

**Occupational Medical Standards**

**September 26, 2013  
Rev. May 4, 2026**

## Table of Contents

<b>I.</b>	<b>Pre-placement Examination Protocol</b> .....	<b>1</b>
<b>II.</b>	<b>Essential Tasks Required to be Performed by ISP Troopers</b> .....	<b>5</b>
<b>III.</b>	<b>Occupational Medical Standards for ISP Trooper Candidates</b> .....	<b>11</b>
	Ears and Hearing; Dental; Nose, Oropharynx, Trachea, and Larynx .....	12
	Eyes and Vision .....	19
	Dermatology .....	34
	Respiratory System .....	38
	Heart and Vascular System .....	44
	Endocrine and Metabolic System .....	52
	Gastrointestinal System .....	70
	Genitourinary and Reproductive System .....	75
	Hematopoietic System .....	78
	Musculoskeletal System .....	81
	Neurologic System .....	89
	Oncology .....	93
	Infectious Disease .....	96
	Psychological Standards .....	100

## **I. Pre-Placement Medical Examination Protocol**

### **A. Scope and Depth of the Examination**

Pre-placement examinations imply that a conditional job offer has been made, but the candidate will be medically examined before the candidate starts work. The scope and depth of the pre-placement examination must be sufficient in order to gather enough medical information about an applicant so that a decision can be made about the applicant's fitness for the job that has been offered. The pre-placement examination should be able to determine the applicant's baseline health status, including pre-existing medical conditions. In addition to assessing the applicant's health status, the physician must assess the degree of risk a medical condition that is discovered by a pre-placement examination poses to the applicant were he or she to perform the tasks and duties of the job. The examiner needs to assess whether a medical condition may be made worse by the tasks and duties of the job, resulting in injury and/or disability for the worker and liability to the employer. The examiner must also determine whether a medical condition may cause an undue risk to the candidate's coworkers or to the public he or she will serve. If medical conditions are found which may place the applicant, coworkers or public at risk, the examiner may need to place pre-placement restrictions or limitations on the worker. It will be up to the employer to decide if the restrictions can be reasonably accommodated.

### **B. Medical History Questionnaire**

A medical history is as critical to the pre-placement examination process as a physical examination and laboratory testing. Medical history questionnaires are typically poorly designed and inadequate. Because the pre-placement medical examination is the only time during the employment process that an applicant's health status can be fully ascertained, it is particularly important that the examination be comprehensive. The medical history questionnaire should adequately cover several major areas, such as previous disease or injury, current acute and chronic medical conditions, prior injuries and disabilities (both work related and non-occupational), previous hospitalizations and surgeries, allergies, and current use of medications and drugs. The form should also include an occupational history, an exposure history, current immunization status, and a social history. The social history should include questions on hobbies, sports, and habits such as smoking, alcohol use and illicit drug use.

The occupational history is an especially important component of the medical history questionnaire, since it provides the examining physician with a summary of the jobs held by the applicant in the past. This information is useful in determining whether the applicant has performed physically demanding work in the past and whether he or she experienced any difficulties with job performance. The occupational and exposure history can also provide key information about risk factors for future diseases.

### **C. Documentation of Applicant Interview and Questionnaire Review**

Since questionnaires are typically deficient or inadequate, the examiner should properly document, in writing, any history obtained upon interview of the patient and review of the questionnaire. Past and current medical conditions such as hypertension, diabetes, asthma, and migraine for example should be well documented as pre-existing medical conditions. Past surgeries including

eye surgery such as LASIK, orthopedic repairs, and cosmetic surgery should be documented. Any other details from the review of the occupational, exposure or social histories should be included.

For any medical conditions or injuries found, the candidate should be questioned regarding how the condition impacts his/her capability to perform work, recreational or any tasks associated with daily living. Any functional limitations should be described along with requirements for treatment or management, if necessary. Medication use, with attention to dosage, frequency, and compliance should also be documented, as a consideration for the potential to physical or cognitive impairments, and can also provide insight on the severity of the condition.

For persons with previous injuries, the physician should ask the candidate several detailed follow up questions. Was the injury work related? Common non-work related injuries include sports injuries and motor vehicle accidents. What type of treatment was required for the injury? Severity of the injury can be gauged by the level of treatment used. Were there limitations in basic activities such as sitting, standing, lifting, or walking? Was there any time off from work and how much? Were work restrictions necessary, what type of restrictions were used and for how long? Did the candidate return to the same work duties? Did the candidate work despite the presence of pain? Was the candidate awarded any temporary or permanent disability? What was the impact of the injury on the candidate's participation in sports or other activities of daily living? Are there any current symptoms or residual impairment of functional ability? Have there been any recurrences, exacerbations or other problems since the recovery period?

The examining physician should clearly document the basis or rationale for subsequent placement decisions.

#### **D. Physical Examination**

The examination should be focused at assessing whether the candidate has any medical condition(s) that could impair the candidate's ability to perform the job safely.

To assess these factors, the physician should select the appropriate tests that may be necessary due to the working conditions and physical demands of the job to fully assess the particular condition of the applicant for the job in question. The medical examination protocol stress that individuals be evaluated on a case-by-case basis. Consideration should be given to additional diagnostic information from additional tests for applicants with preexisting problems. Section E includes the recommended routine and additional tests recommended for screening ISP Troopers.

**E. Recommended Procedures and Tests for ISP Troopers**

Physical Examination Component	Notes
Review Medical History Questionnaire	A. Personal Health & Immunizations History B. Medications History C. Surgical History D. Hospitalization History E. Illness and Injury History F. Social History G. Employment History H. Exposure History
Vital Signs	A. Height and Weight B. Blood Pressure C. Pulse D. Temperature E. Respiration F. Pain
Vision test (R & L)	A. Near - corrected (ETDRS Near Point Card) B. Far - corrected (Bailey-Lovie or ETDRS) C. Far - uncorrected (Bailey-Lovie or ETDRS) D. Peripheral (Automated or confrontation) E. Color (Ishihara, Dvornine or HRR (4th Edition)) F. Farnsworth D-15 (For those who fail plate test)
Audiogram	A. Audiogram using equipment and procedures established by CAOHC.
Electrocardiogram	A. For all candidates.
Exercise Treadmill	A. Bruce Protocol (For those over age 40 or under age 40 with two or more cardiac risk factors)
Chest X-ray	A. If history warrants
CBC (Complete Blood Count)	A. With differential
Metabolic Panel	A. Including glucose, renal and liver function tests
Urinalysis	A. Complete
Mantoux skin test	A. 2-Step if greater than one year since the last skin test, otherwise 1-Step
Pulmonary Function Test	A. Basic spirometry
Immunization Status	A. Check Medical History Questionnaire B. Titers or proof of immunity as recommended by policy C. In absence of policy see CDC recommendations at < <a href="http://www.cdc.gov/">http://www.cdc.gov/</a> > for updates
Drug Screen	A. As mandated by policy

**F. Documentation of Abnormal Physical Findings**

Complete documentation of orthopedic and other physical examination findings is essential. Prior surgical and nonsurgical scars should be noted on skin examination. These findings could be significant in future workers' compensation and disability determination proceedings in evaluating whether any abnormal findings were related to a pre-existing condition.

The examining physician should clearly document the basis or rationale for subsequent placement decisions.

**G. Integrating the Data to Reach a Decision**

Information from the applicant's medical and occupational history, physical examination and ancillary test findings needs to be reviewed before a placement decision can be reached. If the individual has any significant symptoms or a detected medical condition, the impact on job performance needs to be closely assessed. In very complex cases, opinions of specialist physicians and direct communication with the applicant's treating physicians may be necessary to fully evaluate the health status of the candidate. The examining physician may also choose to review any past medical records of the applicant if necessary.

