



WELCOME



**Using Data to Measure Value and  
Improve Patient Care – Two Stories of  
How EMS Data is Making a Difference**

EMSFOCUS

## Today

EMSFOCUS  
A Collaborative Federal Webinar Series

ems.gov  
NHTSA's National Office of EMS

- ▶ Importance of using a bi-directional feed in the Health Information Exchange to improve EMS assessment
- ▶ Learn how the Rapid Emergency Medical Score (REMS) measures the impact EMS prehospital care has on patient coordination and Length of Stay at hospitals
- ▶ The positive impact data has on patient care before, during, and after hospital admittance and the potential to improve funding opportunities

## Today's Speakers

EMSFOCUS  
A Collaborative Federal Webinar Series

ems.gov  
NHTSA's National Office of EMS

- ▶ Brooke Burton, NRP, FACPE, Quality Director
  - ▶ Gold Cross Ambulance, Salt Lake City, Utah
- ▶ Jamie Chebra, MS, NRP, Director of EMS
  - ▶ JFK Medical Center, New Jersey
- ▶ Jon Krohmer, MD, Director
  - ▶ NHTSA Office of EMS

**Brooke Burton, NRP, FACPE**

Quality Director

Gold Cross Ambulance, Salt Lake City, Utah

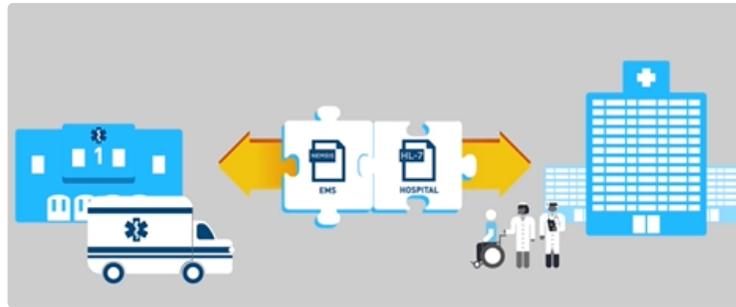


**About Gold Cross Ambulance**



- ▶ 500+ support staff
- ▶ 10,800 square mile service area
- ▶ 79,000 annual calls for service
- ▶ 50,000 annual transports





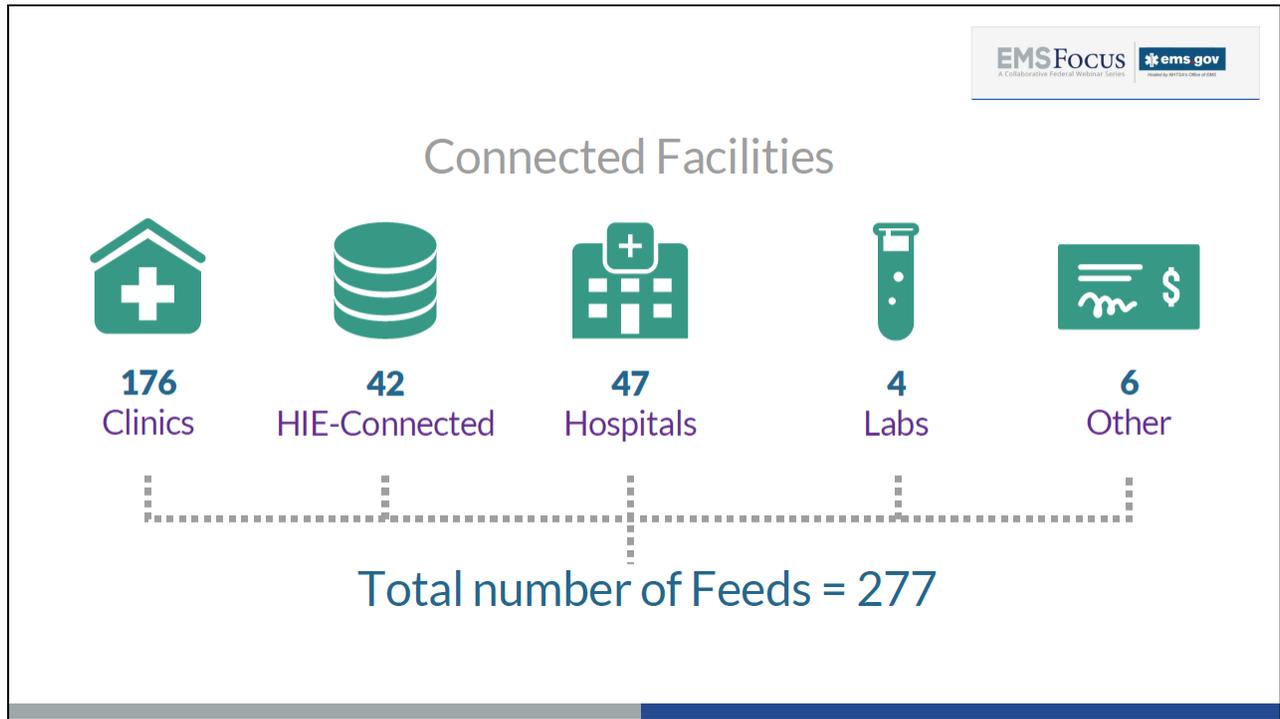
## Health Data Exchange (HDE)

