Multnomah County EMS Staffing Challenges

Jon Jui MD, MPH

MCEMS Call Volume

- 911 Calls
  - 120,000 + calls
    - 33% BLS only with no ALS intervention
    - 8% to 10% critical care
  - Fire
    - Funded by City
    - Limited staffing
      - No incremental staffing in spite of growth in population
  - EMS (AMR)
    - 40% EMS only dispatched

How to handle increased number of calls

- "Right resource to right place at right time"
  - Alternative response (peer support)
  - BLS (2 EMT or 1 EMT / 1 driver)
  - ALS
    - ALS mixed (1 paramedic/ 1 EMT)
  - ALS critical care
    - ALS engine
    - ALS 2 paramedic ambulance

MCEMS Challenges
Goal: Resources to the right place at the right time

- Dispatch is an "inexact science"
- No universal EMS acuity grading system like "Emergency Severity Index"
- Each EMS system is different
  - Dispatch accuracy
  - First response
  - Ambulance (ALS or BLS)
  - Location of hospital
  - Community being served

MCEMS Modification of EMS Operations

- Hold low priority calls
- Deploy BLS ambulances

MCEMS Lower Priority Call Que by EMS Paramedic

- MPDS alpha category calls
- Transfer to AMR paramedic for further contact with caller
  - AMR paramedic calls patients and interviews patient
  - Ability to upgrade the call
  - gives estimated time of arrival of the ambulance
- To date, over 700 calls entered in to "que"
  - A number have been upgraded
  - No lights and siren responses back to the hospital

Ability of First Responders to clear the scene

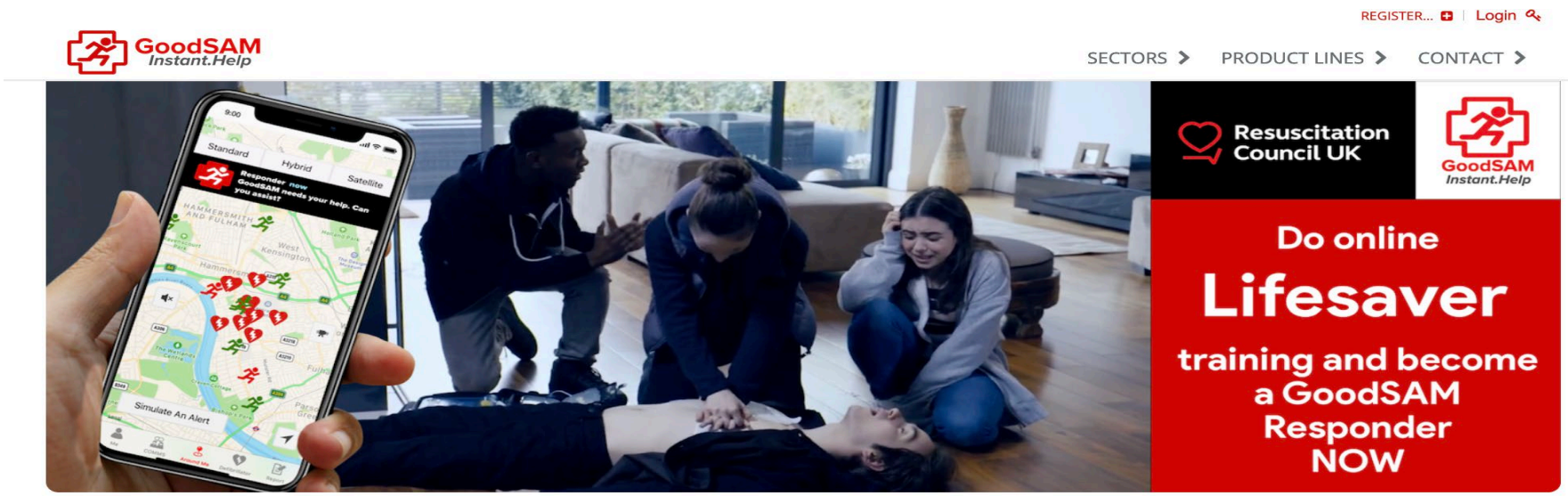
Equivalent to "seeing the patients in the waiting room"

