Best Medicine, Worst Places: Tactical Medicine in an Urban Environment
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UW Medicine
EMS & Trauma Conference
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“The fate of the wounded lays with those who apply the first dressing.”
--Col. Nicholas Senn
1844-1908

Why???

- 1997 164
- 1998 161
- 1999 134
- 2000 150
- 2001 225
- 2002 176
- 2003 168
- 2004 162
- 2005 157
- 2006 145
SWAT/TEMS Development

• UT Tower, 1966
• LAPD
• Ruby Ridge
• Waco
• Modern TEMS Era

Modern Active Shooters

• LAPD North Hollywood  
  - Feb 28, 1997  
  - 2 Killed, 14 Wounded
• Columbine HS  
  - April 20, 1999  
  - 14 Killed, 24 Wounded
• Virginia Tech  
  - April 16, 2007  
  - 32 Killed, 29+ Wounded

Dallas SWAT

• Full-Time  
• 55 Operators  
• 8 Supervisors  
• 2 Commanders
• TESS  
  - 4 Officers/1 Supervisor
• Support personnel

SWAT 101

• Hi-Risk Warrants  
• Barricaded persons  
• Dignitary protection  
• Special events  
• Infrastructure protection  
• Counterterrorism  
• DMST  
• Training
2:45 AM – SHOOTING CALL DISPATCHED
FIRST ELEMENTS ARRIVE AND FIND ONE CONFIRMED DEAD AND ONE POSSIBLE FATality
4 CHILDREN HUDDLED AROUND DECEASED FATHER IMMEDIATELY RESCUED
SUSPECT IN REAR BEDROOM WITH EX-WIFE AND 3 CHILDREN AND OTHER DECEASED INDIVIDUAL
**Duncanville Road**

**Injuries**
- GSW Femoral artery
  - Shock
- GSW UE
- GSW Elbow
  - Shock

**Immediate Treatment**
- None
- None
- None

**Duncanville Road: Lessons Learned**
- Integration of medical officers:
  - Long overdue
- Increased medical training department-wide
- Civilian EMS shortcomings

**DPD Medicine**
- City of Dallas TMST
- September 11, 2004
- Continuous development
- All hazards coverage

**Dallas SWAT—TEMS**
- 2 Physicians
- UTSW
- Parkland Hospital
- Dallas County
- City of Dallas
Dallas SWAT
TEMS Principles

• Eliminate golden hour

• Trauma center to the injured officer

• “Good Medicine, Bad Places”

Civilian PreHospital Care

• Civilian trauma principles:
  – Emergency Medical Technicians.
  – Basic Trauma Life Support (BTLS).
  – Advanced Trauma Life Support (ATLS).

How People Die In Ground Combat
(From COL Ron Bellamy)

10% KIA- Surgically Correctable Torso Injury
9% KIA- Exanguination From Extremity Wounds
31% KIA- CNS Injury
25% KIA- Surgically Uncorrectable Torso Trauma
12% DOW- Largely Infections & Complications Of Shock
5% KIA- Tension Pneumothorax
5% KIA- Airway Obstruction
1% KIA- Blast/Mutilating Trauma
12% DOW- Largely Infections & Complications Of Shock

Eastridge, et al.

<table>
<thead>
<tr>
<th>Cause of Death</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemorrhage</td>
<td>88.8%</td>
</tr>
<tr>
<td>Airway Obstruction</td>
<td>7.7%</td>
</tr>
<tr>
<td>Tension Pneumothorax</td>
<td>1.1%</td>
</tr>
</tbody>
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Zones of Care

- **HOT** zone = receiving effective fire / move to cover / LIMITED care given.
- **WARM** zone = behind cover / provide initial life-saving care / plan for extraction.
- **COLD** zone = NOT under fire / provide additional care / meet with transport.

The Current State of Civilian Tactical Medical Support

<table>
<thead>
<tr>
<th></th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civilian EMS</td>
<td>Economist</td>
<td>Variable experience</td>
</tr>
<tr>
<td></td>
<td>Consume fewest resources</td>
<td>Must stay in cold zone</td>
</tr>
<tr>
<td></td>
<td>OpSec concerns</td>
<td>Takes unit OOS for public</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No medical threat assessment</td>
</tr>
<tr>
<td>LEO with Medical Training</td>
<td>Rapid access to medical care</td>
<td>Variable levels of training and experience</td>
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<tr>
<td></td>
<td>Care in the hot zone</td>
<td>Role education</td>
</tr>
<tr>
<td></td>
<td>Familiarity with operational tactics</td>
<td>Less familiarity with local medical</td>
</tr>
<tr>
<td></td>
<td>Less security issues</td>
<td>resources</td>
</tr>
<tr>
<td>Medic with Tactical Training</td>
<td>Rapid access to care</td>
<td>Expensive / consumes more resources</td>
</tr>
<tr>
<td></td>
<td>Care in the hot zone</td>
<td>OpSec issues</td>
</tr>
<tr>
<td></td>
<td>More experienced medical support</td>
<td>Potentially not a sworn officer (arrest</td>
</tr>
<tr>
<td></td>
<td>Familiarity with operational tactics</td>
<td>and liability issues)</td>
</tr>
</tbody>
</table>
Variations on a Theme

