EMS in the Nation’s Capital: Progress Report From an Evolving System

February 24, 2010
Assistant Fire Chief Rafael Sa’adah
District of Columbia Fire & EMS Department
EAGLES 2010, Dallas, TX
EMS in DC: a Progress Report

Our objectives:

• Discuss the catalyzing events that led to the formation of the Mayor’s Task Force on Emergency Medical Services

• Present the recommendations of the Task Force and discuss how DC Fire & EMS is implementing them

• Report on results
Catalyzing Event:
The David Rosenbaum Case
January 2006
OIG Conclusion

Multiple failures during a single evening by District agency and Howard [University Hospital] employees… suggest an impaired work ethic that must be addressed before it becomes pervasive. Apathy, indifference, and complacency… undermined the effective, efficient, and high quality delivery of emergency services expected from those entrusted with providing care to those who are ill and injured.
New Leadership: 2007

Mayor Adrian M. Fenty and Fire & EMS Chief Dennis L. Rubin
Mayor Fenty Announces the District’s Settlement With the Rosenbaum Family

March 8, 2007:
• At the tree planted in Northwest Washington to memorialize New York Times journalist David E. Rosenbaum, Mayor Adrian M. Fenty announced that the city has reached a settlement agreement with the Rosenbaum family.
Terms of the settlement

The settlement requires:

The creation of a task force that will investigate the circumstances surrounding the response of the District’s Fire and Emergency Medical Services.

The members of the task force will be agreed to by the family and the District of Columbia government, and will include representatives of the District government, the family, and outside experts in emergency medical services.

The case against the District of Columbia will be dismissed without prejudice and will automatically be dismissed with prejudice in one year unless the family moves to reinstitute the case, which they may do at their discretion if they are not satisfied with the District’s implementation of the task force recommendations.
In the meantime: Ongoing Management Reform Process

“EMS: The Path Forward”

- Weekly management meeting at FEMS HQ chaired by the Chief
- Systemic review of entire EMS System to identify and rapidly implement solutions
- Mandatory attendance for all senior staff
- Both unions invited to the meetings
Fire/EMS Chief and Medical Director’s Pledge:

“To provide committed, focused leadership to enable the District of Columbia Fire and Emergency Medical Services Department to restore public trust and exceed community expectations. DCFEMS will strive to set new industry benchmarks for high-quality, responsive Emergency Medical Services.”
The Task Force on Emergency Medical Services issued its *Report and Recommendations* on September 27, 2007.
Implementation of the Mayor’s EMS Task Force recommendations
Six major recommendations

1. The Department of Fire and Emergency Medical Services shall transition to a fully integrated, all hazards agency.

2. Reform Department structure to elevate and strengthen the EMS mission.

3. Improve the level of compassionate, professional, clinically competent patient care through enhanced training and education, performance evaluation, quality assurance, and employee qualifications and discipline.

4. Enhance responsiveness and crew readiness by revising deployment and staffing procedures.

5. Reduce misuse of EMS and delays in patient transfers.

6. Strengthen Department of Health (DOH) oversight of emergency medical services.
Tracking and Progress:

- CapStat sessions scheduled twice a year, with Task Force members invited to observe.

- DC Fire & EMS established a website to allow any interested person to monitor the District’s progress in implementing the Task Force recommendations.
Example:
EMS Task Force Recommendation 5:
Reduce misuse of EMS and delays in patient transfers.

<table>
<thead>
<tr>
<th>Status</th>
<th>Action Item</th>
<th>Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Action Item 5 (b)</td>
<td>FEMS has updated the &quot;Make the Right Call&quot; campaign and is partnering with the Office of Unified Communications to distribute new material to all District households on the proper use of 911 and 311.</td>
</tr>
<tr>
<td></td>
<td>The Chief, in cooperation with other District agencies, shall develop and implement, no later than <strong>March 31, 2008</strong>, a public education program regarding appropriate use of the 911 system.</td>
<td></td>
</tr>
</tbody>
</table>

*Progress narratives contain hyperlinks to evidence of the accomplishment*
“Make the Right Call”
(Recommendation 5b: Public education campaign)
Progress Report
Family to End Litigation Over Journalist's Death
Improvements in Care Cited at News Conference

Washington Post, Friday, February 22, 2008

• The family of a slain journalist…said yesterday that the city has made significant improvements over the past year.

