Police Officer Response to the Injured Officer: A Survey-Based Analysis of Medical Care Decisions

Matthew D. Sztajnkrycer, MD, PhD;[1] David W. Callaway, MD;[2] Amado Alejandro Baez, MD, MS, MPH[3]

1. Department of Emergency Medicine, Mayo Clinic, Rochester, Minnesota USA
2. Department of Emergency Medicine, Beth Israel Deaconess Hospital, Boston, Massachusetts USA
3. Department of Emergency Medicine, Brigham and Women's Hospital, Boston, Massachusetts USA

Correspondence:
Matthew Sztajnkrycer, MD, PhD
Department of Emergency Medicine GE-GR-G410
Mayo Clinic
200 First Street SW
Rochester MN 55901 USA
E-mail: sztajnkrycer.matthew@mayo.edu

Keywords: combat lifesaver; decision-making; law enforcement; medical; tactical combat casualty care

Abbreviations:
CLS = combat lifesaver
TCCC = tactical combat casualty care

Received: 24 January 2007
Accepted: 16 February 2007

Web publication: 24 August 2007

Abstract

Introduction: No widely accepted, specialized medical training exists for police officers confronted with medical emergencies while under conditions of active threat. The purpose of this study was to assess medical decision-making capabilities of law enforcement personnel under these circumstances.
Methods: Web-based surveys were administered to all sworn officers within the county jurisdiction. Thirty-eight key actions were predetermined for nine injured officer scenarios, with each correct action worth one point. Descriptive statistics and *t*-tests were used to analyze results.
Results: Ninety-seven officers (65.1% response rate) responded to the survey. The majority of officers (68.0%) were trained to the first-responder level. Overall mean score for the scenarios was 15.5 ±3.6 (range 7–25). A higher level of medical training (EMT-B/P versus first responder) was associated with a higher mean score (16.6 ±3.4, $p = 0.05$ vs. 15.0 ±3.6, $p = 0.05$). Tactical unit assignment was associated with a lower score compared with non-assigned officers (13.5 ±2.9 vs. 16.0 ±3.6, $p = 0.0085$). No difference was noted based upon previous military experience. Ninety-two percent of respondents expressed interest in a law enforcement-oriented advanced first-aid course.
Conclusions: Tactical medical decision-making capability, as assessed through the nine scenarios, was sub-optimal. In this post 9/11 era, development of law enforcement-specific medical training appears appropriate.

Sztajnkrycer MD, Callaway DW, Baez AA: Police officer response to the injured officer: A survey-based analysis of medical care decisions. ***Prehospital Disast Med*** **2007;22(4):335–341.**

Introduction

The practice of law enforcement is associated with inherent risks. In 2005, >50,000 police officers were assaulted, resulting in 15,763 injuries and 55 felonious line-of-duty deaths.[1] Scores of other officers were injured or killed in the line of duty (i.e., automobile accidents, heart attacks, falls).

All police officers undergo some degree of formal emergency medical training as part of their education, typically at the US Department of Transportation's First Responder level. This training, based upon traditional US Basic Life Support (BLS) guidelines, is not law enforcement specific, and does not address medical care in the setting of an active threat.[2–4] Under such circumstances, a model paralleling modern military theory of patient care may be more appropriate, emphasizing the simultaneous objectives of preventing further casualties, rendering assistance, and completing the mission.[5–8] In these catastrophic circumstances, "medical care" can be thought of simply as another tactical decision.

In contrast to the military Tactical Combat Casualty Care (TCCC) curriculum, no civilian law enforcement tactical medical program has received national recognition or widespread adoption. In fact, with the exception of a small number of programs directed towards medics providing support to law enforcement tactical teams, no widely available medical training exists for officers faced with these exigent circumstances.

