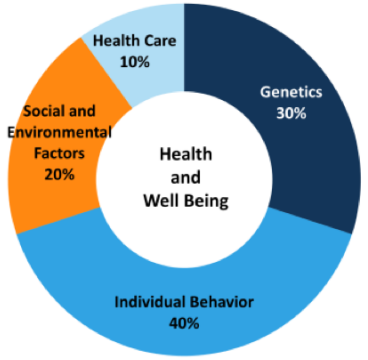
Can the EMS System address this on its own?

Are you considering other community and social factors that will impact utilization of services?

Social Determinants

- Housing
- Food security
- Preventative and primary care

Impact of Different Factors on Risk of Premature Death



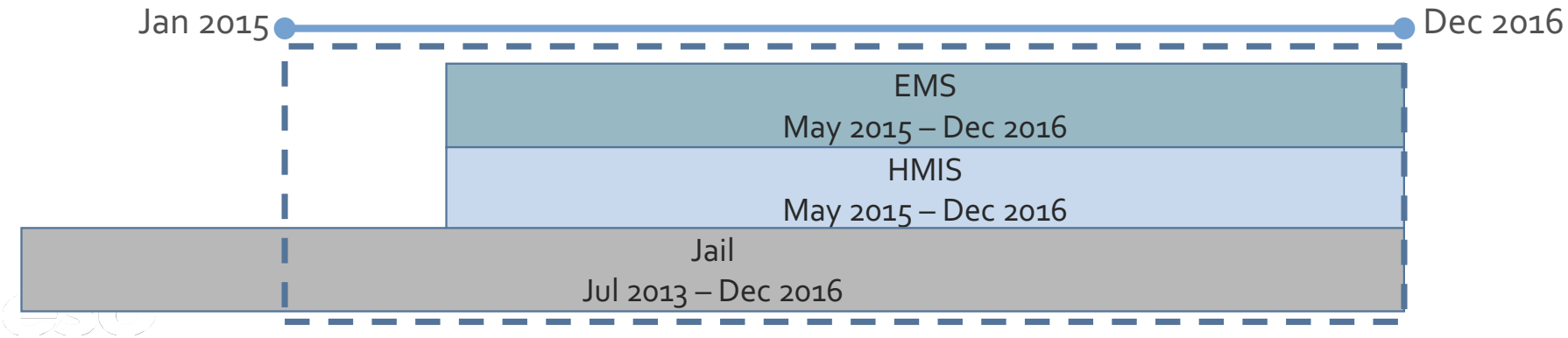
SOURCE: Schroeder, SA. (2007). We Can Do Better — Improving the Health of the American People. *NEJM*. 357:1221-8.

- Treatment for mental health issues such as post-traumatic stress disorder and substance abuse issues

Definitions and Assumptions

Agency	High Utilization Concept	Definition
Homelessness (HUD)	Chronic Homelessness	Head of household has a disability AND has been homeless for at least 365 consecutive days or has had 4 or more episodes in 3 year period.
Wake County Jail	Familiar Face	An individual entering the jail system more than 4 times in a 24 month span.
Wake County EMS	High Utilizer	An individual that has utilized EMS services 4 or more times during a rolling 30 day period.

The analytic window for this study: January 2015 – December 2016

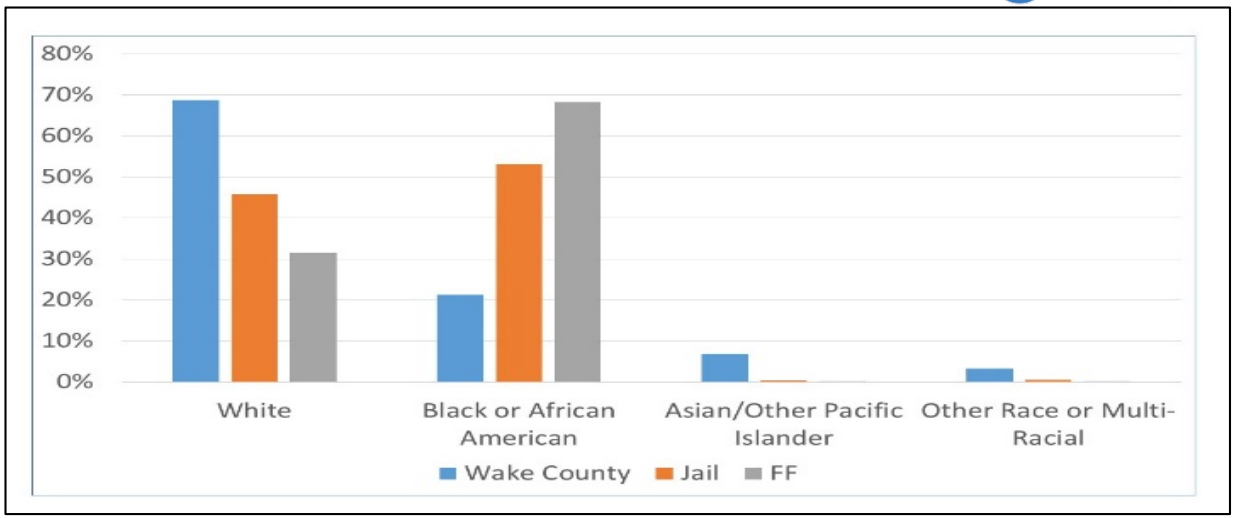


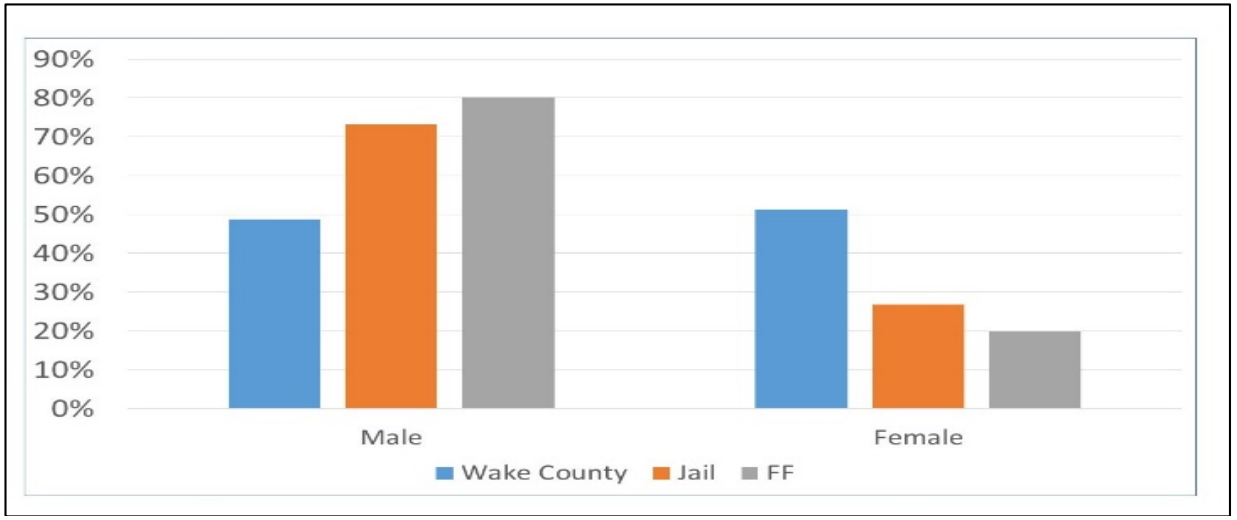
Findings

71% of Familiar Faces are younger than 36

- Medical screening data is self reported, inconsistent and not collected for 40% of bookings
- Most interactions with jail (72%) result from misdemeanor charges
- Familiar Faces account for 5% of the Jail Population and are predominantly young (under 36), African American Males