• David E. Rosenbaum’s relatives… agreed last year to forgo a lawsuit against the D.C. government as long as reforms were made, said they were satisfied with the city's efforts so far and that they will end the litigation.

• "We believe the city has thus far lived up to its side of the bargain, and we will live up to ours," said Marcus Rosenbaum, David Rosenbaum's brother, speaking at a news conference with Mayor Adrian M. Fenty.
EMS Task Force Recommendations

Status Summary

<table>
<thead>
<tr>
<th>Status</th>
<th>Complete</th>
<th>Working</th>
<th>Working Deadline not met</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>2</td>
<td>5</td>
<td>19</td>
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Previous Summary

<table>
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<tbody>
<tr>
<td></td>
<td>4</td>
<td>6</td>
<td>6</td>
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Status by Major Recommendation

<table>
<thead>
<tr>
<th>Major Recommendation</th>
<th>Status</th>
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<tr>
<td>Fire and EMS shall transition to a fully integrated, all hazards agency.</td>
<td>2</td>
</tr>
<tr>
<td>Reform Department structure to elevate and strengthen the EMS mission.</td>
<td>5</td>
</tr>
<tr>
<td>Improve patient care through training, evaluation, quality assurance, and discipline</td>
<td>19</td>
</tr>
<tr>
<td>Enhance responsiveness and crew readiness by revising deployment and staffing proced.</td>
<td>4</td>
</tr>
<tr>
<td>Reduce misuse of EMS and delays in patient transfer</td>
<td>6</td>
</tr>
<tr>
<td>Strengthen Department of Health (DOH) oversight of emergency medical services</td>
<td>3</td>
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</table>

Status by Due Date

<table>
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<tbody>
<tr>
<td>September 30, 2007</td>
<td>4</td>
<td>6</td>
<td>6</td>
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<tr>
<td>November 20, 2007</td>
<td>8</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>December 31, 2007</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>March 31, 2008</td>
<td>11</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>September 30, 2008</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>December 31, 2008</td>
<td>1</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>December 31, 2010</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No due date set</td>
<td></td>
<td></td>
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Source: DC Fire & EMS. For details, visit [http://fems.dc.gov/fems/cwp/view,a,3,Q,642526,femsNav,31511,asp](http://fems.dc.gov/fems/cwp/view,a,3,Q,642526,femsNav,31511,asp)
EMS Supervision Improvements

Prior to 8/17/08

8/17/08 – 11/8/08

11/9/08 forward

Platoon Supervisor

Captain

Battalion Supervisors

1/6
2
3
4/5

Another EMS Field Supervisor, affiliated with the Special Operations Division, is planned.

40% Increase
EMS Supervision Improvements

Old Way

Battalion 1
- BFC 1-1
- BFC 1-2
- BFC 1-3
- BFC 1-4

Battalion 6
- BFC 6-1
- BFC 6-2
- BFC 6-3
- BFC 6-4

EMS Supervisors:
- EMS Supv 1/6-A
- EMS Supv 1/6-B
- EMS Supv 1/6-C
- EMS Supv 1/6-D

New Way

Battalion 1
- BFC 1-1
- BFC 1-2
- BFC 1-3
- BFC 1-4

Battalion 6
- BFC 6-1
- BFC 6-2
- BFC 6-3
- BFC 6-4

EMS Supervisors:
- EMS Supv 1-1
- EMS Supv 1-2
- EMS Supv 1-3
- EMS Supv 1-4

- EMS Supv 6-1
- EMS Supv 6-2
- EMS Supv 6-3
- EMS Supv 6-4

- Each EMS supervisor dedicated to a specific battalion and platoon
- EMS supervisors on same shift schedule as battalion fire chiefs and majority of personnel to be evaluated

EMS Supervision Improvements
© 2008 District of Columbia Fire and EMS Department
◆ The District’s World Class – All Hazards Agency ◆
EMS Supervision Improvements

