



Assistant Chief Suffers Heart Attack and Dies after Completing a Walk Test – Montana

SUMMARY

On June 8, 2004, a 46-year-old male volunteer Assistant Chief (AC) performed the Walk Test portion of the U.S. Forest Service Work Capacity Test (WCT). The Walk Test requires an individual to complete a 1-mile walk within 16 minutes; the AC completed the walk in approximately 14 minutes. After the test, he told other fire fighters he was short of breath. He drove home and began experiencing heart palpitations and a rapid heart rate. After an hour at home with no symptom abatement, he drove to his fire station in search of an emergency medical technician (EMT) to check his pulse and blood pressure. Upon finding no EMT at the fire station he drove back home approximately 10 minutes later. Shortly after returning home, he collapsed in front of his wife, who called 911. Despite cardiopulmonary resuscitation (CPR) and advanced life support (ALS) performed by crew members, ambulance service EMTs, and paramedics, the AC died. Due to the rural location of the incident, the AC was not transported to a hospital. The Deputy County Coroner pronounced the AC dead at the scene from a “sudden cardiac event” due to “acute coronary thrombosis.” The autopsy performed by the State Medical Examiner listed “sudden arrhythmia” as the immediate cause of death and “acute coronary artery thrombosis” as a contributing factor.

The NIOSH investigator concluded the physical stress of walking briskly and the AC underlying atherosclerotic CAD contributed to his sudden cardiac death.

Recommendations 1–3 below address safety issues unique to this event. Recommendations 4–6 are preventive measures often recommended by fire service groups to reduce the risk of on-the-job heart attacks and sudden cardiac arrest among fire fighters.

Check WCT participants’ vital signs before and after testing.

Use a secondary (technological) test to confirm appropriate placement of the endotracheal (ET) tube during emergency intubations.

Modify Section B of the Health Screening Questionnaire (HSQ) in the Administrators Guide for the Work Capacity Test to include all cardiovascular risk factors identified by the American Heart Association/American College of Cardiology (AHA/ACC).

Provide pre-placement and periodic medical evaluations to ALL fire fighters consistent with NFPA 1582 or equivalent to determine medical ability to perform duties without presenting a significant risk to the safety and health of themselves or others.

Conduct exercise stress tests for male fire fighters above the age of 45 with two or more risk factors for coronary artery disease (CAD).

Phase in a mandatory wellness/fitness program for fire fighters to reduce risk factors for cardiovascular disease and improve cardiovascular capacity.

INTRODUCTION & METHODS

On June 8, 2004, a 46-year-old male Assistant Chief (AC) suffered a heart attack and died at home after performing a U.S. Forest Service Work Capacity Test (WCT). Despite CPR and ALS performed by crew members and ambulance service personnel, the AC died. The United States Fire Administration notified NIOSH of this fatality on June 14, 2004.

The **Fire Fighter Fatality Investigation and Prevention Program** is conducted by the National Institute for Occupational Safety and Health (NIOSH). The purpose of the program is to determine factors that cause or contribute to fire fighter deaths suffered in the line of duty. Identification of causal and contributing factors enable researchers and safety specialists to develop strategies for preventing future similar incidents. The program does not seek to determine fault or place blame on fire departments or individual fire fighters. To request additional copies of this report (specify the case number shown in the shield above), other fatality investigation reports, or further information, visit the Program Website at www.cdc.gov/niosh/firehome.html or call toll free 1-800-35-NIOSH



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NIOSH contacted the affected Fire Department (FD) on September 7, 2004, to obtain further information and on September 8, 2004, to initiate the investigation. On September 27, 2004, a Safety and Occupational Health Specialist from the NIOSH Fire Fighter Fatality Investigation Team traveled to Montana to conduct an on-site investigation of the incident.