Other Potential Dispatch Options

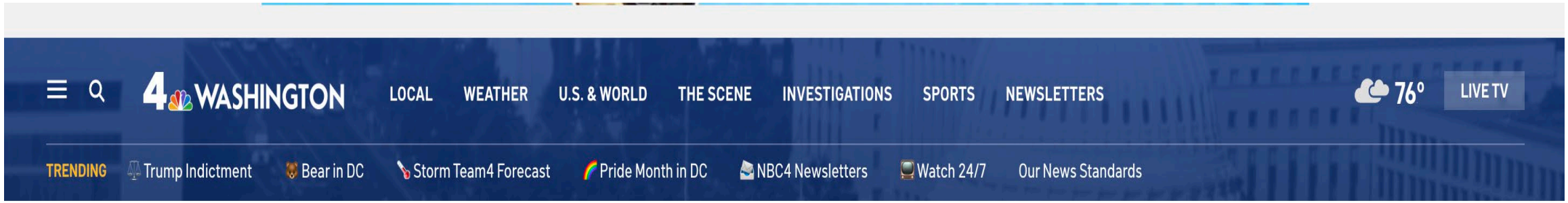
More Precise Dispatch

911 Dispatch by Paramedics : San Antonio Fire

Good Sam EMS App



DC Nurse Triage Line



WASHINGTON DC

DC Nurse Triage Line Prevents Thousands of Unnecessary ER Trips, Fire Chief Says

About 17,000 calls have been diverted away from the emergency room in the four years since the program started

By Mark Segraves, News4 Reporter • Published February 24, 2022 • Updated on February 24, 2022 at 7:26 pm

Strengthen or change Scene Response

How to handle increased number of calls

- Manage 911 calls better
  - Alternative options
    - Mental Health Crises line
    - Mobile Crisis Response Team
  - Alternative EMS response
    - Portland Street Response
    - Community EMS (Portland Fire CHAT)

Portland Street Response

Portland Fire Community Health Assess and Treat (CHAT)

Multnomah County Crises Response Team

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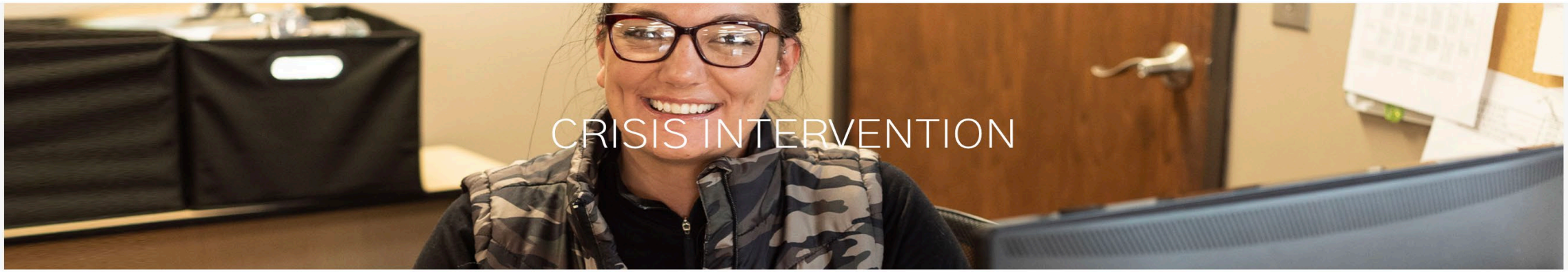


Project Respond

Project Respond is a mobile mental health crisis response team that provides an array of crisis, specialized, and culturally aware services. Project Respond focuses on helping an individual and/or family regain a sense of control over thoughts, feelings, and events. Individual strengths and preferences are considered during all support interventions.

+ Crisis Team
+ Gresham Service Coordination Team
+ Behavioral Health Response Team (BHRT)

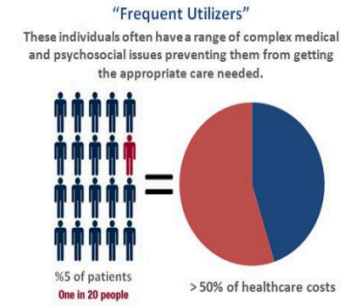
MCEMS TC 911

Developing an Alternative Payment Strategy for the Tri-County 911 Service Coordination Program (TC911)

Presented by: Lead Social Worker, Alison Goldstein, LCSW

Background

A small subset of health care consumers account for a disproportionate amount of health resources and expenses. A similar pattern is seen in local emergency medical services. Some refer to these individuals as "frequent utilizers" or "super users" of health care services.



