

Fit for Duty, Fit for Life:
Firefighter Physicals and the Volunteer Fire Service



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Objectives

- Understanding the **NEED** for physicals in the volunteer fire service.
- Understanding the **different types** of physicals that are available to firefighters.
- Understanding the **costs** that fire departments may expect.



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What the public sees



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What we see



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Risks

- Heat Exhaustion
- Burns
- PTSD
- Respiratory
- Hazmat
- Cardiovascular
- Cancer



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Firefighting and the Heart

- Firefighting is widely recognized as a hazardous occupation.
- Strenuous physical activity
- emotional stress
- Environmental pollutants
- Increase the risk of cardiovascular disease (CVD) events among susceptible individuals.

Firefighting and the Heart Implications for Prevention published by Stefanos N. Kales, MD & Denise L. Smith, PhD



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HEART-HEALTHY FIREFIGHTER PROGRAM

- America's firefighters and emergency services personnel save lives and property as first responders to man-made and natural disasters, but these responders face a great, although often ignored, risk. **Every year, around half of all firefighter deaths are attributed to heart attacks**, which is the leading cause of on-duty firefighter fatalities.



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In a way, we are this.



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13 Essential Job Tasks

1. While wearing personal protective ensembles and self contained breathing apparatus (SCBA), performing firefighting tasks (e.g., hoseline operations, extensive crawling, lifting and carrying heavy objects, ventilating roofs or walls using power or hand tools, forcible entry), rescue operations, and other emergency response actions under stressful conditions including working in extremely hot or cold environments for prolonged time periods



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13 Essential Job Tasks

2. Wearing an SCBA, which includes a demand valve-type positive-pressure facepiece or HEPA filter masks, which requires the ability to tolerate increased respiratory workloads

3. Exposure to toxic fumes, irritants, particulates, biological (infectious) and non-biological hazards, and/or heated gases, despite the use of personal protective ensembles and SCBA



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13 Essential Job Tasks

4. Depending on the local jurisdiction, climbing six or more flights of stairs while wearing a fire protective ensemble, including SCBA, weighing at least 50 lb or more and carrying equipment/tools weighing an additional 20 to 40 lb

5. Wearing a fire protective ensemble, including SCBA, that is encapsulating and insulated, which will result in significant fluid loss that frequently progresses to clinical dehydration and can elevate core temperature to levels exceeding 102.2°F



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13 Essential Job Tasks

6. While wearing personal protective ensembles and SCBA, searching, finding, and rescue-dragging or carrying victims ranging from newborns to adults weighing over 200 lb (90 kg) to safety despite hazardous conditions and low visibility

7. While wearing personal protective ensembles and SCBA, advancing water-filled hoselines up to 2 1/2 inches in diameter from fire apparatus to occupancy (approximately 150 ft), which can involve negotiating multiple flights of stairs, ladders, and other obstacles



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13 Essential Job Tasks

8. While wearing personal protective ensembles and SCBA, climbing ladders, operating from heights, walking or crawling in the dark along narrow and uneven surfaces that might be wet or icy, and operating

9. Unpredictable emergency requirements for prolonged periods of extreme physical exertion without benefit of warm-up, scheduled rest periods, meals, access to medication(s), or hydration

10. Operating fire apparatus or other vehicles in an emergency mode with emergency lights and sirens



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13 Essential Job Tasks

11. Critical, time-sensitive, complex problem solving during physical exertion in stressful, hazardous environments, including hot, dark, tightly enclosed spaces, that is further aggravated by fatigue, flashing lights, sirens, and other distractions

12. Ability to communicate (give and comprehend verbal orders) while wearing personal protective ensembles and SCBA under conditions of high background noise, poor visibility, and drenching from hoselines and/or fixed protection systems (sprinklers)



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13 Essential Job Tasks

13. Functioning as an integral component of a team, where sudden incapacitation of a member can result in mission failure or in risk of injury or death to civilians or other team members

Are any or all of these job tasks applicable to your department?



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2018 by the numbers...