- ▶ Bidirectional
- ▶ Agnostic

## Health Data Exchange (HDE)

- ▶ Voluntary Reporting
  - ▶ 2010
  - ▶ Affordable Care Act (ACA)
- ▶ Office of National Coordinator (ONC) Grant
  - ▶ Health IT
  - ▶ Ended July 2017





# Outcomes

Gold Cross Services  
BURTON, BROOKE

Messages No New Alerts

FROM	MESSAGE	DATE
HELD, NATE	QM Clinical Message Received	Oct 14 2017
CROCKETT, KENTLEE	QM Clinical Message received, thank you for the feedback! I'm pretty strict on using the QCCPS pick-up address.	Oct 12 2017
KREMER, NIC	QM Documentation Message That's a fair question...The general documentation instructions outline what the specific instructions are for	Sep 30 2017
HOLDER, BRAD	QM Documentation Message Completed. Please see Craig's remarks / questions in his response.	Sep 27 2017

Filter by... 1 - 4 of 4

**9 NEW PATIENT OUTCOMES**

Helpful Resources

- Release Notes
- Training

## Outcomes

INCIDENT [REDACTED]

GENDER Male

AGE 70 Years

SCENE [REDACTED]

LEAD [REDACTED]

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DISPATCH [REDACTED]

ON SCENE [REDACTED]

AT PATIENT [REDACTED]

AT DEST [REDACTED]

CLOSE [REDACTED]

View ePCR

View Outcome



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**EMS IMPRESSIONS**

EMD CARD NUMBER/ DISPATCH NATURE 17D04 / Falls

PRIMARY IMPRESSION Injury

SECONDARY IMPRESSION Back Pain

**ED DISCHARGE**

DIAGNOSIS Sepsis, unspecified organism @ 16:32 [REDACTED]

DISPOSITION Discharged/transferred to skilled nursing facility (SNF) @ 16:32 [REDACTED]

## Outcomes

INCIDENT [REDACTED]

GENDER Male

AGE 70 Years

SCENE [REDACTED]

LEAD [REDACTED]

---

DISPATCH [REDACTED]

ON SCENE [REDACTED]

AT PATIENT [REDACTED]

AT DEST [REDACTED]

CLOSE [REDACTED]

View ePCR

View Outcome

	CODE	DIAGNOSIS
ED	A41.9	Sepsis, unspecified organism
ED	K86.9	Disease of pancreas, unspecified
ED	R09.02	Hypoxemia
ED	I95.9	Hypotension, unspecified

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- ▶ CHF
- ▶ Sepsis
- ▶ STEMI
- ▶ Stroke