Wake County Jail





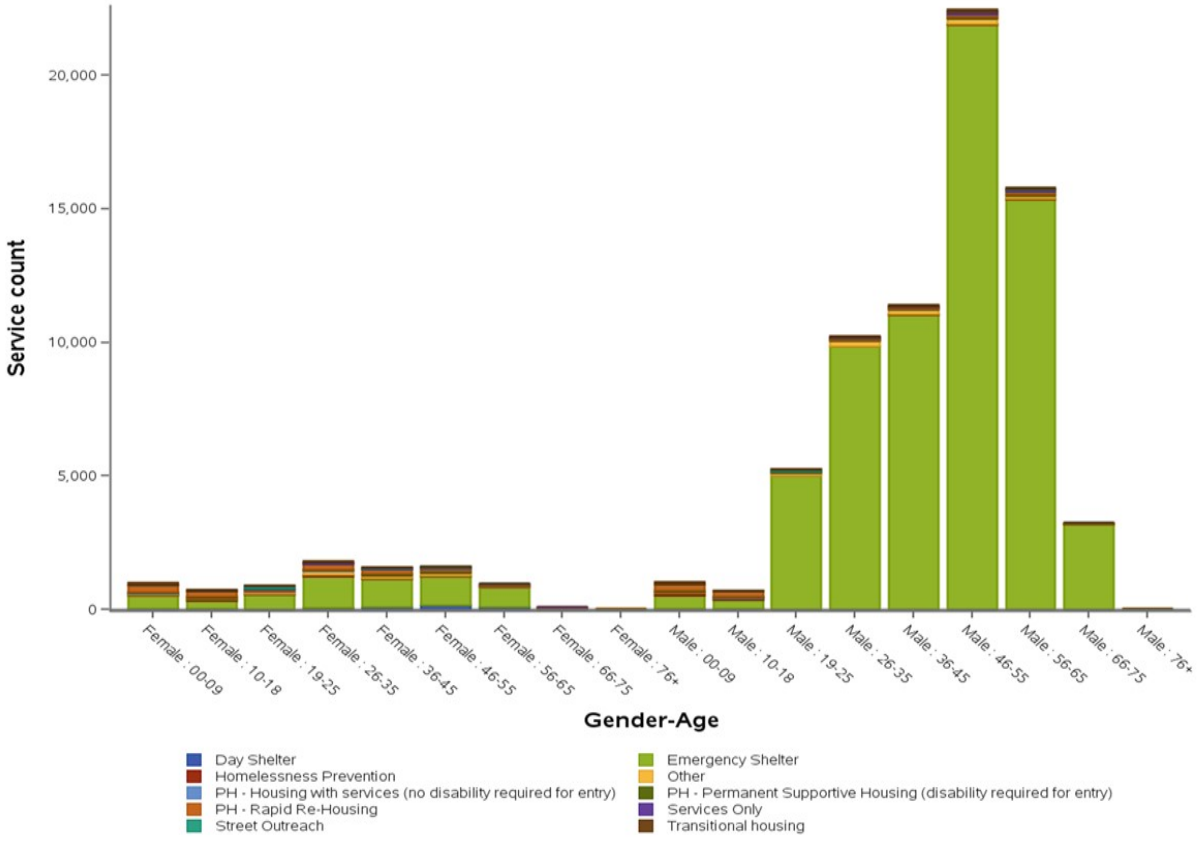
Findings

Out of 8,834 unique individuals, 800 above 95th percentile for utilization

Emergency Shelters are the most frequently used program with 6,600 individuals using them at least once over 20 months

High utilizers are most frequently African American Males between the ages of 46-55

Homeless Management Information System (HMIS)



HMIS data only track those who formally received housing provisions. This skews the data towards males due to the lack of available shelter for females.