EMS Supervisor Incident Responses

<table>
<thead>
<tr>
<th>Month</th>
<th>2007 Responses</th>
<th>2008 Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>October</td>
<td>571</td>
<td>737</td>
</tr>
<tr>
<td>Novem.</td>
<td>610</td>
<td>816</td>
</tr>
<tr>
<td>Decem.</td>
<td>517</td>
<td>878</td>
</tr>
<tr>
<td>January</td>
<td>597</td>
<td>893</td>
</tr>
<tr>
<td>February</td>
<td>538</td>
<td>932</td>
</tr>
<tr>
<td>March</td>
<td>571</td>
<td>942</td>
</tr>
<tr>
<td>April</td>
<td>816</td>
<td>1,004</td>
</tr>
<tr>
<td>May</td>
<td>878</td>
<td></td>
</tr>
<tr>
<td>June</td>
<td>893</td>
<td></td>
</tr>
<tr>
<td>July</td>
<td></td>
<td></td>
</tr>
<tr>
<td>August</td>
<td>490</td>
<td></td>
</tr>
<tr>
<td>Septem.</td>
<td>442</td>
<td></td>
</tr>
</tbody>
</table>

EMS Supervisor Responses Using NEW System

PHASE 1

- AFTER
- BEFORE
Training and QA – National Registry

National Registry Implementation:

83% of the operational workforce (1,645 out of 1,988 personnel) is now certified by the National Registry.

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>NR Cert</th>
<th>% NR Cert</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMT-P</td>
<td>237</td>
<td>234</td>
<td>98.7%</td>
</tr>
<tr>
<td>EMT-I</td>
<td>38</td>
<td>38</td>
<td>100.0%</td>
</tr>
<tr>
<td>EMT-B</td>
<td>1,625</td>
<td>1,373</td>
<td>84.5%</td>
</tr>
<tr>
<td>Non-EMT</td>
<td>88</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,988</strong></td>
<td><strong>1,645</strong></td>
<td><strong>82.7%</strong></td>
</tr>
</tbody>
</table>

Projected completion date is February, 2011
Foundation of QA – E-PCRs

Electronic Patient Care Report (E-PCR) Implementation

Percentage of Reports

- **E-PCR Reports**
- **Paper Reports**

JAN 09: 17%
FEB 09: 5%
MAR 09: 5%
APR 09: 2%
MAY 09: 3%
JUN 09: 2%
JUL 09: 1%
AUG 09: 0%
SEP 09: 2%
OCT 09: 0%
NOV 09: 1%
DEC 09: 1%
Training and QA – Quality Review Process

**Phase I (current) QA Monitoring Plan with E-PCRs**

- E-PCRs are used as a source of general QA monitoring through an E-PCR audit database tool.
- Hospital and other medical quality complaints incorporated into QA monitoring process.
- QA management level review by EMS supervisors, Nurse Consultant and Medical Director, depending on case complexity and requirements.
- Performance is improved by identifying when intervention is needed, creating an improvement plan, implementing this plan and monitoring results, all at the individual employee level.
Training and QA – Quality Review Process

**Phase II (in progress) QA Monitoring Plan with E-PCRs**

- Treatment protocols are identified as E-PCR reporting templates for a majority of patient complaints
- E-PCR application formulates protocol compliance questions during report completion individualized by patient
- E-PCR application identifies “compliance” or “exceptions” to protocol individualized by patient
- “Exceptions” are sub-categorized as “supported” or “not supported” based on patient requirements
- Quality assurance management focuses on “unsupported exceptions” and drives improvement planning
- Feedback continuously pushed to level of individual employee.
Independent paramedic assessment by MFRI completed September 2009

System-wide training resulting from the MFRI process:

- March 2009, all ALS providers completed an eight-hour course on recognition and treatment of acute coronary syndromes (ACS) and ST segment elevation myocardial infarction (STEMI).
- Any provider who failed to demonstrate proficiency upon completion of the eight-hour course was referred to two focused additional education and training courses (16 and 40 hours in length, respectively) that were delivered in August 2009. All personnel assigned to the courses have completed the training.
Training and QA – Protocol Implementation

2010 Medical Treatment Protocol Revision

- First comprehensive revision of protocols in 8 years
- Incorporates latest evidence-based medicine and best practices from around the world
- Use of devices considered best practices like King Airway and CPAP
- New medications including controlled substances
- Protocol handout for review
- Agency-wide protocol training begins this week
- Target implementation date March 15, 2010.
Measuring and Reporting Performance

Three elements:

• Operational Process (response times)
• Clinical Quality (care and outcomes)
• Customer Satisfaction
Measuring Performance – Response Times

First EMT on scene of critical medical calls within 6 ½ minutes of dispatch

Citywide CY 2009: 90.3%
Current average response time: 4:16

First ALS on scene of critical medical calls within 8 minutes of dispatch

Citywide CY 2009: 88.4%
Current average response time: 5:16

First Transport on scene of critical medical calls within 12 minutes of dispatch

Citywide CY 2009: 93.6%
Current average response time: 6:23
Engine 19 and Engine 33 began serving as PEC units during summer 2006. In the Census Tracts around the new PECs, the calls responded to in 8 minutes or less went from 73% to 92%.