The purpose of this study was to assess the medical decision-making capacity of sworn law enforcement field personnel under these circumstances,

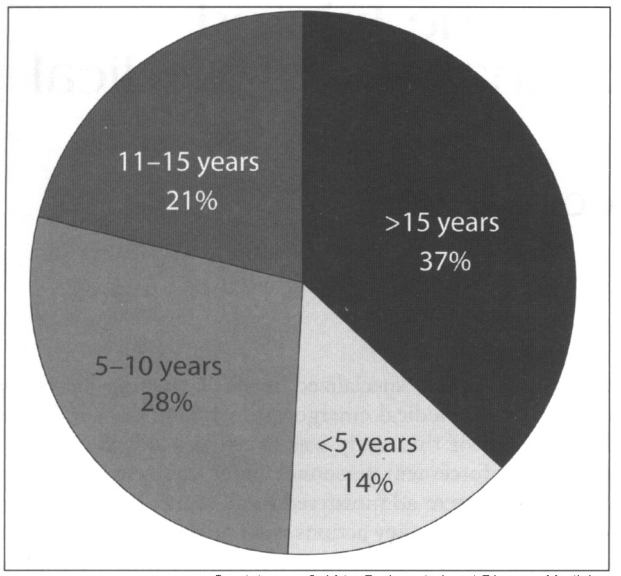

Figure 1—Reported years of law enforcement experience

and to determine whether a need exists for a more specialized training curriculum.

Methods

Setting

This study was conducted with members of a municipal police department and offices of a county sheriff's department who provide law enforcement for a county of approximately 132,100 people that covers an area of 1,693.9 km^2. The study was reviewed by the Mayo Foundation Institutional Review Board and determined to be exempt.

Survey

A 23-question, anonymous survey was administered to all sworn officers within the county jurisdiction. The survey was administered online using a commercial survey support site **(http://www.surveymonkey.com).** The time period allowed for completion of the survey was one month. A single follow-up reminder message was sent to all eligible officers two weeks after the initial invitation to participate.

Nine open-ended questions specifically evaluated response to injured officer scenarios (Appendix 1). The scenarios were scored based upon officer-reported actions, with one to six key actions pre-determined for each scenario. Each action was equally weighted as a single point, for a maximum possible score of 38 points.

Statistics

Descriptive statistics and Student's *t*-tests were used to analyze the results, with an alpha level of 0.05 defining statistical significance.

Results

Demographics

A total of 97 officers responded to the survey (response rate = 65.1%). The majority of respondents (n = 85, 85.6%) reported five or more years experience in law enforcement (Figure 1). Slightly more than half of all respondents (n = 54, 55.7%) reported their current position as "patrol," while 29 officers (33.3%) reported working in investigations, and 10 respondents (11%) were reserve officers. Previous military experience was reported by 28 (29.0%) respondents. Sixteen respondents were assigned to the Emergency Response Unit, a joint city-county SWAT team, and eight officers were assigned to the regional narcotics task force.

The majority of respondents (n = 66, 68.0%) were first responders, while approximately one-third reported a higher level of training (Figure 2). Just under half of all respondents had re-certified their medical training during the previous five years (n = 46, 49.4%, Figure 3).

Thirty-one officers (32.0%) reported a line-of-duty injury serious enough to require transportation to an emergency department for evaluation. Forty officers (41.2%) reported that they had responded to the scene of a seriously injured officer. Twenty-eight (70%) of these officers were on-scene prior to definitive prehospital medical care.

The mean total scores for the nine tactical medical scenarios was 15.5 ±3.6 (range 7–25). The mean individual scores are listed in Table 1. There were no statistically significant difference between those officers with or without previous military experience (15.4 ±3.2 vs. 15.6 ±3.8, $p = 0.81$). Officers assigned to the regional tactical unit scored significantly lower than non-assigned officers (13.5 ±2.9 vs. 16.0 ±3.6, $p = 0.0085$). Officers reporting more advanced medical training scored significantly higher than did those at the first responder level (16.6 ±3.4 vs. 15.0 ±3.6, $p = 0.05$). Only one officer correctly identified the life-threatening tension pneumothorax presented in Scenario 6; this person identified his/her level of medical training at the EMT-Paramedic level. Thirty-six percent of respondents reported that they would enter the clandestine drug laboratory in Scenario 7 in order to rescue the downed suspect.