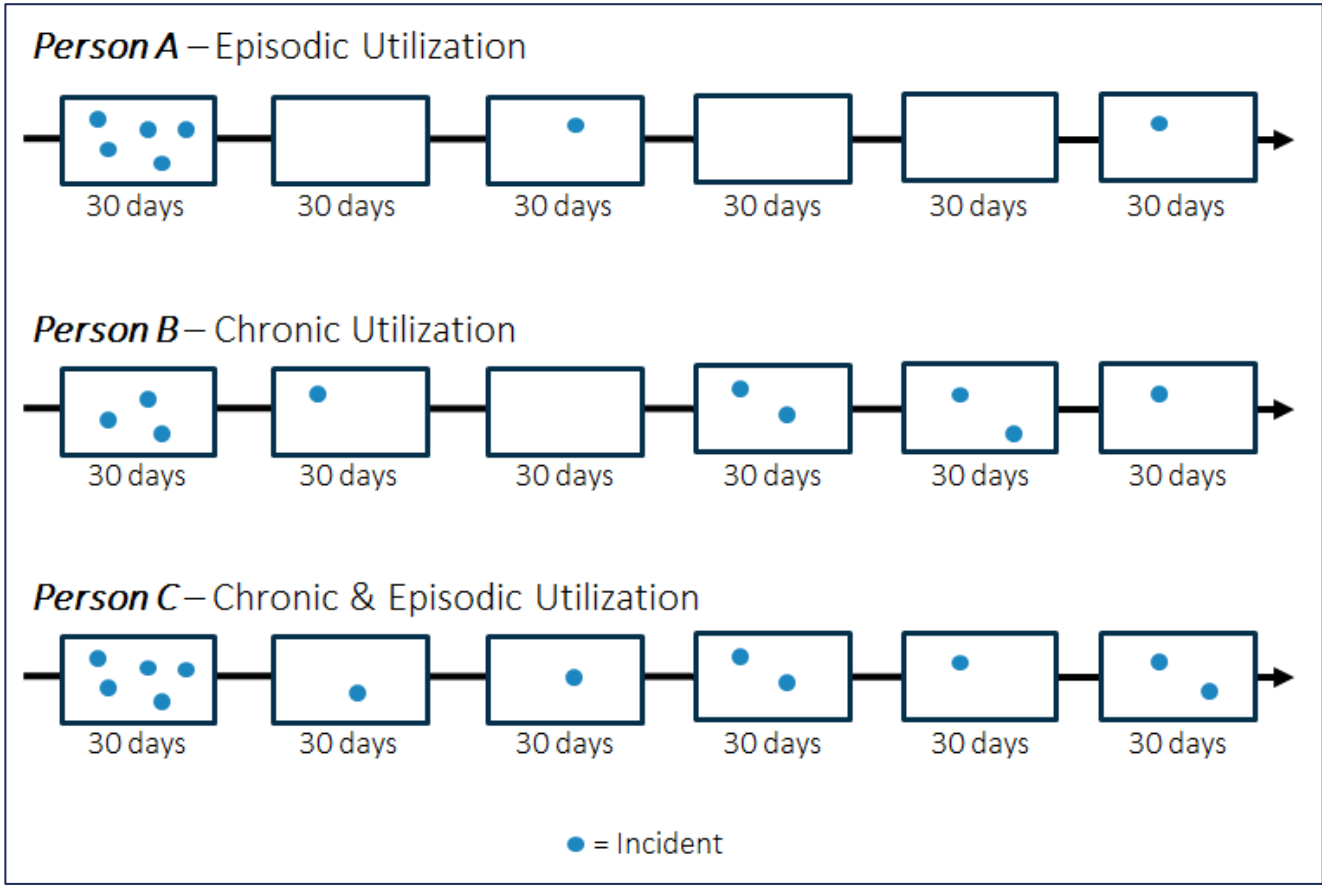
Findings

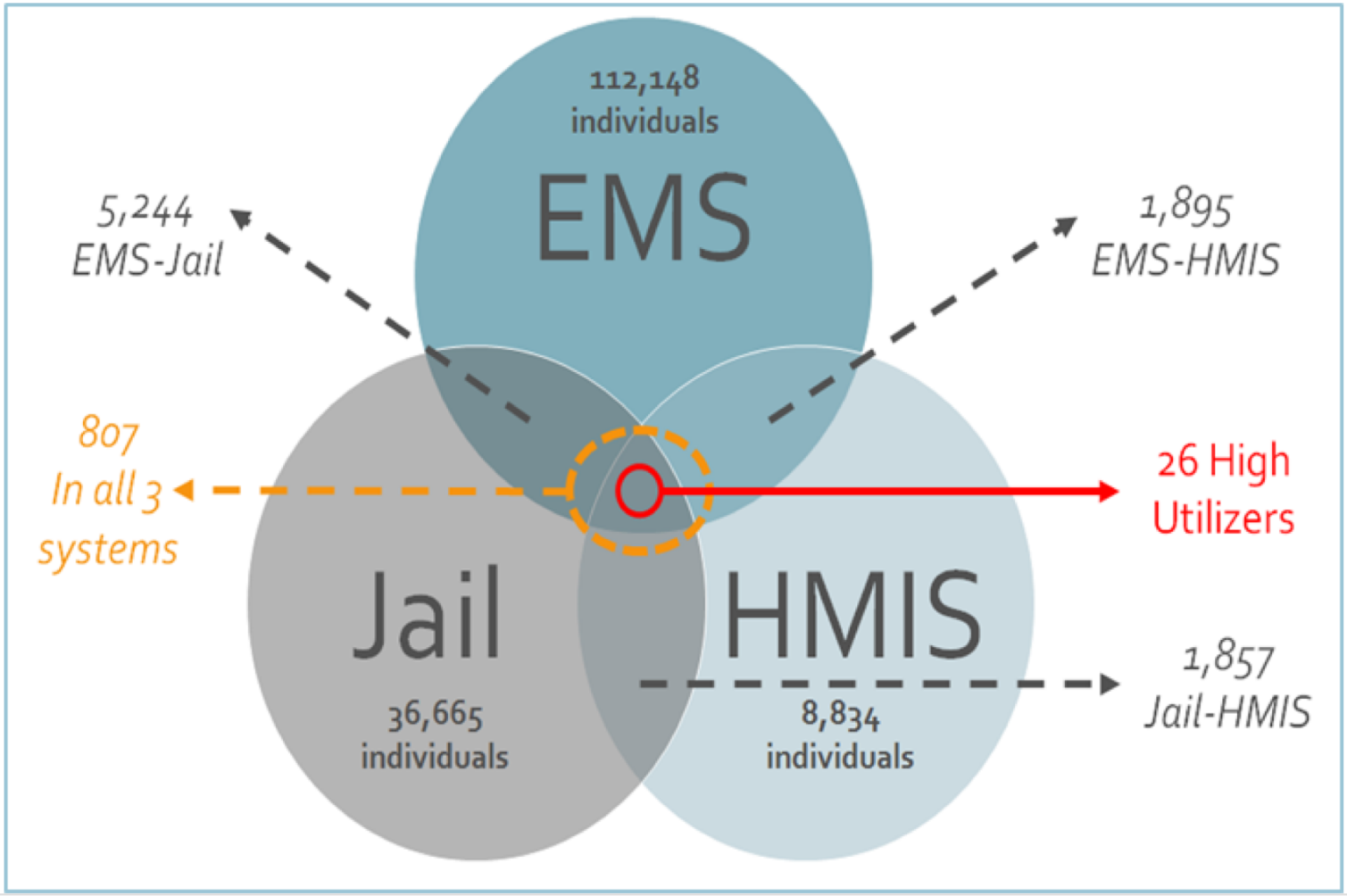
Due to the nature of emergency calls, data collection can be inconsistent.

The data does provide a discrete outcome for the incident, however it does not specify the reason for the call, state of the patient, treatment provided or information following a transport.

High Utilizers of EMS services are primarily White Females over the age of 76

Wake County Emergency Medical Services



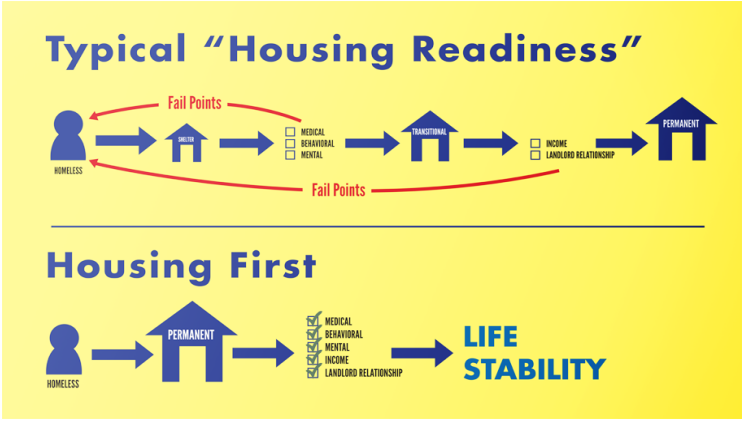

112,148
individuals
EMS
5,244
EMS-Jail
1,895
EMS-HMIS
807
In all 3
systems
26 High
Utilizers
Jail
36,665
individuals
HMIS
8,834
individuals
1,857
Jail-HMIS

Timeline of Events: A Case Study

Agency	Event	Event Start	Event End	Event Length	Days Between Events
Jail	Arrest Misdemeanor: Intoxicated and Disruptive	03 Sep 2015	17 Sep 2015	14	10
EMS	EMS Transported: No Lights/Siren	22 Sep 2015	22 Sep 2015	0	5
Jail	Arrest Misdemeanor: Failure to Appear on Misdemeanor	23 Nov 2015	25 Nov 2015	2	62
Jail	Arrest Misdemeanor: Failure to Appear on Misdemeanor	07 Dec 2015	10 Dec 2015	3	12
Jail	Arrest Misdemeanor: Second Degree Trespassing	15 Dec 2015	22 Dec 2015	7	5
HMIS	HMIS Shelter	30 Dec 2015	31 Dec 2015	1	8
HMIS	HMIS Emergency Shelter	09 Jan 2016	10 Jan 2016	1	9
HMIS	HMIS Emergency Shelter	12 Jan 2016	13 Jan 2016	1	2
HMIS	HMIS Emergency Shelter	18 Jan 2016	24 Jan 2016	6	5
HMIS	HMIS Emergency Shelter	25 Jan 2016	26 Jan 2016	1	1
Jail	Arrest Misdemeanor: Second Degree Trespassing	26 Jan 2016	04 Feb 2016	9	0
EMS	EMS Transported: No Lights/Siren	05 Feb 2016	05 Feb 2016	0	1
EMS	EMS Transported: No Lights/Siren	14 Feb 2016	14 Feb 2016	0	9
Jail	Arrest Misdemeanor: Intoxicated and Disruptive | Second Degree Trespassing	02 Apr 2016	14 Apr 2016	12	48
EMS	EMS Transported: No Lights/Siren	26 Apr 2016	26 Apr 2016	0	12
EMS	EMS Assist	09 May 2016	09 May 2016	0	13
HMIS	HMIS Emergency Shelter	05 Jun2 016	06 Jun 2016	1	27

Community Intervention Models

- Crisis Intervention Teams
- Post-Booking Diversion
- Jail-Based Programs
- Harm Reduction
- Housing First
- Information Sharing

