

Criteria Based Dispatch: How one System Changed

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Special Thanks to:

Capt. Mark Monfore, MICP AFD



Disclaimer

- I am not a dispatcher
- Never have been a dispatcher
- I am an involved medical director with immense respect for what our first first responders do

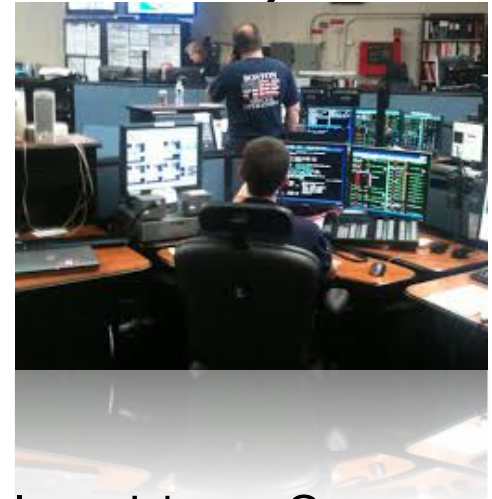


Where we were..

- 20+ years using a rigid algorithm based dispatch system to triage calls, provide pre arrival instructions and to deploy emergency resources
- QA: Experienced EMDs struggled to consistently identify cardiac arrest
- Dispatchers had to ask unnecessary questions (e.g. attempting to verify breathing by counting respirations in patients when breathing was absent or ineffective)
- Delays initiating CPR while navigating through the program to reach the emergency pre arrival instructions

What's the nature of the problem (with dispatch?)

- Lack of flexibility?
- Trouble identifying cardiac arrest?
- Unnecessary questions in (inflexible) algorithms?
- Delays in initiating DA-CPR navigating the program to reach the emergency pre-arrival instructions?



Where we started



- Algorithm based dispatch: ask questions, input data: dispatchers not encouraged to understand what the triage questions mean
- Dispatchers were looking for “Yes”/“No” answers to check a box in the program so the algorithm would generate a response (with no clear understanding of the dispatcher or the acuity of the pt)
- Calls are processed without real ownership of the decision process



Goal of Change



- Immediately rule out cardiac arrest on every call
- Streamline process
- Unimpeded access to emergency instructions (DA-CPR, Choking, Childbirth) when required at any point in the decision process was critical

Evaluation and Transition to CBD

- CBD: working group assembled to consider:
 - Would it likely improve and streamline our process?
 - Improve cardiac arrest recognition?
 - Decrease time to DA-CPR?
 - Improve dispatcher ownership and understanding relative to patient acuity?



Evaluation

- Two staff members went to 32 hour course prior to assisting with the evaluation process
- Emergency calls were processed in a controlled setting utilizing both our current system (MPDS) and the CBD system



Findings

- CBD: fluid and simple regarding ruling out cardiac arrest at the outset of every medical call
- CBD: allowed unimpeded access to other emergency instructions (DA-CPR, childbirth, choking, etc)
- The call taking, access to “problem type”, pre arrival instructions: all very easy
- Affordable
- Flexible
- Transition to the new system seemed “do-able” and warranted



Manual Call View Previous Calls Preferences Help

CDD INTRODUCTION | ICD CODES | MEDICAL ABBREVIATIONS | GLOSSARY | TRIP TRANSFERS | ALL CALLER INTERVIEW | Emergency Instructions

44851

Are they awake? (Conscious?)

Speaking to Patient

Yes

Bring the phone to the patient so I can speak to them

No

If no, ask the next question (breathing normally)

Don't Know

Can they talk to you?
Can they respond to you?
Can you wake them up?

Sex Age

Initial Complaint Save

CPR In Progress

Are they breathing normally?

Yes

No

If uncertain: Bring the telephone to the patient and check to see if the chest is rising and falling.

If R/P is still uncertain or describes the breathing as anything other than normal, then select NO and go directly to the appropriate CPR instructions.

If patient is not conscious and not breathing normally, begin CPR instructions.