During the investigation NIOSH personnel met and/or interviewed the following people:

- Fire Chief
- AC's crew members
- Ambulance service personnel
- Walk Test Administrator, State Department of Natural Resources Commission (DNRC)
- AC's wife

During the site visit NIOSH personnel reviewed the following records:

- FD training records
- FD annual response report for 2003
- Health screening questionnaire (HSQ)
- Primary care physician records
- Ambulance report
- Death certificate
- Autopsy report

INVESTIGATIVE RESULTS

On June 8, 2004, the AC worked his regular job as a lumber salesman from 0800 to 1700 hours. That day he performed desk work, waited on customers, and assisted with vehicle loading. He did not complain of angina (chest pain) or any other symptoms. At 1700 hours, he left work and stopped by his wife's workplace to explain his evening plans. At the time he reported no symptoms.

That evening the AC had a scheduled Walk Test (described below) administered by the State DNRC. He arrived at the Walk Test location around 1800 hours to perform the test along with 11 other fire fighters. Witnesses stated he looked fine and that he expressed no complaints. The DNRC Administrator reviewed each test applicant's HSQ and explained the test requirements. Two ambulance EMTs were standing by, but were not required to check the applicants' blood pressure and pulse.

The Walk Test is one type of Work Capacity Test. To pass the Walk Test, the candidate must walk 1 mile within 16 minutes wearing regular clothing (i.e., no weighted pack or bunker gear). Prior to taking the Walk Test, the candidate must complete an HSQ (see Attachment 1), developed by the U.S. Bureau of Land Management (BLM). Passing the test allows fire fighters to drive and operate fire apparatus at wildland fires on State property.

The WCT is comprised of three tests: the Walk Test, the Field Test (the candidate must walk 2 miles within 30 minutes wearing a 25-pound pack), and the Pack Test (the candidate must walk 3 miles within 45 minutes wearing a 45-pound pack). The WCTs were developed by the U.S. Forest Service (USFS) and the BLM. The State of Montana has adopted these requirements for wildland firefighters; the State's DNRC administers WCTs for state employees and seasonal/conditional employees.

The AC's Walk Test began at approximately 1805 hours. All applicants finished the test between 13:51 and 14:01 minutes (1820 hours). After the test, the AC stated that the test was really difficult and that he was short of breath. The EMTs offered to check his blood pressure and pulse, but he declined. He drove his vehicle to his home, arriving at approximately 1825 hours. While at home, he checked his heart rate (pulse) numerous times and expressed concern to his wife that his heart was still beating too hard and fast. He tried to eat some supper, but his racing heart rate reduced his appetite and made him anxious. After one hour at home with no improvement, he drove to his local FD hoping the EMTs were on duty at the station. The EMTs present at the Walk Test had gone home. Fire fighters at the FD spoke with the AC briefly, but he left abruptly and drove back home before they could obtain more information about his condition and notify the EMTs. Still concerned about his palpitations, the AC kept checking his pulse. Suddenly, while standing in the kitchen drinking a glass of water, the AC collapsed at the sink. His wife called 911 at 1952 hours and an ambulance was dispatched.

Fire fighters at the FD drove the ambulance to the scene. Meanwhile, EMTs and paramedics responded from their homes at 1956 hours, arriving at the scene at 1959 hours. Initial assessment by EMTs revealed the AC was unresponsive with no pulse and no respirations.

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The EMTs began CPR utilizing chest compressions and respirations administered via mouth-to-pocket mask. Paramedics arrived on the scene and began ALS including defibrillation, intubation, and establishing an intravenous (IV) line. A cardiac monitor with multi-function pads attached to the AC's chest revealed ventricular fibrillation (Vfib), a heart rhythm incompatible with life; three shocks (defibrillation attempts) were administered. However, his heart rhythm reverted to asystole (no heart beat). The AC was intubated (breathing tube inserted into the windpipe) successfully on the third attempt and an IV was established to administer cardiac resuscitation medications. Tube placement was confirmed by bilateral breath sounds. At 2025 hours, a paramedic reported to medical control the AC's condition and the resuscitation efforts that had been performed. Since the AC's condition had not improved, medical control ordered resuscitation efforts discontinued. At 2027 hours, the Deputy County Coroner, already on the scene, pronounced the AC dead.