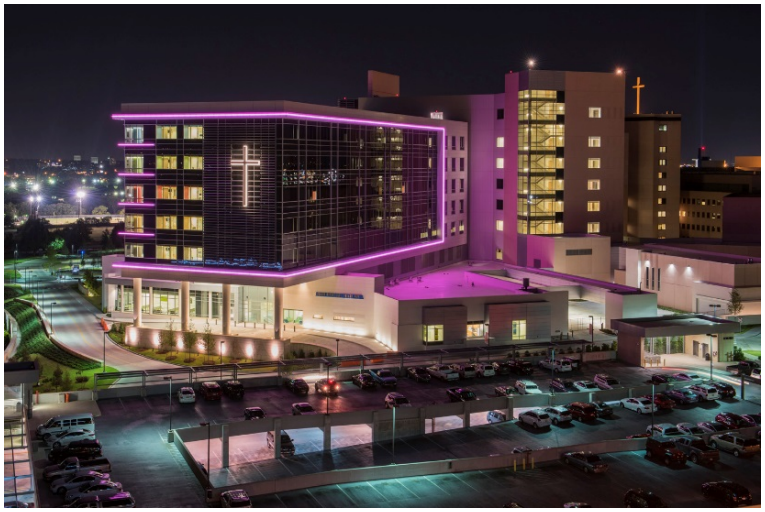


Take Home Points

- Many communities continue to struggle with demand for services related to mental illness and addiction
- EMS System Interventions must integrate with community-wide strategies
- Information sharing with community stakeholders will provider a broader insight into the needs of the community

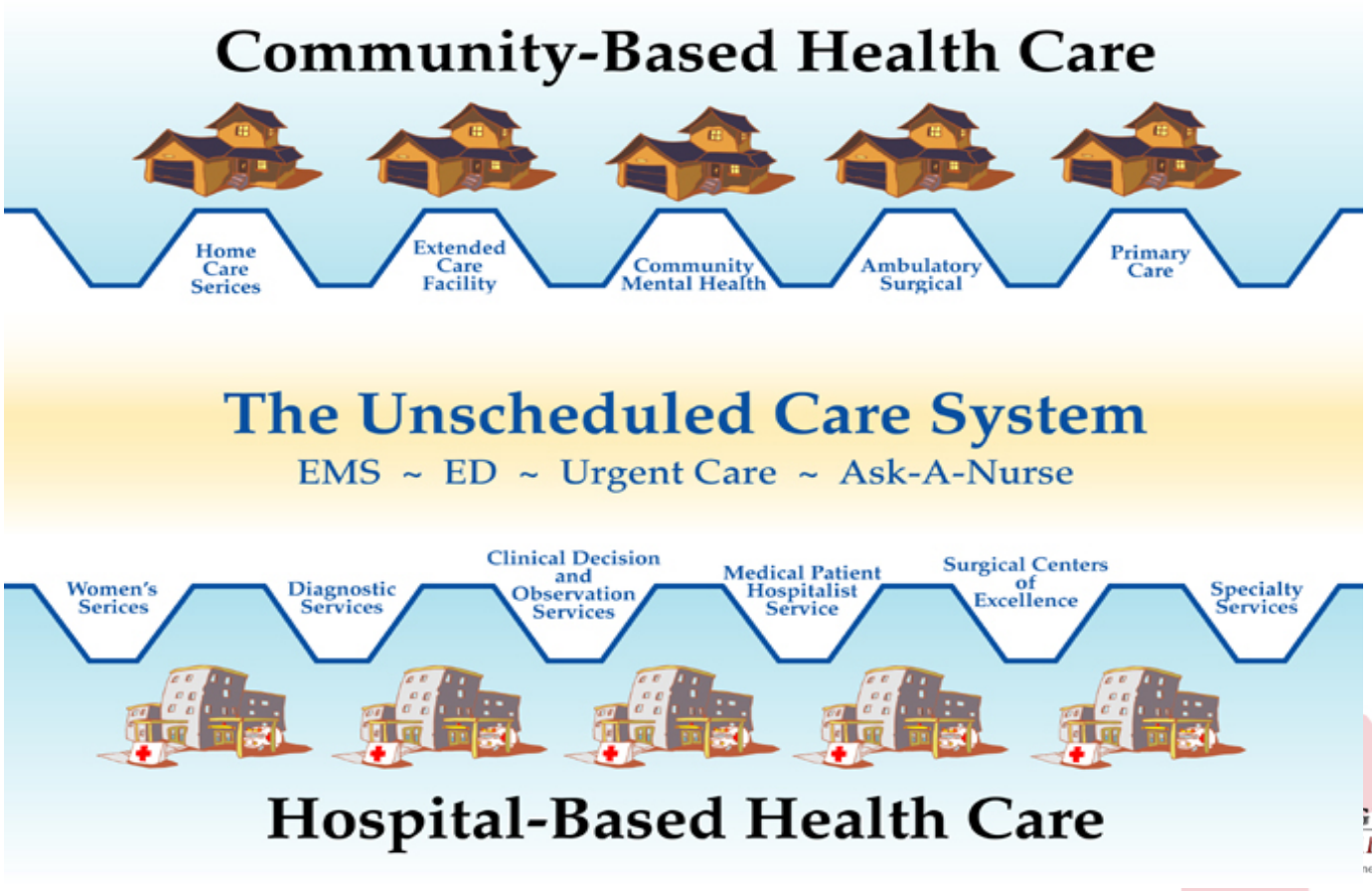
Driving Ms. Data: How Information is Shaping U.S. Healthcare System – and EMS

- **What Happens When Prevention Works?**



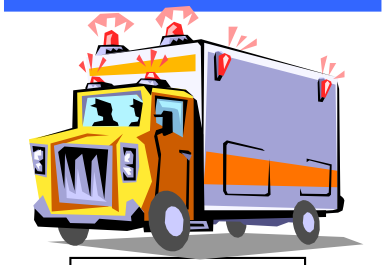
James Augustine, MD

A look Ahead: Serving Patients with Unscheduled Needs



Patient Flow is Predictable

EMS



80/1000 Population

Walk-ins to ED

371 / 1000 Population

Total use 451 / 1000 Population

83% Walk-Ins

17% Arrival by EMS

38% Admit Rate

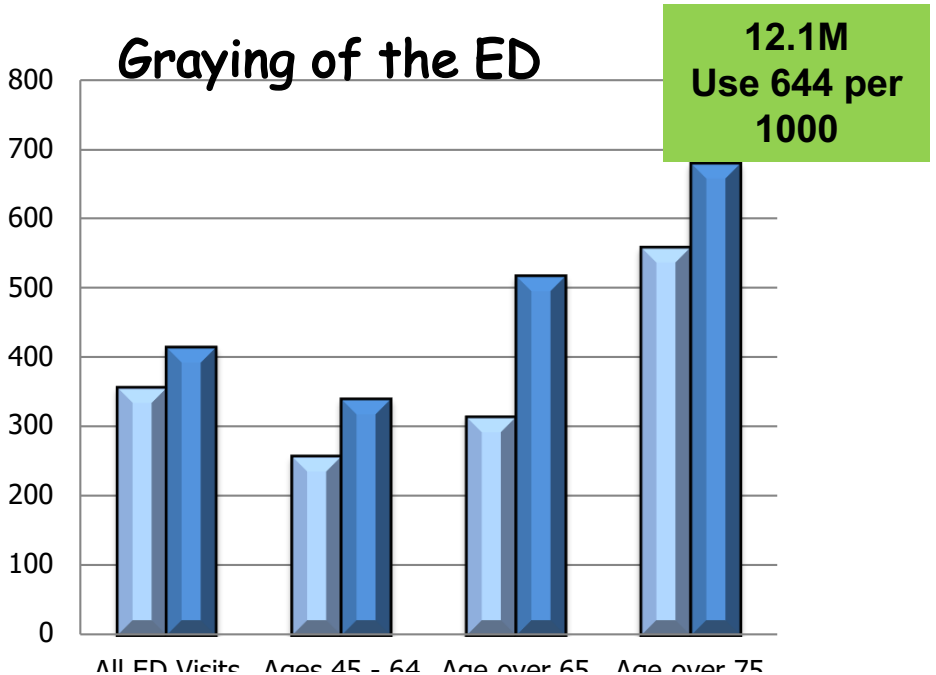
11% Admit Rate

Transfer	Admit	Treat Release	LBTC
2%	17%	79%	2%

EMERGENCY DEPARTMENT BENCHMARKING ALLIANCE

Built by emergency department leaders for emergency department leaders.