<b>HDE - Diagnosis Comparison - Sepsis</b>											
Abdominal Pain					14.30%	20%	16.70%				8%
Acute Respiratory Distress (Dyspnea)					57.10%			50%	36.40%		24%
Altered Mental Status				50%		20%	16.70%		50%		11%
Burn				50%							3%
Fever						20%				18.20%	8%
Gastrointestinal hemorrhage										9.10%	3%
Generalized Weakness						20%	33.30%			9.10%	11%
Hemorrhage							16.70%				3%
Hypotension										9%	3%
Injury				50%							3%
Mental disorder					14.30%						3%
Pain (Non-Traumatic)					14.30%						3%
Poisoning / Drug Ingestion			100%								3%
Respiratory Failure	100%										3%
Sepsis/Septicemia				50%		20%	16.70%			9.10%	11%
Substance abuse										9.10%	3%
<b>Total</b>	<b>100%</b>										

# Customizable Reports in Excel

Primary Diagnosis from Emergency Department												
Agency	Login	Incident Num	Incident Date	Chart Num	Reported I	Card Num	EMS Primary Impression	EMS Secondary Impression	Chief Comp	ICD10 Co	ED Diagnosis	Length of Stay
GOLDCROSS	17021724	4/8/2017	500166355	17A	Generalized Weakness					I48.91	Unspecified atrial fibrillation	24018
GOLDCROSS	17022047	4/10/2017	21237044	21D04M	Generalized Weakness			Hypotension		R55	Syncope and collapse	1979
GOLDCROSS	17022207	4/11/2017	12605358	37C07	Injury					S52.021B	Displaced fracture of olecranon proce	14821
GOLDCROSS	17022286	4/11/2017	11025995	31D03	Syncope / Fainting					R19.7	Diarrhea, unspecified	
GOLDCROSS	17022449	4/12/2017	500990127	37C07S	Pneumonia					Z45.02	Encounter for adjustment and manag	44
GOLDCROSS	17022500	4/12/2017	10471522	12A01E	Seizures					G40.309	Generalized idiopathic epilepsy and eq	
GOLDCROSS	17022650	4/13/2017	10682847	26O01	Generalized Weakness						FAILURE TO THRIVE	
GOLDCROSS	17023016	4/14/2017	13348750	37A02	Abdominal Pain			Nausea		R11.0	Nausea	
GOLDCROSS	17023035	4/14/2017	6092357	31A01	Generalized Weakness					R55	Syncope and collapse	153
GOLDCROSS	17023078	4/15/2017	21238556	26	Abdominal Pain					K85.91	Acute pancreatitis with uninfected nec	
GOLDCROSS	17023332	4/16/2017	500662574	37A	Back Pain					Z51.89	Encounter for other specified aftercar	
GOLDCROSS	17023350	4/16/2017	20947909	31C02	Syncope / Fainting					J45.41	Moderate persistent asthma with (acu	
GOLDCROSS	17023423	4/16/2017	20402599	29D02P	Injury					E10.65	Type 1 diabetes mellitus with hypergl	
GOLDCROSS	17023455	4/16/2017	17794687	06C01	Acute Respiratory Distress (Dyspnea)					J45.40	Moderate persistent asthma, uncompl	
GOLDCROSS	17023529	4/17/2017	21216779	26A01	Abdominal Pain					R10.13	Epigastric pain	319
GOLDCROSS	17023636	4/17/2017	21238720	26	Burn						Chemical Burns	5152
GOLDCROSS	17023683	4/18/2017	500859716	13C02	Diabetic Hypoglycemia					E16.2	HYPOGLYCEMIA, UNSPECIFIED	130
GOLDCROSS	17023683	4/18/2017	500859716	13C02	Diabetic Hypoglycemia						LOW BLOOD SUGAR	130
GOLDCROSS	17023718	4/18/2017	500733468	26A07	Generalized Weakness					R53.83	Other fatigue	132
GOLDCROSS	17023874	4/18/2017	10682847	05A01	Back Pain					M54.5	Low back pain	915
GOLDCROSS	17024148	4/19/2017	17996117	17A02	Pain (Non-Traumatic)					J96.01	Acute respiratory failure with hypoxia	
GOLDCROSS	17024186	4/20/2017	501273911	37C07S	Abdominal Pain			Dehydration		K85.00	Idiopathic acute pancreatitis without r	4857
GOLDCROSS	17024542	4/21/2017	15677552	26D01	Mental disorder			Alcohol use		M25.512	Pain in left shoulder	
GOLDCROSS	17024621	4/22/2017	500533928	37A02	Mental disorder					F33.2	MAJOR DEPRESSIV DISORDER, RECUR	7542
GOLDCROSS	17024621	4/22/2017	500533928	37A02	Mental disorder					F32.9	MAJOR DEPRESSIVE DISORDER, SIN	7542
GOLDCROSS	17024944	4/23/2017	500865222	12B01	Seizures			Altered Mental Status		G40.909	EPILEPSY, UNSP, NOT INTRACTABLE,	372
GOLDCROSS	17024944	4/23/2017	500865222	12B01	Seizures			Altered Mental Status			SEIZURE	372
GOLDCROSS	17025102	4/24/2017	13430236	33A01T	Stroke					C79.31	Secondary malignant neoplasm of bre	1672
GOLDCROSS	17025132	4/24/2017	21187881	12B01	Seizures					R56.9	Unspecified convulsions	264
GOLDCROSS	17025287	4/25/2017	21034336	37A01	Labor and delivery complications					O42.919	Preterm premature rupture of membr	
GOLDCROSS	17025289	4/25/2017	500987218	23C02I	Pain (Non-Traumatic)					L03.113	Cellulitis of right upper limb	5804
GOLDCROSS	17025506	4/26/2017	20739132	17B01G	Injury					S39	Fall	
GOLDCROSS	17025570	4/26/2017	501237198	37A01	Abdominal Pain					C54.1	Malignant neoplasm of endometrium	3346
GOLDCROSS	17025571	4/26/2017	20204075	13C01	Diabetic Hyperglycemia			Generalized Weakness		660285	Hyperglycemia	
GOLDCROSS	17025647	4/26/2017	20385107	24	Pregnancy related conditions			Generalized Weakness		O42.919	Preterm premature rupture of membr	
GOLDCROSS	17025705	4/26/2017	21235561	5	Cardiac arrhythmia/dysrhythmia					I50.9	Heart failure, unspecified	

