

Health, Safety, and Wellness Program Case Studies in Law Enforcement

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COPS
Community Oriented Policing Services
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Letter from the Director

Dear colleagues,

In December 2014, President Barack Obama created the President’s Task Force on 21st Century Policing to address issues of public trust and safety. The task force comprised a diverse group of professionals including police executives, civil rights leaders, researchers, community advocates, and police union leaders. This group recognized that which we as a society too often take for granted: The safety and well-being of our police officers are as important to community policing and public safety as are building community trust and confidence.

The task force identified six pillars, areas of focus, for the group to address and use to build a set of recommendations for the field. Pillar #6 was designated “Officer Wellness and Safety.”

We know police work is tough, stressful, and dangerous. Officers are put in dangerous situations every day, whether arresting an armed suspect, responding to a domestic violence call, chasing a wanted felon, or running into a burning building to evacuate residents. Few can argue with the dangers these activities pose. However, when we think of officer wellness and safety, we must go beyond the immediate dangers in the field and recognize the stress and psychological strain these activities can cause.

We must also recognize that more officers are killed or removed from service because of vehicle accidents, chronic diseases such as high blood pressure, and other problems that often stem from high stress environments, poor nutrition, and lack of exercise. Police officers assigned to shift work and overtime have an even harder time maintaining healthy nutrition and regular exercise.

As a nation, we must make police officer wellness and safety a top priority. The question is how best to promote physical and mental health. What programs or policies work? Which are cost effective? And can they be replicated in every department?

The Major Cities Chiefs Association and the Department of Justice’s Officer Safety and Wellness (OSW) Group have dedicated themselves to finding answers to these and other questions. And in this publication, they present four recent case studies that serve as models for safety, health, and wellness programs. Each offers practical strategies that have shown positive results.

The OSW Group conducted site visits, assessed advantages and challenges, and questioned participants in programs aimed at reducing the incidence of diabetes, improving driver safety, providing rehabilitation services, and promoting physical fitness. The group’s findings prove that we can make a great deal of progress in improving the health and well-being of our officers—and demonstrate how to accomplish such goals.

The MCCA and the OSW Group have done a great service to law enforcement in providing these detailed case studies. Even if you cannot adapt them in whole to your department, you are sure to find inspiration and ideas.

I highly recommend providing the information you find here to others in your department's management staff. And whether you start or expand your own program, I encourage you to share your success through the COPS Office's online newsletter, Community Policing Dispatch, so that other police departments can benefit as well.

Police work is tough—and we owe it to our officers and their families to do all we can to support their health and safety.

Sincerely,

A handwritten signature in black ink, appearing to read "R. Davis". The signature is fluid and cursive, with the first name "R." and the last name "Davis" clearly distinguishable.

Ronald L. Davis
Director
Office of Community Oriented Policing Services

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We are grateful to the Charlotte-Mecklenburg (NC) Police Department for allowing us to visit their agency; to learn about their health, safety, and wellness programs; and to pilot test our instrument. We are also grateful to the following four departments for allowing us to visit, study, and share their safety and wellness programs in this report:

- Boca Raton (FL) Police Department
- Fairfax County (VA) Police Department
- Prince George's County (MD) Police Department
- Reno (NV) Police Department

Introduction

Over the past several years, the Office of Community Oriented Policing Services and the Bureau of Justice Assistance have worked together, in partnership with the Major Cities Chiefs Association, to support the Officer Safety and Wellness (OSW) Group. Participants in the OSW Group include approximately 35 representatives from police associations and unions, Federal Government agencies, universities, and local law enforcement agencies. The group is further supplemented at each meeting with subject matter experts and guest presenters.

The primary mission of the OSW Group is to improve officer safety and wellness in the United States by convening a forum for thoughtful, proactive discussion and debate around relevant programs and current policies within law enforcement. Information and insight developed and shared will help enhance other programs, current policies, and future initiatives related to officer safety and wellness. In the group's first two meetings (July and September 2011), participants identified 16 priority areas that were intended to guide their future efforts. Two of those priority areas focused on improving physical and psychological health among law enforcement officers. This report serves as one important step in that ongoing process.

Understanding health, safety, and wellness in law enforcement

Policing is generally understood to be a fairly dangerous and stressful profession, and

much has been written already with respect to the specific causes of officer stress and the corresponding impact on officer health and organizational wellness.¹ In fact, evidence suggests that policing provides unique sets of stressors that may place officers at particularly high risk for early deaths, heart attacks, and other health-related problems.² Some of the common law enforcement stressors are job-related, while others may be associated with the negative consequences of shift work and the corresponding impact on sleep patterns and disorders, which are often twice as high among police officers compared to members of the general public.³ Further, sleep disorders are clearly related to health, job performance, and safety outcomes among officers.⁴ Nationwide data sources also provide some evidence of the impact of stress on officers. For example, according to the Officer Down Memorial Page website, in any given year most officers die in the line of duty from one of three primary causes: firearms, traffic accidents, and heart attacks.

Police officers face a variety of health and safety risks on the job.⁵ Researchers confirm that police officers have “an elevated risk for adverse mental and physical health outcomes” relative to the general population.⁶ The most obvious and well-known risks are those arising from assaults by suspects and other assailants. However, police officers also face elevated risks from a number of less obvious sources, including vehicle crashes,⁷ accidental injuries associated with foot pursuits and other common police activities,⁸

exposure to hazardous substances and communicable diseases,⁹ stress and fatigue,¹⁰ poor nutrition,¹¹ and a variety of other physical and mental health risks associated with the nature of police work.¹² Comprehensive efforts to improve health, wellness, and safety among police officers must therefore account for a wide variety of risks.

Given the many occupational risks faced by police officers, occupational health researchers have concluded that “these civil servants are in need of workplace health and wellness programs that are tailored to their unique organizational and occupational needs.”¹³ Programs intended to promote health, wellness, and safety among police officers assume a variety of forms, focusing most often on issues like cardiovascular fitness, chronic disease prevention, alcohol and drug use and abuse, nutrition, weight management, musculoskeletal conditioning, injury prevention, safe driving, stress management, and resilience to trauma.¹⁴

A recent systematic review of the scientific evidence on the health effects of wellness programs in police and fire departments found that most focus on raising fitness levels, improving diet and exercise practices, and reducing body fat.¹⁵ Most of the scientific evaluations of these individual programs report high satisfaction levels among program participants. However, participant satisfaction is typically not a good indicator of whether programs are effective in producing desired outcomes such as measurable improvements in health, safety, and wellness. The evidence suggests that these programs tend to be most successful at increasing the frequency of physical exercise and improving nutritional habits. Program effectiveness tends to be more mixed for other outcomes like increasing fitness levels and changing body composition as measured using indicators like the body mass index (BMI). Unfortunately, most health,

safety, and wellness programs in police (and fire) departments have not been scientifically evaluated, so it is unknown whether, or to what extent, those programs are effective. Among the programs that have been scientifically evaluated, most rely on research designs that make it difficult to draw firm conclusions about program effects.¹⁶ The major study in the area concludes that “better evaluation and documentation of such programs is needed to advance this field of research.”¹⁷

Perhaps the best way to characterize the scientific literature on police officer health, wellness, and safety is, at best, uneven. Much of the evaluation research relies on methods that don’t control sufficiently for selection effects, risk factors, and other threats to internal validity. Certain risks to officers have been extensively documented, particularly those associated with assaults, cardiovascular health, metabolic syndrome, substance use and abuse, stress, fatigue, suicide, and exposure to traumatic events (including post-traumatic stress disorder). Others, such as the risks associated with distracted driving and motor vehicle crashes, have generated very little research. Similarly, certain programs meant to enhance health, wellness, and safety have been evaluated extensively but often without strong quasi-experimental or experimental research designs, therefore limiting their utility.¹⁸ These include programs meant to increase fitness levels, change eating habits, and improve cardiovascular health. Most other program types have not yet been evaluated. The net result of these limitations is that we know a lot about many of the risk factors that police officers face, but we know very little about whether the various types of programs established to address these risk factors are actually effective.

Despite the current state of knowledge, less is known about the effectiveness of health and wellness programs in policing on

a national level. A recent systematic review found few empirical evaluations of health and wellness programs in law enforcement settings (or among fire departments). The few programs that were systematically examined demonstrated some promise in terms of participation, completion rates, and satisfaction, but all had uncertain outcomes, and most lacked rigorous evaluations.¹⁹

As such, we still have much to learn about whether health, wellness, and safety programs actually reduce accidents, injuries, and deaths; engage participants; are cost-effective; and are replicable across various law enforcement environments.

This report begins the process of addressing these concerns through a series of four case studies of active health, wellness, or safety programs across four law enforcement agencies. These agencies were selected based on their historical and ongoing commitments to health, safety, and wellness efforts.

Four promising health, safety, and wellness programs

In an effort to expand our understanding about promising health, safety, and wellness programs in law enforcement, we conducted systematic site visits to four agencies (see below). These sites were selected based on prior knowledge of their health, safety, and wellness programs and based on the potential for those programs to substantially reduce officer sickness, injuries, and deaths associated with poor health (e.g., heart attacks and poor physical fitness) or traffic-related accidents.

Boca Raton, Florida: The Boca Raton Police Department has implemented a comprehensive officer safety and wellness strategy that includes an annual fitness evaluation for officers, on-duty time allowance for fitness maintenance, a requirement that

all officers wear their body armor at all times, an employee assistance program to provide support for officers returning from military duty, and a detailed vehicle safety plan. Chief Daniel Alexander places an emphasis on physical and mental well-being for all his officers and is a proponent of officer safety and wellness programs and measuring their success.

Prince George's County, Maryland: The Prince George's County Police Department experienced three officer deaths as a result of traffic crashes in less than two years. In one of these crashes, the driver was ejected while the passenger survived with minimal injuries because he was wearing his seatbelt. As a result, the department implemented a driver safety program that focuses on the three primary contributing factors to injuries associated with vehicle crashes: excessive speed, lack of seatbelt use, and driver inattention. The program encourages officers to slow down (which allows the driver more reaction time), to wear a seatbelt to minimize injury during a crash, and to pay attention by eliminating distractions from electronic devices.

Fairfax County, Virginia: The Fairfax County Police Department's focus on health, safety and wellness has led to two initiatives: a safety officer program and an athletic trainer program. The department's safety officer is a lieutenant whose full-time responsibility is to address safety concerns associated with all aspects of the organization, including operations and training. The safety officer is assisted by six supplemental safety officers who are on call as needed. The department's athletic trainer monitors officer injuries, works with healthcare providers to coordinate care for injured officers, provides rehabilitation services, and seeks to prevent injuries in the first place. The safety officer and the athletic trainer work together in an effort to establish a culture of safety and wellness within the agency.

Reno, Nevada: The Reno Police Department has developed an officer wellness initiative that applies a comprehensive systems approach to the prevention and intervention of many risk factors impacting its personnel. The program includes a component on nutrition and exercise, including advanced lipid testing to assess the risk of a heart attack, diabetes, and a stroke. A second component on lifestyle management and emotional survival includes an annual wellness clinic, psychological intervention services to provide immediate assistance after a traumatic event in the field, and an overall wellness and early-warning systems program.

Site visit process, protocol, and pilot testing

Each agency was visited by a two-person team that included a trained researcher/academic and a current or former practitioner who worked for an extended time in law enforcement. This pairing of researchers and practitioners has been used in similar projects and generally ensures that the on-site information is captured and recorded effectively while simultaneously establishing credibility for the team within a law enforcement environment.

The research team developed a semi-structured interview protocol to guide the on-site interviews, focus groups, and conversations. Each on-site team, however, was allowed to deviate from the questionnaire as needed. This involved tailoring interview questions to capture relevant information on the unique programs within each agency and each research setting (one-on-one interviews, group setting discussions, presentations, etc.). The instrument and data collection protocol were pilot tested at the Charlotte-Mecklenburg Police Department (CMPD) in Charlotte, North Carolina. The CMPD has implemented a range of safety and wellness-related programs, which made it an ideal location for testing the instrument. As a part of that process, we pre-arranged the site visit, sent information ahead of time about the purpose of the visit, met on site with numerous representatives from many of the safety and wellness programs, asked a series of standard questions, and gathered additional information via follow-up emails. Following that visit, we streamlined our data collection protocol. A copy of the finalized, semi-structured site visit protocol is included as appendix A.

Case Studies

Boca Raton, Florida: Three-Hour, On-Duty Physical Fitness Program

Overview

The city of Boca Raton, with a 2010 population of 89,407, is a fairly wealthy, beach-front community, and this socio-economic advantage appears to be reflected in officers' pay and benefits. Boca Raton is located on the eastern coast of Florida, about 40 minutes north of Fort Lauderdale. The Boca Raton Police Department (BRPD) has 291 employees, including 189 sworn officers. In 2014, over half of the officers have at least a bachelor's degree, and 82 percent are male. At the time of our site visit, approximately 80 percent of the officers were White, 6.3 percent were African American, and 10.5 percent were Hispanic, and most of the officers had at least five years of experience on the job.

Entry-level officers are offered salaries of \$54,294 and are provided with take-home cars (and officers can earn accident-free financial bonuses), uniform allowances, employment longevity bonuses after five years of service, pensions plans, and various other amenities. One of those amenities, which distinguishes the BRPD from many other law enforcement agencies, is a three-hour on-duty workout program. Police officers and civilian employees are permitted and encouraged to spend three working hours per week improving and maintaining their personal physical fitness. The facilities are provided and maintained by the agency. In other words, employees at the BRPD have the opportunity to work out and exercise as a part of their regularly assigned job responsibilities.

Implementing this on-duty exercise program was a part of a broader, holistic department-wide program to emphasize officer safety, wellness, and health. The BRPD offers a range

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Photo: Courtesy of the Boca Raton Police Department

City of Boca Raton's police administration and training facility

of other related programs such as nutritional assistance, stress management, injury analyses, mandatory annual fitness exams that include incentives for fitness compliance, and a "no-tobacco" policy (officers must affirm, under oath, that they do not and will not use tobacco products while employed by the department). However, the three-hour on-duty workout policy differs, philosophically and practically, from health and wellness policies and practices in many other law enforcement agencies.

The on-duty exercise program, written directly into policy, is linked to individual fitness standards and was adopted as a part of a broader emphasis on health and wellness. The program is open to all city employees, not just law enforcement officers. Two separate exercise rooms are provided and maintained by the department and the city, and qualified instructors are available to assist in developing individualized exercise routines.

Law enforcement officers are permitted to exercise on duty in accordance with a series of written guidelines, which are broadly summarized as follows:

- Officers working 10- or 12-hour shifts can exercise during their meal period provided they have supervisor approval, and the exercise must not interfere with operational commitments.
- Officers working eight-hour shifts can exercise on duty for a maximum of three hours per week.
- Officers can exercise in the departmental exercise rooms or any licensed physical fitness facility within the city's jurisdiction.
- Officers may jog using approved outdoor routes; but they must notify dispatch of their location while exercising, and they must be available for immediate return.
- Officers must lock firearms and other equipment in the trunk of their vehicles or keep such equipment on their person; lockers are not permitted unless used in the department's exercise facilities.