## II. Essential Tasks Required to be Performed by ISP Troopers.

The essential job tasks listed below have been validated by the ISP. The occupational medicine physician shall use the validated list of essential job tasks in evaluating the ability of a Trooper with specific medical conditions to perform specific job tasks. Essential job tasks are referenced throughout this document correspond to the following list:

### A. Strength Tasks (including muscular tension, muscular endurance, trunk strength and muscular power) listed in order of degree of how essential the task is (I/O Solutions, 2010, 98-99).

167. Apply appropriate physical self-defense tactics as needed.
166. Physically restrain/subdue an individual that is resisting arrest.
188. Conduct C.P.R. for several minutes at a time.
168. Break up a physical altercation involving two or more individuals.
170. Manipulate a person using pressure sensitive areas (PSA) (e.g., in and out of a vehicle to affect an arrest).
169. Strike a person using a quick hand/arm movement (e.g., throw a punch, or strike with ASP).
180. Drag injured/deceased person (e.g., away from a burning vehicle).
190. Run a distance under 50 yards; short bursts of physical exertion (e.g., attempting to secure a fleeing suspect, responding to a call for help, etc.)
184. Pull a person out of a vehicle.
181. Carry an unconscious person unassisted.
203. Quickly step forward or to one side (e.g., to lunge at or to dodge an object or person).
174. Hold standard issue handgun aimed at a target for several minutes straight.
182. Carry an injured, but conscious person unassisted.
176. Hold M-16 rifle/AR15 aimed at a target for several minutes straight.
183. Drag objects off of roadways (e.g., branches, small trees, boxes, dead animals).
175. Hold shotgun aimed at a target for several minutes straight.
201. Jump out of a stopped patrol vehicle quickly (e.g., in order to pursue a fleeing suspect).
185. Lift a suspect from the ground.
191. Jump over small obstacles in response to an emergency/suspect pursuit (shrubs, branches, misc. debris, etc.).
189. Change a vehicle tire.
187. Push a car to the side of the road.
186. Assist in carrying a person using a body board.
202. Remain standing for several hours at a given time.
178. Force entry into buildings using physical force.
194. Jump across small distances in response to an emergency/suspect pursuit (ditches, etc.).
195. Pull self through openings (e.g., window).
177. Lift, pick up and/or carry heavy objects or equipment.
179. Physically push large heavy objects.

**B. Cardiorespiratory Tasks**

197. Walk for long periods of time.
199. Run for long periods of time approximately one mile.
200. Jog over a distance of several hundred yards and on varied terrain.
204. Climb several flights of stairs at a fast pace (e.g., in pursuit of a suspect).

**C. Body Movement Tasks (balance, coordination and use of arms/hands)**

172. Fire M-16 rifle AR15.
171. Fire standard issue handgun.
173. Fire shotgun.
193. Duck under obstacles in response to an emergency/suspect pursuit (clothesline, tree limb, etc.).
196. Jump down from elevated surfaces.
192. Climb a fence in response to an emergency/suspect pursuit.
205. Climb over walls and fences.
206. Crawl along the ground for a distance of several feet on varied terrain.
198. Crawl in confined areas (attics, etc.).

**D. Vision Tasks (including near, far, color, & peripheral abilities) (MED-TOX, 2013, 35-41).**

1. Read a driver's license.
2. Read the screen on the MDC.
3. See when a driver's license has been altered.
4. Read the VIN number on a car.
5. Look for evidence (shake, pipes, hidden compartments, tin foil, fake bottles) inside a car during a search.
6. Line up the sights on a 40 caliber semi-automatic handgun.
7. Compare the photo on an ID with the person holding it.
8. Read the type on a citation.
9. Read the speed on a radar/lidar.
10. Observe people's facial expressions, beads of sweat of their face, or other physical features, such as body language, when assessing them.
11. See people, children or animals in the road while driving.
12. Read highway signs to report your position during a high-speed pursuit.
13. While performing a pursuit drive, observe familiar landmarks in order to report your position to other units.
14. While driving, read street addresses to find a specific location.
15. Distinguish vehicle type (e.g., SUV, passenger car, station wagon, van, truck, etc.) from a distance of 100 yards.
16. Read roadway sign while driving.
17. See items being ejected from a vehicle you are following.
18. Visually locate and assess a crash scene.
19. Identify a hazmat placard by shape.

20. Determine if a suspect has a gun in his hand (held in plain view at the side) from a distance of 7 feet.
21. Determine if a suspect has a gun in his hand (held in plain view at the side) from a distance of 14 feet.
22. Determine if a suspect has a gun in his hand (held in plain view at the side) from a distance of 21 feet.
23. Determine if a suspect has a gun in his hand (held in plain view at the side) from a distance of 45 feet.
24. Determine if a suspect has a gun in his hand (held in plain view at the side) from a distance of 75 feet.
25. Observe the bulge of a possible weapon under the shirt of a suspect you are about to frisk.
26. Determine if a suspect has a knife in his hand (held in plain view at the side) from a distance of 7 feet.
27. Determine if a suspect has a knife in his hand (held in plain view at the side) from a distance of 14 feet.
28. Determine if a suspect has a knife in his hand (held in plain view at the side) from a distance of 21 feet.
29. Determine if a suspect has a knife in his hand (held in plain view at the side) from a distance of 30 feet.
30. Distinguish among a bottle, cell phone, handgun, or purse in the hand of an individual at a distance of 75 feet.
31. Notice civilians in the background when a suspect is in the foreground to ensure that you avoid shooting into an area populated with civilian bystanders.
32. Maintain visual contact with a suspect you are following who is trying to make an escape.
33. Visually search for a missing child in a residential area, apartment complex, or rural area.
34. Observe what an individual, standing at the top of the stairs of an apartment unit, has in his hand (gun, knife, beer bottle, glasses case, etc.).
35. Determine which person in a group of five is a uniformed ISP Trooper at a distance of 50 yards.
36. Observe the facial expressions of a victim/witness/suspect to be aware of their mental state (e.g., manic, suicidal, aggressive, fearful, hostile, vacant, etc.).
37. Recognize and identify a suspect in a criminal proceeding.
38. Observe unusual furtive movements inside a vehicle during a traffic stop.
39. While directing traffic, see cars, bicycles or people that are coming toward you.
40. Observe the red, green, and amber lights of traffic signals.
41. Identify a hazmat placard color while approaching a hazmat truck from a safe distance.
42. Search for an individual wearing a particular combination of colored clothing.
43. While directing traffic around a vehicle crash or at an intersection, see cars that are coming toward you from the side.
44. Out of the corner of your eye, see the sudden movements of suspects you have isolated while you are searching their vehicle.
45. See a car enter an intersection at a 4-way stop just before you drive through with emergency lights flashing.

46. While driving during a felony pursuit, see vehicles on both your left and right side.
47. Successfully complete an emergency vehicle response course.
48. See a horse, deer or other large animal starting to cross the highway in front of you.
49. See individuals who are at your side who may attempt to grab your gun.
50. See people approach you from the side in a crowd control situation.
51. As you approach a group of people who have spread out to your left and right, look for sudden movements to your extreme left and right.
52. Detect the movement of several individuals with peripheral vision while maintaining focused central vision on a primary suspect (e.g., while handcuffing one suspect when other potential suspects are present).
53. While on a foot patrol at the State Fair, observe the area around you to maintain personal safety.
54. During a building search, expose as little of your head as possible to peer around a corner (looking with either the left or right eye).
55. Enter an apartment building and talk to an individual seated on a couch and interview that person. During the interview notice and observe the movement of other individuals in the apartment.
56. During a domestic situation, keep an eye on your partner who is dealing with one individual while you converse with another.
57. See a vehicle that has spun off to the side of the road when responding to a crash.
58. Quickly recover and refocus vision after being exposed to bright spotlight and/or flashlights during a nighttime search for a fleeing suspect.