PivotTable Name: PivotTable1  
 Active Field: Count of ED Diagn  
 Options: Field Settings, Drill Down, Drill Up, Group Selection, Ungroup, Group Field, Insert Slicer, Insert Timeline, Filter Connections, Refresh, Change Data Source, Clear, Select, Move PivotTable, Fields, Items, & Sets, OLAP Tools, Relationships, PivotC

	A	B	C
1	EMS Primary Impression	Generalized Weakness	
2			
3	Count of ED Diagnosis		
4	ED Diagnosis	Total	
5	Abdominal Pain		1
6	Acute kidney failure, unspecified		2
7	Back Pain		1
8	Calculus of kidney		1
9	Chronic kidney disease, stage 1		1
10	Chronic pain syndrome		1
11	Dizziness and giddiness		3
12	Encephalopathy, unspecified		1
13	Encounter for fitting and adjustment of other gastrointestinal appliance and device		1
14	Encounter for screening for respiratory tuberculosis		1
15	FAILURE TO THRIVE		1
16	Fall on same level, unspecified, initial encounter		1
17	Malignant neoplasm of parietal lobe		1
18	Nausea with vomiting, unspecified		2
19	Other fatigue		2
20	Other mechanical complication of other gastrointestinal prosthetic devices, implants and grafts, initial encounter		2
21	Other specified anemias		1
22	Other specified disorders of teeth and supporting structures		1
23	Shortness of Breath		1
24	STEMI INVOLVING OTH CORONARY ARTERY OF I		1
25	Syncope and collapse		4
26	Tachycardia, unspecified		1
27	Traumatic compartment syndrome of left upper extremity, initial encounter		1




**INCIDENT** [REDACTED]

**GENDER** Female

**AGE** 50 Years

**SCENE** [REDACTED]

**LEAD** [REDACTED]

---

**DISPATCH** [REDACTED]

**ON SCENE** [REDACTED]

**AT PATIENT** [REDACTED]

**AT DEST** [REDACTED]

**CLOSE** [REDACTED]

[View ePCR](#)

[View Outcome](#)