Volume Growth Based on Aging Population



12.1M Use 644 per 1000

A Success Story: Prevention of Premature Death and Improved Quality of Life

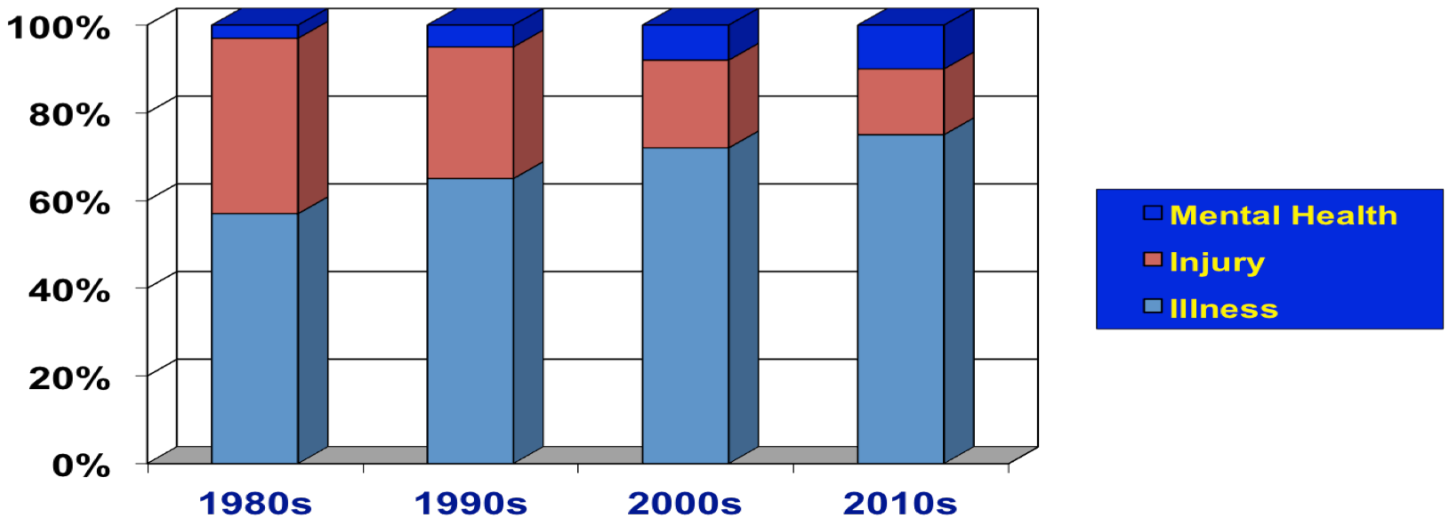
The Patient Mix
Unrecognized Prevention Issues

- The Burn, Trauma, Injury and Cardiac Arrest Issue
- What should we have known?
- Prevention Works
- When prevention works, more people are alive to get ill
- Trauma population ages

The Evolution of Emergency Care

Your Likes	Your Practice	Your Time
If you like Trauma	You should have practiced in the	1970's
If you like Defibrillating and Acute MIs	You should have practiced in the	1980's
If you like Airways and Peds Injuries	You should have practiced in the	1990's
If you like reading x-rays and Admitting Patients	You should have practiced in the	2000's
If you like reading EKGs, geriatrics, urgent care, case management, and palliative medicine	You are practicing in the	2010's
If you like Community Unscheduled Care, and out of hospital medicine, and more geriatrics	Wait till you practice in the	2020's

Changing Emergency Patient Mix



Where is the Data?

- **CDC National Center for Health Statistics**
  - National Hospital Ambulatory Medical Care Survey
  - Emergency Department Data Tables
  - Just released data tables for 2014
- **ED Benchmarking Alliance**
  - Emergency Department Performance Measures
  - Data Release for 2016
- **AHA (Amer Hospital Assoc)**
- **ACEP Clinical Emergency Data Registry (CEDR). The data source of the future**

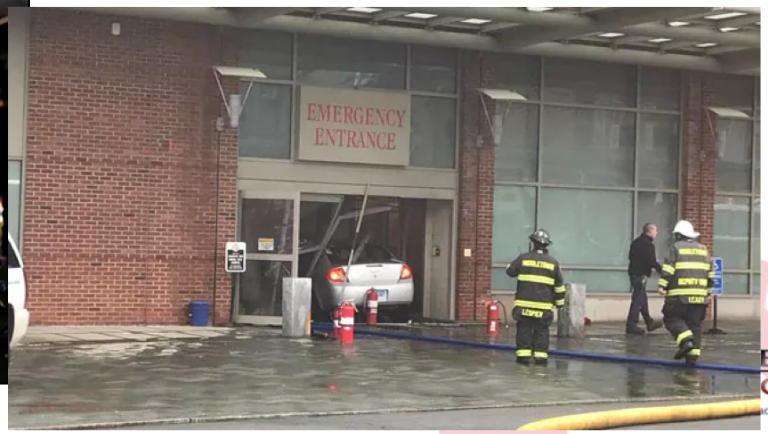
Disruption Ahead!

- ***What is Amazon Ran Hospitals?***
- *The Medical Futurist Newsletter, Feb 2018*

- Tech Giants move into HC
- Hi Ann! Your prescriptions from Amazon Clinic just arrived! Your disaster supplies just arrived by drone
- AI-based Support systems in the Amazon Clinic
- Amazon HC package deals on Prime, and Dr. Alexa
- 3D printed drugs, supplies, and medical equipment
- The Amazon Clinic – Recommendations and Black Fridays!
- The entire Medical History of you, from all sources
- Patient-centered Hospitals, Clinics, and ambulances

The Preparedness Burden

- Ebola
- Active shooter
- Weather



Data Guide for EMS

- Plan forward for increased volumes
- Medical and Seniors a huge part of emergency
- MIHC is a needed model
- Improve quality of service, ***and prevention***
- Build a case for Value/Cost effectiveness
- Train leaders in business of Unscheduled Care

EMERGENCY DEPARTMENT BENCHMARKING ALLIANCE
Built by emergency department leaders for emergency department leaders.

A More Efficient Credentialing Process

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Do you have a credentialing process?

How long does it take to clear a new provider in your EMS System?

NAEMSP Position Statement

Clinical Credentialing of EMS Providers

The practice of Emergency Medical Services (EMS) Medicine is complex, dynamic, and diverse. This practice is historically built upon the domains of education, certification, and licensure. Although these domains remain continuously relevant, there is an equally compelling need for a fourth domain in sound medical practice: EMS provider credentialing by the local EMS physician medical director.

EMS providers acquire the cognitive knowledge and psychomotor skills of entry-level competence through completion of accredited education programs. Curricula standards for such programs are commonly based on such benchmarks as the *National EMS Education Standards* and the *National EMS Scope of Practice*. While such models identify the range of skills and roles that EMS providers at specified certification levels should be able to perform, they do not authorize the local practice of EMS medicine. Authorization to practice is a function of state licensure and local credentialing by

The NAEMSP and NREMT believe:

- The EMS physician medical director must have final authority and accountability for credentialing of EMS providers providing care under their oversight. While the physician medical director may delegate evaluation of an EMS provider's competencies, the EMS physician medical director must be actively involved in the EMS organization's clinical credentialing process.
- Credentialing involves at a minimum: (1) demonstration of sufficient cognitive knowledge; (2) demonstration of mature, responsible affective ability; (3) demonstration of a command of all involved psychomotor skills; and (4) integrating the three previous domains in the application of critical thinking in the provision of clinical care for all acuities of patients that may be reasonably encountered in the jurisdictionally relevant practice of EMS medicine.

