

2023 BROWARD COUNTY EMS GRANT APPLICATION

"Funding to improve or expand prehospital EMS Systems"

Section I

1. **Project Title:** Continuing Education for Prehospital Providers
 Is this a pilot project? ☐ Yes ☒ No
2. **Project Cost \$:** 36,951
3. **Agency Name:** Hollywood Fire Rescue
 Address: 2741 Stirling Road, Hollywood, FL 33312
 Telephone: 954-967-4248 Fax: _____
4. **Project Manager:** The individual with direct knowledge of project and responsible for project implementation.
 Name: Simon Serrao
 Telephone: 954-967-4248 Email: SSerrao@hollywoodfl.org
5. **Authorized Signatory:** The individual authorized to sign the application on behalf of the agency or entity.
 Name of Signatory: Simon Serrao
 Title of Signatory: Division Chief of EMS
6. **Projects Impacting Direct Services to Emergency Victims:** This may include, but is not limited to: vehicles, medical and rescue equipment, communications, dispatch, navigation, and other equipment that impacts on-site treatment. (Countywide projects must offer participation to all licensed EMS providers, based upon levels of service.) Attach Form A.
 Countywide: ☒ Yes ☐ No
 Multiple Agencies: ☐ Yes ☐ No How Many? _____
 Single Agency: ☐ Yes ☐ No
7. **Projects Impacting Indirect Services:** Training of all types (public, first responders, law enforcement personnel, EMS personnel and other healthcare staff), research, and documentation. (Countywide projects must offer participation to all licensed EMS providers.) Attach Form A.
 Countywide: ☒ Yes ☐ No
 Multiple Agencies: ☐ Yes ☐ No How Many? _____
 Single Agency: ☐ Yes ☐ No

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8. Problem/Unmet Need Description: Provide a narrative of the problem or need and the population affected by describing the present situation and management (if any) and the potential adverse consequences if not addressed.

Trauma continues to be the leading cause of death in the United States, with chest trauma contributing to 60% of those cases (Muchnok). High quality pre-hospital care is an integral component to any established trauma system and essential in the survival of a patient with a traumatic injury (Smith). As trauma systems and pre-hospital care continues to evolve, the number of potential life-saving procedures in the field continues to increase. Although, most patients receive minimal fluid in route to the hospital, gaining vascular access in the pre-hospital setting is critical and can be challenging. Research supports that one in four patients will need more than one attempt for pre-hospital intravenous (IV) access (Prottengeier). When IV access is delayed or unsuccessful, an intraosseous (IO) device may be indicated. However, due to the infrequency in use, failure (6%) and complication (4%) rates have been reported (Olaussen). Additionally, cricothyrotomy and needle decompression (NDC) are rare, life-saving interventions with varying success rates of 25-77% and 18-62% respectively (Fairley and Hannon).

Pre-hospital interventions (PHI), such as intubation, NDC, tourniquet use, cricothyrotomy, or Advanced Cardiac Life Support (ACLS), are reported in approximately 3.5% of patients (Meizoso). According to data from the Broward County Trauma Agency, there were approximately 249, 000 emergency medical service (EMS) calls in 2020; therefore, it can be estimated that a minimum of 8,715 PHIs were performed.

There is a paucity of data on the statistical decrease in pre-hospital provider skillset over time, however, Latman et al., report a 50% decrease within two years. Research by De Lorenzo et al. and Lantman et al., support that directed continuing education (CE) programs can not only help medical first responders to retain an estimated 11% of knowledge but also improve pre-hospital skills (De Lorenzo, and Lantman).

Continuing education requirements are built on the foundation that skills decay over time (De Lorenzo). Therefore, the basic level Emergency Medical Technician (EMT) recertification requires 40 hours of CE [20 national, 10 local and 10 individual] (National Registry of Emergency Medical Technicians). Despite trauma being the leading cause of death for individuals under 40, only 1.5 trauma hours are required for recertification (National Registry of Emergency Medical Technicians). Taking into account the gravity of traumatic injury and the minimal CE requirements, EMTs have the potential to benefit from additional education focused on the management of trauma patients.