Source data from Dept HHS, 2013.

With the right support, many of the costs generated by these individuals, such as emergency department (ED) visits, can be avoided and care can be directed to the most appropriate services.

About TC911

TC911 serves Multnomah, Washington and Clackamas County residents who use emergency medical services when other services or supports are more appropriate. TC911 staff help people find the right care in the right place by providing short-term intensive case management and multi-system care coordination. TC911 was one of several regional innovation projects developed and funded through a Center for Medicaid and Medicare Innovation grant that ended June 30, 2015.

TC911 Outcomes

In October 2014, Providence Center for Outcomes Research and Education (CORE) conducted an analysis of TC911 program impact and outcomes and found **statistically significant reductions in mortality and health care costs and improvements in care** for the highest risk, highest cost Medicaid enrollees. This analysis showed that TC911 resulted in reductions in:

- ED visits by .35 per member per month (PMPM),
- Inpatient hospitalizations by .45 PMPM, and
- Mortality by almost five times compared to the control group.

The table below shows changes in member cost and utilization before and after TC911 intervention between March 2013 and June 30, 2015 (no control group comparison).

Tri County 911 OUTCOMES MONITORING	PRE-ENROLLMENT BASELINE	POST-ENROLLMENT OUTCOMES	GOAL RELATIVE TO MATCHED COMPARISON GROUP
LOWER COSTS			
PMPM total allowable costs	$3,453	$2,384	⬇ 9%
Total utilization by care setting			
Average primary care visits per member year	6.5	6.5	⬆ 10%
Average outpt. behavioral health visits per member year	15.6	20.0	Not set
Average emergency department visits per member year	12.7	8.6	⬇ 20%
Average inpatient visits per member year	1.7	0.9	⬇ 20%
Readmission rates: 30-day	44%	28%	⬇ 10%
BETTER CARE			
Primary care or specialist visit within 7 days of hospital discharge	n/a	24%	TBD

Source: Providence Center for Outcomes Research and Education (CORE). CMMI grant data ending June 30, 2015.

Problem

Traditional health care payment models don't currently exist to pay for TC911 services. The regional coordinated care organizations (CCOs) agreed to financially support TC911 for FY 2015-2016 while a long-term payer source and payment method are identified.

Project Goals

Implement an alternative, value-based payment structure supported by multiple payers for TC911 long-term sustainability.

Project Objectives

- Sign one-year contracts with CCOs
- Expand TC911 eligibility and capacity to serve more people in need
- Provide clinical intervention to 300+ Medicaid members annually
- Inventory and examine various payment strategies
- Facilitate a TC911 Stakeholder Summit to compare and determine the most appropriate payer(s) and best payment method
- Partner with CORE to reevaluate TC911 patient utilization and program outcomes

Outputs to Date

- Negotiated scope of work and reporting requirements with CCOs (April-July 2015)
- Signed initial contracts with Health Share of Oregon and FamilyCare (September 2015)
- Completed initial inventory of TC911 benefactors and payment models/methods (October 2015)
- Compiled and applied FY 2014-15 TC911 data to various payment options, comparing costs and other impacts (October-November 2015)
- Initial planning of Stakeholder Summit (September 2015-ongoing)

For more information:
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This project is supported by Multnomah County, FamilyCare , Inc. and Health Share of Oregon.

Other Patient Care Delivery Options

Alternative Delivery Models

- Telehealth
  - Paramedic
  - Nurse Triage
  - Provider
- Needs integration with health systems

LA City Fire Advanced Provider

NEWS

LAFD PARTNERS WITH HOSPITALS TO EXPAND INNOVATIVE ADVANCED PROVIDER RESPONSE UNITS

PRINT

Monday, July 23, 2018 Central Bureau South Bureau Valley Bureau West Bureau

LAFD Spokesperson: Peter Sanders

LAFD Fire Chief Ralph Terrazas with supporters of the Advanced Provider Response Unit (APRU) program.
Photo Credits: *LAFD Alex Gillman*

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MORE SOCIAL

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Alternative Transport

Patients who are stable and only need transport

- "Uber, Lift"
- Cabs
- Medical Transport

EMS DATA : EMS Patient Acuity Scoring System

- EMS data including hospital outcomes
- Staffing availability
- Research on outcomes
  - Key clinical variables leading to better outcomes
  - Time sensitive presentations
    - Cardiac Arrest
    - Trauma ALS / BLS
    - Respiratory distress
    - Shock
    - Stroke / STEMI / Sepsis