Medical Findings. The death certificate, completed by the Deputy County Coroner, listed "sudden cardiac event" due to "acute coronary thrombosis" as the cause of death. Pertinent findings from the autopsy, performed by the State Medical Examiner on June 9, 2004, include:

- Enlarged heart (cardiomegaly): heart weighed 470 grams (normal < 400 grams)¹
- Ischemic heart disease:
 1. Thrombus causing total occlusion in the right coronary artery
 2. Significant narrowing (80%–90%) of the left anterior descending coronary artery
 3. Minor atherosclerosis in the circumflex artery
- No evidence of pulmonary thromboemboli
- Negative drug and alcohol tests

On the HSQ, the AC listed his weight as 230 pounds. At 72 inches tall this gives him a body mass index (BMI) of 31.2 kilograms per square meter (kg/m²). A BMI of 30 kg/m² or higher is considered obese.² In Section B (Cardiovascular Risk Factors) of the HSQ, the AC checked the box indicating he was a male 45 years of age or older. However, he failed to check two boxes that also applied to him: 20 pounds overweight, and physically inactive (gets less than 30 minutes of exercise at least 3 days per week). He also left a space for cholesterol level blank.

At his last physical evaluation (December 2003) for maintaining a commercial driver's license, the AC weighed 238 pounds, had a blood pressure of 120/90 millimeters of mercury (mmHg), (normal 120/80) and a pulse rate of 76 beats per minute (normal 60–80). Medical records obtained by NIOSH did not indicate diagnoses of hypertension, hypercholesterolemia, or diabetes mellitus. However, these records did not indicate that blood tests to screen for abnormal blood lipids and/or glucose levels were performed.

According to the DNRC Walk Test Administrator, had the AC identified additional health issues on the HSQ, he may have been referred to his primary care physician for follow-up. According to the AC's wife and FD personnel, the AC did not exercise, although he did routinely perform physically demanding activities at his regular job. Because the AC was asymptomatic while working and performing fire fighting duties, he may have believed that no health problems existed.

DESCRIPTION OF THE STATE AGENCY

At the time of the NIOSH investigation, the State DNRC administered WCTs involving wildland fire fighter certification for fire fighting on State property. In addition, the DNRC oversaw wildland fire fighting training and testing. The USFS and BLM (Federal agencies) administered WCTs involving fire fighter certification on Federal property. Local agencies (i.e., FDs) determined requirements for fighting wildland fires on private property.

Training. The DNRC requires all wildland fire fighters to have 18 hours of basic wildland fire fighting training and to pass the Work Capacity Test (Pack Test) to fight wildland fires on State property. The DNRC may elect to re-administer a Walk Test or full WCT within the year for applicants who possess a current wildland certification but have not taken a recent Walk Test, depending on the fire fighter's current condition or change in condition.

There is no State minimum requirement for structural fire fighter training. The State requires all fire fighters to obtain 30 hours of general fire fighting training annually, but the local FD determines the content of this training. The AC was certified as a Fire Fighter, Wildland Basic Fire Fighter, and EMT;



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he completed 8 hours of annual hazardous materials awareness training. He had 13 years of fire fighting experience.

Pre-placement/Pre-WCT Evaluations. The DNRC requires that candidates complete an HSQ prior to all WCTs (i.e., the Walk Test, the more arduous Field Test, and the most arduous Pack Test). The test administrator reviews the forms and determines whether to allow participants to take the test. If the test administrator is concerned that an applicant is not capable of completing the test, the administrator may require a medical clearance from the applicant's primary care physician. The State requires no pre-test physical examination other than this form review.

Periodic Medical Evaluations. No periodic medical evaluations are required by the DNRC for those fire fighters who are not permanent state employees. There is no "return-to-duty" medical clearance.

Fitness/Wellness Programs. No fitness/wellness programs are in place.

