



# Northfield Police Department

Sigma Wellness  
Mark Elliott, Police Chief

# Northfield Police Sigma Wellness



- Sigma Wellness provides biometric testing for police officers
- Based on research of police officer increased risk of heart disease
- Advanced testing can reduce risk to officers and reduce liability of employers

# Northfield Police Sigma Wellness



## Heart Disease



American  
**Heart**  
Association®

	Law Enforcement	Civilian
Average age of patient with heart attack	46 years	65 years
Heart attacks under age 45	29-45%	7%
Average Life Expectancy	57 years	79 years

# Northfield Police Sigma Wellness



- Financial Liability



## Reducing risk

- Screening identifies risk and treatment options
- Cardiac screening resulted in a 72% reduction in cardiovascular events. (Corpus Christi experience)
- Fix it? Aggressive therapy.
- Cholesterol therapy can help officers reduce risk

# Northfield Police Sigma Wellness




- Standard risk assessment doctors use is the Framingham Risk score.

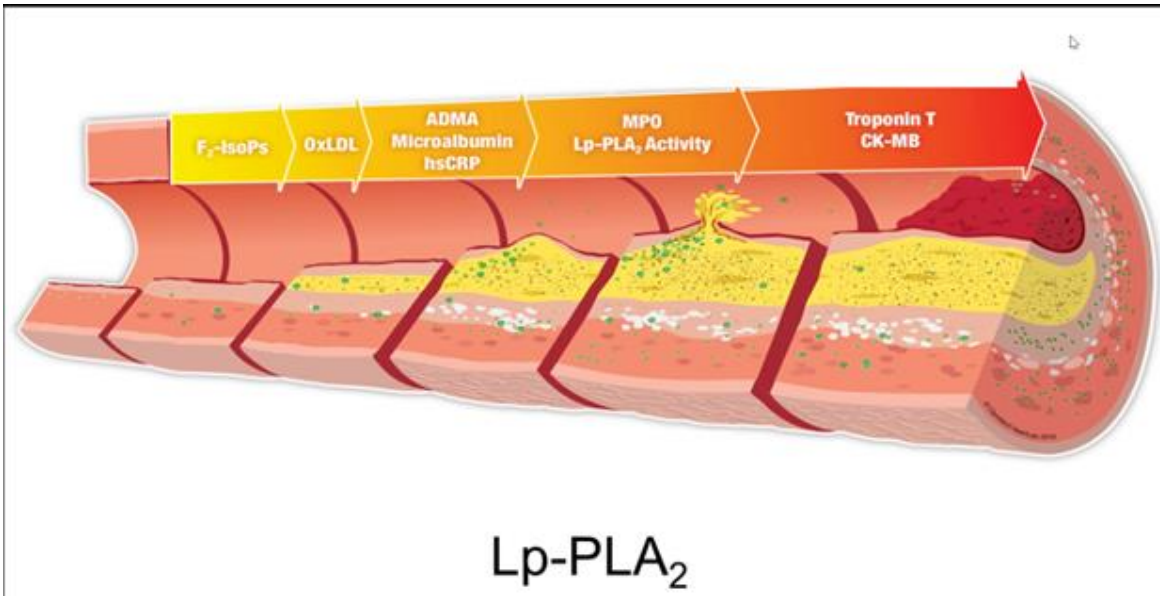
**Framingham Risk Score<sup>1</sup>**  
Risk assessment tool for estimating a patient's 10-year risk of developing cardiovascular disease

Age:	<input type="text"/> Years
Gender:	<input type="radio"/> Female <input type="radio"/> Male
Total cholesterol:	<input type="text"/> mmol/L
HDL cholesterol:	<input type="text"/> mmol/L
Smoker:	<input type="radio"/> Yes <input type="radio"/> No
Diabetes:	<input type="radio"/> Yes <input type="radio"/> No
Systolic blood pressure:	<input type="text"/> mm Hg
Is the patient being treated for high blood pressure?	<input type="radio"/> Yes <input type="radio"/> No

This online assessment tool is intended as a clinical practice aid for use by experienced healthcare professionals. Results obtained from this tool should not be used for legal or medical decisions.