Confidence in medical skill capability was determined using a five-point Likert scale, with 1 = "very unsure", 3 = "neutral", and 5 = "very confident". Prior to Scenario administration, the confidence level was 4.0 ±0.7. After completing the nine scenarios, the confidence level of respondents had decreased to 3.5 ±0.9 ($p = 0.017$). Ninety-two percent of respondents expressed interest in participating in law enforcement-specific medical training, while 8% were neutral.

Discussion

Despite advances in training, tactics, and safety equipment, law enforcement remains a high-risk profession. Nearly one-third of the respondents in this study reported experiencing a line-of-duty injury significant enough to require transportation to an emergency department for evaluation. Nearly one-half of all officers reported responding to the scene of a seriously injured officer.

In contrast to routine medical assistance calls, medical care during periods of active threat poses substantial risk of injury both to the victim and to the responders. Additionally, there may be conflicting priorities placed upon the officers, including decisions regarding the need to neutralize the active threat or to stop and render aid. While by no means

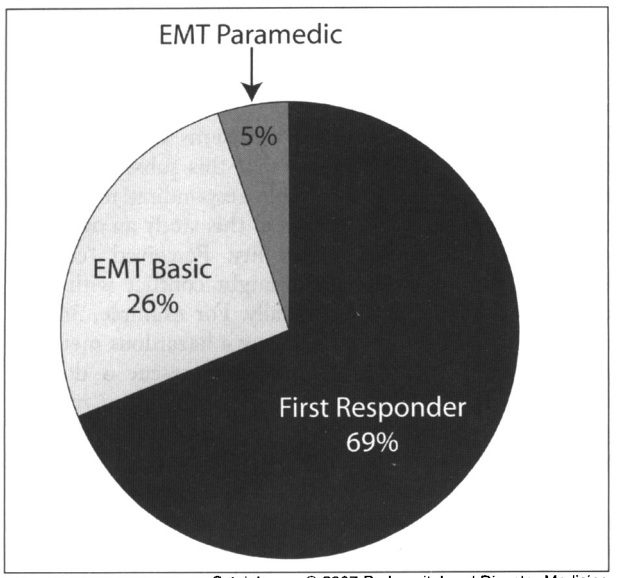

Figure 2—Reported level of medical training (EMT = emergency medical technician)

Scenario	Possible Total Score	Mean ±SD	Range
1	4	1.7 ±0.8	1–3
2	6	2.6 ±0.9	1–4
3	5	1.6 ±0.7	1–4
4	6	2.7 ±0.9	1–4
5	5	1.9 ±0.7	0–4
6	5	0.7 ±0.5	0–2
7	3	1.4 ±0.7	0–2
8	3	2.1 ±0.8	1–3
9	1	0.6 ±0.5	0–1
Total	**38**	**15.5 ±3.6**	**7–25**

Table 1—Mean of the scores, ±1 standard deviations (SD), and ranges for the Tactical Medical Scenarios

equivalent, such conditions more closely mirror those faced by military forces in combat than those encountered during routine EMS responses. Unfortunately, and in contra-distinction to their military counterparts, medical training for law enforcement remains largely limited to basic skill sets. No nationally recognized curriculum exists focusing specifically upon the unique concerns of law enforcement medical operations.