82 firefighters died while on duty

37 died of stress or overexertion, and 33 of those deaths were caused by heart attack

3 due to CVA (Stroke)

1 due to heart failure



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How can we prevent this?



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Everyone Goes Home 16 Firefighter Life Safety Initiatives developed by the National Fallen Firefighters Foundation

- # 6 Medical & Physical Fitness
- Develop and implement national **medical and physical fitness standards** that are equally applicable to all firefighters, based on the duties they are expected to perform.



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NVFC Position on Physicals

“It is important that firefighters have an **annual medical assessment**, but many do not. In some cases, firefighters may not have health insurance or even a personal physician to conduct or consult with regarding the results of the assessment. Additionally, it can be cost-prohibitive or administratively challenging for many departments to implement an assessment program.”



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Fire Department Precious Resources

- Invest in your **People**
- Wellness/Fitness Programs
- Heart Healthy Environment & Culture
- Functionally and Tactfully Fit Firefighters
- Personal Responsibility
- SOG/SOP's



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Everyone Goes Home 16 Firefighter Life Safety Initiatives developed by the National Fallen Firefighters Foundation

- **#1 Cultural Change**
- Define and advocate the need for a cultural change within the fire service relating to safety; incorporating leadership, management, supervision, accountability and **personal responsibility**.



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What is a medical evaluation?

Where the department selects a physician or other licensed healthcare professional, such as a registered nurse or physician's assistant, to perform an evaluation on a person to see if they are capable of performing their duties as a firefighter after considering health, specific job description, and workplace conditions.



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A Healthcare Provider's Guide to Firefighter Physicals



Healthcare Provider's Guide to Firefighter Physicals was developed by the IAFC and is available for you to bring to your physician to help them understand the physiological demands of firefighting and the resulting health risks research shows firefighters are most prone to.



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Medical Evaluation

- Gives the doctor the general status or a **baseline** of a firefighter's health prior to beginning their career.
- Current members will continue to receive physicals, ideally on an annual basis, allowing them the opportunity to update their physician with any complaints or concerns.



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Medical Evaluation

- Doctors will “quiz,” members to identify lifestyle behaviors such as smoking, drinking, diet, fitness, and even sexual health.
- This often gives firefighters a chance to **update** family history and receive further vaccinations.



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Where to start?



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1. The fire department shall establish a **comprehensive occupational medical program** that includes medical evaluations for candidates and members.
2. The fire department shall have an officially designated physician who shall be responsible for guiding, directing, and advising the members with regard to their health, fitness, and suitability for duty as required by NFPA 1500, Standard on Fire Department Occupational Safety and Health Program.



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3. The fire department shall provide the fire department physician with the department's organizational statement that outlines types and levels of services provided by the department, in accordance with **NFPA 1500, Standard on Fire Department Occupational Safety and Health Program.**



<https://patientengagement.it.com/news/dod-physician-shortage-may-cause-lapse-in-patient-access-to-care>



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NFPA 1582, Standard on Comprehensive Occupational Medical Program for Fire Departments

- This National Fire Protection Association (NFPA) standard outlines an **occupational medical program** that will reduce risks and provide for the health, safety, and effectiveness of firefighters operating to protect civilian life and property.
- Source: NFPA



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Different Types of Medical Evaluations

- NFPA 1582 Physical
- Department-Specific Physical
- U.S. Department of Transportation (DOT) Physical



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NFPA 1582

Purpose:

To outline an occupational medical program, when implemented, will reduce the risk and burden of the fire service occupational morbidity and mortality while improving the **health**, and thus the **safety and effectiveness**, of firefighters operating to protect civilian life and property.



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NFPA 1582

The implementation of the medical requirements outlined in this standard ensures that candidates and current members are medically capable of performing their required duties and will **reduce the risk** of occupational injuries and illnesses.