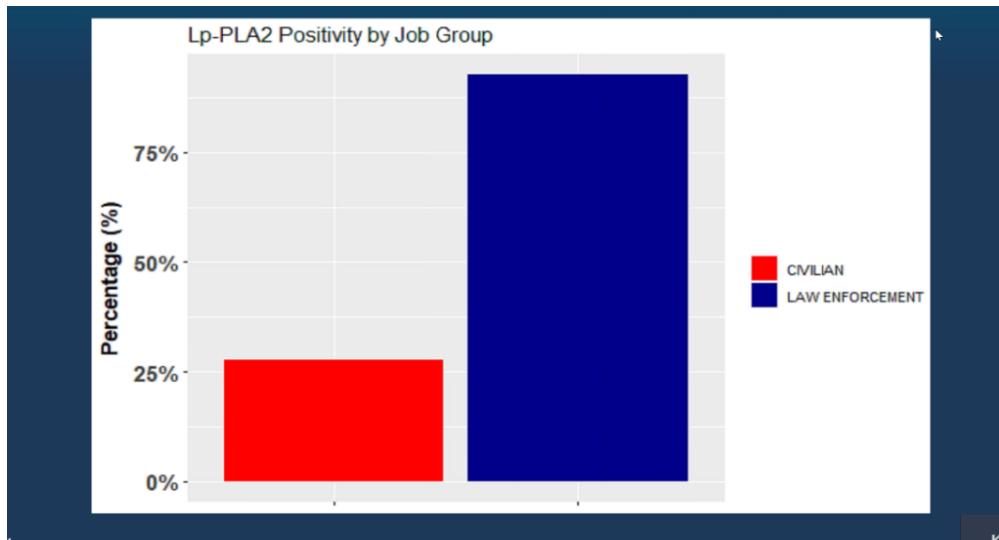
**Calculate risk** 

# Northfield Police Sigma Wellness



- Lp-PLA<sub>2</sub> is an effective predictor of heart attack risk

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ORIGINAL ARTICLE

**OPEN**

## Liposomal-Associated Phospholipase A<sub>2</sub> Is More Effective in Predicting Cardiac Risk in Law Enforcement Than Framingham Risk Score and Coronary Artery Calcium Score Calculation

AQ1 Jonathan Sheinberg, MD, FRCC, Praveen Rajaram, BS, and Joshua Callaway, MS

**Objective:** To clarify the methods for identifying officers at high risk for cardiac events. **Methods:** This retrospective review included 1530 patient charts. Classic cardiovascular risk factors, coronary artery calcium (CAC) scores, and endothelial inflammatory biomarker levels were compared between civilians and law enforcement officers (LEOs). The Framingham Risk Score (FRS) was compared with risk assessment using inflammatory biomarkers. **Results:** The FRS failed to identify more than 80% of LEOs at high risk of cardiovascular events. Similarly, the use of the CAC score was ineffective. Inflammatory biomarker analysis measuring the lipoprotein-associated phospholipase A<sub>2</sub> activity was the most reliable method for identifying LEOs at high risk of cardiovascular events. **Conclusions:** The use of the standard FRS and CAC scores is less effective than that of inflammatory biomarkers in identifying LEOs at high risk of cardiovascular events.

**Keywords:** cardiovascular disease, coronary artery calcium score, coronary disease, Framingham risk score, inflammation, law enforcement officers, liposomal associated phospholipase A<sub>2</sub>

**INTRODUCTION AND OBJECTIVES**

The current literature suggests that a top cause of morbidity and mortality in law enforcement officers (LEOs) is cardiovascular disease (CVD). Although death from heart attack is consistently ranked the second or third most common cause of death for healthcare providers,