EMS Staffing: Increase or Maintain EMS Providers

- Recruitment
- Retention

MCEMS Summary

- Improvement of 911 dispatch
  - Lower priority calls further details by EMS providers
  - Safety net for lower priority calls
- Response
  - Transition to tiered system of ALS and BLS
  - Telemedicine
  - Assess and treat at scene
- Alternative transport and destination

Improving Dispatch Accuracy with Clinical Data

Jeffrey L. Jarvis, MD, MS, EMT-P, FACEP, FAEMS
CMO and System Medical Director
Metropolitan Area EMS Authority
Fort Worth, TX

Criteria Definitions

Critical Incidents

L&S Transport

Criteria Definitions

Priority Criteria

Priority	Tier	Mode	Type	Critical %	Critical Hypoxia %	ALS %	L&S %	% of all incidents
1	ALS	Hot	911	≥15%				
2	ALS	Hot	911	≥1%				
2	ALS	Hot	911	<1%	≥15%			
3	ALS	Hot	911	<1%	≥5% AND EMD Card 29 (MVC)			
3	ALS	Hot	911	<1%		≥5% AND EMD Card 29		
3	ALS	Hot	911	<1%	≥5% AND		>5%	
4	BLS	Hot	911	<1%		<5% AND EMD Card 29		
5	ALS	Cold	911	<1%	≥5%		<5%	
6	ALS	Hot	IFT - Emergency	<1%				
7	ALS	Cold	911	<1%		≥5%		
8	BLS	Cold	911	<1%		<5%		
9	ALS	Cold	IFT – Non-Emergency	<1%				
10	BLS	Cold	IFT	<1%				

Thanks to Dr. Veer Vithalani

90-Day Comparison

Old

Priority	Call %	Critical %	BLS %
P1 ALS Hot	24.7%	5.3%	56%
P2 ALS Hot	39.1%	1.1%	71%
P3 ALS Cold	36.2%	0.7%	80%

Total Hot: 63.8%

New

Priority	Call %	Critical %	BLS %
P1 ALS Hot	2.4%	38.5%	28%
P2 ALS Hot	23.2%	2.8%	53%
P3 ALS Hot	8.4%	0.6%	61%
P4 BLS Hot	6.3%	0.3%	92%
P5 ALS Cold	41.5%	0.3%	71%
P7 ALS Cold	6.2%	0.08%	82%
P8 BLS Cold	12.0%	0.14%	91%

Total Hot: 40.3%

	Pre	Post
L&S Use	64%	40%
% of P1 Responses	27%	2%
P1 Responses With Critical Incidents	5%	39%
Accuracy	30%	68%

Hybriding Detroit Wheels: *How Private Agencies Be Used to Offload 9-1-1 Volume Load and Increase Paramedic Availability*

