

ABILITY OF LAYPERSON CALLERS TO APPLY A TOURNIQUET FOLLOWING PROTOCOL-BASED INSTRUCTIONS FROM AN EMERGENCY MEDICAL DISPATCHER

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OBJECTIVES

The overall objective of the study was to determine whether layperson callers can effectively stop simulated bleeding using an improvised or a commercial tourniquet, when provided with scripted instructions via phone from a trained protocol-aided EMD.

METHODS

This was a prospective, randomized trial involving layperson volunteers, done at four locations in Salt Lake City, Utah, USA. Volunteers were assigned randomly to three groups: one for each of two commonly available commercial tourniquets (the SAM XT [SAM Medical Products], and Combat Application Tourniquet – CAT [Composite Resources]) and one for an improvised tourniquet.

CONCLUSION

The study findings demonstrated that untrained bystanders provided with instructions via phone from a trained Emergency Medical Dispatcher applied a tourniquet and successfully stopped the bleeding completely in most cases.

EMERGENCY MEDICAL DISPATCHERS CAN SUCCESSFULLY INSTRUCT LAYPERSONS TO APPLY A TOURNIQUET

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TABLES AND FIGURES

Measure		Overall (N=246)	Tourniquet type: n (row %, column %) [†]		
			CAT (n=95)	SAM XT (n=86)	Improvised (n=65)
Gender	Female	135	45 (33, 47)	48 (36, 56)	42 (31, 65)
	Male	111	50 (45, 53)	38 (34, 44)	23 (21, 35)
Survival	Bleeding	16	2 (12, 13)	7 (44, 8)	7 (44, 11)
	Dead	32	8 (25, 8)	19 (59, 22)	5 (16, 8)
	Stable	198	85 (43, 90)	60 (30, 70)	53 (27, 82)
Pressure status	Good	185	78 (42, 82)	57 (31, 66)	50 (27, 77)
	Loose*	60	17 (28, 18)	29 (48, 34)	14 (23, 22)
	Tight*	1	0 (0, 0)	0 (0, 0)	1 (100, 2)
Instructions clear [†]	Yes	171	68 (40, 94)	55 (32, 87)	48 (28, 100)
	No	12	4 (33, 6)	8 (67, 13)	0 (0, 0)

[†]The percentages are estimated out of the total for each category of the respective measures (row %), and per tourniquet type (column %), respectively.
*Loose and tight were independent readings that were not specific to stable/unstable condition but indicate the participant had not applied optimal pressure. Tourniquet pressure status was defined as 'loose' if it was below 200mmHg, although it was still possible to stop or slow the simulated bleeding with a high-end 'loose' reading.
[†]Variable taken from exit survey—and not every participant responded to all questions.
Table 1. Summary analytics categorized by tourniquet type

Measure		Not Stable* n (%)	Stable n (%)	p-value
Gender	Female	31 (23%)	104 (77%)	0.1788
	Male	17 (15%)	94 (85%)	
Tourniquet type	CAT	10 (11%)	85 (89%)	0.003
	SAM XT	26 (30%)	60 (70%)	
	Improvised	12 (18%)	53 (82%)	
Pressure status [†]	Good	3 (2%)	182 (98%)	< 0.001
	Loose*	45 (75%)	15 (25%)	
	Tight*	0 (0%)	1 (100%)	

*Bleeding or dead
[†]Variable taken from exit survey. Tourniquet pressure status was defined as 'loose' if it was below 200mmHg, although it was still possible to stop or slow the simulated bleeding with a high-end 'loose' reading.
Table 2. Overall survival Statuses of patients