DISCUSSION

Coronary Artery Disease (CAD) and the Pathophysiology of Sudden Cardiac Death. In the United States, CAD (atherosclerosis) is the most common risk factor for cardiac arrest and sudden cardiac death.³ Risk factors for CAD development include age over 45, male gender, family history of coronary artery disease, smoking, high blood pressure (systolic >140 millimeters of mercury [mmHg] or diastolic > 90 mmHg), high blood cholesterol (total cholesterol > 240 milligrams per deciliter [mg/dL]), obesity/physical inactivity, and diabetes.^{4,5} The AC had four of these risk factors (age over 45, male gender, smoking, and obesity).

The narrowing of the coronary arteries by atherosclerotic plaques occurs over many years, typically decades.⁶ However, the growth of these plaques probably occurs in a nonlinear, often abrupt fashion.⁷ Heart attacks typically occur with the sudden development of complete blockage (occlusion) in one or more coronary arteries that has not developed a collateral blood supply.⁸ This sudden blockage is primarily due to blood clots (thrombosis) forming on top of atherosclerotic plaques. The AC's autopsy noted a blood clot and evidence of atherosclerotic disease in his

coronary arteries confirming a heart attack, otherwise known as a myocardial infarction (MI).

Atherosclerosis in a coronary artery may cause ischemic heart disease, which occurs when the blood flow within a coronary artery, probably the right coronary artery in this case, is limited to the point that the oxygen needs of the heart muscle cannot be met. Chronic ischemic heart disease causes hypertrophy of the heart muscle and cardiomegaly. Ischemia, cardiomegaly, or MI, independently or in combination, increase the risk of cardiac arrhythmia and sudden cardiac death. However, in this case, the MI probably caused the sudden cardiac death.

Angina is the most common presenting symptom of myocardial ischemia and underlying CAD, but in some people the first evidence of CAD may be MI or sudden death; up to 20% of heart attacks are "silent," (i.e., painless).^{6,9} The AC did not report episodes of chest pain during physical activity, while performing duties as a fire fighter, or at his regular job.

Epidemiologic studies have found that heavy physical exertion sometimes immediately precedes and triggers the onset of acute heart attacks.¹⁰⁻¹³ The AC walked for 1 mile within a 14-minute timeframe. This is considered a moderate level of physical exertion.^{14,15} The physical stress of walking briskly in combination with the underlying atherosclerotic CAD contributed to the AC's sudden cardiac death.

Occupational Medical Standards for Wildland and Structural Fire Fighters. National Fire Equipment System (NFES) Standard 1596, *Fitness and Work Capacity*, provides information on fitness, work capacity, nutrition, hydration, the environment, work hardening, and injury prevention. It requires medical clearance for return to work, but not for pre-placement, periodic, or pre-WCT.¹⁶ NFES 1596 refers to the American College of Sports Medicine (ACSM) recommendation for a medical examination for persons who are over the age of 40, or who have heart disease risk factors (smoking, high blood pressure, elevated cholesterol), or who have been sedentary and plan a major increase in activity.¹⁶ For many others, a simple health screening questionnaire ensures readiness to engage in training, work, or a job-related WCT.¹⁶ The AC had at least two of these ACSM triggers for a medical evaluation, but he did not check these items in Section B of the HSQ.



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NFES 1109, *Work Capacity Test Administrator's Guide*, addresses requirements and recommendations for performing the WCT Pack Test. It does not require a pre-WCT medical examination for all applicants.¹⁷ When a medical examination is required, no blood testing for lipid and glucose levels is performed nor are exercise stress tests considered.

NFPA 1051, *Wildland Fire Fighter Professional Qualifications*, addresses medical and job-related physical performance requirements for entry-level wildland fire fighters. It recommends that the jurisdictional authority determine what those requirements shall be.¹⁸

NFPA 1582, *Standard on Comprehensive Occupational Medical Program for Fire Departments*, establishes medical requirements for structural fire fighters.¹⁹ It stipulates conducting medical evaluations of candidates prior to training programs or participation in departmental emergency response activities. These requirements could be modified for individuals involved in suppressing wildland fires.¹⁹