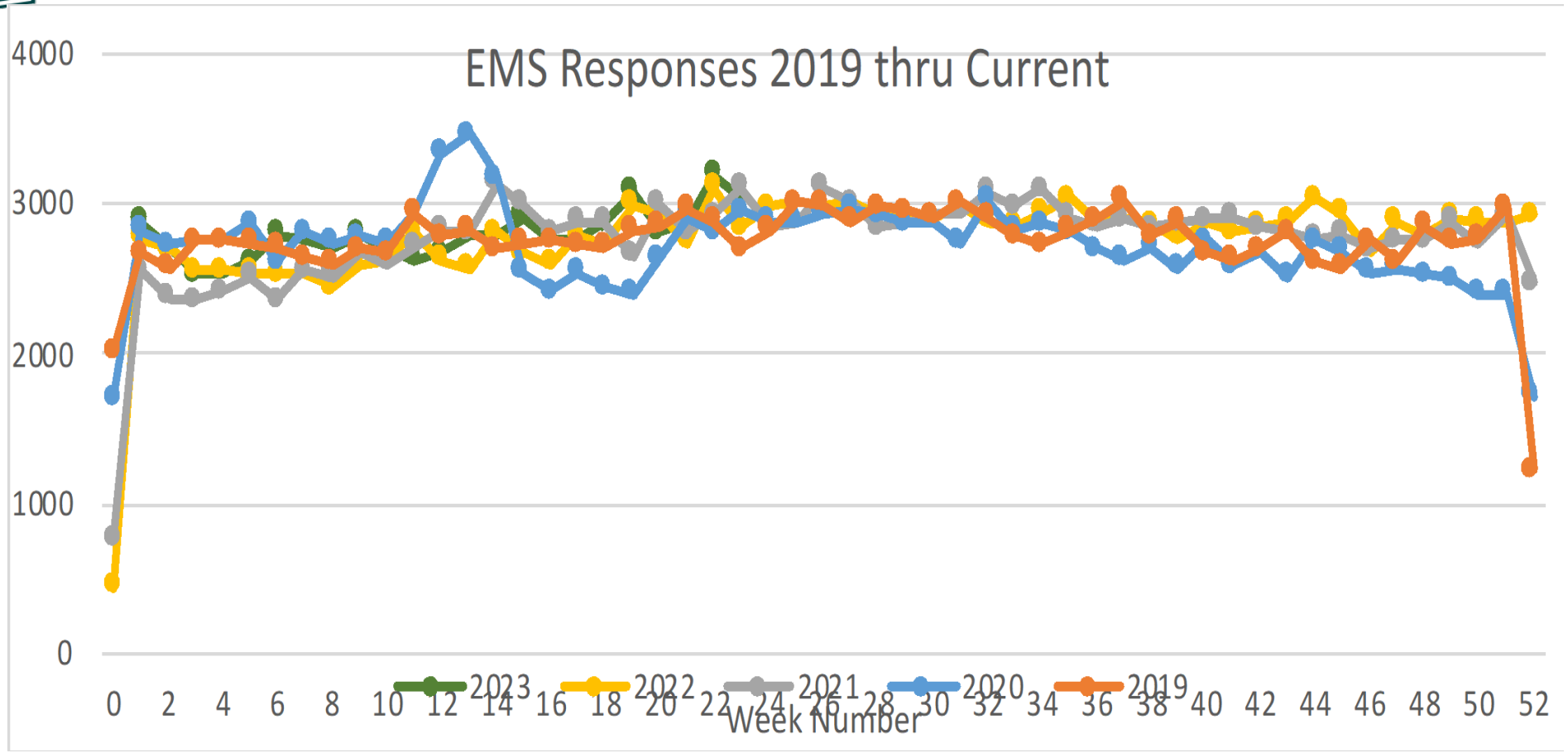
Robert B Dunne, MD FACEP, FAEMS
Medical Director
Detroit Fire Department
Detroit East Medical Control Authority

2023 More Calls, Fewer DFD Personnel

- Attrition
- Retirement
- Training time
- Anticipated peak summer volumes
- Improved Budget

A Detroit EMS worker begs for financial assistance.

SUMMER SURGE



Old is New: Fire Department 2011: Long Relationships

- 6-10 Functioning EMS units/ No MFR
- EMS and Fire single role
- Private EMS responded, no formal realtionship
- No units available every day
- 2015:
- Formal Contract
- More Integration

2015 Formalizing relationships with Private Providers

Private Provider Emergency Response Services

2023 Expanding Contractual Relationships

Detroit adding 11 private ambulances to bump fire department's fleet to 40

- (CBS D … eet after signing an emergency contract with U…
- The de… services. Officials say this training period could r…
- To prev… onth emergency contract with Universal Macon… ervice in Detroit.
- "This is… he city of Detroit. "We're providing a higher level o… of our current EMTs and medics."
- The co… ract was signed. These 18 ambulances will suppor… means up to 40 ambulances will be available on Det…

Photo by: KSTU

Posted at 11:52 AM, Jun 12, 2023 and last updated 11:52 AM, Jun 12, 2023

Good morning Detroit: Send us your video & be on TV

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INTEGRATING INTO THE SYSTEM

- ISSUED A DETROIT RADIO AND CALL SIGN
- DISPATCHED BY DETROIT EMS DISPATCH
- SUPERVISED BY EMS SUPERVISORS
- INTEGRATED INTO RESPONSE PLANS
- DATA REPORTED WEEKLY

Having BLS Do More

- 9 -12 ALS
- 24 – 30 BLS depending on time on time of day
  - EASY STUFF First
    - ALBUTEROL
    - NARCAN
    - EPI IM – DRAWN UP
    - ASPIRIN
  - HARDER (3 years now)
    - ALS MONITORS ON BLS TRUCKS
    - 12 LEAD
    - CPAP
    - ETCO2
    - BLS Termination
  - FUTURE
    - Nurse Line
    - Alternative Transport

A BLS Rally in Raleigh: What Has Raleigh and Wake County Learned from their Successful Tiering Experience?