**LEARNING OUTCOMES**  
Completing this educational activity would enable the following:

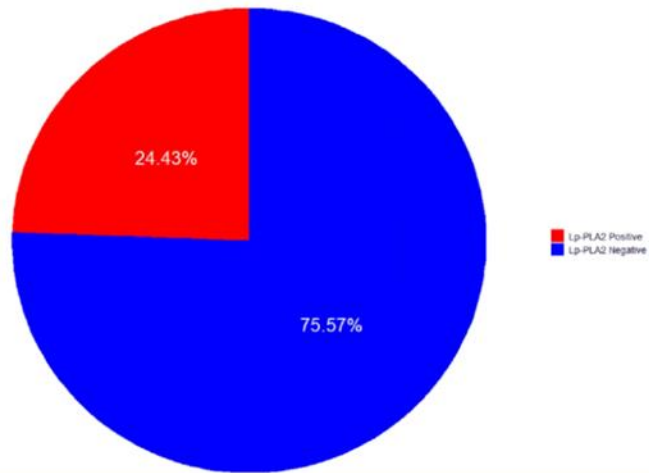
- Understanding the techniques most effective in predicting cardiovascular disease among law enforcement officers.
- Understanding the mechanism that accounts for the increased prevalence of cardiovascular disease among law enforcement officers.
- Assessing standard cardiovascular disease risk assessment techniques and comparing these techniques with novel advanced inflammatory biomarker analysis.

In addition to taking a toll on human life, heart attack treatment is one of the leading medical expenses incurred by police agencies. According to the Commission on Accreditation for Law Enforcement Agencies, the cost to taxpayers of in-service heart attacks ranges from \$450k to \$750k per incident.<sup>1</sup> Previously published data suggest that the average age of a US

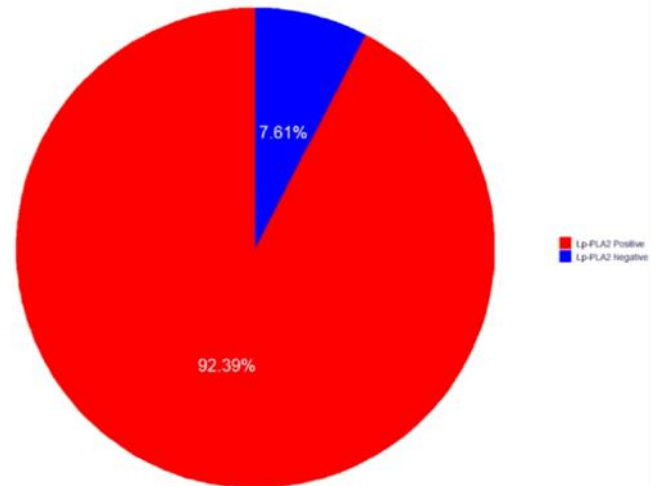
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Percent of Low-to-Intermediate Framingham Risk Patients  
with Positive Lp-PLA2: Civilians



Percent of Low-to-Intermediate Framingham Risk Patients  
with Positive Lp-PLA2: Law Enforcement





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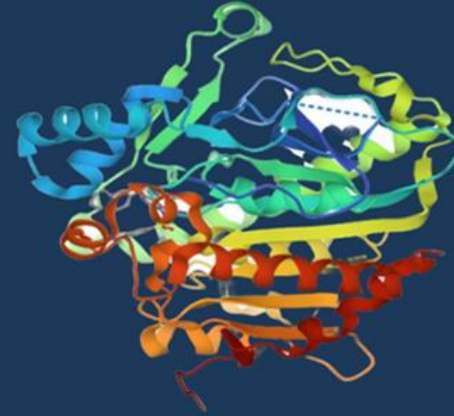
Lp-PLA<sub>2</sub> is the surrogate for heart  
attack in LE