There are other restrictions as well. For example, no exercise is allowed without approval for officers assigned to light duty. The program is viewed as a privilege that can be revoked. Working out at home while on duty is not allowed.²⁰

Advantages and challenges of offering an on-duty exercise program

In part, the BRPD recognizes that time and access to equipment and facilities are critical barriers among many active officers who may be interested in maintaining physical fitness and health. Providing both an on-duty exercise program that addresses the concerns with available time and access to equipment and facilities—which can include facilities and equipment that the department provides, daily

workouts prescribed by the BRPD training officer, access to seven approved jogging courses, or access to permitted, external private facilities—eliminates these two primary barriers.

In addition, the BRPD finds that implementing these kinds of programs within smaller units (e.g., a squad) within the department encourages broader participation by generating helpful but subtle peer pressure to partake, provides a supportive environment for those who are initially reluctant, offers friendly competition as a potential motivator, and helps to promote a group culture of fitness and health throughout a unit and the agency. Further, implementing an exercise program within smaller units allows for more effective tracking and accountability.

According to Sergeant Nicole Girardi, a training sergeant, simply tracking engagement in the on-duty exercise program improved participation at the BRPD. The department relies on injury analyses, fitness test results, use of force reviews, and physical examination records to track the impact and effectiveness of the on-duty exercise program over time, although a carefully constructed impact evaluation has not yet been conducted. Ongoing fitness testing is also required within the department. For example, 177 officers were required to take a physical fitness test in 2012; 80 percent of them passed the exam (with some exceeding expectations or having an outstanding result) during the year after one or more attempts. Of the 29 officers who failed on their first attempt, five passed a future test within the year. In 2011, 81 percent of the officer who took the exam passed it.²¹ As such, roughly four out of five BRPD officers are in acceptable physical condition by BRPD standards, many are in excellent condition, and the department

has proactively committed time, resources, leadership, and organizational effort to ensure that their officers remain physically fit for duty.

Getting an on-duty exercise program running was initially both time consuming and costly, according to Chief Daniel Alexander. His department had to broadly discuss the initiative; generate city-level support and funding; develop, modify, and adopt a written on-duty exercise policy; identify strengths and weaknesses of the policy following implementation; and develop progress and performance tracking mechanisms. The philosophical approach was more focused on developing a healthy culture and incentivizing commitment to the program versus worrying about potential abuses or identifying consequences for such abuses. (Granted, abuses still do occasionally occur, but eliminating the home workout option reduced these problems.)

Based on our conversations with recruitment and training officers, the BRPD anecdotally indicated that its program has positively impacted recruitment and retention, both of which are ongoing challenges in law enforcement. The ability to advertise an on-duty exercise program as a job “perk,” in addition to the other incentives that are available to potential BRPD officers, tends to attract candidates with certain desirable characteristics: personal commitment to health, athleticism, and fitness. According to the recruitment officer, the combined set of perks at the BRPD may be attracting more educated officers (again, more than 50 percent have at least a bachelor’s degree). BRPD officials also believe that fitness reflects professionalism and that officers who are physically and emotionally fit are also more respected in their community.

Chief Alexander believes that the program has important implications for succession planning. His view is that an organization needs current and next-generation leaders who are physically and emotionally fit and healthy in order to carry on the mission and meet the ever-expanding demands of law enforcement. Recruiting the right candidates, retaining officers for extended careers, identifying potential leaders who are emotionally and physically fit, and placing those leaders in positions of responsibility ensures that the philosophical approach adopted by the current generation of leaders will carry over to the next generation of leaders.

Recommendation for on-duty exercise programs

When we asked BRPD leadership to identify the one program they believed should be nationally replicated, the unanimous answer was their on-duty exercise program. National movements to encourage broader adoption of fitness and wellness programs in law enforcement settings are currently in place and have been for years. Many of those efforts are based, in part, on the idea of voluntary participation and are still being evaluated.²²

Heart attacks remain a primary cause of death among law enforcement officers.²³ Heart disease accounts for 20–50 percent of early retirements among officers, and there is plenty of evidence to suggest that officers have shorter lives and are more prone to a range of medical conditions,²⁴ including heart disease.²⁵ Various law enforcement agencies have calculated the cost of an in-service heart attack to be between \$400,000 and \$750,000. As such, it is likely that investing in on-duty exercise programs—including equipment, facilities, and offering paid time to work out—would be a cost-effective expense

by helping to prevent heart attacks, postpone early retirements, and reduce other injuries and health problems. Moreover, evidence suggests that even smaller investments in health and wellness yield positive long-term financial benefits and savings.²⁶

Challenges with integrating functional fitness programs

Law enforcement agencies need to continually re-examine the types of exercise and fitness programs used for academy recruitment and training and for in-service health and wellness programs. Some agencies are considering, or already integrating, functional fitness training programs in their academies. Functional fitness has been described as the ability to perform a broad array of natural or realistic physical work. The U.S. Marine Corps has recognized the importance of adaption and training recruits using functional fitness approaches.²⁷ One increasingly popular exercise program is CrossFit,²⁸ which is designed around a philosophy of functional fitness.²⁹ Physical fitness is and always will be an integral aspect of law enforcement, as demonstrated by nationwide agency standards, job functions, and the public.³⁰ Statistics suggest that 93 percent of law enforcement agencies use some form of weight training for recruit training purposes.³¹ A review of exercise and occupational performance across a number of employment domains, including policing, concluded that physically fit officers demonstrate better job performance and reduced stress levels.³²

As such, a reasonable question to ask is whether functional fitness programs should assume a larger role in law enforcement training protocols.

In fact, some law enforcement agencies, as well as fire departments, have already begun to incorporate the functional fitness philosophy.³³ For example, the Charlotte-Mecklenburg Police Department, the largest municipal police department in North Carolina,³⁴ has restructured its recruit training around these foundational principles. This evolving linkage between functional fitness and law enforcement training is based on more than just popularity.³⁵ Officers spend a majority of the typical shift in a state of low physical activity or demand. Then, within a split second, the officer can transition from simply riding in a patrol car to fighting for his or her life. Suspect encounters do not reflect traditional fitness formats of isolated muscle training or steady long-distance running. Rather, suspect encounters are anaerobic and dynamic and include every part of an officer's body, perhaps for several minutes without the option to stop.

Among the limited number of agencies that have incorporated functional fitness training, some have already reported positive results. For example, the Kansas City Regional Training Academy in Missouri tested recruits before and after six months of participating in the academy's daily prescribed "workout of the day" (WOD). In that time, each of the recruits improved in a traditional assessment of push-ups, sit-ups, and a 1.5 mile run.³⁶ Over a five-year period, recruits and active officers at the Jacksonville (Florida) Sheriff's Office experienced similar results³⁷—with both agencies noting that the number of fitness training injuries also declined following implementation. On the other hand, evidence also suggests that injuries may increase when these programs are not implemented carefully.³⁸ Perhaps of greater interest were the unanticipated benefits related to completing WODs. In Kansas City, the average

weight loss and fat loss per recruit was 16.1 pounds and 6.4 percent. In Jacksonville, academy graduates have been praised by external agencies for “their physical and mental readiness and ‘can-do’ attitudes,” leading the sheriff’s office to conclude that functional fitness training demonstrates the inadequacy of traditional law enforcement fitness standards.³⁹

Even with popularity, positive results, and revelations like those in Jacksonville, the vast majority of law enforcement maintains traditional training programs and fitness assessments. Based on survey results from 62 law enforcement agencies, 95 percent of the sampled agencies use some form of agility test, despite the ongoing observation that these tests are unrelated to actual job requirements. Even the BRPD, with its highly progressive fitness policy, still primarily tests recruits with traditional benchmarks (e.g., timed running tests, sit-ups, and push-ups).⁴⁰ Many of these fitness tests were designed years ago and are now state-mandated. Updating and changing past fitness test practices can therefore be cumbersome and can, in some cases, require legislative

approval. Regardless, considering a broader range of exercise options, on and off duty, may be a useful step toward improving officer health and wellness overall.

Impact assessment

Like some promising programs highlighted in this report, the BRPD on-duty exercise program has not yet been empirically evaluated. While much of the anecdotal evidence from department representatives suggests that the program offers numerous benefits (e.g., fitness, friendly competition, and improved long-term health) with minimal investment, a rigorous evaluation, including cost-benefit analyses, of on-duty exercise programs in law enforcement settings would be extremely useful at this time. Such an evaluation may be potentially complicated by exercise-related injuries that may occur on and off duty. The BRPD is currently tracking this information, but there was currently insufficient data to include in this report. Regardless, the potential health benefits of on-duty exercise programs, particularly when supplemented by other wellness efforts (e.g., nutrition), may well be worth considering nationwide pending evidence of effectiveness.

Prince George's County, Maryland: Arrive Alive Initiative

Introduction

With its 863,000 population residing within 499 square miles of urban, suburban, and rural communities, Prince George's County is the second largest county in Maryland. Located 37 miles south of Baltimore, the county shares part of its western border with Washington, D.C. Nearly 65 percent of its residents are African American; the county is known as the wealthiest majority African-American county in the United States.⁴¹ It is home to 27 independent municipalities, 26 of which have their own police departments. With approximately 2,100 full-time employees (including 1,800 sworn officers), the Prince George's County Police Department (PGPD) works in conjunction with these municipalities and is also responsible for policing the unincorporated parts of the county.

The PGPD developed and implemented the Arrive Alive initiative in 2013. Designed to improve driver safety among county police officers, Arrive Alive's three primary areas of focus are summarized in its motto: *Buckle up. Slow down. Pay attention. Arrive Alive.* The initiative includes a training component as well as a series of other measures that encourage officers to wear seatbelts, reduce their speed while driving, and drive without excessive distractions. This section begins with a brief review of the literature on law enforcement traffic fatalities, then describes Arrive Alive and its components in detail, and closes by discussing the initiative's impact in both qualitative and quantitative terms.

Law enforcement traffic fatalities

When thinking about the hazards of police work, most people focus on the risks of being shot in the line of duty. This perspective

*by Edward R. Maguire, American University,
and Stephen Bamford, George Mason University*

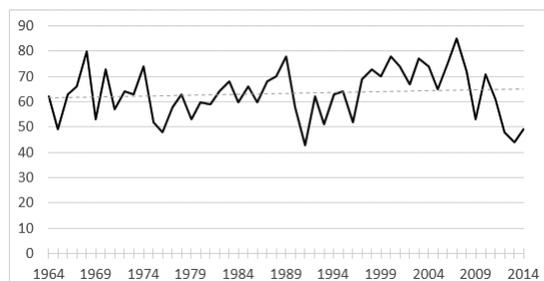
is certainly valid given that one of the leading causes of death in 2014 among law enforcement officers was firearm-related fatalities (41 percent). However, traffic-related fatalities were equally deadly, also accounting for 41 percent of on-duty law enforcement deaths last year. Forty-eight law enforcement officers were killed in traffic-related incidents in 2014 (38 died in automobile or motorcycle crashes, and 10 died after being struck while outside of their vehicle). While felonious assaults against police officers are an important problem that deserves serious attention, reducing traffic-related fatalities among police officers is equally important and worthy of serious attention. Automobile accidents remain, year after year, one of the top three causes of officer fatalities.⁴²

A cursory examination of long-term trends in traffic-related fatalities among law enforcement officers reveals considerable fluctuations from year to year. In figure 1, the solid black line illustrates the number of traffic-related fatalities among law enforcement officers in the United States from 1964 to 2014, and the dashed gray line is a linear trend that suggests a slight increase over the entire period. While the overall trend upward is disturbing, the total number of annual traffic-related fatalities has fallen under 50 only six times since 1964, and three of those years were 2012, 2013, and 2014.⁴³ While police officer traffic fatalities have trended upward over the long term, "traffic deaths in the general driving public have remained constant

or declined.”⁴⁴ It is counterintuitive that traffic fatalities among police officers have trended upward during a period in which car safety technologies and emergency medical care have both improved considerably.

From a policy perspective, it is worth considering what police leaders can do to help reduce police officer traffic fatalities. Police have been successful in reducing the number of intentional homicides of police officers over the past 50 years through a series of deliberate policy choices, including the now widespread use of body armor.⁴⁵ Likewise, if policy choices made it possible to reduce traffic deaths in the general population, there should be policy choices available that can reduce traffic-related fatalities of police officers.

Figure 1. Police traffic-related fatalities in the United States, 1964–2014



Source: Tiesman et al., “Eleven Years of Occupational Mortality.”

Unfortunately, there is very little empirical research on the range of causes of traffic-related fatalities among law enforcement officers. A study using 11 years of data (1992–2002) from the Census of Fatal Occupational Injuries found that 44 percent of police officer line-of-duty deaths resulted from “transportation-related” causes.⁴⁶ Other causes of death included homicide

(43 percent), suicide (5 percent), and “other” (8 percent).⁴⁷ A study of crashes involving marked police vehicles in the United States found that the risk of death was 2.6 times higher for unbelted occupants relative to occupants who were wearing their seatbelt.⁴⁸ Another study found that police officers perceive a conflict between driving safety (wearing a seatbelt) and operational officer safety. The perception among officers is that wearing a seatbelt can increase the time it takes to exit the vehicle and draw a weapon, thus placing them at a tactical disadvantage.⁴⁹ Other researchers have concluded that “officers die in traffic collisions because they drive too fast and they don’t wear seatbelts—two things they, and we, can control.”⁵⁰ These conclusions are consistent with the premises behind the Arrive Alive initiative.

The emergence of Arrive Alive

On March 18, 2010, Prince George’s County Police Corporal Tommy Jensen was responding to a burglary in progress when his patrol car hit a patch of black ice and struck a utility pole. Jensen, 27 years old, died as a result of injuries sustained in the collision. He was not wearing a seatbelt. Jensen had grown up in the agency, following in the footsteps of his father, a retired PGPD police sergeant. Sadly, the young corporal was the sixth PGPD police officer killed in the line of duty as a result of a vehicle collision.