#### **E. Hearing Tasks**

59. Hear the questions of an attorney, judge, or court officer during a court room proceeding.
60. After being called to a domestic disturbance, listen carefully for voices and other sounds at the front door prior to knocking.
61. Hear a person calling for help in an apartment complex at night.
62. Hear radio conversation of dispatcher over your own heavy breathing after running up several flights of stairs in response to a "Trooper down" call.
63. Hear and understand the scream of an address - or location over the radio indicating a person in immediate need of assistance.
64. Hear the call of another Trooper at a crash scene when he or she needs immediate assistance.
65. While driving, hear dispatcher over the sounds of sirens and traffic noise.
66. Hear a person calling for help from inside a vehicle, (e.g., trunk, passenger compartment).
67. Determine from what direction someone is yelling for help.
68. While on a burglary call, hear the sounds of movement indicating the location of the intruder.
69. Hear in what directions sounds are coming from in an apartment to locate a hiding suspect.

70. Hear in what direction scuffling noises are coming from in order to go to that location to assist an ISP Trooper.
71. Hear and recognize the sound of the cylinder of a revolver being closed (or the racking of a slide on an automatic pistol) at a domestic disturbance or other crime scene.
72. Hear and recognize the sound of a car door being opened when you have pulled someone over after you have exited your own vehicle.
73. Hear sounds such as gunfire, fireworks, and vehicle backfire and make a response.

**F. Olfactory Tasks**

76. Use your sense of smell to detect unusual odors (i.e., the smell of alcohol on someone's breath, the smell of a dead body coming from an apartment, chemical smell indicating presence of drug lab, etc.).
77. Detect the smell of leaked fuel at a traffic crash scene.
78. Detect an unusual odor emanating from a hazmat vehicle crash.
79. Detect the smell of gun powder in a room when investigating a shooting.

**G. Communication Tasks**

74. Verbally communicate clearly with other Troopers, dispatchers, superiors, over radios.
75. Speak clearly in a courtroom in order for testimony to be heard and understood by a jury or judge.

**H. Working Conditions including use of PPE (MED-TOX, 2013, 42):**

1. Working in cold temperatures < 0 degrees.
2. Working in hot temperatures 100-115 degrees.
3. Walking in snow up to one's knees.
4. Walking > 7 hours in one day.
5. Walking over rough, uneven and slippery surfaces where it is difficult to maintain balance.
6. Subduing perpetrators that weigh between 140-240 lbs.
7. Climbing heights from 6-10 feet.
8. Jumping down from heights of 4-6 feet.
9. Driving more than 80 percent of a shift.
10. Working in extremely awkward positions.
11. Communicate with extremely loud background noise present.
12. Perform radio communications with background noise 40-80 percent of the time.
13. Work in physical isolation from others for 5-8 hours.
14. Wear a protective vest more than 80 percent of the time.
15. Wear a gun belt more than 80 percent of the time.
16. Wear a gas mask for up to one hour.

## References

I/O Solutions (2010). *Job Analysis Report*. I/O Solutions technical report.

MED-TOX Health Services (2013). *Vision & Hearing Tasks for Illinois State Police*. MED-TOX technical report.

### **III. Occupational Medical Standards ISP Trooper Candidates**

#### **A. Purpose and use of Occupational Medical Standards**

The Occupational Medical Standards provide specific requirements for candidates based on medical conditions that can affect a candidate's ability to safely perform the essential job tasks of an ISP Trooper. A medical assessment of a candidate shall be conducted prior to the candidate being placed in a training program or on employed. The medical assessment of a candidate shall include a medical history, examination, and any laboratory tests required to detect physical or medical condition(s) that could adversely affect his/her ability to safely perform the essential job tasks described.

In Section A, medical conditions that can affect a candidate's ability to safely perform essential job tasks shall be designated either Group I or Group II.

- (1) Candidates with Group I shall do not meet the medical requirements.
- (2) Candidates with Group II medical conditions require individual evaluation and determination and may meet the medical requirements only if they can perform the essential job tasks without posing a significant safety and health risk to themselves, other ISP Troopers, or civilians.
- (3) Items marked with an asterisk (\*) indicates that explanatory material can be found in the Section B.

In Section B, further explanatory guidance is provided.

## **Ears and Hearing; Dental; Nose, Oropharynx, Trachea, and Larynx**

### **Section A: Medical Assessment of ISP Candidate Conditions**

#### **Ears and Hearing**

##### **Group I Medical conditions shall include the following:**

- (1) Chronic vertigo or impaired balance as demonstrated by the inability to tandem gait walk.
- (2) On audiometric testing, pure tone thresholds in the unaided worst ear, not greater than 25 dB at 500Hz, 1000Hz, and 2000Hz and not greater than 35dB at 3000Hz *or* no greater than 30 dB at any one of the first three frequencies with an average loss no greater than 30 dB for all four frequencies.
- (3) Any ear condition (or hearing impairment) that results in the candidate not being able to safely perform one or more of the essential hearing job tasks (See: essential tasks II-E).
- (4)\* Hearing aid or cochlear implant

##### **Group II Medical conditions shall include the following:**

- (1) Atresia, stenosis, or tumor of the auditory canal
- (2)\* External otitis, recurrent
- (3)\* Agenesis or traumatic deformity of the auricle
- (4)\* Mastoiditis or surgical deformity of the mastoid
- (5)\* Meniere's syndrome, labyrinthitis, or tinnitus
- (6)\* Otitis media, recurrent

#### **Dental**

##### **Group I Medical conditions shall include:**

- (1) any dental condition that results in inability to safely perform one or more of the essential communication job tasks (See: essential tasks II-G).

##### **Group II Medical conditions shall include the following:**

- (1)\* Diseases of the jaws or associated tissues

- (2)\* Orthodontic appliances
- (3)\* Oral tissues, extensive loss
- (4)\* Relationship between the mandible and maxilla that interferes with satisfactory post-orthodontic replacement or ability to use protective equipment

**Nose, Oropharynx, Trachea, and Larynx**

**Group I Medical conditions shall include the following:**

- (1)\* Tracheostomy
- (2)\* Aphonia
- (3) Any nasal, oropharyngeal, tracheal, or laryngeal condition that results in inability to safely perform one or more of the essential job tasks including fit testing for respirators and other PPE.