Training ≠ Knowledge

Experience ≠ Competence

Field Training Evaluation Process

- **Post-certification training and evaluation process to approve a provider to work in a particular EMS System**
- **Process varies based on:**
  - System design
  - Protocol design
  - Initial education/experience

What does it do?

- Assures minimum knowledge
- Provides supervised experience
- Teaches practices unique to the System
- Facilitates cultural indoctrination
- Establishes uniform minimum expectations for performance in the System

Wake County EMS Academy

- **5 week didactic**
- **4-6 month supervised clinical**
  - Field Training Officer
  - Objective/competency based
  - Graduated responsibility
- **Physician Evaluation**
  - Scenario and Oral

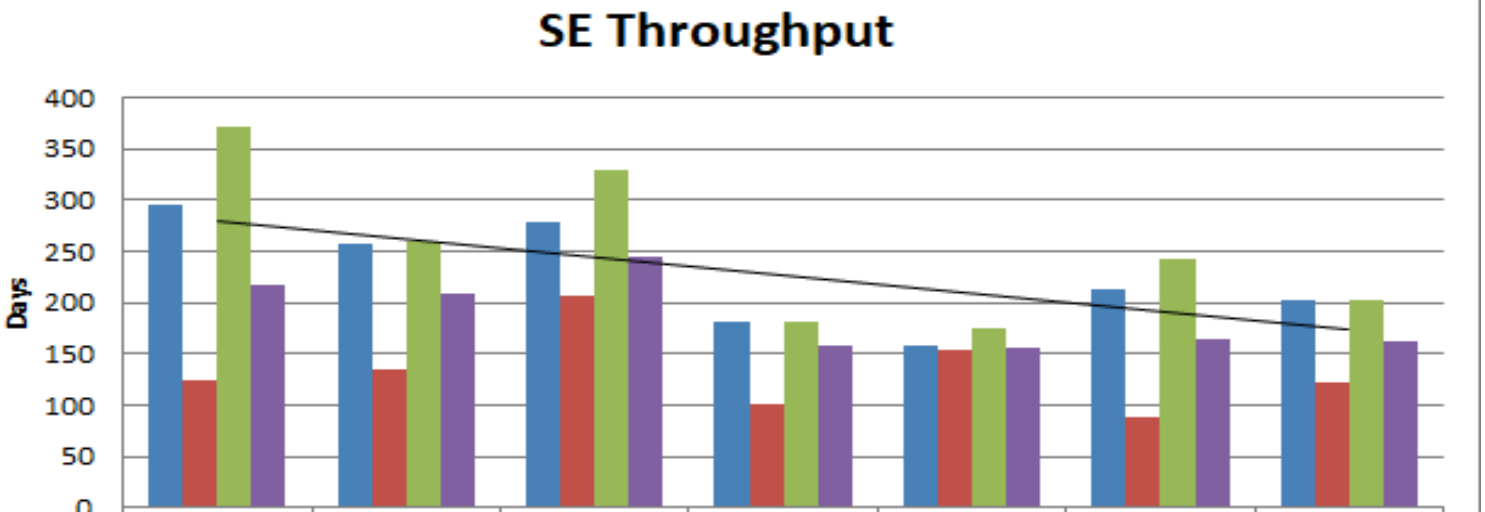
New Academy

- **Week 1- Week 3**
  - M-F with 2 days of operational ride time
- **Week 4-Week 6**
  - Work their assigned shift 2 days a week
  - Academy 2 days
- **Week 7- Week 15**
  - Recruits come every other week for **Sims and Skills**
- **Week 16**
  - Graduation
- **Complete Field Training Evaluation**
- **Medical Clearance**

Overall Process

WCEMS Academy (Old)	5 Weeks	9 Weeks	13 Weeks	17 Weeks	21 Weeks	25 Weeks
Didactic (5 weeks)	■					
Supervised clinical practice (24 weeks)		■	■	■	■	■
Release to practice						■
WCEMS Academy (New)	**5 Weeks**	**9 weeks**	**13 Weeks**	**17 Weeks**		
Didactic	■	■	■	■		
Supervised Clinical Practice	■	■	■	■		
Realease to practice				■		

System Entry Throughput



	Academy 17 (Summer 2015)	Academy 18 (Fall 2015)	Academy 19 (Winter 2016)	Academy 20 (Summer 2016)	Academy 21 (Fall 2016)	Academy 22 (Winter 2017)	Academy 23 (Summer 2017)
90th	296	256	279	181	158	213.8	202
Min	124	134	206	102	153	88	123
Max	372	260	329	181	176	243	202
Avg	218	210	244	158	156	165.5	162.5

Take Away

- Credentialing is a critical part of assuring the quality of care you will provide as a System
- Having a process does not assure that your product will meet your need
- Build your process backwards from the outcome you expect
- Measure the impact and make changes

Transitioning To Transitional Care

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WAKE COUNTY
NORTH CAROLINA

Realigning Reimbursement Policy and Financial Incentives to Support Patient-Centered Out-of-Hospital Care

Kevin Munjal, MD, MPH
Brendan Carr, MD, MS

Innovative models of payment and care delivery are increasingly being used to expand access, improve quality, and reduce medical costs. Although traditional fee-for-service medicine favors doing more than is necessary, newer payment models aim to realign incentives to decrease utilization and increase efficiency. However, little consideration has been given to how fee-for-service reimbursement in out-of-hospital care limits the ability of emergency medical services (EMS) to provide more patient-centered care and reduce downstream health care costs.

Retrospective studies estimate that between 7% and 34% of Medicare patients transported by ambulance to an emergency department could have been safely treated in an alternate environment.[1,2] However, Medicare and other payers provide no reimbursement for out-of-hospital care including response, triage, and patient assessment and treatment unless the patient is transported to an emergency department. The Medicare ambulance billing guide states, "The Medicare ambulance benefit is a transportation benefit and without a transport there is no benefit."[3] With most private insurers mimicking Medicare,[2] this payment policy significantly affects the behavior of EMS agencies contributing to an inefficient use of out-of-hospital care resources.

Financing Out-of-Hospital Care

National EMS expenditures from Medicare are approximately $5.2 billion per year.[4] Although this is less than 1% of total Medicare expenditures, there are considerable downstream health care costs associated with patients transported to emergency departments.[2] An average EMS agency receives 42% of its operating budget from Medicare fees, 19% from commercial insurers, 12% from Medicaid, and 4% from private pay; it requires approximately 23% in additional subsidization, most often provided by local taxes.[2] Thus, more than three-fourths of EMS revenue is generated from fee-for-service reimbursement, the service being transportation, not necessarily medical care.

However, approximately 26% of EMS responses do not result in a transport,[3] including situations in which patients refuse because their condition was effectively treated by EMS prior to transport (such as resolution of hypoglycemia or treatment of asthma). In 2010, median Medicare reimbursement was $464, slightly above the median cost per transport of $429 after adjusting for nontransported patients.[4] This slim margin must cross-subsidize Medicaid and uninsured patients whose care provides little or no reimbursement and would be quickly eroded by any change in transport rates. This creates a perverse incentive for agencies to transport patients to the hospital emergency department, even if transport is not what a patient needs or wants, and even if other alternatives might be better, less expensive, or more patient centered.

Patient-Centered Out-of-Hospital Care

Out-of-hospital care agencies that are reliant on transportation-based fee-for-service reimbursement are limited in the role they can play within the continuum of health care. Consider a patient with uncomplicated asthma who is without β-agonists or a patient with end-stage renal disease who becomes short of breath secondary to fluid overload on the day of dialysis. In either case, a patient-centered approach might be something other than transport to an emergency department. The patient with asthma might benefit from nebulized albuterol treatments and coordination of care with a primary care physician. The patient with renal disease might benefit from stabilization and transportation to the dialysis center. Neither of these alternative approaches would be reimbursed under existing rules. Instead, for EMS to collect $464 in reimbursement, the EMS agency triggers an extra emergency department visit at an average societal expense of $969.[6] The goal of reimbursement reform should be to realign incentives so that EMS agencies are not financially penalized for offering the patient the most medically appropriate option and offering society the highest value intervention.