- Immediately dispatch a cardiac arrest response.
- Give all applicable call back information to the responders.
- Send second rescuer to retrieve AED or send lone rescuer ONLY if AED is nearby and easily ac

AED CDD Adult CDD Neonate (Newborn) CDD Child CDD Infant CDD Pregnant CDD Tracheostomy Infant

Emergency Instructions

AED
CPR Adult
CPR/Neonate (Newborn)
CPR Child
CPR Infant
CPR Pregnant
CPR Tracheostomy Infant
CPR Tracheostomy Child
CPR Tracheostomy Adult
Choking Adult - Conscious
Choking Adult - Unconscious
Choking Pregnant or Obese - Conscious
Choking Pregnant or Obese - Unconscious
Choking Child - Conscious
Choking Child - Unconscious
Choking Infant - Conscious
Choking Infant - Unconscious
Unconscious Patient - Breathing Normally
Emergency Childbirth
Emergency Childbirth Complications
Aspirin Administering Instructions

Chief Complaint

1. Abdominal/Back Pain	2. Allergic Reaction	3. Infectious Disease	4. Bleeding (Non-traumatic)
5. Breathing Problem	6. Cardiac Arrest	7. Chest Pain/Heart Problems	8. Choking
9. Diabetic Problem	10. Environment/Toxic Exposure	11. Medical Facility	12. Head/Neck
13. Psych Problem	14. D.D./Poison	15. Pregnancy/Childbirth	16. Seizure

“All Call” Interview Screen

New Paradigm



- Talk to the patient directly: any patient reported to be awake in the all call interview is asked to be on the phone so the dispatcher can speak directly to them
- Talking first person was a significant new approach for us as opposed to asking canned scripted questions
- CBD: designed to identify potential compromise in any of the three most critical body systems: neuro, circulatory and respiratory
- CBD based on two dimensions: level of care required (ALS v BLS) and urgency of care

Positive Findings

- Eliminated unnecessary delays in DA-CPR
- Eliminated unnecessary questions
- Allowed for rapid dispatch
- Reduced call processing times
- Empowered dispatchers: dispatcher discretion
- Autonomy for dispatchers
- FLEXIBILITY: WE CAN CHANGE PROTOCOLS



KING COUNTY CRITERIA BASED DISPATCH GUIDELINES - Connected

New Call View Previous Calls Preferences Help

CBD Introduction JDC Codes Medical Abbreviations Glossary All Caller Interview TRP Transfers **Emergency Instructions**

224519 - ChestDiscHeart

CHEST DISCOMFORT/HEART PROBLEMS

DISPATCH CRITERIA Add Patient

P1

Medic Response

- 7M1 Unconscious, non-responsive to verbal or touch
- 7M2 Male, age ≥ 40 chief complaint ongoing chest discomfort
- 7M3 Female, age ≥ 45 chief complaint ongoing chest discomfort
- 7M4 Male/female, age ≥ 25 with breathing difficulty - unable to speak normally
- 7M5 Rapid heart rate/palpitations, with history of same
- 7M6 Signs of shock: Syncope when sitting/standing
- 7M8 Defib implant shock
- 7M9 LVAD - Left ventricular assist device

BLS Red Response

- 7R1 Male, age < 40
- 7R2 Female, age < 45
- 7R3 Rapid heart rate/palpitations, no history and no medic criteria
- 7R4 No info available from RP

Q Codes

- 7Q1 Request from Scene (was 7R1)
- 7Q2 Request from Scene (was 7R2)
- 7Q3 Request from Scene (was 7R3)
- 7Q4 Request from Scene (was 7R4)

ASK VITAL POINTS

Sex **M** Age **35**

Ask to speak directly to the patient, if possible!

1. Where is the discomfort located?
2. **What are the patient's symptoms today?**

PT C/O: Headache

3. Is the patient speaking normally?
4. Is the patient having any trouble breathing?
5. What happens when the patient sits or stands up?
6. Does the patient have a history of rapid heart rate?

KEY TO SYMBOLS:
 Less than: <
 Less than or equal to: ≤
 Greater than: >
 Greater than or equal to: ≥

Short Report

7. Is the patient taking nitroglycerin (NTG)? (See Pre-Arrival Instructions)
8. Has the patient ever had heart surgery or an MI?

