

EVALUATION OF TEMS SUPPORT EFFICACY IN FOUR REPRESENTATIVE TACTICAL UNITS

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Abstract

In an analysis of Law Enforcement tactical teams, are TEMS physicians more effective than other TEMS providers in delivering training and operational medical support? In a selection of active SWAT teams within Arizona, we analyzed (1) team members' confidence in their own ability to perform self-care and buddy-care methods in the field, (2) team members' confidence in their medical support personnel (EMT, Paramedic, or Physician), (3) team members' medical knowledge of how best to perform self-care and buddy-care in the field. When surveyed, confidence in medical care was higher for teams using a TEMS physician. Confidence in self- and buddy-care was high in tourniquet usage, but team members without a TEMS physician were statistically more confident in their own capabilities in other tasks. Tactical operators on teams with a TEMS physician are more likely to use correct medical knowledge when assessed.

Introduction

Tactical Emergency Medical Support (TEMS) is a service modified from military tactical medicine to encompass the complex environment and mission set of current law enforcement agencies. Physicians and certified personnel acting as TEMS must be able to provide medical care under stressful and dangerous conditions as well as train police to be able to care for themselves when needed. A physician on-scene during a mission can provide deeper medical knowledge and abilities in the event that injuries or the complications thereof go beyond the training of paramedics. By working closely with the operational team, TEMS also have the opportunity to foresee possible risks and advise the team leader during planning stages. Tactical medicine also allows for preventative medical training, advising on anything from diet, hydration, and exercise plans to treatment of acute hemorrhage in the field.



	Using a TEMS Physician	Without a TEMS Physician	p-value
How confident are you in the care given to you by your medical support in the field	3.9 ± 0.27	3.00 ± 0.62	<0.001
How confident are you in your ability to correctly place a tourniquet on yourself	3.4 ± 0.67	3.59 ± 0.59	0.1
How confident are you in your ability to correctly place a tourniquet on your teammate	3.62 ± 0.56	3.74 ± 0.47	0.24
How confident are you in your ability to place a chest seal on your teammate	2.56 ± 1.06	3.13 ± 0.88	0.003
How confident are you in your ability to correctly use needle decompression	1.1 ± 0.89	1.7 ± 1.28	0.014

Table 1: Team member confidence in medical care. Comparison of teams using an MD to those who do not.

Image 1: Tactical team training with a TEMS provider in giving buddy-care in the field.

Methods

The purpose of this project is to analyze the importance of having a TEMS physician in comparison to the more traditional TEMS paramedic or EMT. We surveyed a selection of active SWAT teams within Arizona with a 5 point Likert scale to determine effectiveness of their TEMS in three categories: training the SWAT team members, SWAT team member confidence in personal ability to render care in the field, and SWAT team member confidence in on-scene medical care by their provider. To do this, we surveyed 130 SWAT team members on their medical training (self-care and buddy care) and SWAT team member confidence in medical care by a TEMS professional during an operation. We also used 20 multiple choice questions to assess their medical knowledge based on real-life scenario based questions. These questions covered topics ranging from hydration to care of penetrating wounds. Most teams were primarily trained by paramedics, even if they utilize physicians on the team.

Results: Confidence

Results

A total of 130 SWAT team members from four units were surveyed in this study. Our analysis revealed that teams with a physician were more likely to see an operational role and highly rate the importance of having a physician on the team (Figure 1). SWAT team members with a TEMS physician also rated their confidence in their medical care in the field more highly, although confidence was high for all types of TEMS physicians on all teams (Table 1). When SWAT operators were asked about their own ability to perform self- and buddy-care in the field, confidence was high for all respondents, but those without a TEMS physician had higher confidence in some tasks (Table 1). When tested on their medical knowledge, teams with a TEMS physician scored higher than those without on similar topics (Table 2).

Results: Medical Knowledge

Question topic, number (percent) correct	Using a TEMS Physician	Without a TEMS Physician	p-value
Use of tourniquet on extremity wound	40 (96%)	70 (87.5%)	0.11
Care under fire	49 (98%)	76 (95%)	0.13
Intent to loosen tourniquet before evacuating the casualty	47 (94%)	63 (78.75%)	0.019
Rule for tightening a tourniquet	15 (30%)	24 (30%)	0.28
Chest wound care	37 (74%)	44 (55%)	0.75
Chest wound positioning	20 (40%)	17 (21.25%)	0.11
When to use needle decompression	42 (84%)	63 (78.75%)	0.052
Insertion site for needle decompression	38 (76%)	40 (50%)	0.003
How to use a large bore needle/catheter for needle decompression	27 (54%)	24 (30%)	0.52
Best option for rehydration	40 (80%)	51 (63.75%)	0.048
Penetrating abdominal wound care	27 (54%)	21 (26.25%)	0.002
Average	35.45 (70.90%)	44.82 (56.02%)	0.001

Table 2: Team member medical knowledge. Comparison of teams using an MD to those who do not.