Arnold et al., note that the goal of emergency response education is to develop the learner's ability to respond appropriately during an emergency situation and identified several factors that influence the successes of emergency response education. Although didactic teaching provides fundamental knowledge and principles, the classroom setting does not adequately prepare students for a clinical setting (Landers, Arnold). Skill laboratories provide the opportunity for students to practice and master the desired emergency response skill in an isolated environment and similar to didactic learning, does not resemble a "real world" scenario (Arnold). Alternatively, full-scale simulation with high-fidelity manikins are the preferred method to teach emergency response as they allow students to respond to a realistic emergency situation in a controlled practice environment (Arnold).

Providing EMS with CE opportunities, specifically simulation or combined (didactic with skills practice) will allow EMS to stay current on PHIs, provide advanced level care in the field, support the trauma system, and save innumerable lives.

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9. EMS Improvement and Expansion to Resolve Problem or Address Needs:

Describe proposed solutions to the problem and/or need (question #8 – problem description). State the improvements that are reasonably foreseeable and measurable. Use data, scientific, or anecdotal information to support the agency's request. Explain how the project will improve and/or expand prehospital EMS in Broward County. Be specific.

As EMS systems continue to evolve, the need for targeted pre-hospital provider training will continue to increase. Despite the ongoing debate between "scoop and run" and "stay and play", most EMS have adopted a balanced approach "play without extended stay" which requires critical thinking and competence in the most common PHIs to ensure the most critical patients receive intervention without increasing scene times (Meizoso).

Hallas et al, recommend education on all stages of IO use to avoid clinically relevant complications (Hallas). Fairley et al, support that rapid and accurate identification of key anatomical landmarks by EMS are essential for successful cricothyrotomy and NDC and recommend EMS training for pre-hospital patient management (Fairley). Muchnok et al, found that patients who receive pre-hospital NDC have a 25% lower mortality when compared to patients initially treated in the Emergency Department and therefore, strongly encourage reinforcing the necessary skills in EMS education.

Taking into consideration the burden of traumatic injury and the decrease in clinical skills over time, there is a growing need to allocate resources to ensure EMS retain knowledge and practice life-saving PHIs in a controlled education setting. Therefore, in an effort to address the need for ongoing EMS education, traumatic injury mortality, and common PHIs, we propose a CE initiative offering training sessions with high-fidelity manikins to allow pre-hospital providers the opportunity to practice rare, life-saving skills such as IO insertion, cricothyrotomy, and NDC, in a controlled setting.

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10. Measurable Outcomes: Outcomes should be viewed from the perspective of the project and provide for: improved conditions/service - for patients as well as EMS personnel; expanded services; new knowledge; or improved knowledge. Outcomes must be measurable and attainable. (Attach additional pages, as needed.)	
A. Project	• Purchase required training materials to provide EMS education (e.g. IO and TraumaMan) • Offer education to pre-hospital providers
B. Activities	• Train pre-hospital providers in IO insertion, cricothyrotomy, and NDC
C. Outcomes	• 1 TraumaMan purchased with replacement skins • 1 IO device and needles • Provide education on rare, life-savings PHIs • Sign in sheets collected in every training to track number of EMS educated
D. Indicators	• Increased access to affordable, relevant EMS education
E. Data Source	Arnold, J. J., Johnson, L. M., Tucker, S. J., Chesak, S. S., & Dierkhising, R. A. (2013). Comparison of three simulation-based teaching methodologies for emergency response. <i>Clinical simulation in nursing</i>, 9(3), e85-e93. De Lorenzo, R. A., & Abbott, C. A. (2007). Effect of a focused and directed continuing education program on prehospital skill maintenance in key resuscitation areas. <i>The Journal of emergency medicine</i>, 33(3), 293-297. Fairley, Romeo R., et al. "A Pilot Study to Assess Urban, Fire-Based Paramedic Accuracy in Identification of Anatomical Landmarks Necessary for Cricothyrotomy and Needle Chest Decompression Using Live Patient Models." <i>Prehospital and Disaster Medicine</i> 36.4 (2021): 408-411. Hallas, Peter, Mikkel Brabrand, and Lars Folkestad. "Complication with Intraosseous access: Inquiry of Scandinavian users' experiences." <i>Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health</i> 14.5 (2013). Lairman, N. S., & Wooley, K. (1980). Knowledge and skill retention of emergency care attendants, EMT-As, and EMT-Ps. <i>Annals of emergency medicine</i>, 9(4), 183-189. Meizoso, J. P., Valle, E. J., Allen, C. J., Ray, J. J., Jouria, J. M., Telsch, L. F., ... & Proctor, K. G. (2015). Decreased mortality after prehospital interventions in severely injured trauma patients. <i>Journal of Trauma and Acute Care Surgery</i>, 79(2), 227-231. Muchnok, Daniel, et al. "Association of Prehospital Needle Decompression With Mortality Among Injured Patients Requiring Emergency Chest Decompression." <i>JAMA surgery</i> (2022). National Registry of Emergency Medical Technicians. <i>Emergency Medical Technician Recertification Information</i>. Retrieved from https://www.nremt.org/rwd/public/document/emt-recert. Accessed on August 27, 2019. Olaussen, Alexander, and Brett Williams. "Intraosseous access in the prehospital setting: literature review." <i>Prehospital and disaster medicine</i> 27.5 (2012): 468-472.
F. Data Collection Method	• Sign in sheets collected in every training to track number of courses delivered and participants trained.