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How some see NFPA 1582



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NFPA 1582

The medical requirements in this standard are applicable to fire department candidates and members whose job descriptions as defined by the authority having jurisdiction (AHJ) are outlined in:

- NFPA 1001, Standard for Firefighter Professional Qualifications;
- NFPA 1002, Standard for Fire Apparatus Driver/Operator Professional Qualifications;
- NFPA 1003, Standard for Airport Firefighter Professional Qualifications;
- NFPA 1006, Standard for Technical Rescuer Professional Qualifications;
- NFPA 1021, Standard for Fire Officer Professional Qualifications; and
- NFPA 1051, Standard for Wildland Fire Fighter Professional Qualifications.



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What you will see in 1582

- Hands-on physical examination
- Vital signs
- Head, neck, eyes, ears, nose, and throat
- Cardiovascular inspection: auscultation, percussion and palpation
- Pulmonary inspection: auscultation, percussion and palpation
- Gastrointestinal inspection: auscultation, percussion and palpation
- Genitourinary hernia exam (see also, cancer screening)



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1582 Tests

Lymph Nodes

The examination of organ systems must be supplemented with an evaluation of lymph nodes in the cervical, axillary, and inguinal regions.

Neurological

The neurologic exam for uniformed personnel must include a general mental status evaluation and general assessment of the major cranial/peripheral nerves (motor, sensory, reflexes)

Musculoskeletal

Includes an overall assessment of range of motion (ROM) of all joints. Additionally, observation of the personnel performing certain standard office exercises or functions is helpful in assessing joint mobility and function.



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NFPA 1582

Blood Analysis

The following are components of the blood analysis. At a minimum, laboratory services must provide these components in their automated chemistry panel (aka SMAC 20) and complete blood count (CBC) protocols.



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NFPA 1582

Blood Analysis

- White Blood Cell Count, Differential, Red Blood Cell Count (Hematocrit), Platelet Count
- Liver Function Tests – includes SGOT/AST, SGPT/ALT, LDH, Alkaline Phosphatase, and Bilirubin
- C-Reactive Protein, Triglycerides
- Cholesterol: Total Cholesterol, Low Density Lipoprotein (LDL-C) level, High
- Density Lipoprotein (HDL-C) level, and Total Cholesterol/HDL Ratio
- Glucose – If over 120 then HbA1c
- Blood Urea Nitrogen (BUN), Creatinine, Sodium, Potassium, Carbon Dioxide, Total Protein, Albumin, Calcium



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NFPA 1582

Urinalysis

Dip-Stick – includes pH, Glucose, Ketones, Protein, Blood, and Bilirubin

Microscopic – includes WBC, RBC, WBC Casts, RBC Casts, and Crystals



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NFPA 1582

Vision Tests

Assessment of vision must include evaluation of distance, near, peripheral, and color vision.

Evaluate for common visual disorders.




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NFPA 1582

Pulmonary (Spirogram)

- Every year for smokers.
- Every three years for nonsmokers.




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NFPA 1582

Chest X-Ray

- Every 5 years




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NFPA 1582

Stress EKG* with Vo2 value calculated

- Members 30-years-old and under will be tested on treadmill every third year.
- Those 30 to 39-years-old will be tested on treadmill every other year.
- Those 40 and older will be tested yearly.
- Abnormal Cardiac Follow-up - Electron Beam Tomography (EBT)



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NFPA 1582

Oncology Screening Elements

- Prostate Specific Antigen (PSA)
- Fecal Occult Blood Testing
- Skin Exam



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NFPA 1582

Additional Screenings

- Based on need or at the request of the patient, may also be provided during the baseline exam.



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NFPA 1582

Cancer Screening

- Digital Rectal Exam
- Testicular Exam
- Clinical Breast Exam
- Pap Smear



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NFPA 1582

Immunizations and Infectious Disease Screening

- Tuberculosis Screen (Annual PPD)
- Hepatitis C Virus Screen
- Hepatitis B Virus Vaccine
- Tetanus/Diphtheria Vaccine (Booster)
- Measles, Mumps, Rubella Vaccine (MMR)
- Polio Vaccine,
- Hepatitis A Vaccine
- Varicella Vaccine,
- Influenza Vaccine
- HIV Screening (Required to be offered)



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NFPA 1582

Heavy Metal and Special Exposure Screening (as needed)

- Arsenic
- Mercury
- Lead
- Aluminum
- Antimony
- Bismuth
- Cadmium
- Chromium
- Copper
- Nickel
- Zinc
- Organophosphates (RBC cholinesterase)
- Polychlorinated Biphenyls



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NFPA 1582

Additional Testing

Specialty teams have specific additional components and may require further testing.



