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Background/Purpose

- 50 Mass shootings occurred in 2016-2017 in 21 states resulting in 221 casualties and 743 injuries (FBI, 2018).
- Bystanders are the first on the scene of events, making training necessary to decrease morbidity and mortality from hemorrhagic injuries (Stop the Bleed, 2018).
- Amongst the mass casualty incidents from 2000-2013, 24% occurred in public schools (FBI 2014).
- The purpose was adding high fidelity simulation to the basic bleeding control course to impact retention

Learning Objective

Participants will have an increase in comfort with proper tourniquet application, wound packing and situational awareness.

Design, Setting, & Sample

- A Quasi-experimental study with repeated measures was used.
- The simulation lab is part of general non trauma non academic community hospital in suburbs of White Plains, New York.
- Participants- White Plains school district - administrators, teachers, and assistants. Inclusion criteria any one over age 18.
- Exclusion criteria anyone with prior hemorrhage control training.



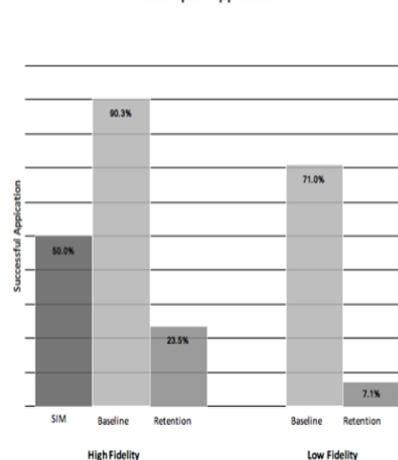
Methods

- Jan-June 2019: 300 total participants randomly assigned to a control and experimental group upon arrival.
- A basic bleeding course with a power point presentation, tourniquet placement and wound packing practice given to all.
- Control group practiced wound packing and tourniquet placement on artificial limbs.
- Experimental group attended an active shooter scenario included an actor and a high fidelity mannequin for scene safety and identification and treatment of life threatening wounds plus, wounding packing on biosensor device.
- Each was graded on proper tourniquet application and packing pressure.
- Skills to be re-evaluated in 6 months.

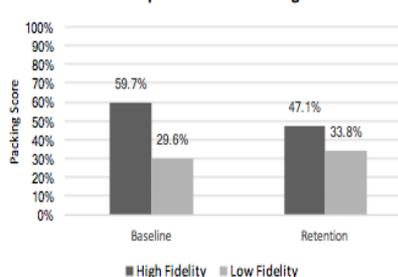
Results/Findings/Outcome

	Emergency Scenario Comfort	Packing Comfort	Tourniquet Use Likelihood	Tourniquet Use Comfort
Analyses	Ordinal Logistic Regression	Ordinal Logistic Regression	Binary Logistic Regression	Binary Logistic Regression
Predictors	Odds Ratios	Odds Ratios	Odds Ratios	Odds Ratios
High Fidelity Group	12.25 ** (2.70 - 70.65)	6.06 * (1.52 - 27.73)	11.97 ** (2.66 - 72.53)	2.32 (0.69 - 13.76)
Age	1 (0.95 - 1.05)	0.99 (0.94 - 1.04)	1.02 (0.96 - 1.08)	1.01 (0.96 - 1.07)
Gender	4.09 (0.51 - 34.36)	1.78 (0.26 - 12.47)	0.77 (0.07 - 10.19)	2.86 (0.28 - 33.60)
Occupation				
School Administration	2.08 (0.16 - 29.45)	3.22 (0.29 - 39.37)	1.5 (0.08 - 31.06)	8.47 (0.43 - 320.87)
Teacher	1.17 (0.19 - 7.07)	0.9 (0.16 - 5.21)	0.94 (0.11 - 6.06)	4.41 (0.42 - 135.22)
Teaching Assistant	1.8 (0.26 - 12.40)	2.61 (0.42 - 17.82)	1.2 (0.12 - 10.04)	8.24 (0.75 - 279.81)

Tourniquet Application



Adequate Wound Packing



Situational Monitoring	HFID	BCON	p-value
Called 9-1-1	78.50%	66.70%	0.35
Safety assessed	85.70%	58.30%	0.03
Identify life threatening wound	96.40%	100%	0.33

Conclusion

- Higher successful tourniquet application and wound packing scores for the high fidelity experimental groups.
- Improved comfort in an emergency scenario. Participants were 11.97 times more likely to use a tourniquet in emergency scenario according to self reports.
- No significant increase in proper tourniquet application and wound packing scores at 6 month retention.

Implications for Practice

- Improving community situational awareness and training for lay persons in bleeding scenarios through simulation
- Need for continued reinforcement of key elements : scene safety, tourniquet placement and packing
- Providing refresher courses of bleeding control.

References

- Federal Bureau of Investigation (2014, September 24). FBI Releases Study on Active Shooter Incidents. *U.S. Department of Justice*. Retrieved from <https://www.fbi.gov/news/stories/fbi-releases-study-on-active-shooter-incidents>
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