Officer with first aid training
Officer trained as EMT
Practicing EMT
Practicing paramedic
Practicing physician
Practicing paramedic

Oak Park Drive

- Feb 16, 2006
- DEA TF Warrant
- Early AM Service

Injuries

- GSW LLE c hemorrhage
- GSW Chest/UE
  - Vest
  - Pulmonary contusion
- GSW Head (ear)
- GSW Hand

Immediate Treatment

- Dressing/tourniquet/IVF
- Dressing/IVF
- Dressing
- Dressing

HOW THE SHOOTING HAPPENED

Four Dallas SWAT officers were met by a hail of gunfire as they tried to serve drug warrants early Thursday in this fast-food area. At 6:30 a.m, they announced over a loudspeaker that the suspects should surrender. Here’s what happened next:

1. About a dozen officers, including the suspects’ two children, emerged from the house. The children were unharmed.

2. The suspects’ two children were taken to a safe location. The officers then focused on the suspects.

3. As the officers entered the house, they were met with heavy gunfire. The suspects were injured and were taken to a nearby hospital.

4. The hospital was under attack by the suspects. The officers were forced to retreat.

5. A nearby SWAT team was deployed to assist the officers.

6. The suspects were eventually taken into custody.

7. The suspects were later charged with armed robbery and other crimes.

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 Oak Park Drive
Oak Park Drive

- Planning and Preparation
- TEMS Integration
- Self-aid/Buddy-aid
- Key Equipment Considerations

Planning and Preparation

Dallas SWAT
Self-Aid/Partner-Aid Training

- Hemorrhage control
- Basic airway
- Tension PTX
- Use victim’s equipment
- Stay in fight

SABA Training
Dallas SWAT Standard Officer Medical Kit
- Tourniquet
- 14ga Needle
- Modular Bandage
- Nasal airway
- Trauma Shears
- Latex gloves (nonpowdered)

Self-aid and Buddy-aid
- Training provided outside SWAT
  - Hemorrhage Control
  - Increased use of tourniquet
  - Minimal airway skills
- Seeing results

SOF-T

DPD Buddy-aid: Deployment Success
- August 29, 2006
- Radisson Hotel, 4th Floor
- Hostage
- Officer J. Borchardt
DPD LATS

Hollywood Ave

- IRS/ATF
- Early AM
- Prior contact
- Shots fired late
- Officer down

Hollywood Ave

Hollywood Ave
Hollywood Ave

**Injuries**
- GSW Neck
- Hypopharyngeal lac
- C5/6/7 Vert Canal Fx
- VAI
- Unconscious
- Apneic

**Immediate Treatment**
- Cric
- IVF
- Evacuate

**Future Directions**
- Improved training
- Incorporating lessons from military conflict
- Research
Improved Training

Tucson, AZ

The New York Times
January 27, 2011

First-aid kits credited with saving lives in Tucson shooting

The Washington Post
Inaugural TCCC Course for LAPD and LAFD - 2012

Life of an LAPD SWAT officer saved shortly thereafter - with a tourniquet

Photos courtesy Mr. Ray Casillas

Translating TCCC

- Problems with translation to civilian world
- C-TECC
- NTIC
- IACP, NAEMSP, NSC, White House

The Hartford Consensus

- American College of Surgeons (Jacobs)
- ACS-COT (Rotondo)
- FBI (Wade and Fabbri)
- PHTLS (McSwain)
- CoTCCC (Butler)
- Major Cities Chiefs Association (Eastman)
- International Assn of Fire Chiefs (Sinclair)
The Hartford Consensus

- VT, Aurora, Sandy Hook
- Segmented public safety response
  - Operations
  - Command/control
  - Communications
- Early hemorrhage control
  - LEOs
  - Medical Contact Teams

THREAT

- Threat suppression
- Hemorrhage control
- Rapid Extrication to safety
- Assessment by medical providers
- Transport to definitive care

Incorporating Military Medical Lessons

- Increased use of tourniquets
- Hemostatic agents
- Change in resuscitation paradigm

“New’ Hemostatic Agents

- Combat Gauze™
- WoundStat™
Ongoing Research

- **TASER**
  - Presented and submitted
- **Officer Fatalities**
  - ME Study
- **Less-Lethal Weapon Multicenter Trial**
  - IRB

Summary

- TEMS and Tactical Operations
- Integrated public safety response
- Thanks

Thanks

- Chief David O. Brown
- Chief David M. Kunkle (ret.)
- Lt. Robert Owens
- Dr. Paul Pepe
- Dr. Robert Rege
- Dr. Joseph Minei