**Group II Medical conditions shall include the following:**

- (1)\* Congenital or acquired deformity
- (2)\* Allergic rhinitis
- (3)\* Epistaxis, recurrent
- (4)\* Sinusitis, recurrent
- (5)\* Dysphonia
- (6)\* Anosmia
- (7)\* Tracheal stenosis
- (8) Nasopharyngeal polyposis
- (9)\* Obstructive apneas (e.g., sleep apnea) if unresponsive to treatment

## **Section B: Explanatory Section**

### **Ears and Hearing**

#### **Group I**

- (4) Hearing aid use or cochlear implants are not considered a reasonable accommodation for the following reasons:
  - (a) U.S. FDA regulations (21 CFR 801.420) require that all hearing aids be labeled with a statement that hearing aids or cochlear implants do not restore normal hearing.
  - (b) Hearing aids are adjusted to restore one-third to one-fourth the measured loss in pure tone frequency range of 250 to 6000 Hz. This allows for improved hearing of speech but will not restore ability to hear or discriminate acoustic cues. Such as adequate hearing sufficient to hear a victim cry for help, to hear building alarms, to hear noises associated with hiding suspects in attics, basements, closets, and outdoors in a variety of settings. Hearing and the ability to localize sounds is crucial in for ISP Troopers where nighttime conditions minimize visual cues and/or there is a high degree of background noise and stress-related distractions. ISP Troopers must be able to hear portable and vehicle radio communications at traffic accidents or in conditions with loud noise present. They should be able to hear, discriminate, and localize safety-related acoustic cues such as horns, sirens, screams or loud voices, or screeching tires, to safely perform their critical job tasks in a variety of conditions, including those that are emotionally charged (See: essential tasks II-E).
  - (c) Hearing aids seriously compromise the ability to localize acoustic cues so that the source of impending danger is confused and safety is imperiled.
  - (d) Hearing aids are not calibrated to function in areas of high background noise (crowd control, rescue scene, traffic) or during radio transmissions.
  - (e) Hearing aids are not reliable after submersion or heavy exposure to water or rain.
  - (f) In-the-ear hearing aids are held in place by the snugness of the device in the ear canal. The larger behind-the-ear hearing aids rest on the top of the external ear and are held in place by the plastic tubing that connects the hearing aid to the earmold, which also is held in place by its snugness in the ear canal. Vigorous physical activity could easily cause a hearing aid to be dislodged. In addition, a blow to the head could smash the hearing aid in place and possibly aggravate any injury to the user.

## **Group II**

- (2) Severe external otitis -that is, recurrent loss of hearing - can result in the inability to hear sounds of low intensity or to distinguish voice from background noise, leading to failure to respond to imminently hazardous situations (See: essential tasks II-E 62-65).
- (3) Severe agenesis or traumatic deformity of the auricle can result in the inability to properly wear protective equipment and the inability to hear sounds of low intensity or to distinguish voice from background noise, leading to failure to respond to imminently hazardous situations.
- (4) Severe mastoiditis or surgical deformity of the mastoid can result in the inability to properly wear protective equipment and the inability to hear sounds of low intensity or to distinguish voice from background noise, leading to failure to respond to imminently hazardous situations (See: essential tasks II-E 62-65).
- (5) Meniere's syndrome or severe labyrinthitis can result in the potential for sudden incapacitation and the inability to safely perform job functions due to limitations of balance (See: essential tasks II-A 192, 205, 206, 198).
- (6) Otitis media (chronic) can result in frequent episodes of pain and the inability to hear sounds of low intensity or to distinguish voice from background noise, leading to failure to respond to imminently hazardous situations (See: essential tasks II-E 59-65).

## **Dental**

### **Group II**

- (1) Diseases of the jaws or associated tissues can result in the inability to communicate effectively and/ or to properly wear protective equipment (See: essential tasks II-G).
- (2) The wearing of orthodontic appliances can result in the inability to communicate effectively and/or to properly wear protective equipment (See: essential tasks II-G).
- (3) Extensive loss of oral tissues can result in the inability to properly wear protective equipment and the inability to communicate effectively due to oropharyngeal dysfunction (See: essential tasks II-G).
- (4) This condition can result in the inability to properly wear protective equipment and the inability to communicate effectively due to oropharyngeal dysfunction (See: essential tasks II-G).

## **Nose, Oropharynx, Trachea, and Larynx**

### **Group I**

- (1) A tracheostomy results in the inability to properly wear protective equipment, the inability to safely perform job functions due to limitations of endurance, and the inability to communicate effectively due to oropharyngeal dysfunction (See: essential tasks II-G).
- (2) Aphonia can result in the inability to communicate effectively due to oropharyngeal dysfunction (See: essential tasks II-G).

### **Group II**

- (1) A congenital or acquired deformity can result in the inability to properly wear personal protective equipment (PPE)
- (2) Allergic rhinitis can result in frequent episodes of pain, the inability to safely perform work, and the inability to safely perform essential job tasks due to limitations of endurance.
- (3) Severe and recurrent epistaxis can prevent successful and safe performance of critical tasks due to inability to wear a gas mask under emergency conditions.
- (4) Recurrent sinusitis can result in frequent episodes of pain and the inability to safely perform essential job tasks due to limitations of endurance and the inability to safely wear PPE from facial pain, sinus congestion and/or coughing.
- (5) Severe dysphonia can result in the inability to communicate effectively due to oropharyngeal dysfunction (See: essential tasks II-G).
- (6) Anosmia (loss of smell) can interfere with the ability to safely perform critical tasks (See: essential tasks II-F). Evaluation of anosmia is difficult, as objective testing is not available in most medical settings.
- (7&8) Pharyngeal or laryngeal or tracheal stenosis, mass, or accessory tissues can interfere with speech, communication (See: essential tasks II-I G), or respiration, which will not permit the successful and safe performance of critical tasks and during emergency operations, especially when wearing PPE and personal protective clothing.

- (9) Untreated obstructive sleep apnea is associated with fatigue, cognitive defects, pulmonary hypertension, hypertrophic heart disease, arrhythmias, and early onset dementia. These issues can reduce the ability to perform all essential job tasks. Risk factors for developing obstructive sleep apnea include male gender, increased body mass index (BMI), short/wide neck, and/or narrow throat. In those with obstructive sleep apnea, additional testing is required to determine the level of positive pressure (CPAP or BIPAP) required to overcome the obstruction. Refer to pulmonary section for assessment. Compliance with treatment should be assessed with review of medical records including home monitoring records.

## References

21 CFR 801.420, April 1, 2013.

American National Standards of the Acoustical Society of America. (2010). *American National Standard Specification for Audiometers* (ANSI/ASA S3.6-2010).

## Eyes and Vision

### Section A: Medical Assessment of ISP Candidate Conditions

#### Group I Medical conditions shall include the following:

(1)\* Far visual acuity

(a) Candidate wears no corrective device:

Acuity worse than 20/20 in one eye and worse than 20/40 in the other eye

(b) Candidate wears spectacles or Rigid Gas Permeable Lenses

Uncorrected Acuity worse than 20/40 in either eye

Corrected Acuity worse than 20/20 in one eye and worse than 20/40 in the other eye

(c) Candidate wears disposable or soft contact lenses

Corrected acuity worse than 20/20 in one eye and worse than 20/40 in the other eye.

Candidates in this group are exempt from the uncorrected acuity condition provided they meet the qualifications listed below, otherwise the candidate must not have an uncorrected acuity worse than 20/40 in either eye.

- i. Candidate documents that he or she "successful" in wearing soft contact lenses for the preceding four months without complications.
- ii. Candidate agrees to replace the lenses every six months to one year or more frequently if necessary or if the lens becomes uncomfortable or difficult to wear.
- iii. Candidate agrees to clean the lenses on a regular basis as recommended by the manufacturer.
- iv. Candidate agrees to maintain contact lens wear and to sign the agreement in the Appendix as a condition of employment.
- v. The ISP should be willing to monitor compliance with the agreement

2)\* Visual Fields/Peripheral Vision

- a) Candidates with a horizontal visual field of < 120 degrees in each eye are unacceptable and/or a total vertical field of < 100 degrees in each eye, or with large scotomas, are unacceptable.

**Group II Medical conditions shall include the following:**

(1)\* Color perception.

- (a) Moderate-to-severe color vision deficiency is disqualifying.
- (b) Any colored lens that is purported to improve or correct color vision deficiencies are unacceptable for ISP Troopers.