José G. Cabañas, MD, MPH
Chief Medical Officer
Wake County Government

WAKE COUNTY
NORTH CAROLINA

Background…

- **Wake EMS historically staffed "at least one paramedic" on every truck responding to 911 calls**
  - Medic-Medic, Medic-AEMT, Medic-EMT, Medic/FTO-Medic-EMT
- **Summer 2021 – staffing challenges, growth, need for new plan**
- **BLS units in-service 9/20/2021**
  - 2 peak-load units, EMT-EMT or AEMT-EMT

The EMS Industry is affected by major disruptive forces impacting service delivery across many communities.

Wake County EMS System

BLS AMBULANCES

- Add system capacity for low acuity calls
- Right Resource, Right Call

NURSE NAVIGATION

- Self-Care
- Enhanced Call Triage
- Coordinate transportation
- Refer to appropriate access point

ALTERNATIVE DESTINATIONS

- Telehealth
- Crisis Centers
- Mobile Crisis Program
- Patient Navigation & Coordination

How we got there…

- **What calls should BLS units respond to?**
  - Developing a BLS response plan - Analysis of care by EMD code
- **Operational configuration**
  - What's on the trucks?
  - Dispatch assisted by EMS shift commander
- **On-boarding and training crews**

Analysis of our care by EMD code

- **Reviewed a year's worth of calls using our ESO data**
  - Reported out EMD code, clinical criteria, meds/procedures, etc.
- **Ex: of all the 26A1 calls (sick person, no priority symptoms),**
  - what percentage of those patients met high acuity criteria and/or received ALS meds/interventions
- **Calls with a lower percentage (20%? Less?) were highlighted for potential BLS unit dispatch**

LOW ACUITY EMS DISPATCH CRITERIA CAN RELIABLY IDENTIFY PATIENTS WITHOUT HIGH-ACUI
Hinchey, Paul;Myers, Brent;Zalkin, Joseph;Lewis, Ryan;Garner, Donald, Jr
Prehospital Emergency Care; Jan-Mar 2007; 11, 1; ProQuest Central
pg. 42

Low Acuity EMS Dispatch Criteria Can Reliably Identify Patients without High-Acuity Illness or Injury

Paul Hinchey, MD, MBA, EMT-P, Brent Myers, MD, MPH, Joseph Zalkin, EMT-P,
Ryan Lewis, EMT-P, Donald Garner, Jr. EMT-P

Abstract

Objective: This retrospective study evaluated the appropriateness of requests assigned the alpha determinant at the time of dispatch by Emergency Medical Dispatchers using

Introduction

Emergency managers face rising call volumes coupled with shrinking financial and personnel resources. The

Analysis of our care by EMD code

- What calls had "high acuity" a high percentage of the time, and/or received 12 lead/ALS meds

Row Labels	No	Yes	Grand Total	12 lead and Meds	Meds Only	ALS/BLS
26A01	496	224	720	31%	18%	BLS
26A02	92	141	233	61%	14%	BLS
26A03	38	90	128	70%	31%	ALS
26A04	47	29	76	38%	26%	ALS
26A05	60	58	118	49%	21%	ALS
26A06	23	46	69	67%	43%	ALS
26A07	70	37	107	35%	21%	ALS
26A08	143	73	216	34%	25%	ALS
26A09	35	8	43	19%	7%	BLS
26A10	225	136	361	38%	17%	BLS
26A11	84	139	223	62%	56%	ALS
26A12		1	1	100%	100%	ALS
					BLS Total	2714

192 determinants on the final list, ~10% of total determinants Alphas, Omegas, Bravos

Operational considerations

- **All BLS units are stocked with the same equipment, meds, supplies as every other truck in the system**
  - Crews know their scope of practice
  - Flexibility with rolling stock for 911 service, special events
- **Dispatch framework established and response plans created**
  - Modifications to dispatch criteria "in real time" by our shift commander
- **Hospital System and ED partner education**