A little more than two years later, on August 20, 2012, Prince George’s County Police Officers Adrian Morris and Michael Risher were pursuing a suspect on Interstate 95 when Morris lost control of the patrol vehicle and drove into a ravine. Morris, who was not wearing a seatbelt at the time, was ejected from the vehicle and sustained fatal head injuries. Risher, who was wearing a seatbelt, survived the crash.⁵¹ Though only 23 years

old when he died, Morris had already served with the PGPD for two and half years. And, as a teenager, he had also served with the department's Police Explorers program.⁵² His older colleagues fondly recall watching him mature from an eager young explorer to a committed and energetic police officer who volunteered with the Police Explorers program that had helped him become a police officer. He had told his colleagues that he planned to one day help manage the program.⁵³

Nearly two months later, as the department was still mourning the death of Officer Morris, 28-year-old Officer First Class Kevin Bowden was killed while off-duty when the driver of an SUV crossed several lanes of traffic and struck his police cruiser, throwing it against a utility pole. Like Morris and Jensen, Bowden was not wearing a seatbelt. In the aftermath of Bowden's death, Prince George's County Executive Rushern Baker declared, "Our county government, every community, and every citizen of Prince George's County grieves again this evening."⁵⁴

These three deaths in two years weighed heavily on PGPD police administrators. Chief Mark Magaw observed, "It's personal for us." Deputy Chief Hank Stawinski noted that with earlier traffic deaths, the mentality had been not to ask questions about how or why they happened.⁵⁵ This time was different. Assistant Chief Kevin Davis (now deputy police commissioner in Baltimore City, Maryland) and Stawinski began to study the issue in detail to determine what, if anything, could be done differently. The departmental study concluded that many factors play a role in collisions, including distractions in the patrol vehicle and excessive speed. But the real issue was that officers were not wearing their seatbelts. While government figures estimate national

seatbelt usage rates at about 85 percent (above 90 percent in Maryland), the study revealed on-duty seatbelt usage rates of only 45 percent.⁵⁶

Moreover, the problem appeared to be deeply ingrained in departmental culture. Though department policy required officers to wear their seatbelts any time the vehicle was in motion, many officers believed seatbelts would make it more difficult for them to respond effectively to ambushes or other potentially dangerous or tactical situations.⁵⁷ Simply ordering officers to wear their seatbelts was unlikely to be an effective solution. As Deputy Chief Stawinski noted, "You can't discipline your way out of the problem." If the department's leaders wanted to increase seatbelt use and improve officer safety, they needed to find a way to win officers' hearts and minds. The result was a comprehensive and homegrown traffic safety initiative called Arrive Alive, which launched in early 2013.

The centerpiece of the initiative is a video shown to every officer in the department. It features graphic footage of department crashes, along with heartfelt testimonials from eight survivors of officers killed in crashes. Even for those who never knew the officers or their families, it is difficult not to shed tears when watching the video. The idea behind the video is consistent with theories of behavioral change that reinforce the importance of appealing to people's emotions *and* their intellect.⁵⁸ As one author notes, "emotions can assist us in thinking and problem solving. Emotions guide our attention to what is important, helping us ignore distractions, and prioritize our concerns."⁵⁹ The goal is to encourage every officer to think carefully about his or her own loved ones when making the decision about whether to buckle up.

In addition to the video, the department parked a demolished cruiser near the gas pumps where officers fill up their gas tanks. They rotate the vehicle, which has safety messages displayed on it, through the different stations. They also placed a PGPD sticker on the dashboard of every vehicle in the fleet, reminding officers to buckle up, slow down, pay attention, and arrive alive. They currently issue a weekly driver-safety message over the radio, broadcasting it every six hours. They also have posters on traffic safety at roll calls. For Deputy Chief Stawinski, the strategy behind the initiative is to issue “a blitzkrieg of intense reminders.” Retired Fraternal Order of Police President Vince Canales agreed with the call to action, noting “we have to change our mentality. We have to do better. I’m tired of going to hospitals. I’m tired of watching these officers pass away. I’m tired of seeing the families that are hurt, and I’m sure they’re just as frustrated. We’ve got to be more conscientious moving forward.”⁶⁰

Implementation of Arrive Alive was rolled out during in-service training from March to November 2013. They presented a two-hour training block to a new set of officers every Tuesday that included watching the video. Every officer went through the training. They also reassigned the responsibility for investigating on-duty vehicle crashes from district commanders to a centralized crash investigation unit. Part of the reasoning behind this change was that previously a high percentage of crashes had been classified as “no fault” on the part of the officer. This

was likely done to help protect officers’ careers and reputations, but the unintended consequence of this informal practice was that the agency was not intervening with officers who had risky driving habits. In addition, the department also began to post signs in each district showing the number of days since the last preventable crash. This turned crash prevention into an informal competition between districts.

Impact assessment

Gauging the effectiveness of Arrive Alive is complicated to some extent because police administrators believe the reporting of crashes has increased as part of the new investigative procedures and the cultural shift experienced by the department. As a result, they are not convinced that simply tracking the number of collisions is a sufficient method for gauging the initiative’s effectiveness. They also believe that because of its staggered implementation, the effects of Arrive Alive may not be immediately detectable. Some of these concerns could be addressed with a well-designed impact evaluation. Unfortunately, we were unable to obtain crash data that would allow us to carry out such an evaluation for this report. As a result, our review of Arrive Alive is currently limited to a description of the initiative, its components, and its implementation. However, this program merits closer attention as a promising example of a safety initiative that is focused on one of the three leading causes of death among officers: motor-vehicle collisions.

Fairfax County, Virginia: Promoting Officer Health, Wellness, and Safety

Introduction

Fairfax County is the largest county in Virginia with a population of just over 1.1 million. It is one of the wealthiest counties in the United States with the second-highest median household income in the nation. The county covers an expansive area of 406 square miles in northern Virginia near Washington, D.C. The Fairfax County Police Department (FCPD) employs approximately 1,400 police officers and more than 350 civilian employees, making it the largest local law enforcement agency in Virginia and the 35th largest in the nation.

This section of the report examines two related programs that were developed and implemented in the FCPD to promote officer health, wellness, and safety. First, the department created a safety officer program with the goal of managing risks, preventing accidents, and decreasing injuries. Second, the department created a civilian athletic trainer position to promote health and wellness among officers and to reduce medical expenses and decreased productivity associated with unnecessary or inappropriate use of sick leave. Together, these interlocking initiatives are designed to create a safer, healthier, and more cost-efficient environment for Fairfax County police officers. In comparison with the police-related initiatives discussed in the scientific literature, both of the FCPD's homegrown programs are unique in their own way. We begin by discussing the safety officer program, followed by the athletic trainer position.

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Safety officer program

The FCPD's safety officer program was initially established in 2004 as part of the department's Civil Disturbance Unit.⁶¹ The program was originally intended "to maintain officer safety while law enforcement personnel were wearing personal protective equipment for situations involving weapons of mass destruction (WMD)." Officers were assigned on a part-time basis to the safety officer program as a part of their regular duty assignments. The department's WMD coordinator led the program because it had no dedicated full-time personnel at the time.⁶²

The department had difficulty in finding model safety officer programs in law enforcement on which to base its own efforts. Ultimately, it developed a homegrown program customized to the specific needs of the department. To the extent that the program's design drew inspiration from outside the organization, the primary source of that inspiration came from safety officer programs in fire and rescue departments. The safety officer role is a key component of the National Incident Management System (NIMS), which was developed by the U.S. Department of Homeland Security to provide a template for establishing a coordinated response to emergency incidents. Within the NIMS framework, the command staff includes a safety officer, who is supposed to monitor all

incident operations and advise the incident commander on “all matters relating to operational safety, including the health and safety of emergency responder personnel.”⁶³ A key aspect of the safety officer position in NIMS is that the incumbent has “immediate authority to stop and/or prevent unsafe acts during incident operations.”⁶⁴

Because many safety officer programs in the United States fall primarily within the domain of fire and rescue, the FCPD was unable to model the design of its safety officer program on comparable initiatives from other police agencies. The department also discovered there were no existing safety officer training programs that met the department’s needs. Instead, the FCPD established a training program that relied on a mix of existing Incident Command System (ICS) courses and safety officer courses designed for fire and rescue personnel.⁶⁵

Since inception, the program has evolved “into an all-encompassing risk-management-based effort, focusing on preventive issues in addition to supporting operational response and training.”⁶⁶ In September 2008, a full-time safety officer position was established to begin institutionalizing a greater culture of safety within the department. The FCPD’s current safety officer is a lieutenant who reports to the captain in charge of Planning and Research, who in turn reports directly to the chief of police. He is supported by two supplemental supervisors, both of whom are sergeants in the Patrol Bureau. The safety officer program includes six supplemental safety officers who are assigned on a full-time basis to other responsibilities but are available through an on-call system as needed.

The safety officer wears many hats. Two of the key responsibilities of a safety officer are to review and monitor training as part of a larger effort within the department and to create and sustain a culture of safety. These responsibilities were especially important to the department in the wake of a tragedy in 2008 in which a police lieutenant was killed during a water rescue exercise. Within the evolving culture of safety, all personnel are encouraged to “red light” an exercise if they see something wrong. The department was once planning an active-shooter training exercise in an abandoned house. The safety officer did a walk-through prior to the training and decided to cancel it because of safety concerns. This idea of separation between safety and operations is a core component of the safety officer program. Another key consideration is that the safety officer role is rank-neutral, which essentially allows safety to trump rank. Put differently, if the safety officer observes a safety problem, he is authorized to raise that issue with people who outrank him.

The safety officer has many other roles outside of training. He is routinely called out to incidents that pose potential safety risks. For instance, he responded to a methamphetamine laboratory where he took steps to address exposure control and traffic safety concerns. He was called to a barricaded suspect situation at a mall where, in addition to the obvious safety risks, he was also concerned with ensuring that officers would not be staged where they would be exposed to exhaust fumes from the emergency vehicles left running in the area. At another call that required officers to remain outside in the woods on a rainy night, he put up tents and took steps to ensure officers would not slip and fall in the mud. One of the most common responsibilities of the safety officer is handling incidents in which officers are exposed to blood borne pathogens.

Another important role of safety officers is rehabilitation, which involves providing officers with essential needs like rest, food, water, and shelter from the elements while handling incidents. For instance, the safety officers will park a special response vehicle (a converted recreational vehicle) at major incidents so officers can have a place to briefly escape the elements, warming up during cold weather and cooling off during hot weather. Safety officers will also distribute food and drinks during prolonged incidents. Another special concern is ensuring that officers remain hydrated when exposed to low or high temperatures. This is one aspect of the safety officer role in which the department acknowledges modeling its efforts after those of the County Fire and Rescue Department.

Much of the safety officer role involves preventive thinking in the form of a safety matrix, which is used in all planning and practical training exercises. For instance, the safety officer worked with the department's driving instructors to develop a safety video about how to deal with challenges posed by a new model of police vehicle. Officers had expressed concerns that the vehicle had poor sight lines, especially while backing up.⁶⁷ The safety officer also arranges for periodic safety messages to be broadcasted to officers, encouraging them to think about specific safety issues such as remaining hydrated on hot days.

Given the many risks that police officers face in the line of duty, it is difficult to briefly summarize the many roles played by the safety officer. Perhaps the best way to think about the safety officer is that he or she acts as a "fifth set of eyes."⁶⁸ The first set of eyes is those of the officer; the second is the officer's partner and peers; the third is the officer's supervisor; the fourth is the officer's commander; and the fifth set of eyes is those of the safety officer.

All of these stakeholders work together in establishing a culture of safety.

The athletic trainer

The FCPD's wellness program has two main components. The first focuses on strength and fitness and is led by a master police officer with a fitness background. The second focuses on injury care and prevention and is led by a civilian athletic trainer. The athletic trainer serves as the nucleus for the department's overall wellness efforts. An important part of that role involves coordinating efforts with the department's safety officer.

A key part of the athletic trainer's duties is providing direct care to police employees. This responsibility can assume multiple forms including:

- prevention;
- clinical evaluation and diagnosis;
- treatment, rehabilitation, and reconditioning;
- providing and tracking referrals to other health care providers.

The underlying philosophy of the program is to adopt a team-based approach to wellness by coordinating the efforts of the patient, the patient's supervisor, the athletic trainer, physicians, and other health care providers.

Officers who were injured in the line of duty make an appointment with the athletic trainer, during which they are clinically assessed and can receive whatever immediate care is necessary. The athletic trainer then arranges for referrals to physicians and other health care providers. Together with these providers, the athletic trainer establishes a medical care plan, providing treatment and rehabilitation

as appropriate. One of the most important aspects of the program is the degree to which the athletic trainer monitors the officer's case on an ongoing basis, acting as a watchdog or an advocate, as needed. The athletic trainer also administers physical performance tests necessary to allow injured officers back on duty.

Part of the athletic trainer's goal is to get officers back on duty more quickly. The department cites a study noting that "officers not back on duty within 90 days of an injury (restricted duty or full duty) have only a 20 percent chance of returning to duty."⁶⁹ Getting officers back on duty within that timeframe means intervening quickly with officers who are injured in the line of duty, helping to manage their care and coordinate the efforts of care providers, and providing "function-oriented" treatment. An internal assessment by the FCPD found that the program resulted in a 49.5 percent reduction in overall medical costs at the police academy, with an 86.3 percent reduction in costs incurred by the academy for musculoskeletal issues. The department's internal assessment also found that the program resulted in a 22 percent reduction in overall medical costs and a 21.2 percent reduction in musculoskeletal care costs throughout the department.⁷⁰ Thus, the FCPD reports that the program has essentially paid for itself in reduced medical costs and increased productivity through earlier return to primary duty status.

Impact assessment

Gauging the effectiveness of these initiatives with precision is complicated for several reasons. First, the safety officer program has been in existence for many years and is focused on many aspects of safety. A rigorous impact evaluation would involve constructing a historical database containing various generalized metrics like lost days, sick days, and injury reports before and after the program was established. These types of retrospective assessments present a number of analytical challenges, especially for a program focused on such a wide range of potential safety issues. Second, evaluating the effectiveness of the safety officer program is further complicated by the fact that the safety officer and athletic trainer work together on some issues; thus, it would be difficult to separate out the effects of each initiative. Similar issues arise when thinking about how to evaluate the effectiveness of the athletic trainer program. However, the more pronounced focus of the athletic trainer on musculoskeletal injury management would make it easier to design an evaluation of the program's effectiveness.

Unfortunately, for the purposes of this report we were unable to gain access to the necessary data from the county's risk management office that would allow us to conduct a rigorous impact evaluation. If other agencies choose to replicate these promising initiatives, it would be useful to build an evaluation plan into the implementation framework from the outset. This would enable the policing industry to learn some potentially valuable lessons about what works (and what doesn't work) to improve officer health, safety, and wellness.

Reno, Nevada: Resiliency and Wellness Program

City and department overview

The city of Reno is the second largest city in the state of Nevada. Reno is situated in the northwestern part of the state at the base of the Sierra Nevada mountain range and in Washoe County. Recent census data indicates that the city has a population of approximately 238,221, with the Washoe County population just over 437,000. The city hosts several nationally significant special events, such as the annual air show, with an estimated 4.5 million visitors annually.

The Reno Police Department (RPD) provides policing services to its citizens and visitors. The RPD is the third largest police agency in the state but the second busiest, with the Las Vegas Metropolitan Police Department being the first. The RPD is nationally recognized for its commitment to community policing and problem solving and the development of two internationally recognized training programs: the Police Training Officer (PTO) field training program and the Adult-Based Learning Program for law enforcement academies. Both of these programs are funded and supported by the U.S. Department of Justice. The RPD has 305 sworn personnel, approximately 65 non-sworn professional staff, and more than 150 volunteers. The RPD responds to 156,000 calls for service annually and has policing responsibility for just over 105 square miles of jurisdiction.⁷¹

Understanding the science

According to the National Law Enforcement Officers Memorial Fund, 24 of the 126 officer fatalities that occurred in 2014 were the result of job-related illnesses such as heart attacks, nearly double the number (13) that was reported in 2013.^{72,73} It is widely known

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that cardiovascular disease remains the number one killer of both men and women in the United States.⁷⁴ Consistent with, and possibly even worse than trends in the general population, police officers and first responders also suffer from high rates of obesity, metabolic syndrome, and type 2 diabetes.⁷⁵ Instead of reaching and enjoying their well-earned retirement years, many officers are dying young. A study by the National Center for Health Statistics found that the average life expectancy in the general population for a male is 76.5 years and 79.5 for a female. However, the average life expectancy for a police officer is only 66 years.⁷⁶ The RPD and its partners at SpecialtyHealth believe that heart attacks and type 2 diabetes among police officers can largely be prevented and have instituted a resiliency and wellness program to address the underlying causes of these diseases.