(2)\* Near visual acuity

- (a) Corrected near acuity worse than 20/20 with both eyes open

(3)\* Refractive surgery

- (a) Insufficient time for vision to stabilize and ocular media to clear. Candidates are ineligible for following post-surgical time intervals.

i.Group A: Candidates with pre-op refractive errors up to 6.00 D spherical equivalent:

Intrastromal Corneal Rings (ICR) <sup>a</sup> less than three months post-surgery  
Radial Keratotomy (RK) <sup>a</sup> less than three months post-surgery  
Photorefractive Keratectomy (PRK) <sup>a</sup> less than three months post-surgery  
Laser Keratomileusis (LASIK) <sup>a</sup> less than three months post-surgery  
Laser Epithelial Keratomileusis (LASEK) - less than three months post-surgery

ii.Group B: Candidates with pre-op refractive errors greater than 6.00 D (Diopters) spherical equivalent:

ICR - less than six months post-surgery  
RK - less than six months post-surgery  
PRK - less than six months post-surgery  
LASEK - less than six months post-surgery  
LASIK - less than six months post-surgery

iii.Group C: Candidates with Phakic Intraocular Lenses (PIOL) :

Anterior Chamber-PIOL <sup>a</sup> less than six months post-surgery  
Posterior Chamber -PIOL - less than twelve months post-surgery

If any lens opacities/vacuoles/cataracts have developed, then the minimum waiting period would be extended to be no sooner than six months after the first appearance of the opacities/vacuoles/cataracts for the Anterior Chamber-PIOL and 12 months for the Posterior Chamber PIOLs.

- (b) All Groups: Vision continues to fluctuate after the specified waiting period, abnormal glare sensitivity remains, and continued difficulty seeing at night.
  
- (4)\* Small Monocular Visual Field Defects.
  - (a) Candidates with a small scotoma in only one eye and their other eye has a normal visual field should be evaluated on a case-by-case basis.
  
- (5)\* Binocular Vision/Strabismus
  - (a) Double vision/diplopia is disqualifying
  
- (6)\* Orthokeratology or experimental refractive surgery procedures
  
- (7)\* Diseases of the eye such as retinal detachment, progressive retinopathy, optic neuritis, glaucoma, cataracts, diabetic retinopathy or any other ocular/visual condition that results in the candidate not being able to safely perform one or more of the essential job tasks.

## **Section B: Explanatory Section**

### **Eyes and Vision**

#### **Group I**

- (1) A minimum requirement of at least 20/20 in the better eye and 20/40 in the other eye is required in order to adequately perform the tasks listed in II-D 11-41. The need to have a visual requirement for each eye is the possibility of an injury, foreign body, or pepper spray to one eye and the officer is still required to carry out his/her duties or seek first aid. Although eye injuries are relatively infrequent compared to other types of injuries, they do constitute approximately 0.7% to 3% of the yearly reported injuries that occur on duty in a metropolitan area (Brandl, 1996, 2012). This requirement may be met with (spectacles or contact lenses) or without correction, however, see uncorrected acuity.

The minimum requirement for spectacle wearers or RGP lens wearers is 20/40 uncorrected acuity or better in each eye. Due to the likelihood of loss, dislodgement, or removal of corrective eyewear, these candidates must meet the uncorrected minimum requirement. RGP wearers have the additional complication of temporary sudden incapacitation if small particles, such as dust, become trapped

beneath the lens, causing excessive tearing and discomfort (Gasson & Morris, 1998; Stone, 1997). The RGP lenses usually have to be removed for relief. Candidates with uncorrected visual acuity worse than 20/40 cannot perform all of the essential functions of the job without corrective devices.

In contrast to RGP lenses, soft contact lenses are not as prone to temporary sudden incapacitation if small particles become trapped beneath the lens. Although dislodgement is possible, the rate is about 1/3 of the dislodgement rate for spectacles. (Wells et al., 1997; Hovis et al., 1998; Good et al., 1998). Because soft lenses are less prone to temporary sudden incapacitation, candidates who are successful wearers are exempt from the uncorrected acuity requirement. Successful is determined by the conditions outlined in 1(c)i.

Sport type spectacles with straps to lessen the risk of dislodgement are not permitted as a device to circumvent the uncorrected visual acuity requirement due to the potential of the strap being used as a strangulation device in a struggle.

- (2) The presence of either monocularly or significant bilateral field defects in candidates is unacceptable for ISP Trooper. Adequate peripheral vision is necessary to perform those tasks listed in II-D 43-57. Candidates with a horizontal visual field of < 120 degrees in each eye are unacceptable. Candidates with a total vertical field of < 100 degrees in each eye, or with large scotomas, are unacceptable. Individuals with a small scotoma in only one eye and a normal visual in the other eye that overlap with the area of the defect when both eyes are open should be evaluated on a case-by-case basis.

## **Group II**

- (1) While the ISP Trooper job does not require superior color aptitude or even normal color vision, it does require adequate color vision to perform the essential functions of the job. Based on the visual demands analysis report (MED-TOX, 2013) and the empirical studies reviewed, severe anomalous trichromats, dichromats and monochromats must be excluded from the occupation of ISP Trooper. Essential color vision tasks are listed in II-D 40-42.

Candidates should be examined to confirm they are not wearing colored contact lenses or tinted spectacles purported to aid in color discrimination or correct color vision defects. These lenses permit persons to pass color vision tests but do not improve actual color vision performance (Matsumoto et al., 1983; Hartenbaum et al., 1997; North, 1993). These lenses include the X-Chrom Contact Lens or Chromagen Color Deficiency lenses.

Pseudoisochromatic color vision screening tests such as Hardy, Rand & Rittler (HRR 4th Edition), Dvorine or Ishihara pseudoisochromatic plate test are efficient in establishing normal vs. abnormal color vision. The HRR (4th Edition) test has the added advantage of also testing for blue-yellow defects. Candidates who pass these screening tests qualify. Individuals who fail the screening tests must pass

the Farnsworth Dichotomous Test for Color Blindness (D-15) in order to qualify.

The D-15 test is designed to identify those candidates with severe color discrimination loss. The D-15 asks the candidate to discriminate hues that have easily noticeable differences in color. Individuals who cannot pass the D-15 are considered to have a defect severe enough to interfere with color judgments that are encountered in everyday life. In addition to determining whether an individual has a red-green deficiency, the test indicates whether the candidate has a severe tritan (blue-yellow) deficiency.

- (2) A minimum requirement of 20/20 on a reduced Snellen chart (0.40 M in the M notation) with both eyes open is required. This level of acuity is required to perform critical vision tasks listed in II-D 1-10. This requirement may be met with or without correction (spectacles or contact lenses). There is no uncorrected near visual acuity requirement for those wearing spectacles or contact lenses. Failure to meet this standard is frequently due to inadequate prescription.
- (3) Candidates should be questioned about whether they have difficulties with rings or halos around lights, glare, seeing objects in dim light, nighttime driving, or fluctuating visual acuity from morning to evening. Candidates should be questioned as to whether they have experienced haze or double vision. If the candidate responds affirmatively to these inquiries, further evaluation is necessary as described below.

As with all candidates who have had refractive surgery, all currently employed ISP Troopers need to be able to meet the recommended far visual acuity requirements at all times. There should be no significant problems with fluctuating acuity, glare, haze, and difficulty in seeing in dim lights. All ISP Troopers who have had refractive surgery should be periodically re-evaluated for progressive myopia, hyperopia, night vision, and problems with glare.

Candidates who have undergone refractive surgery and do not meet the uncorrected visual acuity requirement and who wish to meet the acuity requirements with soft contact lenses should be evaluated using the minimum requirements for SCL use and evaluation as to whether visual acuity and refractive error are stable throughout the day. Specific examination should include determination whether neovascularization is present. Vascularization of one or more scars for at least 25% of its length is considered significant, and probably a contraindication to continued SCL use.