Medical Personnel Preferred

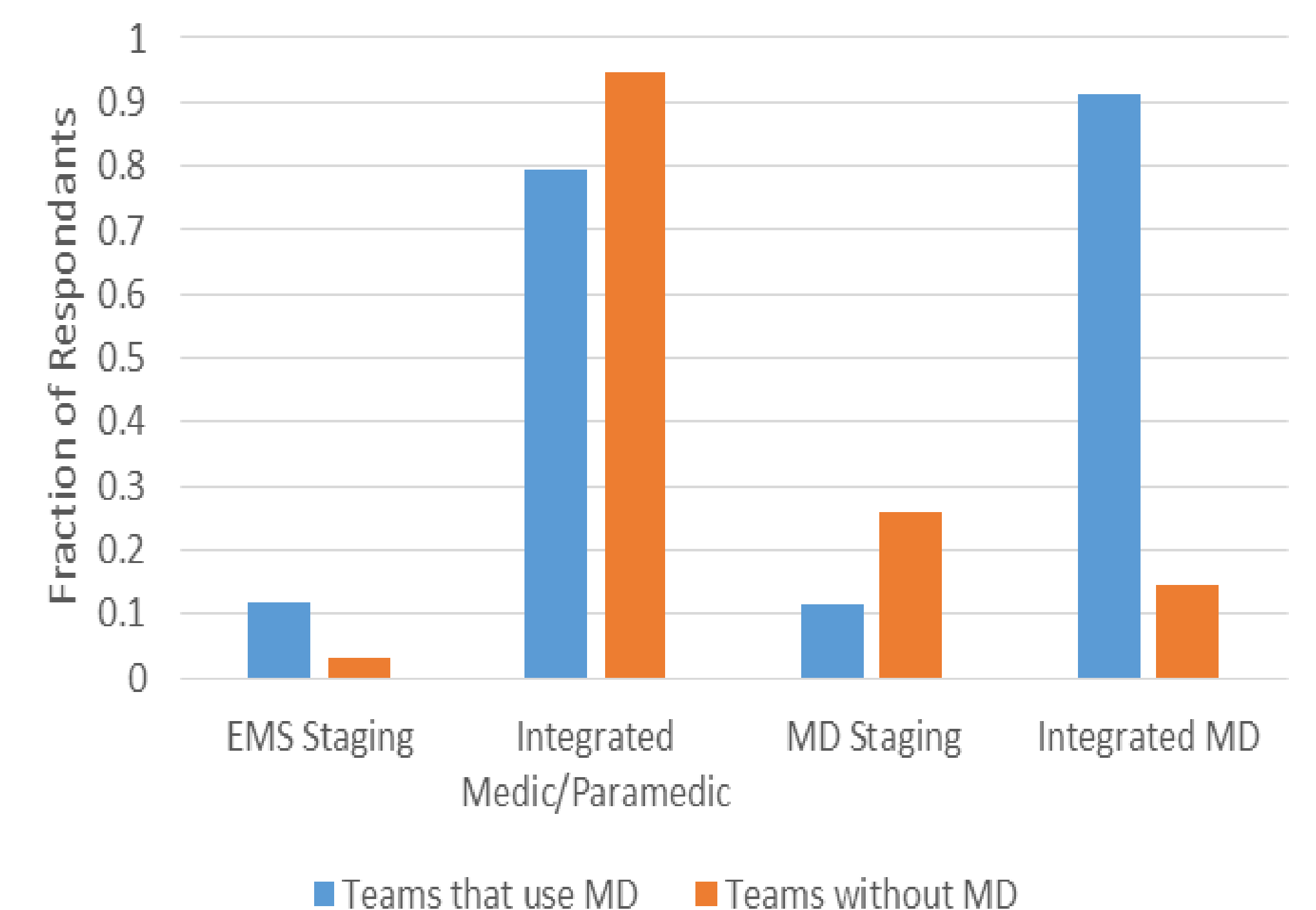


Figure 1: Responses of team members regarding preferred medical personnel on the team. Each respondent could submit multiple preferences.

Discussion and Conclusions

This project investigates the scope and impact of the tactical subspecialty of Emergency Medicine. Analysis of these tactical teams will help us identify the efficacy of utilizing trained physicians in various roles of Tactical Emergency Medical Support. This data will help to better inform other police departments and help them determine if their department would benefit by utilizing available physicians in their tactical units. We found that teams utilizing TEMS physicians had a lower confidence in their own ability to provide self- and buddy-care, but a higher confidence in the care they are given by medical personnel. We also found that teams using a TEMS physician had a higher level of medical knowledge of more invasive techniques. This was regardless of whether their training was primarily with a physician or paramedic.

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