Additional Information

save

CLOSE CBD CALL **BACKGROUND INFO**

PRE-ARRIVAL INSTRUCTIONS

- Have patient sit or lie down.
- Keep patient calm.
- Has the patient been prescribed nitroglycerin (NTG)?**
- If the patient has a prescription for NTG, **and they DO NOT FEEL FAINT OR LIGHTHEADED!**, advise the patient to take the medication only as their doctor has prescribed.
- Gather patient meds.
- If caller/patient asks about aspirin, advise:

SHORT REPORT

Call History

Time	Detail
08:24:37	BU PAI Have patient sit or lie
08:24:36	BU PAI Keep patient calm.
08:24:30	BU AI Came on about 5 hou
08:23:46	BU Q2 PT C/O: Headache
08:21:26	BU CC7 ChestDisc/Heart
08:21:20	BU AI CHEST PAIN
08:21:10	BU SEX M
08:21:10	BU AGE 35
08:19:48	RII Pre An

Chief Complaint START NEW CALL Flag for Review Flag for Training


1. Abdominal/Back Pain	2. Allergic Reaction	3. Infect. Disease	4. Bleeding (NonTR)	5. Breathing Difficulty	6. Cardiac Arrest	7. ChestDisc/Heart
8. Choking	9. Diabetic	10. Environ/ToxicExp	11. Medical Facility	12. Head/Neck	13. Mental/Psych	14. O.D./Poison
15. Preg/Childbirth	16. Seizures	17. Sick(?)/Other	18. Stroke (CVA)	19. Uncons/Syncope	20. Pediatrics	21. Assault/Trauma
22. Burns	23. Drown/Water	24. Falls/Acc/Pain	25. MVA	26. Animal Bites		

Other positive findings identified with CBD during our trial period included: eliminating unnecessary delays in DA-CPR, eliminating unnecessary questions, allowed for rapid dispatch, reduces call processing ti



Apparatus Status (1.0.3.49 - TRAINING SERVER) - Network is Online!

My Unit | Current Incidents | AVL Map | AVL Data | Hospital Status | Maps | Information | CAD Road Closures

M04 **Wednesday, 10:20:57** 

Dispatched

Incident Start: 10:18:43 Incident Duration: 00:02:14

[Chest Pain/Heart Prob-CR/CY]
Code Red/Yellow

Visicad #: 0000842
RMS #:

1301 E 80th Ave

Dispatch Test Grid: ANSW2232 / G-2232
Cross: GREENWOOD ST/HOMER DR Sta12HA - Anchorage

Assigned: M04
Responding:

Scene:

Timestamp	Comment
10:20:33	[CBD] 50 YOM, CON/BR, ACTIVE CHEST PAIN WITH RADIATING TO R ARM, HX MI 2007
10:19:08	[CBD] IDC: 7M2 selected - Male, age > 40 chief complaint ongoing chest discomfort
10:19:02	[CBD] M 50

Connected! Refresh Timers Started! ●●●●● AFDD00243940: 10.20.1.89



Where we are today

- 5 month implementation phase April 2014
- eCBD interfaced with CAD and working well
- Each dispatcher received 32 hours of instruction on CBD including anatomy and physiology, identifying sick vs non-sick, in-depth instruction on each chief complaint within the CBD program to include emergency instructions



QUICK LINKS

EMT

- [Ask the Doc](#)
- [Case of the Month](#)
- [Cardiac Case Review](#)
- [Prehospital Emergency Care Journal](#)

Paramedics

Dispatcher

EMS ONLINE NEWS & ALERTS

News and Alerts

- [King County: EMS QI Audit-Stroke Bc by admin - Aug 27, 2013](#)
Attached is a report that takes a look at key time intervals for EMS-evaluated stroke patients. We will continue to monitor ...
- [King County: EMS QI Audit - Stroke Documents](#)
- [King County: EMS QI Mini-Audit - At Patient Sides](#)
- [King County: EMS QI Audit-Stroke Benchmark T](#)
- [King County: EMS Audit - CPR Compression Ra](#)

COURSES

- EMT - 2013**
- EMT - 2012**
- EMT - 2011**
- Paramedic - 2013**
- Paramedic - 2012**
- Dispatch**
 - [Decreased LOC](#)
 - [Pediatric Emergencies](#)
 - [Infectious Disease EMD](#)
 - [EMD SICK/NOT SICK](#)
 - [Anatomy and Physiology](#)
 - [Overdose and Poisoning](#)
 - [Diabetes](#)
 - [Seizure/Altered LOC](#)
 - [Dispatch Stroke \(NW Stroke\)](#)
 - [Shock](#)
 - [Respiratory Emergencies](#)
 - [Trauma - 2011](#)
 - [EMD-2012-Bleeding-Non-Trauma](#)
 - [EMD-2012-Obstetrics-and-Gynecology](#)
 - [EMD-2013-ChestPain](#)