### **Specialist Examination**

Due to the need for specialized testing, referral of these candidates may be necessary. The specialist examination should include the candidate's present corrected and uncorrected acuity (preferably with both a high contrast and low contrast Bailey-Lovie chart) as well as contrast sensitivity and glare disability measures. Candidates should be tested for hyperopia.

## **Types of Refractive Surgery**

*LASIK, LASEK & PRK.* Both LASIK and PRK procedures have been refined over the last 25 years and are generally considered as acceptable procedures for correcting refractive errors in ISP Troopers and candidates. LASEK (laser epithelial keratomileusis) is also acceptable, but this procedure is less common. Both PRK and LASIK offer advantages and disadvantages for individual patients. In general, LASIK provides a more rapid improvement in vision and there is less discomfort. PRK requires more time to recover good vision and there is more discomfort. Some surgeons prefer performing PRK because they are concerned about the corneal flap becoming dislodged due to trauma, which has been reported with LASIK. Nevertheless, there are no published reports of flap dislodgments in police officers who have had LASIK to our knowledge.

## **Complications of Laser Refractive Surgery**

Although laser refractive surgery is an acceptable procedure for correcting refracting errors, it is not without complications. In terms of policing, evaluation should establish that the cornea has healed, the refractive error is stable, and visual acuity meets the requirements and is stable. The time required to heal and stabilize is related to the degree of the original refractive error. (Soong & Malta, 2009; Stonecipher et al., 2006; Gil-Cazorla, 2008; Javaloy et al., 2011). That is, the larger initial refractive errors require more time to stabilize and heal.

After the cornea has healed, there remains the possibility of night vision problems, reduced contrast sensitivity, halos around lights, and dry eyes. (Bailey & Zadnik, 2007)

*Radial Keratotomy (RK).* Radial keratotomy, has fallen out of favor as a surgical technique to correct refractive errors. The reasons for its decline are the relatively high number of complications, diurnal fluctuation in vision, (Schanzlin et al., 1986; Santos et al., 1989; McDonnell et al., 1989; MacRae et al., 1989; Kwitko et al., 1992; Bullimore et al., 1994) and rupture of the globe. (Vinger et al., 1996). If a candidate is contemplating RK surgery, then he/she should be strongly encouraged to investigate newer laser refractive surgery techniques. Nevertheless it is still performed in some cities on individuals with small refractive errors so a candidate may be encountered who has had the procedure done.

Safety glasses should be considered for candidates with RK and PIOLs (Phakic Intra Ocular Lenses) as a means of protecting the eyes from blunt trauma (Groves, 1996).

*Intrastromal Corneal Rings (ICR).* In 1999, the Food and Drug Administration approved intrastromal corneal rings (ICR) for persons with mild myopia; however, the procedure is increasingly rare. The procedure had the benefit of being reversible if serious side effects occur. Early results have showed that, over time, persons treated with ICRs tended to achieve better uncorrected visual acuity that

those corrected with LASIK (Suiter et al., 2000).

Corneal rings require evaluation as per the general guidelines for evaluating refractive surgery because some patients experience problems with fluctuating acuity, glare, and double images especially at night (Schanzlin, 1999). Because ICRs are removable (removal rate during the first year is 11%), and there is insufficient data to determine the long-term effectiveness of the device.

*Phakic Intraocular Lenses (PIOL).* Phakic Intraocular Lens Implants (PIOL) are a recently approved medical device to correct refractive errors of the eye which are too large (usually for spherical refractive errors greater than -10.00D or +3.50D) to be corrected by Laser Refractive Surgery or when Laser Refractive Surgery is contraindicated. These IOLS are placed over the existing natural lens. PIOLs can be implanted in the anterior chamber (AC-PIOL) of the eye or the posterior chamber (PC-PIOL). The surgery to implant the devices is invasive and similar to cataract surgery. PIOL surgery to correct refractive error, primarily high degrees of myopia is one of the least common ways of correcting refractive error (Waring & Durrie, 2008). Although the PIOLs can be removed at anytime, there does not appear to be any reports of voluntary explantation without some precipitating complication.

Three lens implants (PIOL) have been approved by the FDA. These are the Artisan intraocular lens (Ophtec USA, Boca Raton, FL), the Verisyse (Advance Medical Optics, Santa Ana, CA) and Visian ICL (also know as the Implantable Collamer Lens) (STAAR Surgical, Monrovia, CA). The Artisan and Verisyse are actually the same AC-IOL, but are distributed by two different companies. The Artisan and Verisyse are AC-PIOL and the Visian ICL is a PC-PIOL. A list of FDA-approved PIOL is available at the FDA website: <http://www.fda.gov/MedicalDevices/ProductsandMedicalProcedures/ImplantsandProsthetics/PhakicIntraocularLenses/ucm059243.htm>.

Post-surgical cataract formation remains an issue along with potential night vision (glare, halo) problems. Cataracts can be caused by surgical trauma, disruption of the aqueous flow that brings nutrients to the crystalline lens, or the crystalline lens touching the implant. Surgically induced cataracts occur within the first year postoperative and tend to remain stable while the other cataracts tend to occur later and are progressive. Night vision problems arise from a number of factors; however, the primary cause appears to be a small optical zone in the PIOL relative to the pupil size (Anre, 2000). For ISP Troopers, there are two additional issues. One issue is how well the PIOL will stand up to trauma to the head and eyes. The other is that the PIOL are nonpermanent and can be surgically removed later.

The incidence of surgically-induced cataracts for the Visian ICL ranges from 2.5% to 33% depending on the definition of cataract and the skill of the surgeon (Lackner et al., 2003, 2004; Sanders et al., 2002, 2003, 2004). For a skilled surgeon, the value is close to 2.5%. Most of the cataracts are defined as trace or mild with about half of these individuals having symptoms. The majority (70%)

of these cataract cases occurred within 90 days, but it could take up to two years for them to develop. In PIOL studies, a clinically significant cataract means that there has been an appreciable decrease in visual acuity. This relatively coarse definition of vision loss makes it difficult to determine whether the more subtle cataracts/opacities would cause vision losses that could be detrimental. Although the studies report that the individuals with trace focal cataracts tend to be asymptomatic, individuals with more dense cataracts report problems with glare, halos, and night vision problems. The cataracts in a significant proportion of these patients will progress to the point that surgery is required in order to restore vision. Approximately half the individuals with cataracts after the PC-PIOL implantation will require cataract surgery within two to three years. Cataract progression is more likely for older patients (>40 yrs), females and patients implanted with earlier PC-PIOL models. The incidence of cataract formation after one year for the Visian model is less than 1% (Sanders et al., 2002).

The incidence of night vision problems, including glare, halos and night driving difficulties, in large-scale studies ranges from 7% to 12%. (Arne & Lesueur, 2000; Sanders et al., 2003, 2004). This incidence is about the same as reported for refractive surgery patients.

There are two known reports of dislocation/dislodgement of the STAAR Visian lens due to trauma (Kong et al., 2010; Schmidt et al., (2012). One case was a dislocation due to trauma to the back of the head and other was due to a fist to the area around the eye. In both cases, the lens was repositioned successfully and acuity returned to 20/20 within a week. The other common factor in the two cases was the incident occurred in a dark environment when the pupil was relatively dilated. The larger pupil may have made dislocation more likely. Actual removal of this PIOL is usually related to cataract formation. In the case of cataract surgery, the PIOL and crystalline lens were replaced by a single implant and the results of the surgery were reported to be successful.

The incidence of surgically-induced cataracts with the AC-PIOL ranges from 2% to 3% (Menezo et al., 2004; Alio et al., 2002; Maloney et al., 2002). Cataracts usually appear during the first two months and remain stable. There appears to be a slight shift back towards myopia during the first 6 months (Maloney et al., 2002). The incidence of glare and halo problems ranges 5% to 18%.

