BETTER HEART: Building Evaluations That Translate Evidence and Research to Heart Evaluations and Related Training

(Short Title: BETTER HEART)

PROJECT SUMMARY

Last Updated: 14 February 2020

Background:
Despite all the dangers on the fireground, it is the pathophysiological response to firefighting that kills or injures most firefighters. It is noted that more than half of deaths in the line-of-duty occur from cardiovascular reactions to the physical stress of the job. This is an alarming fact, especially since high levels of cardiovascular strain can trigger a cardiovascular event in individuals with cardiovascular disease. A previous study indicated that a majority of the firefighters who had died from cardiac incidents showed signs of both enlarged heart and coronary heart disease. Although current screening done is for coronary heart disease, screening for enlarged hearts should not be ignored, as the combination of multiple types of cardiovascular disease greatly increase the risk of a sudden cardiac event for first responders.

Project Goal and Aims:
The goal of this two-year effort is to translate current medical understanding and recent research into more effective screening recommendations and training and educational material. Consider new screening approaches based on: Updated understanding of cardiovascular disease; Technology advances for detecting heart disease; Fire service research that identifies specific vulnerabilities.

Implementation and Schedule:
This research project is led by Skidmore College with collaborative support from multiple other research partners, including Harvard University, National Institute for Occupational Safety and Health (NIOSH), National Institute for Public Safety Health (NIPSH), and Dr. Saeed Khaja. Funding for this project is through a two-year DHS/FEMA Assistance to Firefighters Grant (AFG) with a targeted completion date of February 2020. The Principal Investigator (PI) for this project is: Dr. Denise Smith of Skidmore College, email: DSmith@Skidmore.edu.
BETTER HEART (Building Evaluations That Translate Evidence and Research to Heart Evaluations and Related Training) – AFG FS&P

Project summary chart

1. Finalize Teams and Refine Project Strategy (0–4 months)

Teams
- Core Multidisciplinary Research Team (CMRT) – Skidmore, Harvard, NIOSH, NIPSH, Dr. Saeed Khaja
- Medical Advisory Team (MAT) – Occupational Medicine, Cardiologists
- Fire Service Partners (FSP) – Loudon County, Hanover Park, Indianapolis
- Expanded Expert Panel (EEP) – Occupational Medicine, Cardiology, Primary Care Physicians (PCPs), Fire Service (FS, Researchers).

2. Create Foundational Report (0-6 months)

CMRT
Synthesize and translate info from:
- a) Medical literature
- b) Current screening and diagnostic guidelines
  1. CVD RF
  2. Clinical Tests
- c) Evolving/Novel screening and diagnostic tools
- d) Scientific research – FS and CVD
- e) FS Data
  1. NIOSH FFFIP
  2. WFI and occupational

3. Develop Preliminary Evidence-Based Enhanced Screening Guidelines and Educational/Training Material (4-8 months)

CMRT + MAT + FSP + EEP
Develop preliminary screening guidelines informed by the foundational report, clinical experience, and FS partners. Develop easy-to-follow educational materials for firefighters to address findings from medical exam.

4. Implement Pilot Programs and Assess Outcomes (8-20 months)

FSP + CMRT
Implement:
- a) Pilot enhanced screening guidelines in FDs
- b) Pilot use of emerging/novel clinical screening tools in Occupational Medicine Clinics
Assess pilot program:
1. Number and severity of problems identified
2. How many problems need follow up?
3. Outcomes of follow up
4. Administrative issues
5. Cost

5. Disseminate Evidence-Based Enhanced Screening Guidelines and Educational/Training Material (20-24 months)

CMRT + MAT + FSP + EEP
Based on outcomes of Pilot Programs, broadly disseminate guidelines and educational material to FS:
1. NFPA 1582
2. IAFF
3. IAFC → FSTAR
4. NVFC
5. NFFF → cardiac health
6. Primary care physicians (PCPs), occupational medicine, and cardiologists