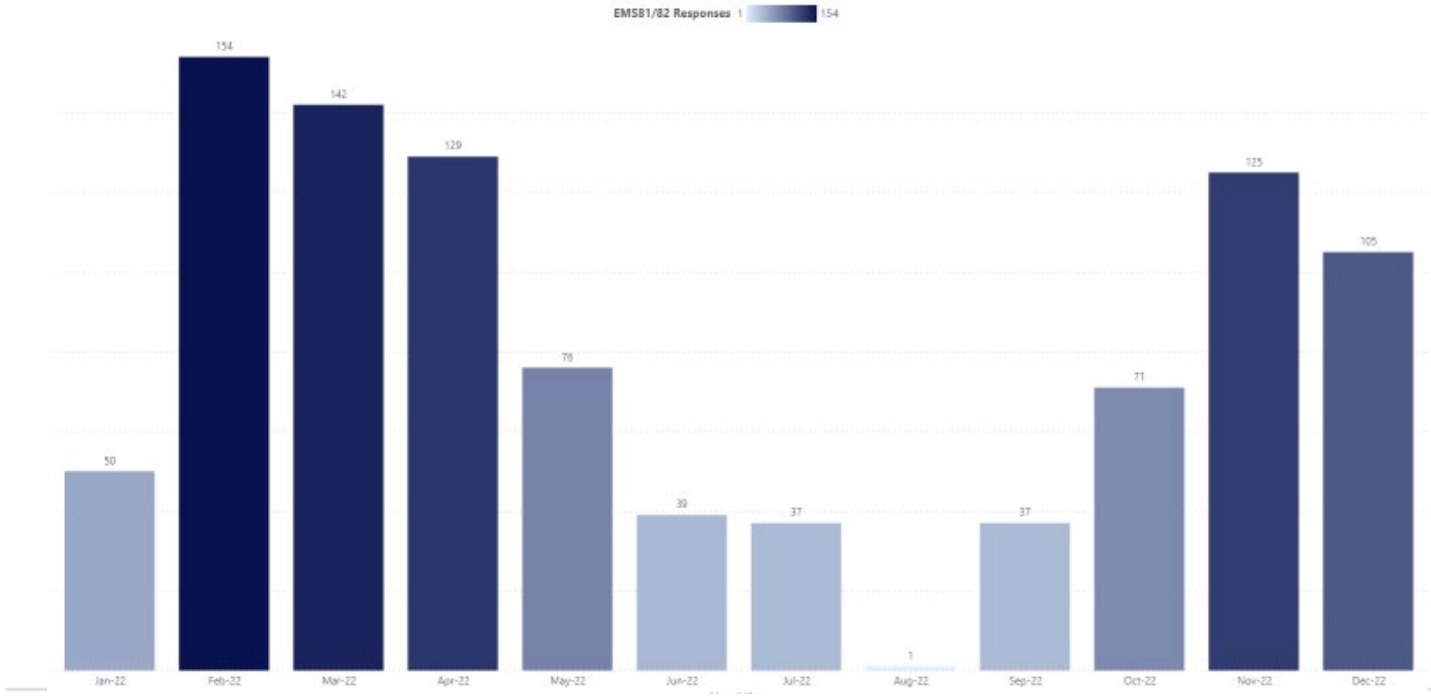
Dispatch rules

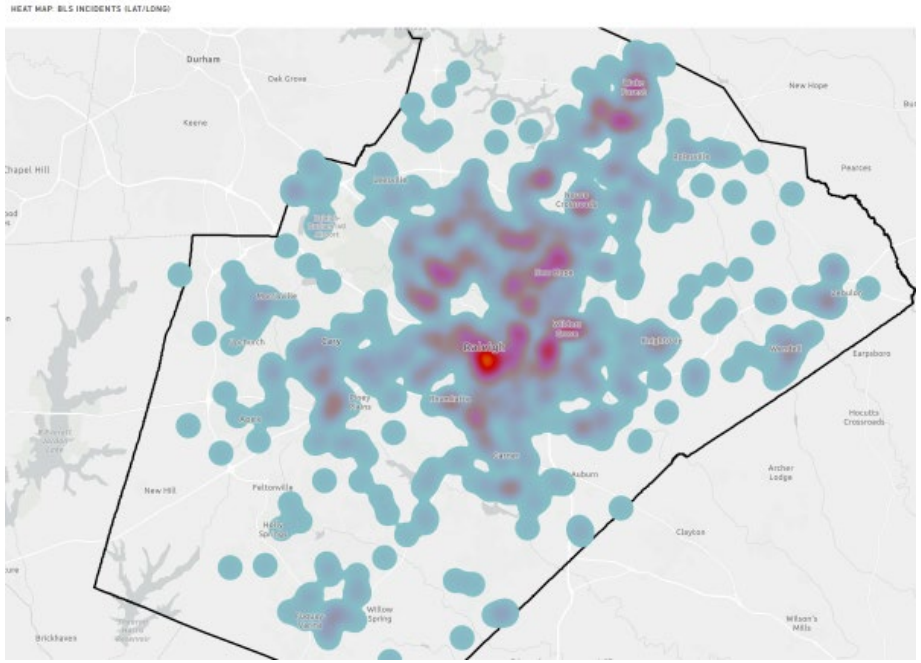
- **1 BL if it can arrive within 20 minutes, if not, and ALS can beat the BLS by 5 minutes, ALS will be sent**
  - Ex. BLS 27 minutes away, ALS 25 = BLS sent
  - Ex. BLS 27 minutes away, ALS 20 = ALS sent