Vs



Lp-PLA<sub>2</sub>



Lipoprotein associated phospholipase A<sub>2</sub>

# Northfield Police Sigma Wellness



- Departments using Sigma

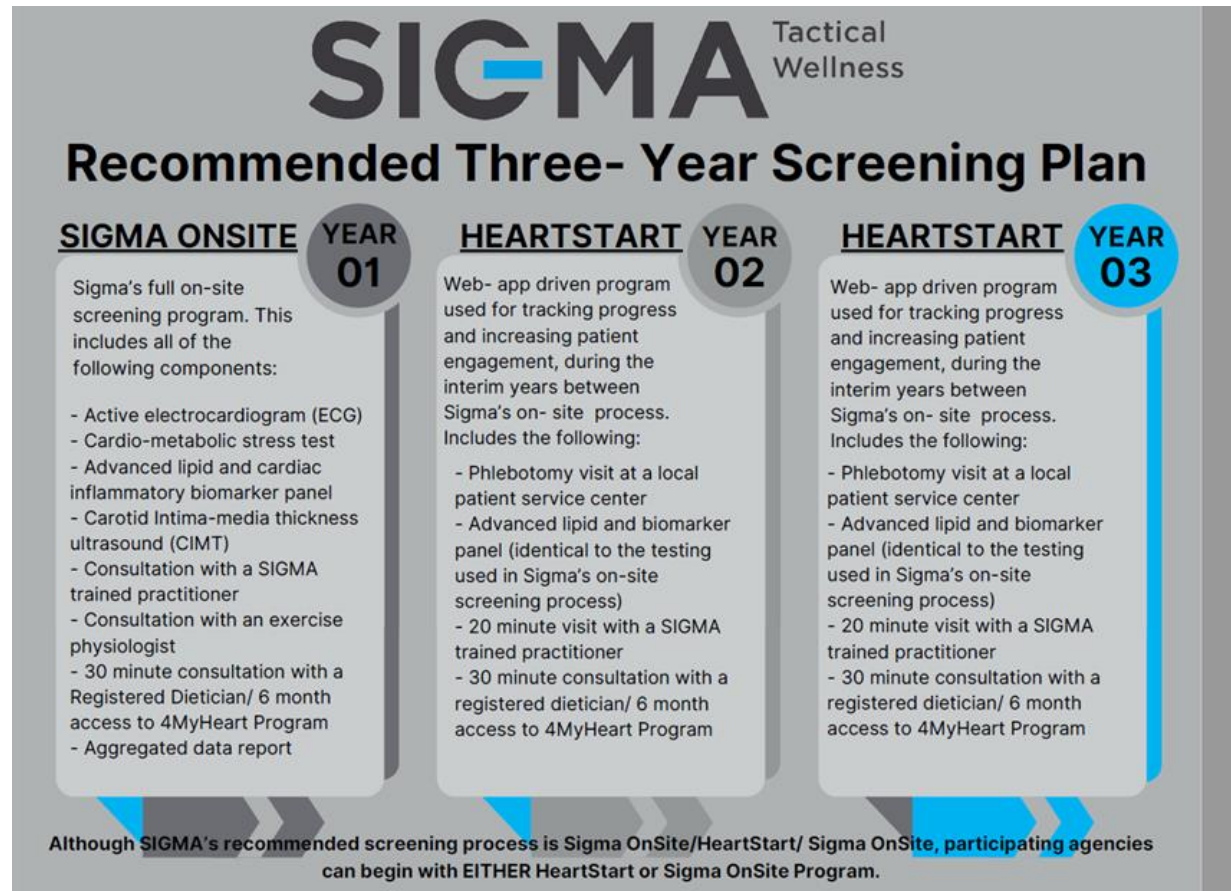
- Rice County SD
- Faribault PD
- Rosemount PD
- Farmington PD
- Vail CO
- Austin TX
- Chandler AZ
- Concord NH
- ATF
- Secret Service



# Northfield Police Sigma Wellness



- Sigma Wellness 3 year program. \$849 year 1, \$349 year 2 and 3, repeat.
- Reduces city liability risk
- Increases officer wellness
- Increases retention which reduces costs and retains knowledge.
- Cost split with officers \$149, \$49, \$49.
- Use of Public Safety Aid dollars for costs.
- Year one \$12k-18k (70-100% participation).
- Budget amendment





Thank You