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**EMS IMPRESSIONS**

EMD CARD NUMBER/ DISPATCH NATURE: 37C06S / Stroke/CVA

PRIMARY IMPRESSION: Stroke

**ED DISCHARGE**

DIAGNOSIS: Tingling/Numbness

DISPOSITION: not available

**HOSPITAL DISCHARGE**

DIAGNOSIS: Conversion disorder with motor symptom or deficit @ 11:30 [REDACTED]

DISPOSITION: Discharged to home or self care (routine discharge) @ 11:30 [REDACTED]

## Benefits

- ▶ Billing and demographic info
- ▶ Training
- ▶ Interaction
- ▶ Improved patient care



## The Rapid Emergency Medical Score (REMS) and EMS Showing Value in High-Quality Clinical Care

**Jamie Chebra, MS, NRP**

Director of EMS

JFK Medical Center, Edison, New Jersey

**EMSFOCUS**

## EMS in New Jersey, It's Different

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ems.gov  
EMERGENCY MEDICAL SERVICES OFFICE OF OASD

- ▶ Legislatively mandated:
  - ▶ Two tiered system
  - ▶ Unregulated Basic Life Support
  - ▶ Nurse required Critical Care Transport
  - ▶ Certificate of Need coverage areas for ALS
  - ▶ ALS is hospital based
  - ▶ ALS required two advanced providers
  - ▶ No provision/exclusion for Community Paramedicine

## JFK EMS

EMSFOCUS  
A Collaborative Federal Webinar Series

ems.gov  
EMERGENCY MEDICAL SERVICES OFFICE OF OASD

- ▶ ALS program has existed since 1976
- ▶ Major overhaul and investment in 2011
  - ▶ BLS
  - ▶ CCT
  - ▶ Control Center
  - ▶ Education

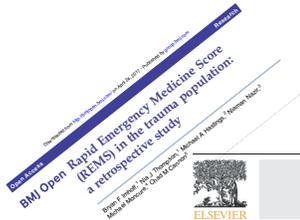
## Concept

- ▶ Show empirical, quantifiable data that the care that EMS provides in the prehospital environment impacts patient coordination and Length of Stay (LOS)
- ▶ Enhance the concept of Access, Quality and Cost (IHI Triple Aim)
- ▶ Establish a platform to show value in EMS, in \$
- ▶ Create a defensible position for EMS funding in the competitive reimbursement arena

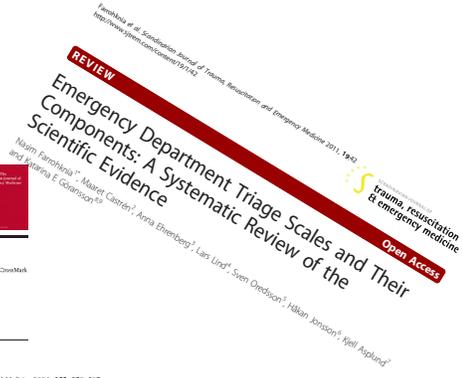
## What is a REMS Score

- ▶ The Rapid Emergency Medical Score (REMS) is a scoring system designed to predict morbidity and mortality in an Emergency Department
- ▶ The score comes from a formula that looks at patient's age, pulse rate, mean arterial pressure, respiratory rate, oxygen saturation, and Glasgow Coma Score
- ▶ REMS score by prehospital providers can add quantifiable data that can help answer the fundamental question that will define our profession: "Does EMS make a difference?"

# Support for REMS as a Predictor of Morbidity & Mortality



Original Contribution  
 Evaluating clinical care in the prehospital setting: Is Rapid Emergency Medicine Score the missing metric of EMS?  
 Scott M. Alter, MD<sup>a</sup>, Alison Infinger, MSPH<sup>b</sup>, Doug Swanson, MD<sup>ab</sup>, Jonathan R Studnek, PhD, NRP<sup>ba</sup>  
<sup>a</sup> Carolina Medical Center, Department of Emergency Medicine, Charlotte, NC, United States  
<sup>b</sup> Maryland EMS Agency, Charlotte, NC, United States