Under circumstances of active threat, medical care becomes simply another tactical decision the officer must make. In the current study, the mean value of the scores for the nine tactical medical scenarios was 15.5 ±3.6 (range 7–25, maximum score = 38). The highest-scoring respondent was able to integrate tactical and medical requirements into the scenario less than two-thirds of the time. Prior military experience did not appear to significantly alter this capability. However, it was only after the experience in Mogadishu, Somalia, that current military guidelines changed from a conventional civilian BLS/ATLS approach to a more comprehensive tactical medical curriculum.[4,6–8] As such, many personnel with previous military experience may never have been exposed to the concepts of modern tactical combat casualty care.

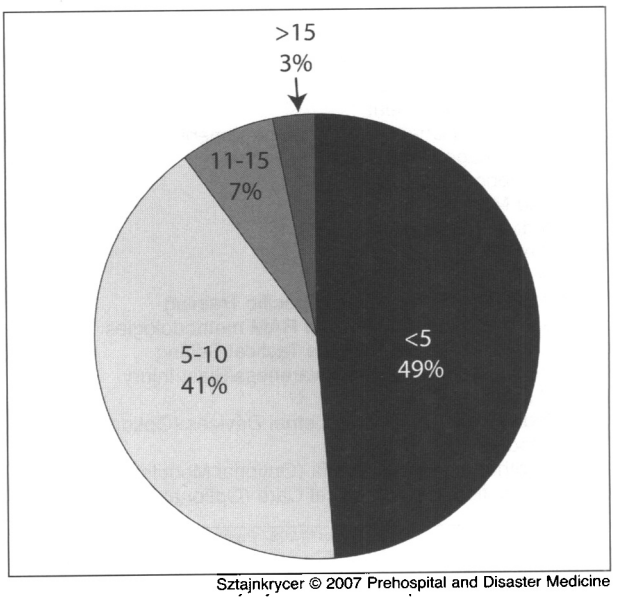

Figure 3—Number of years since last medical training recertification

Members of the regional tactical unit scored significantly lower on the tactical medical scenarios than did officers not assigned to the unit. This is surprising and concerning, given the high-risk nature of their assignments, the advanced level of training these officers receive in management of tactical situations, and the increased level of motivation demonstrated by members of the team. One possible explanation for this finding is the fact that tactical medics are embedded with the Emergency Response Unit. As such, there might be a tendency to defer medical decisions to the medics, and focus upon law enforcement tactical requirements. Further assessment is needed.

A higher level of medical training was associated with a significantly higher score in the nine medical scenarios. Only one individual, who had been trained to the EMT-Paramedic level, identified the need for emergent needle decompression of a tension pneumothorax. The purpose of this study was not to suggest the abandonment of current first responder training. Such training provides an essential framework of medical knowledge.[2] Rather, the results of this study argue for the development of a second tier of specialized advanced, law enforcement, medical training based upon the principles of TCCC, emphasizing a sound tactical approach to medical emergencies.

The causes of preventable death on the battlefield have been previously described.[9–11] The primary cause of early preventable death is extremity hemorrhage, while the sec-

Current US Military Combat Lifesaver Curriculum
Tactical Combat Casualty Care Overview
Casualty Assessment
Airway Management
Penetrating Chest Trauma Management
Hemorrhage Control
Intravenous Access
Field Medical Card
Medical Evacuation
Litter Carry Techniques
Additional Law-Enforcement Specific Training
Tactical Triage: START and RAM methodologies
C-Spine Stabilization in the Tactical Setting
Methamphetamine Lab Awareness/Blast Injury Assessment
Medical Aspects of Less-Lethal Devices (Optional Module)
Hypothermia/Hyperthermia (Optional Module)
Introduction to K-9 Medical Care (Optional Module)

Table 2—Proposed law enforcement tactical lifesaver skill set

ond most common cause is tension pneumothorax. Both emergencies can be managed readily using relatively simple techniques that unfortunately are beyond the typical scope of practice of most first responders. This deficiency is highlighted by the fact that 60% of all police officer assaults occur in the presence of other officers.[12] In the current study, 70% of officers responding to the scene of an injured officer arrived prior to the arrival of definitive prehospital medical care.