ROC

EMT - Ongoing Training

US & WORLD EMS NEWS

- Emergency Medical Services**
[Register Investigation: Branstad defends](#)
DesMoinesRegister.com - Oct 22, 2013
Iowa's emergency medical services system was the focus of a Register investigation in April. That report showed that Iowa — which does not require

King County Guest



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DEPARTMENT NEWS [EDIT](#)

DEPARTMENT LINKS [EDIT](#)

Implementation

- A work group was identified to review AFDs response profiles and transition the responses to the new initial dispatch codes within CBD. Some CBD chief complaints were customized or enhanced at the discretion of our medical director based on our geographical area and demographics needs
- AFD's IT staff designed an interface that enabled the electronic CBD program to pass a copy of incident information to our CAD program which reduced redundancy as well as allowed field responders to view the incident data on their apparatus MDC

Implementation (cont)

- A QA program has been designed and implemented with dispatchers receiving formal feedback on every cardiac arrest call. Feedback includes call processing times, dispatch times, time to first compression, as well as call processing proficiency. Post incident analyses are performed within the dispatch center after each cardiac arrest. Dispatchers also receive regular feedback from random call selection reviews
- All phases of cardiac arrest dispatch times are being captured and reported to the CARES program.

Quality Measures

- IT staff created interface from CBD to CAD to pass copy of incident info viewable on MDC in real time
- Formal feedback on every cardiac arrest call including dispatch times, time to first compression, processing proficiency
- Audio from the 911 call is imbedded in feed back form

Compliance Goals

- Cardiac recognition: 95%
- DA-CPR: 75%
- Immediate months following: 87% of cardiac arrests recognized, DA-CPR 78.5% in those cases
- 2015: CA recognition >95%, DA-CPR >95%

Cares Data Entry Form

Cares Data Entry

Dispatch Preliminary

Anchorage Fire Department 2/15/2015 2:06:50 AM Cad: 2015231000009818 / RMS: 0004596 Calltaker: Tallman, Don

Attach audio file: Audio File Available for playback here: [Play Audio](#)

Was this a cardiac arrest before arrival of EMS?	CPR already in progress?	Did Dispatch recognize need for CPR?	CPR instructions started?	Were compressions started?
<input type="radio"/> Yes	<input type="radio"/> Yes	<input type="radio"/> Yes	<input type="radio"/> Yes	<input type="radio"/> Yes
<input type="radio"/> No	<input type="radio"/> No	<input type="radio"/> No	<input type="radio"/> No	<input type="radio"/> No
<input type="radio"/> Unknown	<input type="radio"/> Unknown	<input type="radio"/> Unknown	<input type="radio"/> Unknown	<input type="radio"/> Unknown
<input type="radio"/> N/A	<input type="radio"/> N/A	<input type="radio"/> N/A	<input type="radio"/> N/A	<input type="radio"/> N/A
<input type="radio"/> <i>e</i>	<input type="radio"/> <i>e</i>	<input type="radio"/> <i>e</i>	<input type="radio"/> <i>e</i>	<input type="radio"/> <i>e</i>

Barriers to CPR (Check all that apply)

<input type="checkbox"/> Hang up phone	<input type="checkbox"/> Caller left phone	<input type="checkbox"/> Caller refused	<input type="checkbox"/> Caller not with patient
<input type="checkbox"/> Language barrier	<input type="checkbox"/> Overly distraught	<input type="checkbox"/> Couldn't move patient	<input type="checkbox"/> Patient's status changed
<input type="checkbox"/> Difficult patient access	<input type="checkbox"/> Other (please specify) <input type="text"/>		