Rapid Emergency Medicine score: a new prognostic tool for in-hospital mortality in nonsurgical emergency department patients  
 T. OLSSON<sup>1,2</sup>, A. TERENI<sup>1</sup> & L. LIND<sup>1,3</sup>  
 From the <sup>1</sup>Department of Internal Medicine, University Hospital, Uppsala; <sup>2</sup>The Research and Development Unit, Jamnland County Council, Östernorrund; and <sup>3</sup>AstraZeneca R&D, Mölndal, Sweden

Research Forum Abstracts  
**11** The Modified Rapid Emergency Medicine Score: A Novel Trauma Triage Tool for Predicting In-hospital Mortality  
 Miller R, Nair A, McDonald J, Cannon DM/University of Kansas School of Medicine, Kansas City, KS; University of Kansas Medical Center, Kansas City, KS; University of Kansas Hospital, Kansas City, KS

# Where We Maybe Going

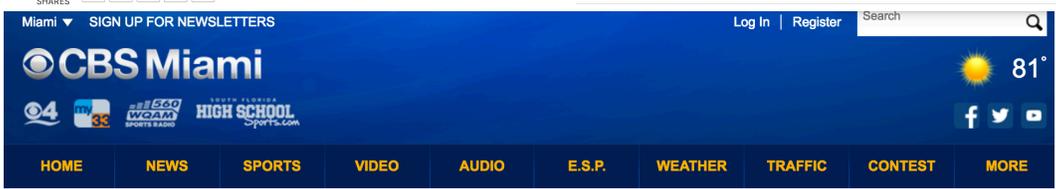


Home / Reviews / Consumer Electronics / Health & Fitness / Why I Used Uber Instead of an Ambulance  
**Why I Used Uber Instead of an Ambulance**  
 BY CHANDRA STEELE JULY 18, 2016 10 COMMENTS  
 Some people (including me) are choosing Uber over traditional medical transport. Here's why.  
 1.2K SHARES

## The rise of the Uber ambulance: Surge in people opting for ride share instead of emergency services

- There has been a surge of Uber drivers taking their passengers to the hospital
- Riders opt for the cab due to cost, short wait time and a choice of drop off
- But drivers warn that not using a traditional EMS could seriously endanger the health of patients

By MARY KEKATOS FOR DAILYMMAIL.COM  
 PUBLISHED: 17:38 EDT, 5 April 2017 | UPDATED: 19:15 EDT, 5 April 2017



## Expert Warns: Take Ambulance Instead Of Uber Or Lyft To ER

April 7, 2017 5:35 PM

## JFK EMS and the REMS Score- Methodology

- ▶ JFK EMS, in pursuit of quantifying the the benefit of prehospital care, began tracking REMS scores in September of 2015
- ▶ REMS score are calculated by a retrospective EPCR report custom built by Zoll
- ▶ All staff (ALS and BLS) trained on use of the score in ePCR
  - ▶ All transported patients on first and last set of vital signs
  - ▶ Soft closed call rule as reminder to complete REMS score
- ▶ REMS calculated for all service lines (ALS, BLS, SCTU)
  - ▶ Yes, JFK BLS carry Pulse Ox

## JFK EMS REMS Data



- ▶ N=1800
  - ▶ ALS
  - ▶ BLS
- ▶ Limitations
  - ▶ Soft closed call rules
  - ▶ Anomalies
    - ▶ BLS no ALS available
    - ▶ ALS transporting BLS pt.
    - ▶ Mutual Aid ALS with JFK BLS

Nature	Dispatched Cases	Treated ALS	Pt with positive REMS changes	LOS comparison
Sepsis related	476	329	299	(2.58) days
Diff Breathing	883	641	598	(1.27) days
Chest Pain	791	443	388	(0.78) days

Nov 2017 to May 2018  
Non- risk adjusted  
Calls meeting criteria

## Opportunities

- ▶ Get more organizations involved
- ▶ Representatives did not actually have the power to make decisions on behalf of their organizations
- ▶ We made a new thing
- ▶ It was a start

# Q/A

For more information about EMS Data Use, visit <https://www.ems.gov/emsdata.html>

A recording of this session will be available on [ems.gov/ems-focus](https://www.ems.gov/ems-focus)

# Q/A

**To contact today's presenters:**

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