In addition to the TCCC program, the military has developed an intermediate medical skill set designed to bridge the gap between basic self-aid/buddy-aid skills taught to all soldiers and the advanced medical care provided by combat medics and corpsmen. The Combat Lifesaver (CLS) program focuses upon preventing shock and managing the causes of preventable, early death on the battlefield.[13] The skill set includes the ability to apply a tourniquet, initiate an intravenous line, and perform needle thoracostomies. The TCCC and CLS programs have proved so successful that the US reportedly is training the entire Iraqi police force to the Combat Lifesaver Level.[14] While the current situation in Iraq is not similar to that in the US, if the training is deemed important enough for the Iraqi police force, might it be useful for US law enforcement?

Prior to the administration of the nine scenarios, officers felt confident in their tactical medical capabilities. After completing the survey, the degree of confidence had decreased significantly. More than 90% of respondents expressed interest in participating in a short and focused law enforcement-specific tactical medicine course. A Combat Lifesaver course, modified to emphasize additional elements of western law enforcement, ideally would meet this need. The ideal course (Table 2) would be modular, portable, emphasize hands-on training over didactic lectures, and integrated into departmental policies.

The current study suffers from the limitations and biases inherent in survey-based studies. The response rate was limited to 65%, and as such, conclusions are drawn from this subset. It could be argued that this subset was more motivated and more comfortable responding to medical questions, making the responses in this study an over-estimate of actual medical capability. Perceived "correct" responses by law enforcement might conflict with what actually would occur operationally. For example, 36% of respondents stated they would enter a hazardous methamphetamine laboratory environment to rescue a downed individual. This might reflect current training or reflect a perception by the respondents that they were expected by the survey developers to "protect and serve".

An open-ended question format was used to assess tactical medical reasoning in nine complex scenarios. While this methodology provided for more diverse responses and limited the biases inherent in multiple choice response surveys, the complexity of the scenarios was open to potentially different interpretation. Moreover, the 38 selected "key" points are not intended to be definitive approaches to each problem, but tactically oriented approaches agreed upon by the authors.

The proposed tactical medical training skill set (Table 2) is based upon military data. Causes of early, preventable, battlefield death and the subsequent dictates of TCCC were developed from experiences in Vietnam and Somalia respectively.[4–11] These military combat scenarios may not accurately reflect the medical needs of law enforcement personnel, who might suffer distinctly different injury patterns. Unfortunately, available data are inadequate to assess the medical needs of law enforcement officers. The annual Federal Bureau of Investigation LEOKA study predominantly assesses officers killed or feloniously assaulted.[1] It does not gather information on motor vehicle accidents, falls, training accidents, or other injuries inherent to law enforcement. A controversial area impacted by this limitation is the use of spinal immobilization. Military experience indicates that in the tactical setting, the time delays inherent in placement of cervical immobilization place responders at risk while providing no benefit to the patient.[15] These data are based upon outcomes from Vietnam-era penetrating neck trauma. As a result, it cannot be easily applied to more common law enforcement scenarios, such as falls or motor vehicle crashes.

Conclusions

Based upon the results of the current study, additional training is necessary to train the modern law enforcement officer in the integration of first responder medical skills with the realities of tactical scenarios. Simply stated, "Good medicine can sometimes be bad tactics and bad tactics can get everyone killed."[8]