Use of Exercise Stress Tests (EST) to Screen for CAD. Could this AC's underlying CAD have been identified earlier? To reduce the risk of sudden cardiac arrest or other incapacitating medical conditions among fire fighters, the NFPA developed Standard 1582.¹⁹ To screen for CAD, NFPA 1582 recommends an exercise stress test (EST) for asymptomatic fire fighters with two or more of the following risk factors for CAD:

- Family history of premature (first degree relative less than age 60) cardiac event
- Hypertension (diastolic blood pressure greater than 90 mmHg)
- Diabetes mellitus
- Cigarette smoking
- Hypercholesterolemia (total cholesterol greater than 240 mg/dL).¹⁹

The AHA/ACC states conducting EST on asymptomatic individuals is "less well established" (Class IIb) for the following groups:

1. Evaluation of persons with multiple risk factors as a guide to risk-reduction therapy with the risk factors essentially the same as the NFPA listed above.

2. Evaluation of asymptomatic men older than 45 years, and women older than 55 years who are:
 - sedentary and plan to start vigorous exercise
 - involved in occupations in which impairment might jeopardize public safety (e.g., fire fighters)
 - at high risk for CAD due to other diseases (e.g., peripheral vascular disease and chronic renal failure).²⁰

Another organization involved in the subject is the U.S. Department of Transportation (DOT). To obtain medical certification for a commercial drivers license, DOT recommends EST for drivers over the age of 45 with more than two CAD risk factors.²¹ Finally, the U.S. Preventive Services Task Force (USPSTF) does not recommend EST for asymptomatic individuals, even those with risk factors for CAD; rather, they recommend diagnosing and treating modifiable risk factors (hypertension, high cholesterol, smoking, and diabetes).²² The USPSTF indicates that there is insufficient evidence to recommend screening middle age and older men or women in the general population but notes that, "screening individuals in certain occupations (pilots, truck drivers, etc.) can be recommended on other grounds, including the possible benefits to public safety."²² The National Wildfire Coordinating Group guidelines (NFES 1596 and NFES 1109) follow the USFS guidelines. Neither organization requires an EST for asymptomatic individuals.

Since the AC had only one known CAD risk factor for EST determination (smoking), an EST would **NOT** have been recommended by NFPA, AHA/ACC, DOT, or the USPSTF. However, a mandatory comprehensive wellness/fitness program, including weight reduction, dietary education, and exercise would have benefited the AC.

RECOMMENDATIONS

Recommendations 1–3 below address safety issues unique to this event. Recommendations 4–6 are preventive measures often recommended by fire service groups to reduce the risk of on-the-job heart attacks and sudden cardiac arrest among fire fighters.

Recommendation #1: Check WCT participants' vital signs before and after testing.

NFES 1109, *Work Capacity Test Administrator's Guide*, requires that an EMT (or someone with equivalent



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qualifications) observe candidates during and after the test to provide emergency medical assistance, if needed.¹⁷ The EMT should take participant vital signs (pulse, blood pressure, and respirations) before and after the WCT to ensure that the participant does not have a precluding condition prior to the test and that the participant's vital signs return to normal levels after the test.

Recommendation #2: *Use a secondary (technological) test to confirm appropriate placement of the endotracheal (ET) tube during emergency intubations.*

To reduce the risk of improper intubation, the American Heart Association and the International Liaison Committee on Resuscitation published recommendations in the *Guidelines 2000 for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care*.²³ These guidelines recommend confirming tube placement by primary and secondary methods. Primary confirmation is the 5-point auscultation: left and right anterior chest, left and right midaxillary, and over the stomach. Secondary confirmation requires a technology test, either an end-tidal carbon dioxide detector or an esophageal detector device. In this incident, the AC had bilateral breath sounds confirmed by auscultation, however secondary confirmation was not performed.

The medical professional performing intubation should perform this task to ensure proper tube placement and adequate oxygen delivery.