One case of cataract formation and four cases of AC-PIOL dislodgement due to trauma have been reported to date (Yoon et al., 2002; Munzo et al., 2003; Moshirfar et al., 2007). The trauma in all cases was moderate and confined to one eye such that it would be unlikely to incapacitate an officer with damage to other ocular structures or other eye. The AC-PIOL dislodgement occurred immediately while the cataract developed over a two-week period. Overall, the incidence of Artisan dislodgement is low, near 0.1% of the patients implanted with the lens. However, the level of trauma was not severe and the trauma appeared to be similar to the level required to displace spectacles without severely damaging an eye. In addition, these patients were from the general population where the risk

of ocular trauma was probably extremely low. Nevertheless, it is worth noting that of the 8 patients who experienced nonpenetrating blunt trauma to the eye, only two patients had the AC-PIOL actually dislodge (Moshirfar et al., 2007).

FDA approved PIOLs are acceptable corrective devices that allow candidates with higher refractive errors to meet the visual acuity requirements. Nevertheless, there should be a waiting period to ensure that 1) the incisions have healed, 2) the refractive error is stable, and 3) cataracts are unlikely over a 12-month period. Regardless of which PIOL is implanted, it would be prudent for the Trooper with any PIOLs to wear protective eyewear.

- (4) Large scotomas in one or both eyes is disqualifying. However, it is possible to function if there are small scotoma present in only one eye and the other eye's visual field overlaps with the scotoma and is normal. These cases should be evaluated on individual basis.
- (5) Normal binocular vision is required for fine depth perception by means of stereopsis, and requires that both eyes be focused and fused on the same point in space. Strabismus exists when the eyes are directed at different points. The resulting double vision (diplopia) and visual confusion become the stimuli for suppression of the deviated eye, and, if not treated at a young age, can result in a permanent loss of vision in the deviated eye (amblyopia). The eye may be intermittently or constantly turned inward (esotropia), outward (exotropia), vertically deviated (hypertropia) or some combination.

Depth perception can be affected by binocular fusion deficiency; however, many of the cues used in depth perception are not dependent on two eyes to the extent that the cues are visible. What is not known, however, is the effectiveness of these cues in stressful situations. However, some performance differences are emerging. Bauer et al., (2001) have found that strabismic drivers performed significantly worse in driving through a slalom course at moderate speed.

The issue for police work is whether stereopsis is a bona fide occupational requirement given the potential monocular clues present in the scene and the fact that stereoacuity approaches the accuracy of monocular at viewing distances greater than 15 m. Although there is a consensus that a person with stereopsis will perform better than a person without this depth clue, there is a lack of consensus as to whether stereopsis is a requirement for carrying out policing duties safely.

The value of stereoacuity testing is that it provides a quick method for determining which candidates may be at risk for experiencing double vision and need to be referred to a vision specialist for further assessment. Candidates who initially test worse than 80 seconds of arc should be evaluated by a vision specialist to establish the reason for the deficit and to determine if the candidate is at risk for double vision.

If stereopsis is not assessed, then individuals with a difference of at least two lines

in their corrected monocular acuities or a history of strabismus should be referred for further assessment to determine whether double vision is likely under both day and nighttime conditions.

- (6) Orthokeratology is a technique of temporarily changing the power of the cornea with the use of special contact lens fitting techniques. The primary issue with this procedure is that the resulting changes in the refractive power of the eye are only temporary. Contact lenses must be worn periodically to maintain the altered corneal power. Unless the department is willing to monitor periodically uncorrected and corrected acuity to ensure that the acuity remains within the standard and they are willing to accommodate the ISP Trooper should they elect or be required to stop the procedure, orthokeratology should be disallowed.

Refractive surgery techniques are continuing to evolve; however, candidates for policing should be discouraged from taking part in clinical trials that evaluate new procedures or equipment. Nevertheless, a candidate may have undergone an experimental technique before applying. These cases will have to be evaluated on an individual basis. Issues to evaluate are the new procedure or equipment, themselves, the general findings of the clinical trial, visual acuity and its stability, night vision, and the nature of any postsurgical complications.

- (7) There are a number of conditions that could affect the visual acuity, color vision, binocular vision, or peripheral vision. Fortunately, these diseases and disorders are infrequent in the young adult population. Whether the candidate qualifies depends on the individual assessment, but the evaluation should determine whether the condition is stable, and whether the candidate meets the visual acuity, color vision, binocular vision, and peripheral vision requirements. The evaluation should also document that the candidate has recovered sufficiently to perform the typical physical activities required during policing.

*Cataracts.* Cataracts are an opacification of the lens that develop through the alteration of crystalline lens proteins. It may occur with aging, ultraviolet radiation, metabolic disorders such as diabetes, medications (including long-term corticosteroid therapy), or ocular trauma. Surgical intervention is usually successful, especially with the implantation of an intraocular lens (IOL) that leaves the eye in a state of pseudophakia. Pseudophakia should be allowed provided the candidate meets all other vision requirements, the candidate is able to carry out the sensory and physical demands of a ISP Trooper.

However, some patients who cannot receive an IOL are functionally without a focusing lens: this state is called aphakia. Such patients may thus need to wear contact lens or thick spectacle lenses (Jaffe et al., 1990). Fortunately, aphakic individuals are very rare in the applicant pool and they are unlikely to meet the other vision requirements.

*Glaucoma.* Glaucoma is a disease of the eye characterized by an increase in intraocular pressure. This may lead to damage to the retinal nerve fiber layer,

which can lead to atrophy of the optic nerve and subsequent losses in the visual field. The most common, primary glaucoma does not yet have a precise etiology; less common, secondary glaucoma is caused by anatomic abnormalities, trauma, or ocular disorders such as uveitis. A variety of medical and surgical treatments are available. Periodic intraocular pressure checks and ophthalmologic evaluation of the optic nerve and visual field are important because untreated glaucoma can lead to progressive loss of vision in the absence of symptoms. Risk factors include elevated intraocular pressure, race, age, and family history. It is recommended that candidates who are over 40 years old and have a family history of glaucoma be referred for further assessment including formal visual field testing.

*Diabetic retinopathy.* Diabetic retinopathy is a major cause of blindness for persons of middle age. The pathological changes involve hemorrhages and vascular and fibrous proliferation. The frequency of retinopathy increases with the duration of the diabetes. Diabetic retinopathy may be especially severe in individuals with juvenile-onset diabetes. Frequent periodic monitoring by a vision specialist should be an integral part of monitoring Troopers with diabetes.