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1582 allows for further testing

Nothing herein is intended to restrict any jurisdiction from exceeding these minimum requirements.



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The primary goal of 1582

A determination by the fire department physician that the candidate or current member meets the medical requirements of this standard.



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Bidding

Many departments are trying to bid out their physicals to find ways to save money.



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Department-Specific Exam

Many fire departments develop a medical evaluation for their candidates and members that includes components of the NFPA 1582 assessment but is based on the specific job duties and expectations of the agency.



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Modifying 1582

Modifying NFPA 1582 can be cost effective, but what tests should be cut? Make sure you follow the **13 Essential Job Tasks** to determine which tests are needed.



https://www.nfpa.org/docs/default-source/tvccos/wes_mfr_1582.pdf?sfvrsn=cab9601d_2



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Department-Specific Exam

There are departments that provide modified physicals on a non-annual schedule. For example:

Age	Gets Physical*
20-30	Every three years
30-40	Every two years
40-50	Yearly

*Entry physical for all new members is recommended



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Department-Specific Exam: Tests

- General Appearance
- Eyes
- Ears
- Mouth and Throat
- Heart
- Lungs and Chest
- Abdomen and Viscera
- Vascular
- Genitourinary
- Extremities
- Spine musculoskeletal
- Neurological



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Department-Specific Exam: Tests

Pulmonary Function Testing



EKG



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Costs increase the more tests you include.



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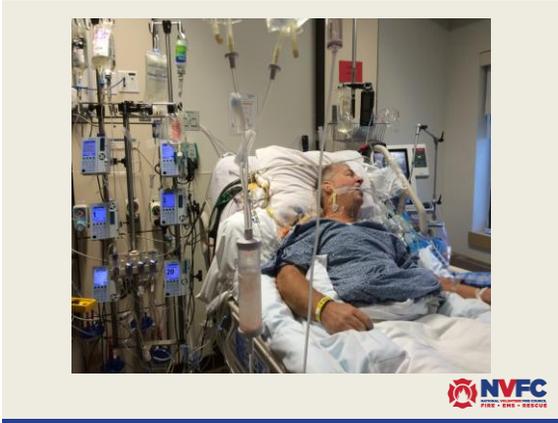
My Story



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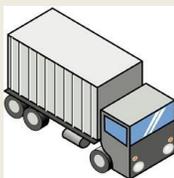
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U.S. Department of Transportation (DOT) Assessment

A DOT medical assessment is designed to confirm that someone is healthy enough to safely perform the job of commercial motor vehicle (CMV) driver.



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DOT Physicals

It is important to note that this type of assessment is **not** designed to assess the ability of a person to perform firefighter job duties; however, it is a medical evaluation and some fire departments use it.



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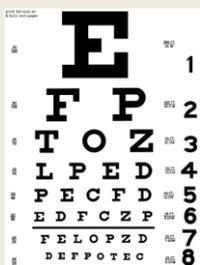
Federal Motor Carrier Safety Administration National Registry

ALL DOT physicians must be listed...



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DOT Physicals



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DOT Physicals

"Forced Whisper"



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DOT Physicals

Blood pressure and pulse rate



Urinalysis



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Tests

- General Appearance
- Eyes
- Ears
- Mouth and Throat
- Heart
- Lungs and Chest
- Abdomen and Viscera
- Vascular
- Genitourinary
- Extremities
- Spine musculoskeletal
- Neurological