In terms of officer wellness, preventing heart attacks should be a high priority for most police departments. Many agencies also mention type 2 diabetes and weight issues as a serious problem.⁷⁷ It is not widely appreciated that “insulin resistance is likely the most important single cause of coronary artery disease” and that “in young adults preventing insulin resistance is predicted to prevent approximately 42 percent of heart attacks.”⁷⁸ It should also be noted that before anyone becomes type 2 diabetic, a person first goes through a transitional phase of

insulin resistance. Insulin resistance can therefore be appreciated as the root cause of many heart attacks and type 2 diabetes.⁷⁹

The commonly expressed belief that “cops die young” is supported by the literature. Sheriff Jack Parker’s recent *Florida Mortality Study* is particularly sobering. The average age of death for police officers and correctional officers in Florida is 62.4 years—12 years less than the general population.⁸⁰

The question becomes why do cops die young. After reviewing thousands of police physical examinations over a 14-year period, the RPD and its partners at SpecialtyHealth believe that unrecognized and untreated insulin resistance is most commonly the answer. There are many factors that predispose first responders and police in particular to insulin resistance, including the following:

- Hypervigilance⁸¹
- Sugar, high-fructose corn syrup, and carbohydrates⁸²
- Gluten intolerance⁸³
- Sleep deprivation / shift work and overtime⁸⁴
- Lack of exercise⁸⁵
- Genetics⁸⁶

The effort undertaken by the RPD and its partners at SpecialtyHealth to diagnose and treat insulin resistance early in police and other first responders is unique and innovative. In Nevada, a conservative estimate, based on a review of thousands of annual physicals from many Nevada police departments, of the incidence of insulin resistance in the actively working, younger, Nevada law enforcement professional is 30 to 35 percent.⁸⁷ This percentage becomes even higher in retired police officer groups.

In addition, advanced testing completed on more than 100 senior law enforcement executives from all over the world, at the FBI National Academy’s Law Enforcement Executive Development Seminar (LEEDS) classes over a two-year period (2012 to 2014), revealed a rate of insulin resistance in excess of 50 percent. Insulin resistance increases with age, and the FBI LEEDS class is often a senior law enforcement executive group. Not one of the Quantico LEEDS volunteers was aware of their correct diagnosis.⁸⁸

Advanced lipid and diabetes mellitus testing

Routine cholesterol measurements are thought to be an accurate indicator of heart attack risk. They are, however, notoriously underpowered in the insulin resistant patient. Every law enforcement agency that SpecialtyHealth studied has had insulin resistant officers in abundance. Nationally, one half of the 1.5 million people having heart attacks annually in our country present to the emergency room with “normal or near normal” cholesterol levels as measured by routine testing.⁸⁹ So often these people are insulin resistant. Fortunately, more accurate measuring techniques are now available. In Nevada, the extensive use of an advanced lipid test, called nuclear magnetic resonance (NMR) by LabCorp, has greatly improved risk assessment and facilitated the early identification of insulin resistant individuals. This test uses magnetic resonance technology (an MRI) to measure the number of lipoprotein particles carrying cholesterol and triglyceride molecules throughout the body—two critical fats that every human needs. We now know that the total number of lipoprotein particles (LDL-P) gives us a better assessment of true cardiovascular risk, especially in the insulin resistant officer.⁹⁰

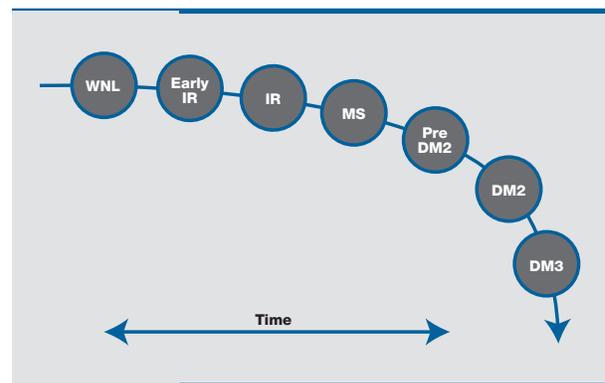
“It’s not the passengers; it’s the cars. It’s the cars that cause the scars.”⁹¹ This simple rhyme has been repeated in police departments all over Nevada and beyond, including six times at the FBI National Academy. A simple way to express this testing superiority to police is to say “It’s not the passengers (the cholesterol number LDL-C). It’s the cars (LDL-P).⁹² The cars represent the total number of LDL particles carrying both cholesterol and triglyceride. LDL-P is the number that is most reflective of cardiac risk.⁹³ It has helped many officers grasp this critically important and potentially lifesaving concept.

When the LDL lipoproteins cross the arterial wall, they are broken down and become plaque; that’s the scar. Over time, as plaque accumulates, it can become unstable and rupture; that’s the heart attack. Stated as simply as possible: the higher the LDL-P (the particle number), the greater the heart attack risk. It helps to think of the routine LDL cholesterol (LDL-C) as being just along for the ride. Especially in the insulin resistant officer, LDL-C is a flawed marker. Beyond LDL-P, the NMR also reports an insulin resistance score (0 to 100; a score above 45 indicates insulin resistance is in play). Often an elevated insulin resistance score is the first clue that the metabolic breakdown preceding type 2 diabetes has begun. One can only speculate as to how much human tragedy could be avoided and the amount of money that could be saved if all the insulin-resistant police officers in the nation were properly identified and appropriately treated.

Figure 2 demonstrates the sequence of metabolic breakdown too frequently seen over a police officer’s career. The trouble starts with insulin resistance and then proceeds to metabolic syndrome (also called the insulin resistance syndrome). Metabolic syndrome

represents a cluster of signs and symptoms that become apparent as metabolic breakdown advances. These findings include increased abdominal obesity, increased triglycerides, decreased HDL (the good cholesterol), elevated blood pressure, and elevated sugar levels (see appendix B, case one, where the subject was positive for all five markers). Three out of five positive findings confirms the diagnosis of metabolic syndrome.⁹⁴

Figure 2. Sequence of metabolic breakdown over a police officer’s career



WNL	Within normal limits
IR	The trouble starts with insulin resistance (fix this).
MS	Metabolic syndrome two times the risk for heart attack; five times the risk for DM2 (still reversible).
DM2	Risk equal to having had a heart attack (work to prevent complications).
DM3 (Alzheimer’s/ dementia)	So sad; the game is over.

Source: SpecialtyHealth, Inc.

As metabolic breakdown progresses, heart attack risk increases with each step. When a diagnosis of metabolic syndrome is made, heart attack risk has already doubled. A diagnosis of type 2 diabetes is the risk equivalent of having had a heart attack already. When humans become insulin resistant, the glucose receptors of certain

cells—liver, muscle, and fat—get clogged up. Glucose has difficulty responding to insulin’s signal to enter the cell. As a result, blood levels of glucose rise, and insulin levels rise in response, sometimes to very high levels.⁹⁵

Elevated insulin levels are the hallmark of insulin resistance and start the cascade toward metabolic syndrome and diabetes mellitus (DM2). A hint that the process has begun can often be detected on routine lab work. We notice an elevated triglyceride and low HDL level on routine testing. In 2005, Stanford’s diabetologist Dr. Gerald Reaven and his team asked, “Is there a simple way to identify insulin-resistant individuals at increased risk of cardiovascular disease?”⁹⁶ The answer is yes: a TG/HDL ratio of equal to or greater than 3.5 provides a simple means of identifying insulin-resistant patients who are likely to be at increased risk of cardiovascular disease. Frequently, in police populations we now see the insulin resistance score becomes abnormal even before the TG/HDL ratio. The insulin resistance score seems to be more sensitive. It is important to look at both numbers to allow for intervention at the earliest opportunity. Understanding that insulin resistance is the precursor to metabolic syndrome, many heart attacks, and type 2 diabetes is the fundamental principle. The earlier insulin resistance is diagnosed, the easier it is to reverse the process. With advanced testing, it is possible to see DM2 coming 15 to 20 years earlier than when it is typically diagnosed.⁹⁷ Insulin resistance can thus be considered the canary in the coal mine and should be targeted specifically.

The RPD has implemented a program that measures the TG/HDL ratio on the mandatory yearly physicals. Officers with a ratio of greater than 3.5 for males and 2.5 for females are encouraged to get advanced testing and enter the SpecialtyHealth program.

Reno Police Department and resiliency

Considering all of the scientific information, Chief Steve Pitts and the RPD have posed the question, “Why, if a police department routinely invests part of its budget to maintain its fleet of vehicles, is it not investing in the health and wellness of its officers, its most valuable resource?” The RPD’s extensive wellness and resiliency program has emerged and grown out of this basic question.

In 2008, the RPD initiated a pilot program in partnership with SpecialtyHealth and Dr. James Greenwald. The initial program included 15 volunteer officers who were given advanced lipid screening followed by an intensive six-month program. Of the 15 officers initially screened, nine had been pre-selected because of an elevated TG/HDL ratio noticed on the annual physical. All 15 officers then entered a program that included nutritional advice, exercise, counseling, lab-directed health coaching, and sometimes pharmacology. After the intervention period was completed, all 15 officers were reevaluated. The nine insulin resistant officers had all significantly reduced their risk factors, some as quickly as within four months (see appendix B, case two).⁹⁸ In all cases, ongoing improvement was clearly communicated with a traffic-light display system, which uses a red light to highlight areas of high risk, a yellow light for areas of moderate risk, and a green light for areas of low risk (see case study examples in appendix B).

Growth of the Reno Police Department's wellness program

The success of Reno's initial program has led to the institution of an overall wellness or "resiliency" policy in the agency that includes multiple components, such as the following:

Advanced testing

The RPD has expanded the original program and currently includes both the police and fire department. Officers and other first responders with test results that put them into the at-risk category are given the option of becoming part of the SpecialtyHealth intervention. The program is voluntary, and officers who may benefit from the advanced testing are identified through their annual physical, which is mandated by the state.

Nutrition

In the early years, 2002 to 2005, the SpecialtyHealth program was following the standard American Heart Association / American Dietetic Association dietary guidelines that endorse a high-carbohydrate, low-fat, grain-based diet. This dietary intervention failed to improve critical blood lipid parameters and frequently worsened insulin resistance scores while elevating triglycerides and decreasing HDL cholesterol.⁹⁹ The low-fat approach of the early years appears to be losing popularity, especially recently. Since 2007, and with the RPD group, SpecialtyHealth has recommended a Paleo/low-carb type of intervention that has consistently improved markers of systemic inflammation, insulin resistance, and body composition.¹⁰⁰ Although still debated in some dietetic circles, this alternative approach seems to be gaining considerable momentum.

To quote a recent mainstream article:

"An enormous trove of research over the past decade has shown that a low carbohydrate regime consistently outperforms any other diet in improving health. Diabetics, for instance, can most effectively stabilize their blood glucose on a low-carb diet; heart disease victims are able to raise their 'good' HDL cholesterol while lowering their triglyceride. And at least two-dozen well controlled trials involving thousands of subjects have shown that limiting carbohydrates leads to greater weight loss than does cutting fat."¹⁰¹

Exercise

The physical demands of police officers can be quite variable. Exercise physiology analysis clearly illustrates police work as anaerobic (i.e., intensive outputs of energy for a short period of time) and more akin to the needs of a wrestler or football player than a marathon runner. As such, the RPD found significant benefits in strength and conditioning approaches that develop the attributes of strength and power via the conjugate periodization method.¹⁰² This method allows for the development of several attributes over the course of a few weeks (meso-cycle), allowing for customization based on recovery, orthopedic issues, arrest and control training, etc. The primary training attributes include the following:

- **Functional mobility.** Police work is highly repetitious, and addressing imbalances is critical in preventing common orthopedic problems such as lower back injuries.
- **Maximum strength.** Compound barbell movements are used to improve neuromuscular efficiency and full body strength.

- **Rate-of-force production.** A police officer must be not only strong but also proficient in “turning on” movements with significant speed and power. Barbell and dumbbell variants of the Olympic lifts are generally our first choice for this work.
- **Metabolic conditioning.** Short circuits involving sprints, obstacle course work, and high repetition bodyweight movements are used to improve both local muscular endurance and cardiovascular efficiency via peripheral heart action. These circuits provide a stimulus more akin to an arrest-and-control scenario than traditional low powered cardiovascular training.¹⁰³
- a quarterly newsletter that shares various types of wellness information, as well as an RPD Wellness Facebook page, which allows officers to network and share health-related information;
- a certification program for physical-fitness specialists in the community and police personnel who want to coach and supervise wellness;
- partnerships with local businesses to promote wellness culture within police departments: e.g., partnership with a local co-op allows officers to pick up a discounted healthy meal; they have also negotiated reduced membership discounts for local gyms;
- an annual RPD wellness fair/clinic for officers and their families that includes speakers on the topics of nutrition, exercise, emotional survival, and sleep, as well as booths and other informational resources;
- a ground defense course that uses jiu-jitsu training, which teaches officers techniques for separating themselves from an offender so they can use other non-lethal tools necessary for control; this training has been shown to reduce injuries to both officers and suspects during altercations.

Wellness committee

The RPD has a well-organized and robust wellness team that serves as the go-to place for officers in the department looking for information or services related to wellness and resiliency. Through the RPD’s relationship with SpecialtyHealth, the wellness team also assists with referrals of at-risk officers. Members of the wellness committee are trained to go over the advanced testing results with officers as well as to assist them with creating and implementing a plan to help them meet their overall wellness goals. This part of the program has proven to be invaluable, as police officers tend to be more comfortable talking to and taking guidance from “one of their own.”

In addition to its work with at-risk officers, the RPD wellness team also seeks to provide assistance and resources to advance wellness and resiliency throughout the entire department. Other programs and initiatives the RPD and its wellness team have implemented include

- approved post-training that defines wellness certification for law enforcement and how wellness should be implemented;

Emotional survival

In 2002, Dr. Kevin Gilmartin observed in his book *Emotional Survival for Law Enforcement* that for police officers and first responders, their jobs can become the central and defining aspects of their lives. This can impact their lives and relationships outside of work; the officer or first responder may become physically and emotionally absent, causing strained marriages and families. Other issues that arise include alcohol and substance abuse and a decline in the officers’ physical health and wellness.¹⁰⁴ Other research reports that the average suicide rate in the police

profession is 18 per 100,000,¹⁰⁵ second only to military personnel who average 20 per 100,000.¹⁰⁶

In an attempt to proactively address these potential issues, the RPD has partnered with Dr. Eric Potterat of the U.S. Naval Special Warfare Command. Potterat provides officers with training and techniques used by U.S. Navy Seals to increase their mental preparedness and their ability to handle the stresses related to the job. The RPD and Potterat share the view that law enforcement and the military require similar skill sets and training. Providing law enforcement officers with this type of mental preparedness training may go along well with improving officers' quality of life, both at home and on the job.