- **CAD configured already to swap units based on closest unit and EMD determinant level**

Operations metrics – CY 2022

- Staffing challenges, especially in the summer (no BLS unit in service)
- ~1000 BLS unit responses during CY 2022
- Geography, units in service (vs. on a call) and dispatch rules

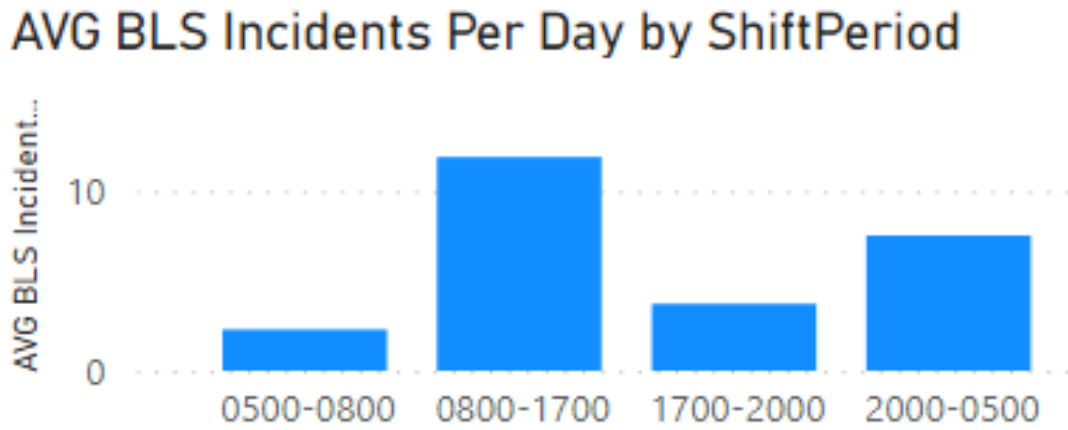




Operations metrics – CY 2022

- **About half of BLS unit calls run (n=496) were on the "BLS response plan"**
  - Others initiated by shift commander or closest additional unit (e.g. to a code)
  - BLS unit + single paramedic responder during times of low unit availability
- **On average, ~30 incidents per day that are in the BLS response plan**
  - ~11k/yr, or ~9% of call volume

Problem	EMS81	EMS82	Total
Sick Person 26A1	102	46	**148**
Falls 17A4G	62	26	**87**
Sick Person 26A10	49	21	**70**
Sick Person 26A2	23	11	**34**
Hemorrhage/Lacerations 21A1M	17	3	**20**
Sick Person 26O6	14	2	**16**
Sick Person 26A9	7	5	**12**
Sick Person 26O28	8	3	**11**
Sick Person 26O7	5	6	**11**
Falls 17A3G	7	1	**8**
Headache 18A1	5	2	**7**
Cardiac Arrest 9B1A	3	2	**5**
Hemorrhage/Lacerations 21A1T	4	1	**5**
MVC Injuries 29B5U	3	2	**5**



Operations metrics – Summary

- **There are more than enough "BLS response plan" calls to support more BLS units**
  - BLS units are busy and/or far away, so ALS units still take the great majority of "BLS response plan" calls

- **BLS units are also being successfully assigned to calls outside the "BLS response plan"**

Summary/Take Home – BLS unit implementation

- **Ask yourself: What calls do you want your BLS trucks to run?**
  - Then ask: What calls are they actually running?

- **Develop clinical guidance: What if a BLS unit ends up with an ALS patient?**

- **Match geography, number of units to demand**

Questions?

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