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DOT Physical Sample

Do you have or have you ever had:	Not			Not	
	Yes	No		Yes	No
1. Head/brain injuries or illnesses (e.g., concussion)	<input type="checkbox"/>	<input type="checkbox"/>	16. Dizziness, headaches, numbness, tingling, or memory loss	<input type="checkbox"/>	<input type="checkbox"/>
2. Seizures, epilepsy	<input type="checkbox"/>	<input type="checkbox"/>	17. Unexplained weight loss	<input type="checkbox"/>	<input type="checkbox"/>
3. Eye problems (except glaucoma or cataract)	<input type="checkbox"/>	<input type="checkbox"/>	18. Stroke, mini-stroke (TIA), paralysis, or weakness	<input type="checkbox"/>	<input type="checkbox"/>
4. Ear and/or hearing problems	<input type="checkbox"/>	<input type="checkbox"/>	19. Missing or limited use of arm, hand, finger, leg, foot, toe	<input type="checkbox"/>	<input type="checkbox"/>
5. Heart disease, heart attack, bypass, or other heart problems	<input type="checkbox"/>	<input type="checkbox"/>	20. Neck or back problems	<input type="checkbox"/>	<input type="checkbox"/>
6. Pacemaker, stents, implantable devices, or other heart procedures	<input type="checkbox"/>	<input type="checkbox"/>	21. Bone, muscle, joint, or nerve problems	<input type="checkbox"/>	<input type="checkbox"/>
7. High blood pressure	<input type="checkbox"/>	<input type="checkbox"/>	22. Blood clots or bleeding problems	<input type="checkbox"/>	<input type="checkbox"/>
8. High cholesterol	<input type="checkbox"/>	<input type="checkbox"/>	23. Cancer	<input type="checkbox"/>	<input type="checkbox"/>
9. Chronic (long-term) cough, shortness of breath, or other breathing problems	<input type="checkbox"/>	<input type="checkbox"/>	24. Chronic (long-term) infection or other chronic diseases	<input type="checkbox"/>	<input type="checkbox"/>
10. Lung disease (e.g., asthma)	<input type="checkbox"/>	<input type="checkbox"/>	25. Sleep disorders, pauses in breathing while asleep, daytime sleepiness, loud snoring	<input type="checkbox"/>	<input type="checkbox"/>
11. Kidney problems, kidney stones, or pain/problems with urination	<input type="checkbox"/>	<input type="checkbox"/>	26. Have you ever had a sleep test (e.g., sleep apnea)?	<input type="checkbox"/>	<input type="checkbox"/>
12. Stomach, bow, or digestive problems	<input type="checkbox"/>	<input type="checkbox"/>	27. Have you ever spent a night in the hospital?	<input type="checkbox"/>	<input type="checkbox"/>
13. Diabetes or blood sugar problems (insulin used)	<input type="checkbox"/>	<input type="checkbox"/>	28. Have you ever had a broken bone?	<input type="checkbox"/>	<input type="checkbox"/>
14. Anxiety, depression, nervousness, other mental health problems	<input type="checkbox"/>	<input type="checkbox"/>	29. Have you ever used or do you now use tobacco?	<input type="checkbox"/>	<input type="checkbox"/>
15. Fainting or passing out	<input type="checkbox"/>	<input type="checkbox"/>	30. Do you currently drink alcohol?	<input type="checkbox"/>	<input type="checkbox"/>
			31. Have you used an illegal substance within the past two years?	<input type="checkbox"/>	<input type="checkbox"/>
			32. Have you ever failed a drug test or been dependent on an illegal substance?	<input type="checkbox"/>	<input type="checkbox"/>



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What to expect?

Low/no cost and covered by most insurance plans.



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IMPORTANT

It is important to note that this type of assessment is **not** designed to assess the ability of a person to perform firefighter job duties.



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What to expect?

An IN NETWORK doctor is provided by the insurance company.



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What to expect?

Updated shots



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What to expect?

Screening tests



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Screening vs. Diagnostic

Screening

- Appears Healthy
- Random
- Less accurate
- Low cost
- No basis for treatment



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Screening vs. Diagnostic

Diagnostic

- Have a complaint
- Pre-existing issues
- More in depth, so better accuracy
- Higher cost due to more testing and analysis



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Questions?

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