Options for the EMS system might include a standard ambulance response, a multipatient transport vehicle, a

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HEALTH AFFAIRS 32,
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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

ABSTRACT Some Medicare beneficiaries who place 911 calls to request an ambulance might safely be cared for in settings other than the emergency department (ED) at lower cost. Using 2005–09 Medicare claims data and a validated algorithm, we estimated that 12.9–16.2 percent of Medicare-covered 911 emergency medical services (EMS) transports involved conditions that were probably nonemergent or primary care treatable. Among beneficiaries not admitted to the hospital, about 34.5 percent had a low-acuity diagnosis that might have been managed outside the ED. Annual Medicare EMS and ED payments for these patients were approximately $1 billion per year. If Medicare had the flexibility to reimburse EMS for managing selected 911 calls in ways other than transport to an ED, we estimate that the federal government could save $283–$560 million or more per year, while improving the continuity of patient care. If private insurance companies followed suit, overall societal savings could be twice as large.

Abby Alpert is an assistant professor of economics and public policy at the Paul Merage School of Business, University of California, Irvine.

Kristy G. Morganti is a health policy researcher at the RAND Corporation in Pittsburgh, Pennsylvania.

Gregg S. Margolis is director of the Division of Healthcare Systems and Health Policy, Department of Health and Human Services, in Washington, D.C.

Jeffrey Wasserman (jeffrey@rand.org) is director of RAND Health and vice president of the RAND Corporation in Santa Monica, California.

Wake County EMS APP Program

The Three R's

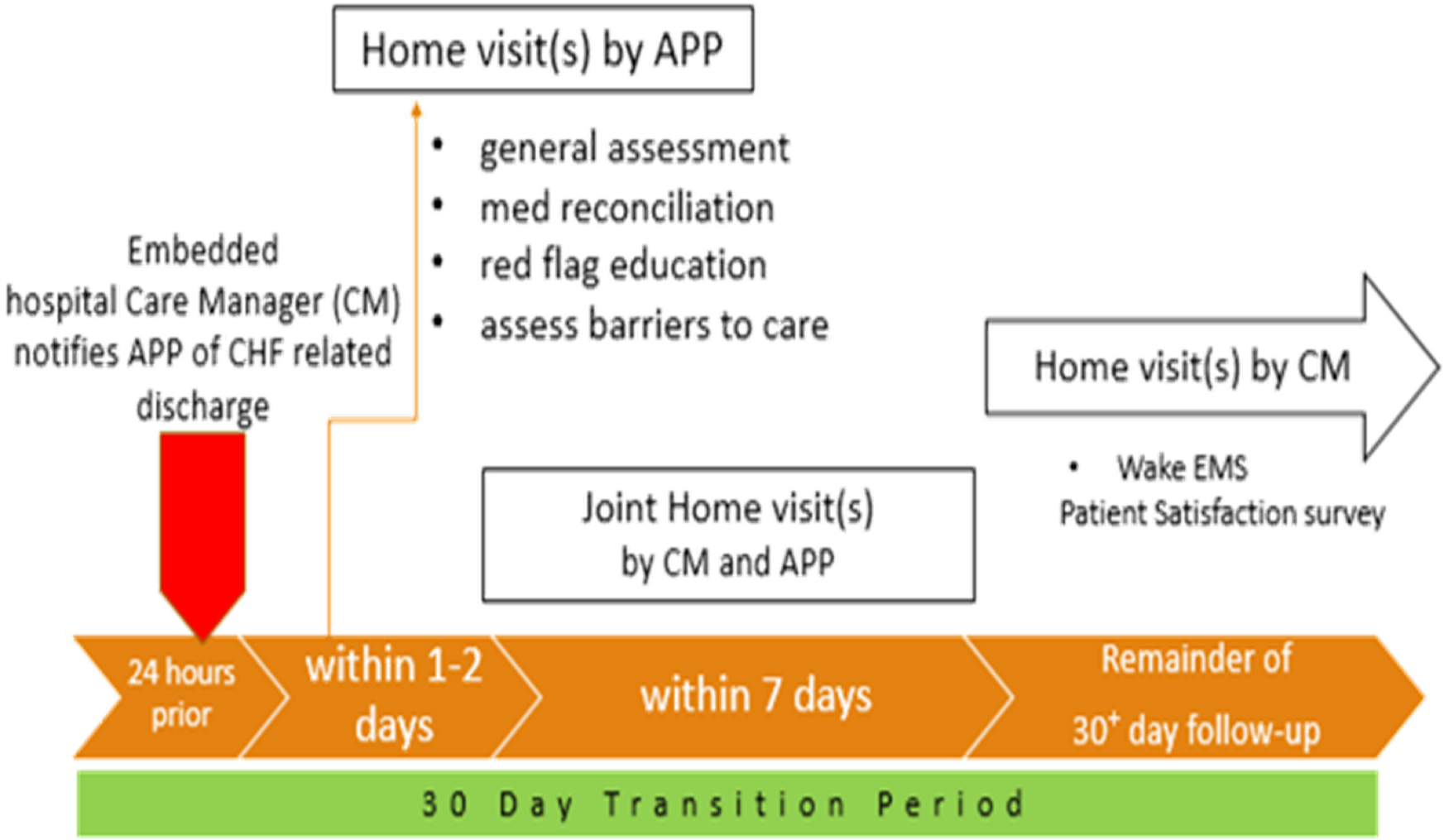
Respond: Critical medical emergencies require an experienced paramedic

Redirect: Not all patients need an emergency dept. evaluation

Reduce: Well-person checks for diabetic patients, CHF patients, etc.

The Opportunity

- **CCWJC is the Community Care network for Wake and Johnston Counties**
  - 170 Primary Care Practices.
- **CCWJC serves approximately 123,000 recipients including:**
  - NC Health Choice
  - Carolina Access Medicaid
  - Carolina Access Medicaid/Medicare
  - Commercially insured patients
  - Uninsured patients