Recommendation #3: *Modify Section B of the Health Screening Questionnaire (HSQ) in the Administrators Guide for the Work Capacity Test to include all cardiovascular risk factors identified by the American Heart Association/American College of Cardiology (AHA/ACC).*

The HSQ, located in Appendix B of the *WCT Administrator's Guide*,¹⁷ does not cover all CAD risk factors identified by the AHA/ACC. Specifically, the HSQ includes no question regarding smoking status. In addition, some questions are ambiguous (e.g., Are you more than 20 pounds overweight?) without giving the fire fighter any guidance regarding ideal body weight, such as body mass index. We suggest replacing these yes/no questions with questions that require the fire fighter to enter specific information (see Attachment 2). The WCT Administrator would then make the decision whether the fire fighter was fit to perform the WCT.

Using these questions puts more responsibility on fire fighters to know the results of their medical tests. The State should modify the HSQ to ensure adequate and appropriate information regarding the health status of the fire fighter is identified.

Recommendation #4: *Provide pre-placement and periodic medical evaluations to ALL fire fighters consistent with NFPA 1582 or equivalent to determine medical ability to perform duties without presenting a significant risk to the safety and health of themselves or others.*

Guidance regarding the content and frequency of pre-placement and periodic medical evaluations and examinations for structural fire fighters is available in NFPA 1582, *Standard on Comprehensive Occupational Medical Program for Fire Departments*,¹⁹ and in the report of the International Association of Fire Fighters/International Association of Fire Chiefs (IAFF/IAFC) *Wellness/Fitness Initiative*.²⁴ The State is not legally required to follow any of these standards but should implement the recommendations to ensure the health and safety of its' employees.

To be successful, medical programs must protect fire fighter confidentiality and employment. The State must:

- Keep the medical records confidential.
- Provide alternate duty positions for fire fighters in rehabilitation programs.
- Provide permanent alternate duty positions or other supportive and/or compensated alternatives for fire fighters not medically qualified to return to active fire fighting duties.

The medical evaluation could be conducted by the fire fighter's primary care physician or a state-contracted physician. If the evaluation is performed by the fire fighter's primary care physician, the results must be communicated to a State-contracted physician, who should be responsible for decisions regarding medical clearance for fire fighting duties.

Recommendation #5: *Conduct exercise stress tests for male fire fighters above the age of 45 with two or more CAD risk factors for coronary artery disease.*

NFPA 1582 and the IAFF/IAFC *Wellness/Fitness Initiative* recommend EST for fire fighters with two



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or more CAD risk factors.^{19,24} The AHA states that EST may be indicated for individuals over 45 years of age with two or more risk factors for CAD.²⁰ The EST could be conducted by the fire fighter's personal physician or the State-contracted physician. If the fire fighter's personal physician conducts the test, the results must be communicated to the State-contracted physician, who should be responsible for decisions regarding medical clearance for fire fighting duties. The State should ensure EST are conducted during the fire fighters' physical evaluation.

Recommendation #6: Phase in a mandatory wellness/fitness program for fire fighters to reduce risk factors for cardiovascular disease and improve cardiovascular capacity.

Physical inactivity is the most prevalent modifiable risk factor for CAD in the United States. Additionally, physical inactivity, or lack of exercise, is closely associated with two other risk factors: obesity and diabetes.²⁵ NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*, requires a wellness program that provides health promotion activities for preventing health problems and enhancing overall well-being.²⁶ NFPA 1583, *Standard on Health-Related Fitness Programs for Fire Fighters*, provides the minimum requirements for a health-related fitness program.²⁷

In 1997, the International Association of Fire Fighters (IAFF) and the International Association of Fire Chiefs (IAFC) published a comprehensive *Fire Service Joint Labor Management Wellness/Fitness Initiative* to improve fire fighter quality of life and maintain physical and mental capabilities of fire fighters. Ten fire departments across the United States joined this effort to pool information about their physical fitness programs and to create a practical fire service program. They produced a manual and a video detailing elements of such a program.²⁴ NFES 1596 also addresses physical conditioning programs to ensure and maintain fire fighter fitness for duty.¹⁶ Large-city negotiated programs can also be reviewed as potential models. Wellness programs have been shown to be cost effective, typically by reducing the number of work-related injuries and lost work days.²⁸⁻³⁰ A similar cost savings has been reported by the wellness program at the Phoenix Fire Department, where a 12-year commitment has resulted in a significant

reduction in disability pension costs.³¹ The State should implement this recommendation to reduce CAD risk factors and improve cardiovascular capacity.