Measuring Performance – Care and Outcomes

Eagles Performance Measures
- STEMI
- Pulmonary Edema
- Asthma

CARES (Cardiac Arrest Registry to Enhance Survival) participation
Measuring Performance – Care and Outcomes

ST Elevation Myocardial Infarction (STEMI) – CY 2009

Eagles Measurements
- Aspirin
- 12 lead EKG
- PCI Hosp Tx

Not all patients receive all treatments.

Supported Exceptions
- Aspirin allergy
- Short transport time
- Hospital diversion

Consortium of US and International Major Metropolitan Municipalities EMS Medical Directors (Eagles)
Evidence Based Performance Measures

Measuring Performance – Care and Outcomes

Pulmonary Edema and CHF – CY 2009

Consortium of US and International Major Metropolitan Municipalities EMS Medical Directors (Eagles) Evidence Based Performance Measures

Eagles Measurements
- Nitro SL
- CPAP

Not all patients receive all treatments.

Supported Exceptions
- Hypotension
- Previous Nitro
- Short transport time
- Chest pain absent
- Device tolerance
- ET intubation

Total Cases: 564
- Nitro SL: 100%
- O2: 485 (86%)
- Nitro SL: 185 (33%)
- CPAP: 193 (34%)

Measuring Performance – Care and Outcomes

Asthma – CY 2009

Consortium of US and International Major Metropolitan Municipalities EMS Medical Directors (Eagles)
Evidence Based Performance Measures

Eagles Measurements
- Albuterol
  Not all patients receive all treatments.

Supported Exceptions
- Patient self-medicated
- Maximum dosage

Measuring Performance – Care and Outcomes

Cardiac Arrest Comparisons – 2005 and FY 2009

Survival to the Hospital by Cardiac Arrest Patients

Outcomes by Comparative Group using Pre-Hospital Return of Spontaneous Circulation (ROSC)

- 2005 District of Columbia Fire and Emergency Medical Services Department Cardiac Arrest Data
- 2009 District of Columbia Fire and Emergency Medical Services Department Cardiac Arrest Study
- 2008 International City and County Managers (ICMA) FY 2007 Performance Measure Report
- 2009 Cardiac Arrest Registry to Enhance Survival (CARES) Ulstein Survival Report
Measuring Performance – Customer Satisfaction


Overall, how satisfied were you with the services you received?

<table>
<thead>
<tr>
<th>Category</th>
<th>CY 2008 (N = 1,424)</th>
<th>CY 2009 (N = 1,704)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Satisfied</td>
<td>72.8%</td>
<td>77.6%</td>
</tr>
<tr>
<td>Satisfied</td>
<td>21.2%</td>
<td>17.7%</td>
</tr>
<tr>
<td>Neutral</td>
<td>3.3%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Dissatisfied</td>
<td>1.2%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Very Dissatisfied</td>
<td>1.5%</td>
<td>1.1%</td>
</tr>
</tbody>
</table>

Overall Satisfaction 2008: 94.0% with 3.4% error at 99% confidence
Overall Satisfaction 2009: 95.3% with 3.1% error at 99% confidence
Comparison of Reported Wait Times of 100 Respondents from 200 Largest US Cities to Wait Times of District of Columbia
DC Hospital Closure Hours: CY2003 to CY2006