In addition to mental preparedness training, the RPD has contracted with local psychological services to provide immediate interventions following traumatic events in the field, such as child homicides and heavy casualty events like the Reno air show disaster, which killed 11 people and injured 69 others.

Sleep

Sleep disorders are another area that can negatively impact officer wellness. In policing, shift work, lack of sleep, and adequate rest impact safety, performance, decision making, organizational risks, and the health of our men and women serving. The RPD has worked with Dr. Kirk Parsley, a nationally recognized expert in the field of sleep medicine. Parsley, a former member of the U.S. Naval Special Warfare Command, spent years working with service personnel, identifying disorders and recommending solutions. Some examples of acute sleep restriction performance changes can include increased hours of wakefulness, decreased libido, increased daytime hunger, decreased insulin sensitivity, and decreased

executive functioning. Each of these negative outcomes can also result in increased risk of injury.¹⁰⁷

All of these outcomes from poor or reduced sleep can have a dramatic effect on an officer's overall wellness as well as their ability to perform at peak level while on duty. As a result, the RPD seeks to educate officers on the importance of sleep and the dramatic effects of sleep deprivation. Research indicates that police leaders and administrators would do well to consider sleep deprivation research when considering implementing new shift rotations, lengths of shifts within their departments, or both.¹⁰⁸

Preliminary impact assessment and cost-benefit analysis

The RPD has expanded its relationship with SpecialtyHealth and has increased the number of officers who are given advanced screening and, for those deemed at risk, intervention through the partnership with SpecialtyHealth. The costs are covered by the department. Chief Pitts began funding this program through grants, but it is now included as a part of the departmental annual budget and allows for the selection of 15 officers per year to be added to the program. The cost is approximately \$1,000 per officer and includes consultation, lab work, and follow-up.

Evidence suggests that the advanced screening and the follow-up intervention had not only probably saved or extended lives but also saved a significant amount of money. Of the 50 U.S. states, 37 are presumptive benefit states, meaning that if a public safety officer has a heart attack while employed for five years, the heart attack is presumed to be work-related and, therefore, is paid for under the employer's workers compensation benefits. In these states, the

employer is required to reserve funds to cover this expense. So, for the purposes of the Reno pilot program, it was noted that in 2012 Nevada employers were reserving \$1.2 million to cover the medical and disability costs of a heart attack claim (that reserve is now \$1.5 million per accepted heart claim because of escalating healthcare costs). Based on these estimates, the RPD can calculate that costs associated with a heart attack for medical retirement benefits and care in Nevada would have been \$10.8 million for the nine high-risk officers.¹⁰⁹ The preventative care costs for all 15 officers over 20 years are an estimated \$505,560, representing a 20-to-1 return on investment for the program.¹¹⁰

Replication

The RPD's resiliency and wellness program is well-positioned to be broadly replicated in departments throughout the United States. As an outgrowth of the program in Reno, there are currently plans underway to run similar pilot programs in Kentucky, Hawaii, California, and Washington, D.C. SpecialtyHealth and the RPD have proposed a train-the-trainer approach for these agencies that will include certifications of select individuals within these police departments and will provide them with the tools and training needed to collect the necessary biometrics and assist with the identification of insulin

resistance and other critical health issues. SpecialtyHealth will provide consultation for a risk assessment that will be done after bloodwork is completed at one of a network of labs that are easily accessible throughout the country. These agencies, as well as any future agencies that participate in the program, would be supported by local doctors and through a network of physicians working with SpecialtyHealth.

Conclusion

The growing health challenges facing our general population today, as a result of a rapid increase in type 2 diabetes, obesity, and heart disease, could be even more pronounced in our police and first responder communities. The RPD's wellness and prevention program proactively addresses these issues in a manner that is comprehensive, cost-effective, and efficient. The program includes many components that contribute to its effectiveness, but the urgent issue of addressing insulin resistance early in an officer's career is a central component of the program. Promoting and advocating for early and advanced screening of police and other first responders could go a long way toward reducing heart attack and type 2 diabetes and could also improve the overall ability of officers to perform their jobs to the best of their abilities.

Summary and Recommendations

The four case studies included in this publication provide a small glimpse into the broader range of homegrown health, wellness, and safety programs that are likely operating in other law enforcement agencies nationwide. The programs examined here can potentially impact individual officer health, organizational wellness, and officer safety within a much broader context.

Unfortunately, with the exception of certain parts of the Reno Police Department's program, rigorous process and impact evaluations of these initiatives, and other safety and wellness programs within law enforcement agencies in the United States, are few and far between. In the absence of carefully constructed and convincing evaluations that should include cost-benefit analyses, budget managers, politicians, and law enforcement leaders are reluctant to invest scarce law enforcement resources in untested health, safety, and wellness initiatives that may not yield immediately tangible benefits.

Nevertheless, these four case studies are useful for thinking through some of the programmatic options for reducing law enforcement deaths associated with heart attacks and other physical and psychological illnesses, as well as deaths and injuries linked to motor-vehicle collisions and other safety risks.

The following set of recommendations is directly related to the experiences of the four agencies chronicled in this report:

Summary: On-duty exercise programs, similar to the program offered by the Boca Raton Police Department, may yield benefits over the life and career of an officer that exceed the costs associated with establishing such programs. Allowing officers to exercise for reasonable periods of time while on-duty or within the middle of a long shift can relieve stress, enhance health, build camaraderie, extend careers and overall lifespan, increase respect from citizens, and build and sustain an environment of healthy living within the organization. Importantly, allowing officers to exercise on duty should not reduce operational effectiveness and may enhance it in the long term.

- » **Recommendation:** Evaluation research is needed to evaluate the costs and benefits of these types of programs.
- » **Recommendation:** The proportion of departments with current on-duty exercise programs across the nation is unknown. However, inserting questions into the existing Law Enforcement Management and Administrative Statistics survey or the Census of Law Enforcement Agencies conducted by the Bureau of Justice Statistics would provide a useful baseline estimate. A follow-up survey to determine what factors (costs, fear of abuse, liability, limited manpower, etc.) might inhibit departments from considering

or developing on-duty exercise programs would be a useful next step. Examining and evaluating a broader range of exercise options (Crossfit, functional fitness, etc.) would also make sense.

Summary: The number of officers who are injured or killed as a result of motor-vehicle collisions is unacceptable and should be the primary focus of a sustained educational and cultural change effort. The Arrive Alive program in Prince George’s County, Maryland, provides one potential model, but there may be others.

- » **Recommendation:** Focused evaluation research on the strengths and weaknesses of existing traffic safety and collision prevention programs across a number of departments would provide the foundation for a national evidence-based effort that could be broadly replicated in a larger number of agencies.
- » **Recommendation:** Culturally, we need to develop credible evidence that can convince officers, including newly hired and more skeptical officers, that the safety hazards associated with not wearing a seatbelt clearly and exponentially outweigh the perceived safety concerns associated with buckling up each and every time they enter the patrol car.

Summary: In larger agencies, fully dedicating one or more sworn or non-sworn positions to health, safety, and wellness priorities and programs, consistent with the experience of Fairfax County, Virginia, would seem to represent a nominal investment in the lives and well-being of police officers. It is understandable that smaller agencies may not be financially positioned to do so, but perhaps consortiums of smaller agencies could share one of these positions.

- » **Recommendation:** Larger agencies could develop train-the-trainer programs, educational materials, conferences, and academy training courses that could

promote cultural change and further prioritize the importance of health, safety, and wellness in law enforcement settings.

Summary: The organizational commitment to health and wellness at the Reno Police Department appears to be exceptional. The agency’s program also offers a strong, and perhaps cutting edge, example of merging organizational and officer health priorities with medical evidence and best practices.

- » **Recommendation:** Partnerships between law enforcement agencies and the medical field should be encouraged, replicated, and piloted in other sites and rigorously evaluated. Given what we know about the costs of losing officers to early retirement, heart attacks, and other illnesses associated with their profession and the corresponding costs of prevention programs, such investments may pay substantial dividends in the future.

Summary: Health, wellness, and safety are multidimensional issues. One of the patterns that became clear to us during our review of the literature is the extent of programmatic fragmentation in the way police agencies address these issues. What is clearly missing is a comprehensive, holistic framework or template that helps police agencies to organize their efforts and gauge their progress in tackling all of these issues. In the absence of this kind of holistic thinking, notes Chief Maggie DeBoard of the Herndon (Virginia) Police Department, agencies tend to focus on one or a handful of specific health, wellness, and safety concerns while largely ignoring others.

- » **Recommendation:** We see a need for the development of an overarching framework that helps police agencies structure their health and wellness efforts. Such a framework could lead to the development of an industry-wide culture of health, wellness, and safety that permeates every aspect of policing. The creation of such a

framework would need to be coordinated at the national level and involve the leading experts on these issues. Such an effort could have a profound effect on policing.

Summary: A simple premise of the growing evidence-based policy movement is developing important policy decisions using the best available scientific evidence on what works and what does not work. Police leaders are increasingly exposed to this movement through evidence-based crime policy, which has significant implications for police operations. While much of the evidence-based policy movement in policing focuses *outward* on the effects of policies on communities, it can also be focused *inward* on the effects of policies on the people who work within police agencies. There is a small body of empirical research, primarily developed by occupational health specialists, on the effectiveness of programs meant to improve the health, safety, and wellness of police employees. While research is informative, it is insufficient in scope to provide police leaders with clear guidance in selecting evidence-based programs and policies to improve health, safety, and wellness in their own agencies.

» **Recommendation:** Police agencies, researchers, and funding agencies should begin working together to develop a much more robust knowledge base on what works (and what doesn't work) for improving police officer health, safety, and wellness. For programs that have already been implemented, designing retrospective impact evaluations often involves the use of "interrupted time series" designs using data over time (typically measured weekly, monthly, or quarterly) before and after the implementation of the program. While this type of evaluation design is not ideal, if conducted carefully it can allow for some reasonable inferences about program effects. Existing programs should

be evaluated to determine whether they are working as intended. For new programs that have not yet been implemented, more rigorous impact evaluations can be designed from the outset, thus allowing for much stronger conclusions about the program's effects. We see a particular need for randomized controlled trials (RCT) to evaluate these types of programs. There are many types of RCTs, but the most common approach would involve randomly selecting some officers to participate in the program and then compare them on certain outcome measures with officers not selected to participate.

Officer health, safety, and wellness are vital issues that deserve serious attention. In the evidence-based policing era, it is not sufficient to implement a program based on instinct and good intentions and then hope for the best. We see a strong need for police agencies, working together with researchers and funding agencies, to develop a culture of experimentation with regard to these vital issues. Establishing that culture of experimentation will require police leaders to insist on rigorous evaluations of these well-intentioned programs and initiatives. The results of these evaluations will not be used to punish program designers. The results will be used as feedback for adjusting, improving, or in some cases re-engineering or replacing these programs to increase their effectiveness.

The goal is not to produce a body of scientific evidence for its own sake but to develop an evidence base that police leaders can use to improve the health, safety, and wellness of police officers in the United States and beyond.

Appendix A. On-Site Interview Protocol

National Study of Police Officer Health, Wellness, and Safety* Semi-Systematic On-Site Interview Protocol

Name: _____

Position of Interviewee: _____

Part I: Officer Health and Wellness

Note: Questions 1–5 ask about initiatives to promote health and wellness in your agency. We use this phrase in its broadest sense to refer to the physical, emotional, occupational, social, intellectual, and spiritual health of police officers within your agency. (We address officer safety separately in part II of the survey.)

1. Please describe the various programs and policies available in your agency to promote health and wellness among police officers (cite literature, if available).
2. Thinking about the programs and policies you described in answering question 1, which ones do you believe have been the most effective in your agency? Please explain.
3. Which programs have been the least effective? Please explain.
4. What types of health and wellness programs or policies are you interested in implementing that are currently not available in your agency?

5. What lessons have you or others in your agency learned about how to promote health and wellness among police officers?

Part II: Officer Safety

6. Please describe the programs and policies available in your agency to promote safety among police officers.
7. Thinking about the programs and policies you described in answering question 6, which ones have been the most effective in your agency? Please explain.
8. Which programs and policies have been the least effective, and what could be done to improve their effectiveness?
9. What types of programs or policies for promoting officer safety are you interested in implementing that are currently not available in your agency?
10. What lessons have you or others in your agency learned about how to promote officer safety?

Part III: Organizational Commitment to Health, Wellness, and Safety

11. Are employee health, wellness, and safety considered core values in your agency? If so, can you provide documentation to support this? If not, why not?

12. Has the leadership at your agency made health, wellness, and safety an organizational priority? If so, how have they done so? If not, why is this not a priority?
13. Are there protocols in place or data collection processes available that allow the agency to continuously assess and monitor health, wellness, and safety initiatives and their effectiveness? Please explain.
14. Has your agency had any health and wellness or safety campaigns in the past that were used to promote health, wellness, and safety? If so, what events or ideas triggered those campaigns?
15. Does your agency conduct surveys or collect information on employees to determine their commitment to health, wellness, and safety and to identify needs for additional programs? If so, can we obtain the results?
16. Are employees given time off or provided paid time to devote to health and wellness? If yes, explain how.
17. Are employees held accountable when they do not meet health and wellness objectives or fail to follow safety protocols that have been established (e.g., wearing seat belts, maintaining safe speeds during pursuits)? Explain with specific examples.
18. Does your agency have a wellness manager, team, or committee?
19. Does your agency have written goals or objectives for officer health or wellness?
20. Does your agency maintain a culture of health and wellness?
21. Here is a list of possible safety and wellness programs that your department has instituted (*check them off ahead of the visit and verify them on site*):
 - Preventable crashes campaign
 - Physical fitness programs
 - Suicide prevention program
 - Mandatory body armor initiative
 - Chronic disease prevention and management
 - Nutrition
 - Substance abuse prevention
 - Tobacco use prevention
 - Physical exercise
 - Injury prevention
 - Stress management
 - Weight management
 - Cholesterol reduction
 - On-site health screening
 - Hypertension management
 - Driver safety
22. Within this list of programs, which one program at your agency would you recommend be replicated in other departments around the country? Explain.
23. What steps would you recommend for taking this local program and expanding it, sharing it, replicating it, or broadening it so that it becomes part of the national culture of wellness and safety in law enforcement? What resources would be required?