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ATTACHMENT 1

Health Screening

FS-5100-31 (Rev. date 12/20/00)
OMB 0596-0164

HEALTH SCREENING QUESTIONNAIRE (HSQ)

Assess your health needs by marking all true statements.

SECTION A—HISTORY

YOU HAVE HAD:

- A heart attack
- Heart surgery
- Coronary angioplasty (PTCA)
- Pacemaker/implantable cardiac defibrillator/rhythm disturbance

- Heart valve disease
- Heart failure
- Heart transplantation
- Congenital heart disease
- Personal experience or a doctor's advice of any other physical reason that would prohibit you from carrying out the duties of a wildland firefighter

SYMPTOMS:

- You experience chest discomfort with exertion.
- You experience unreasonable breathlessness
- You experience dizziness, fainting, blackouts
- You have musculoskeletal problems, spine, knees, etc.

OTHER HEALTH ISSUES:

- You are pregnant
- You take prescription or over-the-counter medication(s), list: _____
- You take heart medications

SECTION B—CARDIOVASCULAR RISK FACTORS

- You are a man 45 years of age or older
- You are a woman over 55 years old, or you have had a hysterectomy, or you are postmenopausal
- Your blood pressure is greater than 140/90, or you don't know your blood pressure, or you take blood-pressure medication
- You are more than 20 pounds overweight
- You are physically inactive (i.e., you get less than 30 minutes of physical activity at least 3 days per week)

- Your blood cholesterol level is greater than 240 g/dl, or you don't know your cholesterol level, or you take cholesterol medication
- You have a close blood relative who had a heart attack before age 55 (father or brother), or age 65 (mother or sister)
- You are a diabetic or take medicine to control your blood sugar

PRIVACY STATEMENT—The information obtained in the completion of this form is used to help determine whether an individual being considered for wildland firefighting can carry out those duties in a manner that will not place the candidate unduly at risk due to inadequate physical fitness and health. Its collection and use are consistent with the provisions of 5 USC 552a (Privacy Act of 1974).

PAPERWORK REDUCTION ACT STATEMENT—Under the Paperwork Reduction Act of 1995, no person is required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control for this information collection is 0596-0164. Public Report Burden hour is estimated to average 2.5 minutes per response including the time for reviewing instruction (if any) hearing a description of the project. Send comments regarding burden estimate of any other aspect of this survey, including suggestions for reducing burden to: Information Collection Officer, USDA Forest Service; 1621 North Kent St., Room 800 RPE, Arlington, VA 22209, and to the Office of Management and Budget, Office of Regulatory Affairs, Desk Officer for Forest Service, Washington, DC 20503.

NAME: _____

DATE: _____



Assistant Chief Suffers Heart Attack and Dies After Completing Walk Test – Montana

ATTACHMENT 2

History:

- Male older than 45 years
- Female older than 55 years
- Father or brother has had a heart attack before age 55
- Mother or sister has had a heart attack before age 65
- Smoker
- Previously diagnosed with hypertension (high blood pressure)
 - o Take prescription medication for high blood pressure
 - o Most recent blood pressure measurement
 - o Date of most recent blood pressure measurement
- Previously diagnosed with hypercholesterolemia/hyperlipidemia (high blood cholesterol)
 - o Take prescription medication for high blood cholesterol
 - o Most recent cholesterol levels [e.g., low density lipoprotein (LDL), total cholesterol/high density lipoprotein (HDL) ratio]
 - o Date of most recent cholesterol measurement
- Previously diagnosed with diabetes mellitus
 - o Take prescription medication for diabetes
 - o Most recent blood sugar measurement

Department of Health and Human Services

Centers for Disease Control and Prevention

National Institute for Occupational Safety and Health

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