ED Closure & Diversion Hours

- 2003: 7741 hours
- 2004: 8100 hours
- 2005: 10924 hours
- 2006: 11492 hours

Hours
Linear (Hours)
Receiving Facilities: A Regional Approach

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Address</th>
<th>City</th>
<th>State</th>
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<tbody>
<tr>
<td>Washington Adventist</td>
<td>7600 Carroll Ave</td>
<td>Takoma Park</td>
<td>MD</td>
</tr>
<tr>
<td>Prince Georges Hospital Center</td>
<td>3001 Hospital Dr</td>
<td>Cheverly</td>
<td>MD</td>
</tr>
<tr>
<td>Suburban Hospital</td>
<td>8600 Old Georgetown Rd</td>
<td>Bethesda</td>
<td>MD</td>
</tr>
<tr>
<td>Holy Cross Hospital</td>
<td>1500 Forest Glen Rd</td>
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<td>MD</td>
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<tr>
<td>Virginia Hospital Center</td>
<td>N George Mason Dr</td>
<td>Arlington</td>
<td>VA</td>
</tr>
<tr>
<td>Northern Virginia Community Hospital</td>
<td>Carlin Springs Rd</td>
<td>Arlington</td>
<td>VA</td>
</tr>
<tr>
<td>Inova Alexandria Hospital</td>
<td>Seminary Rd</td>
<td>Alexandria</td>
<td>VA</td>
</tr>
</tbody>
</table>
Strategies to reduce drop times, eliminate diversion

• “No Diversion” Program implemented 10/2009

• 2 full-time EMS liaison officers (ELO-paramedic supervisors) stationed at Office of Unified Communications

• All Transport Destination decisions now made centrally by the ELO’s
Monthly meetings (chaired by Medical Director and AFC/EMS) with Hospital Leadership Teams
## Hospital Drop Times and Diversion

### Average Hospital Drop Times – CY 2008 and 2009

<table>
<thead>
<tr>
<th>Hospital 8 (slowest)</th>
<th>Hospital 2 (fastest)</th>
<th>All Hospitals (average)</th>
</tr>
</thead>
<tbody>
<tr>
<td>38:05</td>
<td>28:55</td>
<td>37:18</td>
</tr>
</tbody>
</table>

**Last 3 Month All Hospitals (average) = 35:45**
Hospital Drop Times and Diversion

Hospital Closure and Diversion Hours – 2009

- Total Time: 243.52 hours
- Diverted Time: 194.41 hours
- Closed Time: 35.33 hours
- Trauma Diverted Time: 32.23 hours

- August: 135.57 hours
- September: 112.08 hours
- October: 4.17 hours
- November: 0.00 hours
- December: 32.23 hours

No diversion policy implemented on 10-1-2009
Total C&D by Month ’08 vs ‘09

AUG 243:52  2008
SEP 194:41  2009
OCT  35:33  2010
NOV  0:01  2008
DEC  32:23  2009
JAN  0:00:00  2010

604:12  2008
510:43  2009
461:55  2008
740:38  2009
829:11  2008
Unification Update

Unification Milestones:

• All 32 incumbent EMS supervisors were transitioned to uniformed status on 8/2/09 and are undergoing all-hazards training

• 5 former single-role personnel were promoted into uniformed positions on 9/27/09 and are undergoing all-hazards training

12% of workforce still not unified:

• 158 remaining single-role personnel left in the agency (8% of workforce): 74 basic EMTs, 16 EMT-Intermediate, 68 EMT-paramedics

• 88 pre-1987 firefighters remain who are not yet certified as EMTs (4% of workforce)
Demand Management- Street Calls Program

Population Reached
- 107 patients in database
- 63 with ongoing case management

Initial Impact
- 54% reduction in daily probability of transport
- Led to 375 fewer transports over 5 months for cohort of 25 chronic users

Street Calls 1
- 1 Nurse Practitioner
- 1 Paramedic
Started April 2008

Street Calls 2
- 2 Paramedics
Started August 2008
Demand Management – Street Calls

Street Calls Program - Reduction in Patient Transports
14 Month Period = 426 Days

- .24 Transports/Person/Day X 23 Persons X 426 Days = 2,351 Transports
- .06 Transports/Person/Day X 23 Persons X 426 Days = 588 Transports

Transport Savings = 2,351 - 588 = 1,763 Transports / 426 Days = 4

Matched Pairs T Test
p < .000

Individual Patient Transports
Combined Patient Transports

508 Transports
.24 Transports/Person/Day

125 Transports
.06 Transports/Person/Day

75% Use Reduction
Acknowledgements

• AFC/Medical Director Dr. Michael Williams, 2006—2008
• AFC/Medical Director Dr. James Augustine, 2008—2010
• Interim Medical Director Dr. Geoffrey Mountvarner, 2010
D.C. Fire & EMS Department Website

http://fems.dc.gov
Questions and Discussion