Appendix B. Case Studies for the Reno Police Department

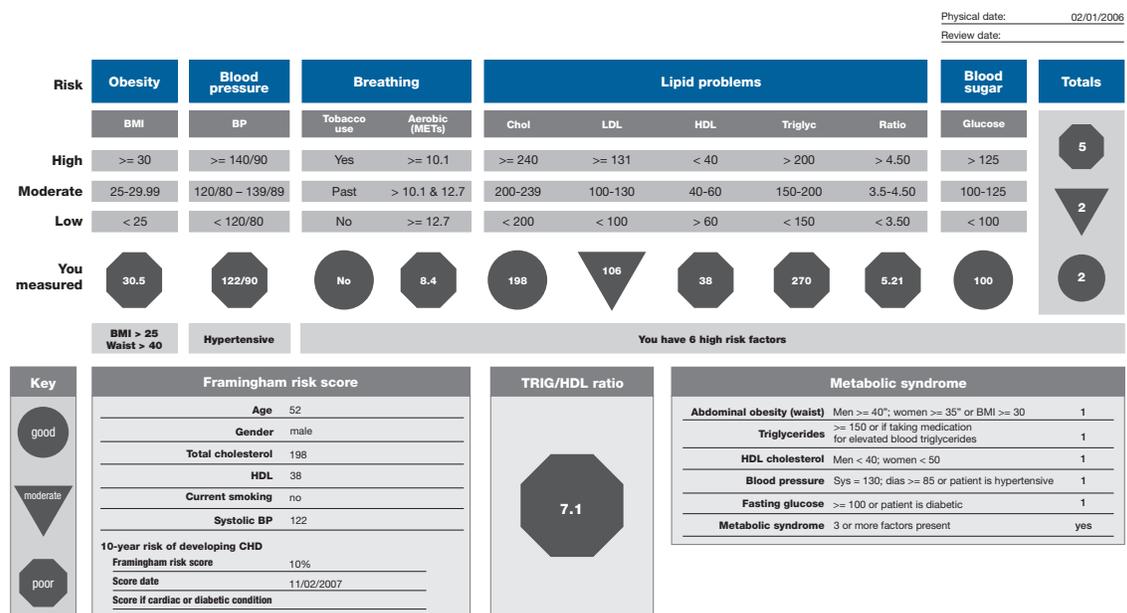
The following case studies are taken from the Reno Police Department's initial work with SpecialtyHealth and help demonstrate the dramatic impact that the testing and interventions described in this report can have on officer health and diagnosis.

Case one

This case is a six-year follow up on a 52-year-old police officer. He lost 40 pounds (17 percent of his weight and 5 inches around

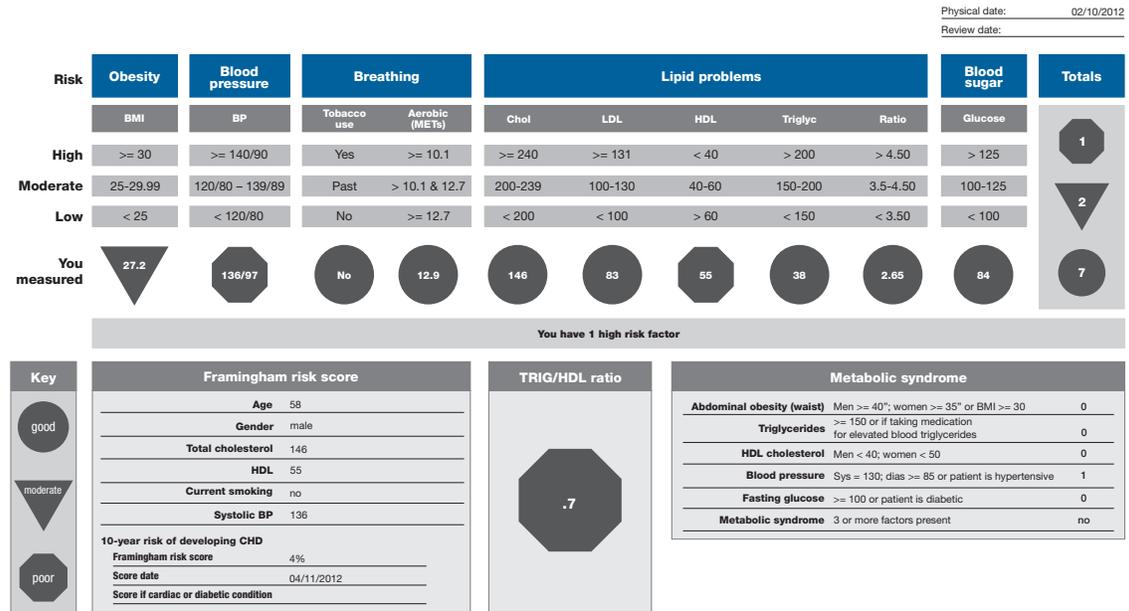
the middle) and corrected almost all of his numbers, including four of the markers that diagnosed him with metabolic syndrome. He went from having five out of five metabolic markers to only one out of five. His overall risk dropped precipitously, and his triglycerides went from 270 to 38. These results were achieved by the same basic approach that was used in case two, but a more aggressive approach was used with the pharmaceuticals. The corrections are sustainable.

Figure B1. Before intervention



Source: SpecialtyHealth, Inc., all rights reserved, June 2012.

Figure B2. After intervention



Source: SpecialtyHeath, Inc., all rights reserved, June 2012.

Figure B3. Summary of the intervention's impact

	Before (2/1/06)	After (2/10/12)	Result (6 years)	
Weight	235	195	40	↓
Waist	43	38	5"	↓
LDL-P	1820*	1096	724	↓
LDL-C	106	83	23	↓
HDL-C	38	55	17	↑
Tryglicerides	270	38	232	↓
Insulin resistance ratio	7.1	.7	6.4	↓
Metabolic syndrome markers	5/5	1/5	4	↓

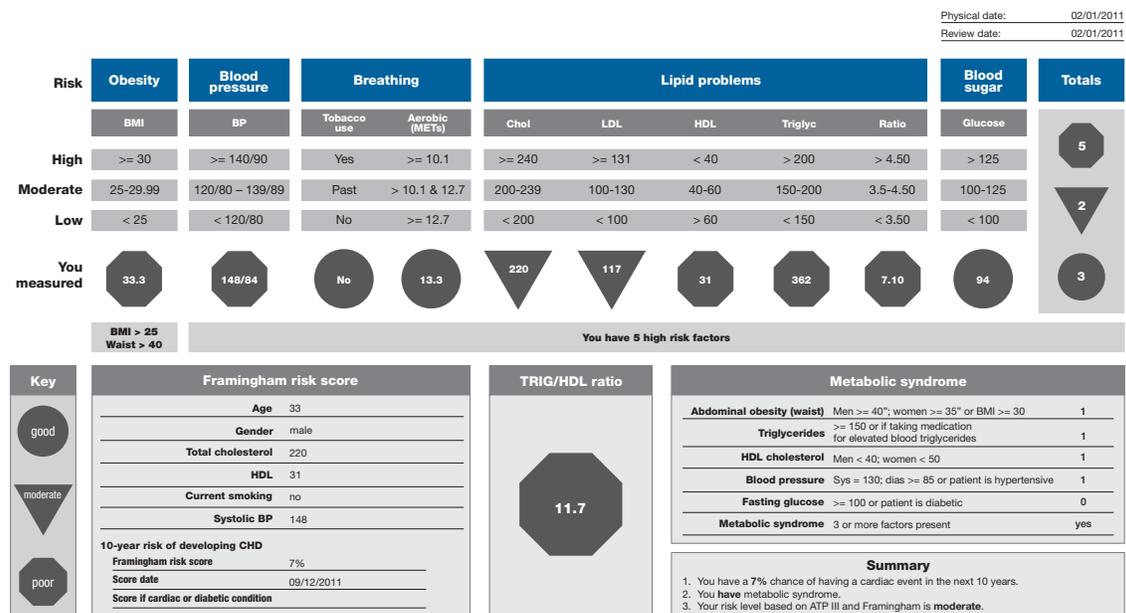
Source: SpecialtyHeath, Inc., all rights reserved, June 2012.

Case two

This case is that of a highly motivated 33-year-old police officer who, over a four-month period, had a spectacular reversal of insulin resistance. This was accomplished with a low-carb diet, exercise, a 12-pound weight loss,

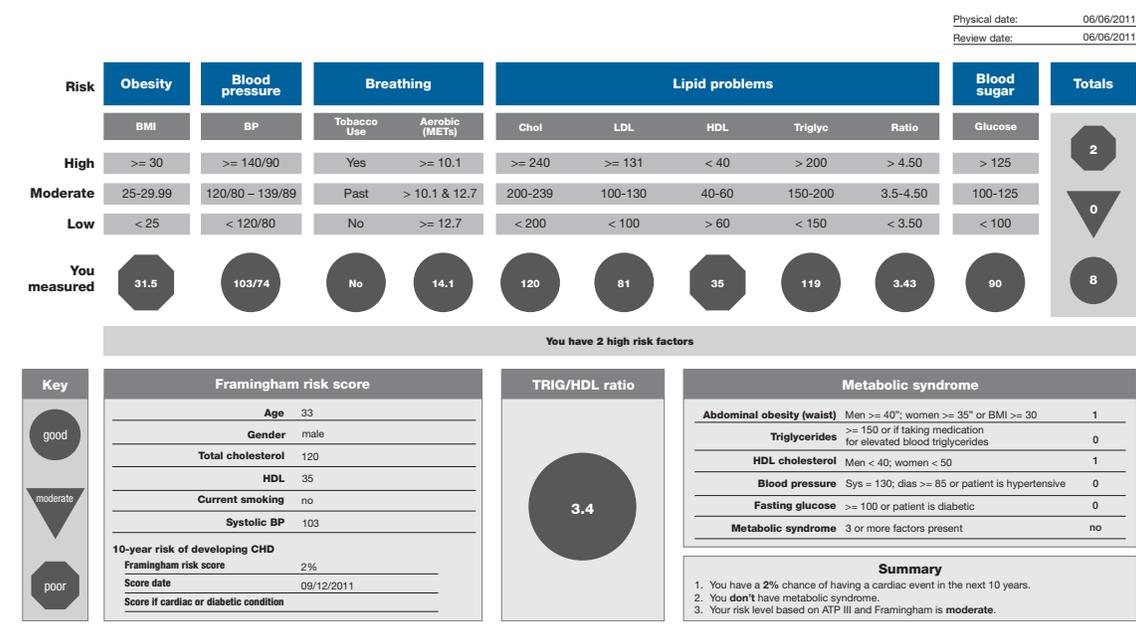
and medication (a generic statin costing only \$10 every three months). The particle number (LDL-P) dropped more than 1,200 points (54 percent) to ideal levels.

Figure B4. Before intervention



Source: SpecialtyHeath, Inc., all rights reserved, June 2012.

Figure B5. After intervention



Source: SpecialtyHeath, Inc., all rights reserved, June 2012.

Figure B6. Summary of the intervention's impact

	Before (2/1/11)	After (6/6/11)	Result (4 months)	
Weight	219	207	5.4%	↓
LDL-P	2231	1026	1205	↓
HDL-P	23.6	28.7	5.1	↑
LDL-C	117	61	56	↓
HDL-C	31	35	4	↑
Tryglicerides	362	119	243	↓
Insulin resistance score	73	57	16	↓

Source: SpecialtyHeath, Inc., all rights reserved, June 2012.

Endnotes

1. Brandl and Stroshine, "Physical Hazards of Police Work." See also Gershon et al., "Mental, Physical, and Behavioral Outcome;" Zhao et al., "Predicting Five Dimensions."
2. Brough, "Comparing the Influence of Traumatic."
3. Charles et al., "Shiftwork and Sleep." See also Mohr et al., "The Mediating Effects of Sleep;" Pearsall, "Sleep Disorders, Work Shifts."
4. Rajaratnam et al., "Sleep Disorders, Health, and Safety."
5. Mayhew, "Occupational Health and Safety Risks."
6. Arnetz, "Assessment of a Prevention Program." See also Hartley et al., "Health Disparities in Police Officers;" Rachele, Heesch, and Washington, "Wellness Programs at Firefighter;" Warren, Collins, and Hinz, "Cardiovascular Disease Morbidity."
7. von Kuenssberg Jehle, "Seat Belt Use by Police."
8. Brandl and Stroshine, "Physical Hazards of Police Work."
9. Averhoff et al., "Occupational Exposures and Risk of Hepatitis B Virus;" Hoffman et al., "Occupational Exposure to Human;" Lorentz, Hill, and Samimi, "Occupational Needlestick Injuries;" Pagane et al., "New York City Police."
10. Anshel, "A Conceptual Model;" Arnetz et al., "Trauma Resilience Training;" Burke, "Wellness Program, Fairfax County;" Patterson, "Job Experience and Perceived;" Roberts and Levenson, "The Remains of the Workday;" Stearns and Moore, "The Physical and Psychological Correlates;" Vila et al., "Improving Shift-Schedule and Work-Hour Policies," Toch, *Stress in Policing*.
11. Demling and DeSanti, "Effect of a Hypocaloric Diet;" McCormick, Cohen, and Plecas, *Nutrition and General Duty*.
12. Burton et al., "Occupational Risk Factors;" Kales et al., "Blood Pressure in Firefighters;" Richmond et al., "How Healthy Are the Police;" Violanti, "Suicide and the Police Role;" Winwood et al., "Identification and Measurement;" Zimmerman, "Cardiovascular Disease and Risk Factors."
13. Rachele, Heesch, and Washington, "Wellness Programs at Firefighter."
14. Ibid.
15. Ibid.
16. Many of the research designs used in evaluation research make it difficult to eliminate rival explanations and to infer cause and effect. For a review of the strengths and weaknesses of the various types of research designs used in the evaluation of criminological and criminal justice initiatives, see Sherman et al., *Preventing Crime: What Works*

17. Rachele, Heesch, and Washington, "Wellness Programs at Firefighter," 302.
18. Sherman et al., *Preventing Crime: What Works*.
19. Rachele, Heesch, and Washington, "Wellness Programs at Firefighter."
20. Boca Raton Police Department, Directive No. 22,100.
21. Sergeant Nicole Girardi (training supervisor, Boca Raton Police Department), in discussion with the authors, 2014.
22. Smith and Tooker, "Health and Fitness in Law Enforcement."
23. Federal Bureau of Investigation, *Law Enforcement Officers Killed*.
24. Quigley, "Fit for Duty?"
25. Zimmerman, "Cardiovascular Disease and Risk Factors."
26. Tooker and Cashwell, "Revisiting the Fitness and Health."
27. U.S. Marine Corps, *Concept for Functional Fitness*.
28. Bloomberg Business, "Company Overview of Crossfit."
29. Crossfit, Inc., "What is Crossfit."
30. Bissett, Bissett, and Snell, "Physical Agility Tests and Fitness Standards;" Lonsway, "Tearing Down the Wall."
31. Reaves *State and Local Law Enforcement*, 4.
32. Boni, "Exercise and Physical Fitness."
33. Keller, "Applying CrossFit to Police Recruits;" Zamzow, "Is CrossFit Right for You?"
34. A Charlotte Mecklenburg (North Carolina) Police Department training officer, in discussion with Derrick Lail (University of North Carolina at Charlotte), 2014.
35. The Box, "Origins of CrossFit;" Cooper and Canto, "CrossFit Training for Law Enforcement."
36. Keller, "Applying CrossFit to Police Recruits."
37. Cooper and Canto, "CrossFit Training for Law Enforcement."
38. Bergeron et al., "Consortium for Health and Military Performance."
39. *Ibid.*, 2.
40. Lonsway, "Tearing Down the Wall."
41. Chappell, "America's Wealthiest Black County."
42. All data discussed in this paragraph were derived from the National Law Enforcement Memorial Fund, "Causes of Law Enforcement Deaths."
43. National Law Enforcement Officers Memorial Fund, *Preliminary 2014 Law Enforcement*.
44. Gustafson, "What's Driving Fatal Law Enforcement Collisions?"
45. National Law Enforcement Officers Memorial Fund, *Preliminary 2014 Law Enforcement*.
46. Tiesman et al., "Eleven Years of Occupational Mortality."
47. *Ibid.*
48. von Kuenssberg et al., "Seat Belt Use by Police."
49. Oron-Gilad et al., "Police Officers Seat Belt Use."
50. Vila and Gustafson, "The Ongoing Crisis."