References

1. US Federal Bureau of Investigation, Uniform Crime Reporting Program. Law enforcement officers killed and assaulted 2005. Federal Bureau of Investigation. US Department of Justice. November 2006.
2. Bergeron JD, Bizjak G, Krausa GW, LeBadour C: *Brady First Responder*, 7th ed. New Jersey: Pearson Prentice Hall, 2005.
3. American College of Surgeons: *Advanced Trauma Life Support*, 7th edition. 2003.
4. Butler FK, Hagmann JH: Tactical management of urban warfare casualties in special operations. *Mil Med* 2000;165(suppl 1):1–48.
5. Mabry RL, Holcomb JB, Baker AM, Cloonan CC, Uhorchak JM, Perkins DE, Canfield AJ, Hagmann JH: United States Army Rangers in Somalia: An analysis of combat casualties on an urban battlefield. *J Trauma* 2000;49:515–529.
6. Butler FK Jr, Hagman J, Butler EG: Tactical combat casualty care in special operations. *Mil Med* 1996;161(Suppl1):3–16.
7. Committee on Tactical Combat Casualty Care: Military Medicine. In: *Prehospital Trauma Life Support, Military Edition*, Revised 5th ed, McSwain NE, Frame S, Salomone JP (eds). St Louis: Mosby, 2005, pp 374–408.
8. Butler FK Jr: Tactical medicine training for SEAL mission commanders. *Mil Med* 2001;166:625–631.
9. Bellamy RF: The causes of death in conventional land warfare: Implications for combat casualty care research. *Mil Med* 1984;149:55–62
10. Champion HR, Bellamy RF, Roberts P, Leppaniemi A: A profile of combat injury. *J Trauma* 2003;54:S13–S19.
11. Bellamy RF: Death on the battlefield and the role of first aid. *Mil Med* 1987; 152:634–635.
12. Albrecht S: *Surviving Street Patrol*. Bolder: Paladin Press, 2001.
13. Anonymous: Combat Lifesaver Program. Department of Combat Medic Training. Available at http://www.cs.amedd.army.mil/clsp/index.htm. Accessed 18 December 2006.
14. Tilghman A: Iraqi police study the basics of medical aid. *Stars and Stripes*, 10 April 2006.
15. Arishita GI, Vayer JS, Bellamy RF: Cervical spine immobilization of penetrating neck wounds in a hostile environment. *J Trauma* 1989;29:332–337.

Appendix—Tactical medical scenarios and proposed key actions *continued*

Scenario 1:

You are assisting in the arrest of a suspected drug dealer during a buy-bust operation. As your partner attempts to cuff the suspect, he spins and slashes your partner's right hand with a razor. You see a large amount of dark red blood streaming from the wound. The suspect is taken down, and your partner is calling for help. What can you do to help?

Key Actions (4):

1. Assess medical situation tactically—Control suspect and prevent further injuries
2. Body Substance Isolation (BSI)
3. Control bleeding—Direct pressure
4. Call for assistance—Activate emergency medical services

Scenario 2:

You are backing up the ERU during a high-risk warrant service, providing outer perimeter security. In order to breach the metal bars on the door, a vehicle pull is used. Unseen by the entry team, the breacher is struck by the metal bars as they are pulled from the door, and falls from the porch. As you approach the officer, you find him sitting on the ground, cradling his MP5 and looking dazed, blood coming from a gash in his forehead. What do you do?

Key Actions (6):

1. Assess medical situation tactically—Prevent further injuries
2. BSI
3. Secure primary and secondary weapons
4. C-Spine Precautions
5. Control bleeding—Direct pressure
6. Call for assistance—Activate EMS

Scenario 3:

You are part of the entry team training for a no-knock warrant. The breacher, armed with a 12-gauge with lock-buster ammunition, has an accidental discharge while pivoting. The round strikes the point man on the entry team in the lower right thigh. The officer goes down. There is heavy, pulsatile, bright red blood spraying from a large gaping wound. What do you do?

Key Actions (5):

1. Assess medical situation tactically—Prevent further injuries
2. BSI
3. Secure primary and secondary weapons
4. Control bleeding—Direct pressure, tourniquet, hemostatic agents
5. Call for assistance—Activate EMS

Scenario 4:

You and 3 other officers have just finished a one-mile foot pursuit of a felony suspect. As the suspect is placed in custody, the last officer to arrive on scene stops short. He looks at you, grabs his chest, makes a gurgling sound, and collapses. What do you do?