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- 11. Project Schedule:** Please complete the table below. Insert additional rows if needed.

Months after Grant is Executed	Activity
0-2 months	Order materials and equipment
1-4 months	Schedule courses
4-12 months	Deliver continuing education to EMS

- 12. Supporting Research or Literature?** ☐ Yes (Attachment A) ☐ No
 (Required if this is a Pilot Project.)

- 13. Letters of Support or Reference?** ☐ Yes (Attachment B) ☐ No

- 14. Budget:** Do not use brand names when listing items. Use only generic names. Round up/down to the nearest dollar. Please use the table below. Insert additional rows if needed. Do not include extended warranties.

Item	Unit Cost	Quantity	Total
See budget attachment			
Delivery charges, if any			
Total			\$

- 15. Future Expenses:** Estimate the maintenance or other required recurring expenses per unit after the first grant year (if applicable). Note: No funding will be provided for these expenses under this grant program and must be absorbed by the grant recipient(s). Discuss this issue with your agency as it may affect its budget.

Items	Cost

Grant monies cannot be used to replace existing equipment.

SS

Initials of authorized signatory acknowledging the individual understands this statement.

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16. **Medical Director Approval:** For all projects requiring approval from the agency's Medical Director in accordance with Chapter 401, Florida Statutes, or Chapter 64J-1, Florida Administrative Code.

The undersigned, as Medical Director for this agency, supports and approves this project.

Signature: 

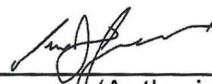
Date: 9/6/2022

Printed Name: Dr. Randy Katz

17. **Partial Funding:** Will the agency accept partial funding?
(Note: If the agency is awarded partial funding, an amendment to the outcomes and budget forms must be submitted).

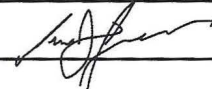
☒ Yes, the agency will accept partial funding

☐ No, the agency will not accept partial funding

Signature: 
(Authorized Signatory)

Printed Name: Simon Serrao

AGENCY NAME: Hollywood Fire Rescue

AUTHORIZED SIGNATORY: 

DATE: 9-06-2022

PRINT AUTHORIZED SIGNATORY NAME: Simon J Serrao

TITLE: Division Chief of EMS

PROJECT MANAGER'S SIGNATURE: 

PRINT PROJECT MANAGER'S NAME: Candace Pineda

TITLE: Trauma Admin Director

TELEPHONE: 954-265-4026

EMAIL: Canpineda@mhs.net

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If this is a Single Agency Project, this is the last page of the application.

If this is a Multiple Agency/Countywide Project (excluding Countywide training projects), please continue by completing the Participating Agency Summary Sheet (Form A) and Section II for each Participating Agency.

Grant Application Submission Deadline:

Wednesday, September 7, 2022 at 3 p.m.

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FY 2023 Grant

Needle Decompression/Cricothyrotomy Equipment	34455.00
IO Equipment	2496.00
TOTAL	36951.00

EMS Education

	Number	Cost per unit	Total
Durable Equipment			
Simulab TraumaMan (with startup tissue allowance)	1	\$24,225.00	\$24,225.00
Simulab Skins (chest and neck)	30	\$341.00	\$10,230.00
EZ- IO Power Driver	1	\$150.00	\$150.00
EZ- IO 45 MM Needle Set + Stabilizer	5	\$142.60	\$713.00
EZ - IO 25 MM Needle Set + Stabilizer	5	\$142.60	\$713.00
EZ- IO 15 MM Needle Set + Stabilizer	5	\$142.60	\$713.00
Shipping	1	\$207.00	\$207.00