51. Ibid. See also Lavoie, “Man Sentenced to 13 Years.”
52. Gordon, “Police Cruiser Crashes.”
53. Gross, “Prince George’s Officer Says Youth Training.”
54. Giles, “PG. Police Officer Killed in Car Crash.”
55. Stawinski III, “Buckle Up, Slow Down.”
56. Hank Stawinski (deputy chief, Prince George’s County Police Department), in discussion with the authors, 2014.
57. We are not aware of any data that support this concern; however, we see two opportunities for further study. First, while there is anecdotal evidence that suggests this concern is pervasive among police officers, empirical research should be carried out to measure how pervasive this concern really is. Second, empirical research is necessary to examine how often, and under what conditions, seatbelts actually endanger officers. Both types of research would help illuminate this issue and contribute to the development of evidence-based solutions.
58. Dirkx, “The Power of Feelings.”
59. Friedenber and Silverman, *Cognitive Science*, 312.
60. Vince Canales, *Arrive Alive*, video, from the Prince George’s County Police Department, 2013.
61. DeBoard, “Safety Officer Program.”
62. Ibid.
63. U.S. Department of Homeland Security, *National Incident Management System*, 52.
64. Ibid.
65. DeBoard, “Safety Officer Program.”
66. Ibid.
67. Hester, “Cop Reviews Cop Car.”
68. David Kuhar (Fairfax County [VA] Police Department), in discussion with the Major Cities Chiefs Association, (Washington, DC).
69. Burke and Roessler, “The Role of Sports Medicine.”
70. Burke, “Wellness Program, Fairfax County.”
71. Pitts, “Resiliency as a Path.”
72. National Law Enforcement Officers Memorial Fund, *Preliminary 2014 Law Enforcement*.
73. This section of the report was written primarily by James Greenwald of SpecialtyHealth, Reno, Nevada.
74. Centers for Disease Control and Prevention, “Heart Disease Fact Sheet.”
75. Ibid.
76. Greenwald, “Let’s Look Under the Hood.”
77. Police officers and sheriffs from Hilo, Hawaii, the University of Kentucky, and Fallon, Nevada, in discussion with James Greenwald (SpecialtyHealth), 2014.
78. Eddy et al., “Relationship of Insulin Resistance.”
79. Reaven, Strom, and Fox, *Syndrome X*.
80. Parker, *Florida Mortality Study*.
81. Gilmartin, *Emotional Survival for Law Enforcement*.
82. Taubes, *Why We Get Fat*.
83. Wolf, *The Paleo Solution*.
84. Parsley, “The Science of Sleep.”
85. StewSmithFitness, “Preparing Americans to Serve in the Military.”
86. Reaven, Strom, and Fox, *Syndrome X*.
87. Greenwald, “Let’s Look Under the Hood.”

88. Ibid.
89. Superko and Tucker, *Before the Heart Attacks*.
90. Otvos et al., "Clinical Implications of Discordance."
91. Greenwald, "Let's Look Under the Hood."
92. Ibid.
93. Cromwell et al., "LDL Particle Number and Risk."
94. Taubes, *Why We Get Fat*.
95. Reaven, Strom, and Fox, *Syndrome X*.
96. McLaughlin et al., "Is There a Simple Way?"
97. Frazier-Wood et al., "Opportunities for Using Lipoprotein."
98. Pitts, "Resiliency as a Path."
99. Greenwald, "Let's Look Under the Hood."
100. Ibid.
101. Tieholz, "The Last Anti-Fat Crusaders."
102. Pitts, "Resiliency as a Path."
103. Ibid.
104. Gilmartin, *Emotional Survival for Law Enforcement*.
105. Aamodt and Stalnaker, "Police Officer Suicide."
106. Morales, "Suicide Prevention across the Army."
107. Parsley, "The Science of Sleep."
108. Ibid.
109. Cox, *Review of Nevada State Retirement*.
110. Pitts, "Resiliency as a Path."

References

- Aamodt, Michael G., and Nicole A. Stalnaker. 2001. "Police Officer Suicide: Frequency and Officer Profiles." In *Suicide and Law Enforcement*, edited by Donald C. Sheehan and Janet I. Warren. Washington, DC: Federal Bureau of Investigation. <http://www.leotrainer.com/suicideprofile.pdf>.
- Anshel, Mark H. 2000. "A Conceptual Model and Implications for Coping with Stressful Events in Police Work." *Criminal Justice and Behavior* 27 (3): 375–400.
- Arnetz, Bengt B., Eamonn Arble, Lena Backman, Adam Lynch, and Ake Lublin. 2013. "Assessment of a Prevention Program for Work-Related Stress among Urban Police Officers." *International Archives of Occupational and Environmental Health* 86 (1): 79–88.
- Arnetz, Bengt B., Dana C. Nevedal, Mark A. Lumley, Lena Backman, and Ake Lublin. 2009. "Trauma Resilience Training for Police: Psychophysiological and Performance Effects." *Journal of Police and Criminal Psychology* 24:1–9.
- Averhoff, Francisco M., Linda A. Moyer, Bradley A. Woodruff, Adeline M. Deladisma, Joni Nunnery, Miriam J. Alter, et al. 2002. "Occupational Exposures and Risk of Hepatitis B Virus Infection among Public Safety Workers." *Journal of Occupational & Environmental Medicine* 44 (6): 591–596.
- Bergeron, Michael F., Bradley C. Nindl, Patricia A. Deuster, Neal Baumgartner, Shawn F. Kane, William J. Kraemer, et al. 2011. "Consortium for Health and Military Performance and American College of Sports Medicine Consensus Paper on Extreme Conditioning Programs in Military Personnel." *Current Sports Medicine Reports* 10 (6): 383–389. http://library.crossfit.com/free/pdf/CFJ_111200_Bergeron_Champ.pdf.
- Bissett, Daryl, Jennifer Bissett, and Clete Snell. 2012. "Physical Agility Tests and Fitness Standards: Perceptions of Law Enforcement Officers." *Police Practice and Research* 13 (3): 208–223.
- Bloomberg Business. 2014. "Company Overview of CrossFit Inc." Accessed April 2015. <http://investing.businessweek.com/research/stocks/private/snapshot.asp?privcapId=108717962>.
- Boca Raton Police Department. 2012. "Departmental Standards Directive 22.100: Compensation, Benefits, and Conditions of Work," revised October 1. Accessed July 31, 2015. http://www.fla-pac.org/reply_docs/f_99/22.100%20Compensation%20Benefits%20and%20Conditions%20of%20Work.pdf.

- Boni, Nadia. 2004. "Exercise and Physical Fitness: The Impact on Work Outcomes, Cognition, and Psychological Well-Being for Police." *Current Commentary*, no. 10. Marden, South Australia: Australasian Centre for Policing Research. <http://d.scribd.com/docs/1u7w5067v7kem3185d6h.pdf>.
- The Box. 2012. "Origins of CrossFit." Accessed July 24, 2015. <http://www.theboxmag.com/crossfit-box-101/origins-of-crossfit/>.
- Brandl, Steven G., and Megan S. Stroschine. 2003. "Toward an Understanding of the Physical Hazards of Police Work." *Police Quarterly* 6 (2): 172–191.
- Brough, Paula. 2004. "Comparing the Influence of Traumatic and Organizational Stressors on the Psychological Health of Police, Fire, and Ambulance Officers." *International Journal of Stress Management* 11 (3): 227–244.
- Burke, Nancy. 2008. "Wellness Program, Fairfax County Police Department." Paper presented to the Major Cities Chiefs Association, Washington, DC, December 1.
- Burke, Ronald J. 1994. "Stressful Events, Work-Family Conflict, Coping, Psychological Burnout, and Well-Being among Police Officers." *Psychological Reports* 75 (2): 787–800. doi:10.2466/pr0.1994.75.2.787.
- Burke, Nancy, and Edwin Roessler. 2009. "The Role of Sports Medicine in Officer Safety and Wellness." Paper presented to the International Association of Chiefs of Police, Denver, Colorado, October 5.
- Burton, A. Kim, K. Malcolm Tillotson, Tara L. Symonds, Catherine Burke, and Tony Mathewson. 1996. "Occupational Risk Factors for the First-Onset and Subsequent Course of Low Back Trouble: A Study of Serving Police Officers." *Spine* 21 (22): 2612–2620. <http://www.ncbi.nlm.nih.gov/pubmed/8961449>.
- Centers for Disease Control and Prevention. 2015. "Heart Disease Fact Sheet." Accessed July 29, 2015. http://www.cdc.gov/dhdsp/data_statistics/fact_sheets/docs/fs_heart_disease.pdf.
- Chappell, Kevin. 2006. "America's Wealthiest Black County." *Ebony*, November: 88–94.
- Charles, Luenda E., Cecil M. Burchfiel, Desta Fekedulegn, Bryan Vila, Tara A. Hartley, James Slaven, et al. 2007. "Shiftwork and Sleep: The Buffalo Police Health Study." *Policing: An International Journal of Police Strategies & Management* 30 (2): 215–227.
- Cooper, T.J., and Phil Canto. 2007. "CrossFit Training for Law Enforcement: Jacksonville Five Years Later." *The CrossFit Journal* 9: 1–7. http://library.crossfit.com/free/pdf/61_07_CF_Train_Law_Enfo.pdf.
- Cox, Jacqueline. 2012. *Review of Nevada State Retirement and Workers Compensation Benefits*. Reno, NV: SpecialtyHealth, Inc.
- Cromwell, William C., James D. Otvos, Michelle J. Keyes, Michael J. Pencina, Lisa Sullivan, Ramachandran S. Vasan, et al. 2007. "LDL Particle Number and Risk of Future Cardiovascular Disease in the Framingham Offspring Study—Implications for LDL Management." *Journal of Clinical Lipidology* 1 (6): 583–592.
- Crossfit, Inc. 2014. "What is CrossFit: Forging Elite Fitness." Accessed July 29, 2015. <http://www.crossfit.com/cf-info/what-is-crossfit.html>.
- Darlington, Jeff. 2013. "Sean Payton Moves On, Brings New Energy to New Orleans Saints." NFL Enterprises LLC, June 6. Accessed July 22, 2015. <http://www.nfl.com/news/story/0ap1000000209820/article/sean-payton-moves-on-brings-new-energy-to-new-orleans-saints>.

- DeBoard, Maggie A. 2010. "Safety Officer Program Makes Officer Protection a Priority." *The Police Chief* 77:18–23.
- Demling, Robert H., and Leslie DeSanti. 2000. "Effect of a Hypocaloric Diet, Increased Protein Intake and Resistance Training on Lean Mass Gains and Fat Mass Loss in Overweight Police Officers." *Annals of Nutrition and Metabolism* 44 (1): 21–29.
- Dirkx, John M. 2001. "The Power of Feelings: Emotion, Imagination, and the Construction of Meaning in Adult Learning." *New Directions for Adult and Continuing Education* 89 (Spring): 63–72.
- Eddy, David, Len Schlessinger, Richard Kahn, Barbara Peskin, and Rick Schiebinger. 2009. "Relationship of Insulin Resistance and Related Metabolic Variables to Coronary Artery Disease: A Mathematical Analysis." *Diabetes Care* 32 (2): 361–366.
- Federal Bureau of Investigation. 2014. *Law Enforcement Officers Killed and Assaulted, 2013*. Uniform Crime Report. Accessed December 2014. <http://www.fbi.gov/about-us/cjis/ucr/leoka/2013>.
- Frazier-Wood, Alexis C., W. Timothy Garvey, Tara Dall, Robert Honigberg, and Ray Pourfarzib. 2012. "Opportunities for Using Lipoprotein Subclass Profile by Nuclear Magnetic Resonance Spectroscopy in Assessing Insulin Resistance and Diabetes Prediction." *Metabolic Syndrome and Related Disorders* 10 (4): 244–251. doi:10.1089/met.2011.0148.
- Friedenberg, Jay, and Gordon Silverman. 2012. *Cognitive Science: An Introduction to the Study of Mind*, 2nd edition. Los Angeles, CA: SAGE Publications, Inc.
- Gershon, Robyn R.M., Brian Barocas, Allison N. Canton, Xianbin Li, and David Vlahov. 2009. "Mental, Physical, and Behavioral Outcomes Associated with Perceived Work Stress in Police Officers." *Criminal Justice and Behavior* 36 (3): 275–289.
- Giles, Ben. 2012. "PG. Police Officer Killed in Car Crash." *Washington Examiner*, October 18. <http://www.washingtonexaminer.com/p.g.-police-officer-killed-in-car-crash/article/2511171>.
- Gilmartin, Kevin. 2002. *Emotional Survival for Law Enforcement*. Tucson, AZ: E-S Press, Inc.
- Glassman, G. 2003. "Police Training." *The CrossFit Journal* 3: 1–5. Accessed October 2014. http://library.crossfit.com/free/pdf/policetng_Mar03.pdf.
- Gordon, Chris. 2014. "Police Cruiser Crashes on I-95." *NBC4 Washington*, August 20. <http://www.nbcwashington.com/news/local/Police-Cruiser-Involved-in-I-95-Crash-166778096.html>.
- Greenwald, James. 2014. "Let's Look Under the Hood." Presentation at the FBI National Academy Law Enforcement Executive Development Seminar (LEEDS), June.
- Gross, Daniel J. 2012. "Prince George's Officer Says Youth Training Program Helped Fulfill His Dream." *Washington Post*, March 7. http://www.washingtonpost.com/local/prince-georges-officer-says-youth-training-program-helped-fulfill-his-dream/2012/03/05/gIQA97ZkwR_story.html.
- Gustafson, Byron G. 2012. "What's Driving Fatal Law Enforcement Collisions? A State-Level Analysis." PhD dissertation, University of Colorado.
- Hartley, Tara A., Cecil M. Burchfiel, Desta Fekedulegn, Michael E. Andrew, and John M. Violanti. 2011. "Health Disparities in Police Officers: Comparisons to the U.S. General Population." *International Journal of Emergency Mental Health* 13 (4): 211–220.
- Hester, David. 2013. "Cop Reviews Cop Car: 2013 Ford Police Interceptor Sedan Taurus." *The Truth About Cars*, March 11. <http://www.thetruthaboutcars.com/2013/03/cop-reviews-cop-car-2013-ford-police-interceptor-sedan-taurus>.