Key Actions (6):

1. Assess medical situation tactically—Control suspect and prevent further injuries
2. Secure primary and secondary weapons
3. Check Pulse
4. Initiate CPR if appropriate
5. Defibrillation when available
6. Call for assistance—Activate EMS

Scenario 5:

You receive a priority tone of an officer down. On arrival at the scene, you quickly learn from bystanders that the officer, manning a DUI check-point, was struck and thrown by an intoxicated driver. She is unresponsive, lying on her back, snoring with each breath. What do you do?

Key Actions (5):

1. Assess medical situation tactically—Control suspect and prevent further injuries
2. BSI
3. Secure primary and secondary weapons
4. Airway control with C-Spine precautions
5. Call for assistance—Activate EMS

Scenario 6:

You and your partner attempt to stop a suspicious individual. As you call for the person to stop, he turns, raises a small handgun, and fires a single shot. After neutralizing the threat, you check on your partner. He is wearing his duty vest, but has been struck in the right armpit. He complains of trouble breathing, which is getting worse. He looks pale, and has a thready pulse. As he speaks, he coughs up some frothy, bright red blood. Removing his vest, you notice that the right side of his chest does not rise and fall as well as the left when he breathes. You also notice that his Adam's apple is over to the left. What do you do?

Key Actions (5):

1. Assess medical situation tactically—Control suspect and prevent further injuries
2. BSI
3. Secure primary and secondary weapons
4. Needle thoracostomy
5. Call for assistance—Activate EMS

https://doi.org/10.1017/S1049023X00004970 Published online by Cambridge University Press

Appendix—Tactical medical scenarios and proposed key actions *continued from page 340*

Scenario 7:

You are called to a location on a suspicious activity call. When you get to the scene, the residence seems deserted. As you enter the residence, you see someone lying face down on the floor, not moving. The place smells like chemicals. There are red stains all over the walls and carpets. In the kitchen, you see glassware on a stove, with red material bubbling inside it. What should you do?

Key Actions (3):

1. Assess medical situation tactically - prevent further injuries
2. Do not enter—"run away"
3. Call for assistance—Activate EMS/HazMat/ClanLab team

Scenario 8:

You respond to an armed robbery in progress call at a local bank. As you approach the front of the bank, a suspect emerges, dressed in black fatigues, a balaclava, and armed with an assault rifle. He sprints across the parking lot, firing a volley of fully-automatic fire. A round strikes you in the left upper arm as you seek cover. Your arm instantly feels numb, and as you examine the wound, you notice brisk, dark red bleeding. You feel light-headed, and think you might pass out. What should you do?

Key Actions (3):

1. Assess medical situation tactically—Prevent further injuries
2. Call for assistance—Activate EMS
3. Control bleeding—Direct pressure, tourniquet, hemostatic agent

Scenario 9:

You are involved in a felony stop of two armed robbery suspects. After refusing to stop, their car is eventually forced off the road in a residential neighborhood. Both suspects exit the car firing, one with a Remington 870 shotgun and the other with a Ruger Mini14. In the ensuing gunfight, both suspects are killed. You look around and see multiple injured officers:

Officer A: Gunshot Wound (GSW) hand, GSW neck, unable to move, respirations 12, has a radial pulse
Officer B: GSW left forearm, able to walk, respirations 18, has a radial pulse
Officer C: Shrapnel injury to extremities, able to walk, respirations 16, has a radial pulse
Officer D: GSW hand, GSW groin, unable to move, respirations 36, no radial pulse
Officer E: GSW to chest, no respirations, no pulse
Officer F: GSW x 2 to head, no respirations, no pulse
Who needs to be treated and evacuated first, and why?
Key Action (1):
Officer D, START triage protocol guidelines

https://doi.org/10.1017/S1049023X00004970 Published online by Cambridge University Press