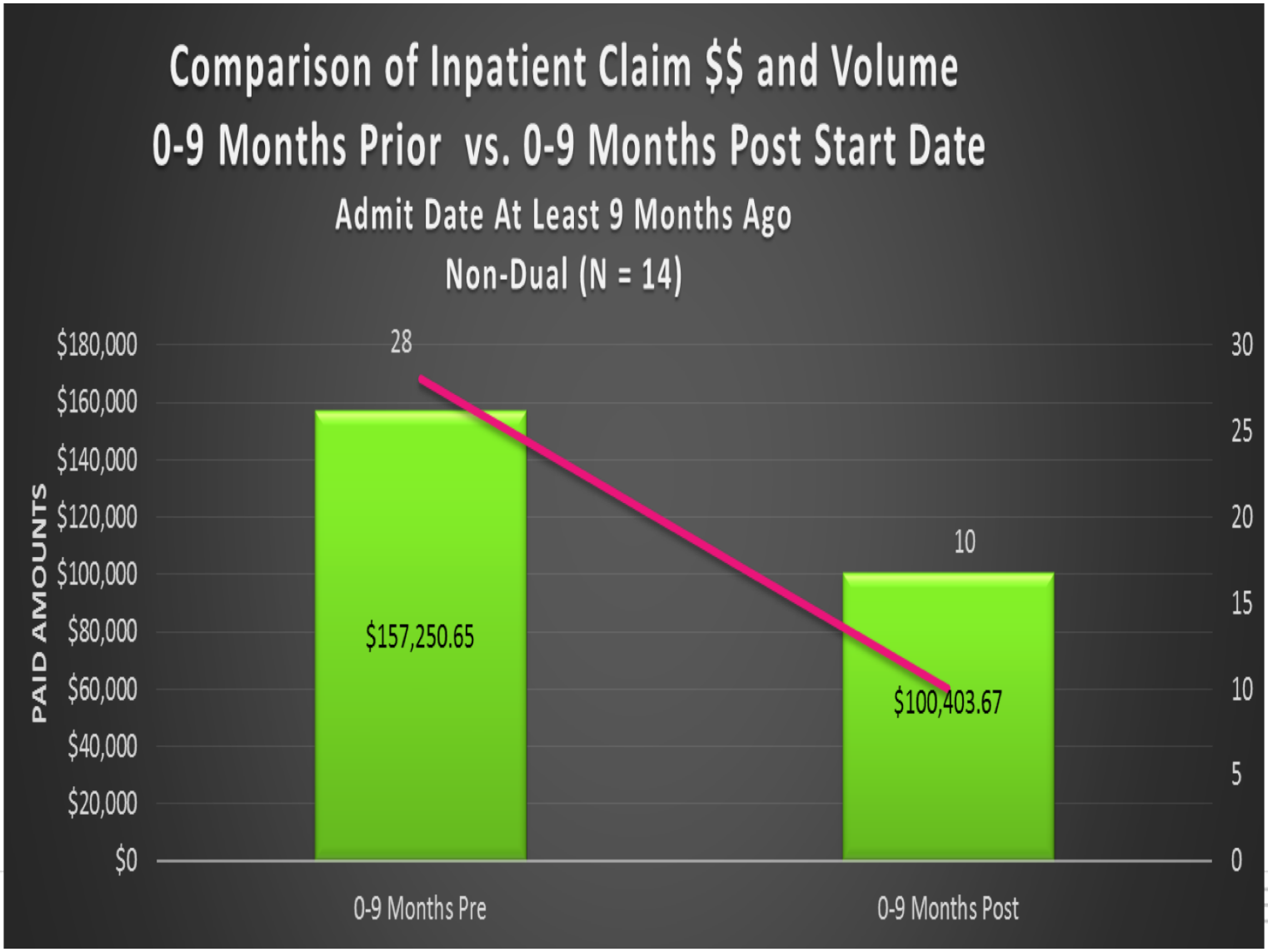

Home visit(s) by APP
• general assessment
• med reconciliation
• red flag education
• assess barriers to care
Embedded hospital Care Manager (CM) notifies APP of CHF related discharge
Home visit(s) by CM
• Wake EMS Patient Satisfaction survey
Joint Home visit(s) by CM and APP
24 hours prior
within 1-2 days
within 7 days
Remainder of 30+ day follow-up
30 Day Transition Period

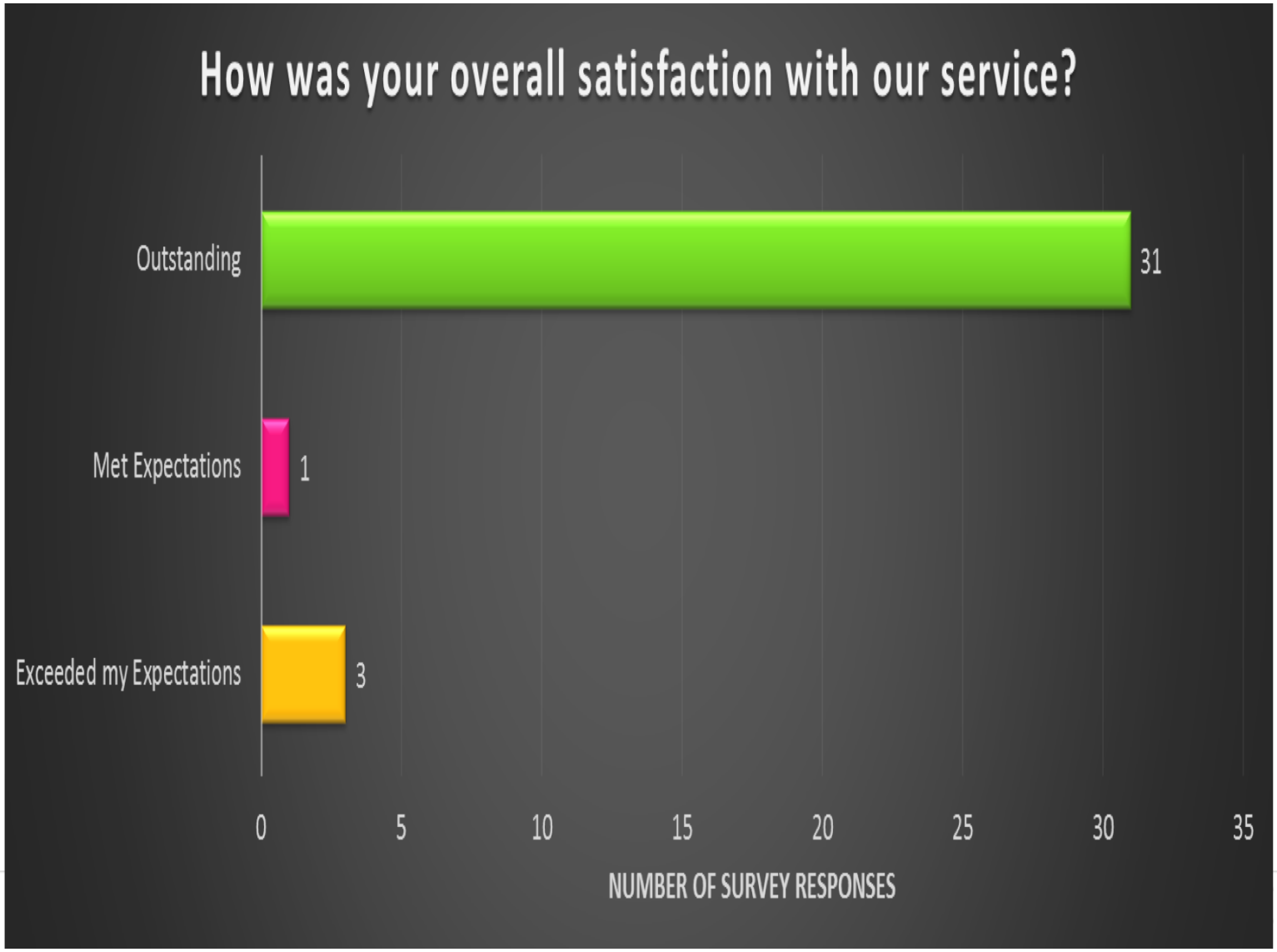
Case - 46 y/o patient with CHF

- **Admitted > 200 days during 2014-2015,**
- **Enrolled in pilot program in April, 2015**
  - Health care expenses:
    - 3 months prior to intervention: **$103,409**
    - 3 months after intervention: **$557**

Initial Actions

- **APPs first visit within 24 hours of discharge**
- **Discovered medication gap and worked with care manager to resolve**
- **Provided immediate red flag education and monitoring**
- **Joint home visit completed by APP/CCWJC within 4 days**


Comparison of Inpatient Claim $$ and Volume
0-9 Months Prior vs. 0-9 Months Post Start Date
Admit Date At Least 9 Months Ago
Non-Dual (N = 14)
PAID AMOUNTS
$180,000
$160,000
$140,000
$120,000
$100,000
$80,000
$60,000
$40,000
$20,000
$0
30
25
20
15
10
5
0
28
10
$157,250.65
$100,403.67
0-9 Months Pre
0-9 Months Post


How was your overall satisfaction with our service?
Outstanding
31
Met Expectations
1
Exceeded my Expectations
3
0
5
10
15
20
25
30
35
NUMBER OF SURVEY RESPONSES