- Hoffman, Richard E., Nancy Henderson, Kelly O’Keefe, and Rachel C. Wood. 1994. “Occupational Exposure to Human Immunodeficiency Virus (HIV)-Infected Blood in Denver, Colorado, Police Officers.” *American Journal of Epidemiology* 139 (9): 910–917. <http://aje.oxfordjournals.org/content/139/9/910.short>.
- Kales, Stefanos N., Antonio Tsismenakis, Chunbai Zhang, and Elpidoforos S. Soteriades. 2009. “Blood Pressure in Firefighters, Police Officers, and Other Emergency Responders.” *American Journal of Hypertension* 22 (1): 11–20.
- Keller, J. 2012. “Applying CrossFit to Police Recruits.” *The CrossFit Journal*, August: 1–4. http://crossfitmurphy.com/wp-content/uploads/2012/08/CFJ_Cops_Keller_FINAL3.pdf.
- Lavoie, Luke. 2014. “Man Sentenced to 13 Years in Death of Prince George’s Officer, Laurel Native.” *The Baltimore Sun*, June 11. <http://www.baltimoresun.com/news/maryland/howard/laurel/ph-ll-digest-morris-0612-20140611-story.html>.
- Lonsway, Kimberly A. 2003. “Tearing Down the Wall: Problems with Consistency, Validity, and Adverse Impact of Physical Agility Testing in Police Selection.” *Police Quarterly* 6 (3): 237–277.
- Lorentz, John, Linda Hill, and Behzad Samimi. 2000. “Occupational Needlestick Injuries in a Metropolitan Police Force.” *American Journal of Preventive Medicine* 18 (2): 146–150.
- Mayhew, Claire. 2001. “Occupational Health and Safety Risks Faced by Police Officers.” *Trends and Issues in Crime and Criminal Justice*, no. 196. Canberra, Australia: Australian Institute of Criminology.
- McCormick, Amanda V., Irwin M. Cohen, and Darryl Plecas. 2011. *Nutrition and General Duty Police Work: The Case of Surrey RCMP Officers*. British Columbia, Canada: University of the Fraser Valley, Centre for Public Safety and Criminal Justice Research. https://www.ufv.ca/media/assets/ccjr/reports-and-publications/Surrey_-_Nutrition_Report.pdf.
- McLaughlin, Tracey, Gerald Reaven, Fahim Abbasi, Cindy Lamendola, Mohammed Saad, David Waters, et al. 2005. “Is There a Simple Way to Identify Insulin-Resistant Individuals at Increased Risk of Cardiovascular Disease?” *The American Journal of Cardiology* 96 (3): 399–404.
- Mohr, David, Kumar Vedantham, Thomas Neyland, Thomash J. Metzler, Suzanne Best, and Charles R. Marmar. 2003. “The Mediating Effects of Sleep in the Relationship between Traumatic Stress and Health Symptoms in Urban Officers.” *Psychosomatic Medicine* 65 (3):485–489.
- Morales, Walter. 2010. “Suicide Prevention across the Army.” Paper presented at the U.S. Department of Justice and U.S. Department of Veterans Affairs Suicide Prevention Conference.
- National Law Enforcement Officers Memorial Fund. 2014. *Preliminary 2014 Law Enforcement Officer Fatalities Report*. Accessed August 24, 2015. <http://www.nleomf.org/assets/pdfs/reports/Preliminary-2014-Officer-Fatalities-Report.pdf>.
- . 2015. “Causes of Law Enforcement Deaths.” Accessed April 24, 2015. <http://www.nleomf.org/facts/officer-fatalities-data/causes.html>.
- . 2015. “NHTSA Officer Safety Initiatives.” Accessed August 24, 2015. <http://www.nleomf.org/facts/nhtsa-officer-safety-initiatives>.
- Officer Down Memorial Page. 2014. “Honoring Officers Killed in [choose year].” Accessed October 2014. <http://www.odmp.org/search/year?year=2012>.

- Oron-Gilad, Tal, James L. Szalma, S.C. Stafford, and P.A. Hancock. 2005. "Police Officers Seat Belt Use While on Duty." *Transportation Research Part F: Traffic Psychology and Behaviour* 8 (1): 1–18.
- Otvos, James D., Samia Mora, Irina Shalaurova, Philip Greenland, Rachel H. Mackey, and David Goff. 2011. "Clinical Implications of Discordance between Low-Density Lipoprotein Cholesterol and Particle Number." *Journal of Clinical Lipidology* 5 (2): 105–113.
- Pagane, J., A. Chanmugam, T. Kirsch, and G.D. Kelen. 1996. "New York City Police Officers Incidence of Transcutaneous Exposures." *Occupational Medicine* 46 (4): 285–288.
- Parker, Jack. 2011. *Florida Mortality Study: Florida Law Enforcement and Corrections Officers Compared to the Florida General Population*. Titusville, FL: Brevard County Sheriff's Office. http://www.floridastatefop.org/pdf_files/floridamortalitystudy.pdf.
- Parsley, Kirk. 2014. *America's Biggest Problem* (video) from TEDx via YouTube. <http://tedxtalks.ted.com/video/America-s-BIGGEST-Problem-%7C-Kir>.
- . 2014. "The Science of Sleep: How Sleep Relates to Optimal Health and Performance." Paper presented to the Reno (Nevada) Police Department, September 10.
- Patterson, Bernie L. 1992. "Job Experience and Perceived Job Stress among Police, Correctional, and Probation/Parole Officers." *Criminal Justice and Behavior* 19 (3): 260–285.
- Pearsall, Beth. 2012. "Sleep Disorders, Work Shifts and Wellness in Officers." *National Institute of Justice Journal* 20:36–39.
- Pitts, Steven. 2012. "Resiliency as a Path to Wellness." Paper presented to the International Association of Chiefs of Police, San Diego, California, December 18.
- Quigley, Adrienne. 2008. "Fit for Duty? The Need for Physical Fitness Programs in Law Enforcement." *The Police Chief* 75 (6). http://www.policchiefmagazine.org/magazine/index.cfm?fuseaction=display_arch&article_id=1516&issue_id=62008.
- Rachele, Jerome N., Kristiann C. Heesch, and Tracy L. Washington. 2014. "Wellness Programs at Firefighter and Police Workplaces: A Systematic Review." *Health Behavior and Policy Review* 1 (4): 302–313.
- Rajaratnam, Shantha M.W., Laura K. Barger, Steven W. Lockley, Steven A. Shea, Wei Wang, Christopher P. Landrigan, et al. 2011. "Sleep Disorders, Health, and Safety in Police Officers." *JAMA* 306 (23): 2567–2578. <http://jama.jamanetwork.com/article.aspx?articleid=1104746>.
- Reaven, Gerald, Terry Kirsten Strom, and Barry Fox. 2001. *Syndrome X: Overcoming the Silent Killer that Can Give You a Heart Attack*. New York: Simon and Schuster.
- Reaves, Brian A. 2009. *State and Local Law Enforcement Training Academies, 2006*. Special Report. Washington, DC: Bureau of Justice Statistics. <http://www.bjs.gov/content/pub/pdf/slleta06.pdf>.
- . 2011. *Census of State and Local Law Enforcement Agencies, 2008*. Washington, DC: Bureau of Justice Statistics. <http://www.bjs.gov/content/pub/pdf/cslea08.pdf>.
- Richmond, Robyn L., Alex Wodak, Linda Kehoe, and Nick Heather. 1998. "How Healthy Are the Police? A Survey of Lifestyle Factors." *Addiction* 93 (11): 1729–1737.

- Roberts, Nicole A., and Robert W. Levenson. 2001. "The Remains of the Workday: Impact of Job Stress and Exhaustion on Marital Interaction in Police Couples." *Journal of Marriage and the Family* 63 (4): 1052–1067.
- Sherman, Lawrence W., Denise C. Gottfredson, Doris L. MacKenzie, John Eck, Peter Reuter, and Shawn D. Bushway. July 1997. *Preventing Crime: What Works, What Doesn't, What's Promising*. National Institute of Justice: Research in Brief. Washington, DC: Office of Justice Programs. <https://www.ncjrs.gov/pdffiles/171676.PDF>.
- Smith, J.E., and G. Gregory Tooker. 2014. "Health and Fitness in Law Enforcement: A Voluntary Model Program Response to a Critical Issue." *CALEA Update Magazine* 87. <http://www.calea.org/calea-update-magazine/issue-87/health-and-fitness-law-enforcement-voluntary-model-program-response-c>.
- Stawinski III, Hank. 2014. "Buckle Up, Slow Down, Pay Attention. Arrive Alive." *The Police Chief* 81 (October): 122–123.
- Stearns, Gerry M., and Robert J. Moore. 1993. "The Physical and Psychological Correlates of Job Burnout in the Royal Canadian Mounted Police." *Canadian Journal of Criminology* 35 (2): 127–148.
- Stew Smith Fitness. 2015. "Preparing Americans to Serve in the Military." Accessed October 15, 2015. <http://www.stewsmith.com/>.
- Superko, H.R., and L. Tucker. 2003. *Before the Heart Attacks: A Revolutionary Approach to Detecting, Preventing, and Even Reversing Heart Disease*. Emmaus, PA: Rodale Press.
- Taubes, Gary. 2010. *Why We Get Fat: And What To Do About It*. New York: Alfred A. Knopf.
- Teicholz, Nina. 2014. "The Last Anti-Fat Crusaders." *Wall Street Journal*, October 29.
- Tiesman, Hope M., Scott A. Hendricks, Jennifer L. Bell, and Harlan A. Amandus. 2010. "Eleven Years of Occupational Mortality in Law Enforcement: The Census of Fatal Occupational Injuries, 1992–2002." *American Journal of Industrial Medicine* 53 (9): 940–949.
- Toch, Hans. 2002. *Stress in Policing*. Washington, DC: American Psychological Association.
- Tooker, G. Gregory, and David D. Cashwell. 2008. "Revisiting the Fitness and Health in Law Enforcement Model Program." *CALEA Update Magazine* 96. <http://www.calea.org/calea-update-magazine/issue-96/revisiting-fitness-health-law-enforcement-model-program>.
- U.S. Department of Homeland Security. 2008. *National Incident Management System*. Washington, DC: Department of Homeland Security. https://www.fema.gov/pdf/emergency/nims/NIMS_core.pdf.
- U.S. Marine Corps. 2006. *A Concept for Functional Fitness*. Washington, DC: U.S. Marine Corps. <http://www.crossfit.com/journal/library/USMCFunctionalFitnessConcept.pdf>.
- Vila, Bryan, and Byron G. Gustafson. 2011. "The Ongoing Crisis: Officer-Involved Collisions—Why They Happen and What Can Be Done." California Peace Officer. Accessed October 13, 2015. <http://californiapeaceofficer.org/2011/04/the-ongoing-crisis-officer-involved-collisions-why-they-happen-and-what-can-be-done/>.
- Vila, Bryan, Gregory B. Morrison, and Dennis J. Kenney. 2002. "Improving Shift-Schedule and Work-Hour Policies and Practices to Increase Police Office Performance, Health, and Safety." *Police Quarterly* 5 (1): 4–24.
- Violanti, John M. 1997. "Suicide and the Police Role: A Psychosocial Model." *Policing: An International Journal of Police Strategy and Management* 20 (4): 698–715.

- von Kuenssberg, Dietrich Jehle, David G. Wagner, James Mayrose, and Usman Hashmi. 2005. "Seat Belt Use by Police: Should They Click It?" *Journal of Trauma and Acute Care Surgery* 58 (1): 119–120. doi:10.1097/01.TA.0000105887.89467.E5.
- Warren, Franke D., Shannon A. Collins, and Paul N. Hinz. 1998. "Cardiovascular Disease Morbidity In an Iowa Law Enforcement Cohort, Compared with the General Iowa Population." *Journal of Occupational and Environmental Medicine* 40 (5): 441–444.
- Winwood, Peter C., Michelle R. Tuckey, Roger Peters, and Maureen F. Dollard. 2009. "Identification and Measurement of Work-Related Psychological Injury: Piloting the Psychological Injury Risk Indicator among Frontline Police." *Journal of Occupational and Environmental Medicine* 51 (9): 1057–1065.
- Wolf, Robb. 2010. *The Paleo Solution: The Original Human Diet*. Las Vegas: Victory Bell Publishing.
- Zamzow, Aaron. 2014. "Is CrossFit Right for You?" *FireRescue Magazine*, October.
- Zapatosky, Matt. 2012. "Prince George's Officer Killed in Beltway Crash." *Washington Post*, August 20. http://www.washingtonpost.com/local/crime/prince-georges-officer-killed-in-beltway-crash/2012/08/20/60872238-eb0d-11e1-a80b-9f898562d010_story.html.
- Zhao, Jihong S., Ni He, and Nicholas Lovrich. 2002. "Predicting Five Dimensions of Police Officer Stress: Looking More Deeply into Organizational Settings for Sources of Police Stress." *Police Quarterly* 5 (1): 43–61.
- Zimmerman, Franklin H. 2012. "Cardiovascular Disease and Risk Factors in Law Enforcement Personnel: A Comprehensive Review." *Cardiology in Review* 20 (4): 159–166. doi:10.1097/CRD.0b013e318248d631.

About the COPS Office

The Office of Community Oriented Policing Services (COPS Office) is the component of the U.S. Department of Justice responsible for advancing the practice of community policing by the nation's state, local, territorial, and tribal law enforcement agencies through information and grant resources.

Community policing begins with a commitment to building trust and mutual respect between police and communities. It supports public safety by encouraging all stakeholders to work together to address our nation's crime challenges. When police and communities collaborate, they more effectively address underlying issues, change negative behavioral patterns, and allocate resources.

Rather than simply responding to crime, community policing focuses on preventing it through strategic problem solving approaches based on collaboration. The COPS Office awards grants to hire community police and support the development and testing of innovative policing strategies. COPS Office funding also provides training and technical assistance to community members and local government leaders, as well as all levels of law enforcement.

Another source of COPS Office assistance is the Collaborative Reform Initiative for Technical Assistance (CRI-TA). Developed to advance community policing and ensure constitutional practices, CRI-TA is an independent, objective process for organizational transformation. It provides

recommendations based on expert analysis of policies, practices, training, tactics, and accountability methods related to issues of concern.

Since 1994, the COPS Office has invested more than \$14 billion to add community policing officers to the nation's streets, enhance crime fighting technology, support crime prevention initiatives, and provide training and technical assistance to help advance community policing.

- To date, the COPS Office has funded the hiring of approximately 127,000 additional officers by more than 13,000 of the nation's 18,000 law enforcement agencies in both small and large jurisdictions.
- Nearly 700,000 law enforcement personnel, community members, and government leaders have been trained through COPS Office-funded training organizations.
- To date, the COPS Office has distributed more than eight million topic-specific publications, training curricula, white papers, and resource CDs.
- The COPS Office also sponsors conferences, roundtables, and other forums focused on issues critical to law enforcement.

The COPS Office information resources, covering a wide range of community policing topics—from school and campus safety to gang violence—can be downloaded at www.cops.usdoj.gov. This website is also the grant application portal, providing access to online application forms.

In this publication, the Major Cities Chiefs Association and the U.S. Department of Justice's Officer Safety and Wellness (OSW) Group present four recent case studies that serve as models for safety, health, and wellness programs focused on the physical and psychological health of officers. The OSW Group conducted site visits, assessed programs, and questioned participants to identify practical strategies for reducing the incidence of diabetes, promoting physical fitness, providing rehabilitation services, and addressing other health issues.



COPS

Community Oriented Policing Services
U.S. Department of Justice

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