Cardiac arrest witnessed?	Who initiated CPR?	Type of CPR:	Were Agonal Respirations audible?
<input type="radio"/> Yes	<input type="radio"/> Lay Person	<input type="radio"/> Compressions Only	<input type="radio"/> Yes
<input type="radio"/> No	<input type="radio"/> Lay Person-Family Member	<input type="radio"/> Compressions with Ventilation	<input type="radio"/> No
<input type="radio"/> Unknown	<input type="radio"/> Medical Person	<input type="radio"/> Ventilation Only	<input type="radio"/> Unknown
<input type="radio"/> N/A	<input type="radio"/> 1st Responder	<input type="radio"/> N/A	<input type="radio"/> N/A
<input type="radio"/> <i>e</i>	<input type="radio"/> EMS Personnel	<input type="radio"/> <i>e</i>	<input type="radio"/> <i>e</i>
	<input type="radio"/> Unknown		
	<input type="radio"/> N/A		
	<input type="radio"/> <i>e</i>		

Cares Entry Form

Dispatch Patient

Demographic <input type="radio"/> Adult <input type="radio"/> Child <input type="radio"/> Infant <input type="radio"/> Unknown <input type="radio"/>	Conscious? <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown <input type="radio"/>	Breathing Normally? <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown <input type="radio"/>
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Dispatch Time Measures

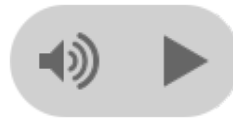
Transfer Call? <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown <input type="radio"/>	If yes, time elapsed before dispatcher first addressed caller? Minutes: <input type="text" value="0"/> Seconds: <input type="text" value="0"/> <input type="checkbox"/> Unknown																												
Dispatch recognizes need for CPR: Minutes: <input type="text" value="0"/> Seconds: <input type="text" value="0"/> <input type="checkbox"/> Unknown	Dispatcher began instructions: Minutes: <input type="text" value="0"/> Seconds: <input type="text" value="0"/> <input type="checkbox"/> Unknown	Time to first compression: Minutes: <input type="text" value="0"/> Seconds: <input type="text" value="0"/> <input type="checkbox"/> Unknown																											
<p><i>The following sets of times should automatically come from CAD, but can be manually edited if need be. The APD specific times for example. These will feed into Time Spans for performance measures. By default, we will consider the APD Rx time as the start of our durations, unless we have the APD times, and trust the given values.</i></p>	<table border="1"> <thead> <tr> <th></th> <th>Update APD Times</th> <th></th> <th>Accumulated</th> </tr> </thead> <tbody> <tr> <td>APD Rx:</td> <td><input type="text" value="2015-02-15 02:06:49"/></td> <td></td> <td></td> </tr> <tr> <td>APD Tx:</td> <td><input type="text" value="2015-02-15 02:06:39"/></td> <td>00:00:50</td> <td>00:00:50</td> </tr> <tr> <td>AFD Rx:</td> <td><input type="text" value="2015-02-15 02:06:50"/></td> <td>00:00:11</td> <td>00:01:01</td> </tr> <tr> <td>1st Key:</td> <td><input type="text" value="2015-02-15 02:06:50"/></td> <td>00:00:00</td> <td>00:01:01</td> </tr> <tr> <td>In Queue:</td> <td><input type="text" value="2015-02-15 02:07:17"/></td> <td>00:00:27</td> <td>00:01:28</td> </tr> <tr> <td>Dispatched:</td> <td><input type="text" value="2015-02-15 02:07:54"/></td> <td>00:00:38</td> <td>00:02:06</td> </tr> </tbody> </table>		Update APD Times		Accumulated	APD Rx:	<input type="text" value="2015-02-15 02:06:49"/>			APD Tx:	<input type="text" value="2015-02-15 02:06:39"/>	00:00:50	00:00:50	AFD Rx:	<input type="text" value="2015-02-15 02:06:50"/>	00:00:11	00:01:01	1st Key:	<input type="text" value="2015-02-15 02:06:50"/>	00:00:00	00:01:01	In Queue:	<input type="text" value="2015-02-15 02:07:17"/>	00:00:27	00:01:28	Dispatched:	<input type="text" value="2015-02-15 02:07:54"/>	00:00:38	00:02:06
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Dispatch Comments

Coaching or compliments for dispatcher?

Other comments?

Rubber Meets the Road



Making their worst day a new day

Criteria Based Dispatch

- Suits our system
- Improved response to high priority life threats
- Rapidly adopted by dispatch
- Empowers dispatch
- Flexibility



Does your Dispatch Method Meet Your Needs?

- Are you setting and meeting standards for recognition and dispatch of high acuity events?
- Are you fully utilizing the skills and experience of your first, first responders?
- Do you have the flexibility to adjust to your environment?