## References

- Alio, J.L., Mulet, M.E. & Shalaby, A.M. (2002). Artisan phakic iris claw intraocular lens for high primary and secondary hyperopia. *J Refract Surg*, 18, 697-707.
- Arne, J.L. & Lesueur, L.C. (2000). Phakic posterior chamber lenses for high myopia: functional and anatomical outcomes. *J Cataract Refract Surg*, 26, 369-374.
- Bailey, M.D. & Zadnik, K. (2007). Outcomes of LASIK for myopia with FDA-approved lasers. *Cornea*, 26(3), 246-54.
- Bauer A., Dietz, K., Kolling, G., Hart, W. & Schiefer, U. (2001). The relevance of stereopsis for motorists: a pilot study. *Graefes Arch Clin Exp Ophthalmol*, 239, 400-6.
- Brandl, S.G. (1996). In the line of duty: A descriptive analysis of police assaults and accident. *J Criminal Justice*, 24, 255-264.
- Bullimore, M.A., Sheedy, J.E., & Owen, D. (1994). Diurnal visual changes in radial keratotomy: Implications for visual standards. *Optometry & Vision Science*, 71, 516-21.
- Gasson, A. & Morris, J. (1998) *The Contact Lens Manual*. Oxford:Butterworth-Heinemann.
- Gil-Cazorla, R., Teus, M.A. & de Benito-Lopis, L. (2008). Incidence of diffuse lamellar keratitis after laser in situ keratomileusis associated with the IntraLase 15 kHz femtosecond laser and Moria M2 microkeratome. *J Cataract Refract Surg*, 34, 28<sup>a</sup>31.
- Groves, D. (1996). Refractive surgery: Defining rupture risks. *Phys Sports Med*, 24, 39-40.
- Hartenbaum, N.P. & Stack, C.M. (1997). Color vision deficiency and the X-chrom lens. *Occupational Health and Safety*, September, 36-38.
- Hovis, J.K., Shaw, J., & Robinson, C.M. (1998). Spectacle and contact lens wear among police officers in Ontario. *Canad J Optom*, 60, 24-32.
- Jaffe, N.S., Jaffe, M.S., & Jaffe, G.F. (Eds.) (1990). *Cataract Surgery and its Complications*. St. Louis, MO: Mosby Fifth Ed.
- Javaloy, J., Alio, J.L., El Kady, B., Munoz, G. et al. (2011). Refractive outcomes and quality of vision related to an outbreak of diffuse lamellar keratitis. *Journal of Refractive Surgery*. 27, 11, 804-810.
- Kong, J., Qin, X.J., Li, X.Y., Zhang, J.S., & Qu, B. (2010). Implantable collamer lens dislocation. *Ophthalmology*, 117, 399-399.
- Kwitko, S. Gritz, D.C., Garbus, J., Guaderman, W.J., & McDonnel, P.J. (1992). Diurnal variation of corneal topography after radial keratotomy. *Arch Ophthalmol*, 110, 351-6.

Lackner, B., Pich, S., Schmidinger, G., Hanselmayer, G., Dejaco-Ruhswurm, I., Funovics, M.A., & Skorpik, C. (2003). Outcome after treatment of ametropia with implantable contact lenses. *Ophthalmology*, 110, 2153-2161.

Lackner, B., Pich, S., Schmidinger, G., Simader, C., Franz, C., Dejaco-Ruhswurm, I., & Skorpik, C. (2004). Long-term results of implantation of phakic posterior chamber intraocular lenses. *J Cataract Refract Surg*, 30, 2269-2276.

MacRae, S. Rich, L., Phillips, D., & Bedrossian, R. (1989). Diurnal variation in vision after radial keratotomy. *Am J Ophthalmology*, 107, 262-7.

Maloney, R.K., Nguyen, L.H., & John, M.E. (2002). Artisan phakic intraocular lens for myopia: short-term results of a prospective, multicenter study. *Ophthalmology*, 109, 1631-1641.

MED-TOX Health Services (2013). *Vision & Hearing Tasks for Illinois State Police*. MED-TOX technical report.

Matsumoto, E.R., Johnson, C.A., & Post, R.B. (1983). Effect of X-Chrom lens wear on chromatic discrimination and stereopsis in color deficient observers. *Am J of Optom and Physiol Optics*, 60, 297-02.

Menczo, J.L., Peris-Martinez, C., Cisneros-Lanuza, A.L., & Martinez-Costa, R. (2004). Rate of cataract formation in 343 highly myopic eyes after implantation of three types of phakic intraocular lenses. *J Refract Surg*, 20, 317-324.

Moshirfar, M., Dodd, J.G., Muir, G.J., & Gagnon, M.R. (2007). Occurrence and prognosis of nonpenetrating injuries in eyes with Verisyse iris-supported phakic intraocular lens. *J Cataract Refract Surg*, 33, 166-9.

North, R. (1993). *Work and the Eye*. London: Oxford University Press.

Sanders, D.R. & Vukich, J.A., (2002). Incidence of lens opacities and clinically significant cataracts with the implantable contact lens: comparison of two lens designs. *J Refract Surg*, 18, 673-682.

Sanders, D.R., Vukich, J.A., Doney, K., & Gaston, M. (2003). U.S. Food and Drug Administration clinical trial of the Implantable Contact Lens for moderate to high myopia. *Ophthalmology*, 110, 255-266.

Sanders, D.R., Doney, K., & Poco, M. (2004). United States Food and Drug Administration clinical trial of the Implantable Collamer Lens (ICL) for moderate to high myopia: three-year follow-up. *Ophthalmology*, 111, 1683-1692.

Schanzlin, D.J. (1999). Studies of intrastromal corneal ring segments for the correction of low to moderate myopic refractive errors *Trans Am Ophthal Soc*, 97, 815-90.

Soong, H.K. & Malta, J.B. (2009). Femtosecond lasers in ophthalmology. *Am J Ophthalmol*, 147, 189-97.

Stone, J. (1997) Assessment of patient suitability for contact lenses. In: Phillips, A.J. & Speedwell, L. (eds) *Contact Lenses*. Boston: Butterworth-Heinemann.

Stonecipher, K.G., Dishler, J.G., Ignacio, T.S. & Binder, P.S. (2006). Transient light sensitivity after femtosecond laser flap creation: Clinical findings and management. *J Cataract Refract Surg*, 2006, 32, 91-94.

Suiter, B.G., Twa, M.D., Ruckhofer, J., & Schanzlin, D.J. (2000). A comparison of visual acuity, predictability, and visual function outcomes after intracorneal ring segments and laser in situ keratomileusis. *Trans Am Ophthalmol Soc*, 98:51-5

Tanna, M., Schallhorn, S.C. & Hettinger, K.A. (2009). Femtosecond laser versus mechanical microkeratome: a retrospective comparison of visual outcomes at 3 months. *J Refract Surg*, 25, S668-71.

Vinger, P.F., Mieler, W.F., Oestreicher, J.H., & Easterbrook, M. (1996). Ruptured globes following radial and hexagonal keratotomy surgery. *Arch Ophthalmol*, 114, 129-34.

Waring, G.O. & Durrie, D.S. (2008). Emerging trends for procedure selection in contemporary refractive surgery: consecutive review of 200 cases from a single center. *Journal of Refractive Surgery*, 24(4), S419-23.

Wells, G.A., Brown, J.J., Casson E.J., Easterbrook, M., & Trottier, A.J. (1997). To wear or not to wear: current contact lens use in the Royal Canadian Mounted Police. *Can J Ophthalmol*, 32, 158-162.

Yoon, H., Macaluso, D.C., Moshirfar, M., & Lundergan, M. (2002). Traumatic dislocation of an Ophtec Artisan phakic intraocular lens. *J Refract Surg*, 18, 481-483.

Appendix A

**DRAFT NOTICE OF CONDITIONAL EMPLOYMENT**

**FOR REVIEW BY EMPLOYER'S LEGAL COUNSEL**

*(Do not place in employee's personnel file)*

Medical Condition: Poor uncorrected far visual acuity - myopia correctable with contact lenses.

I, \_\_\_\_\_, acknowledge that the medical condition listed above was present at the time I was offered employment by \_\_\_\_\_. I affirm that I am currently, and have been for the past \_\_\_ months prior to employment, a bona fide successful contact lens wearer. I also understand that my use of contact lenses is permitted as a reasonable accommodation for my refractive error.

I understand that my ability to perform the duties assigned to me as a State Trooper contingent upon my ability to successfully wear contact lenses on while on duty, and I shall wear such lenses whenever I am on duty except when authorized by my supervisor. I also understand that it is my responsibility to notify my supervisor should I become unable to wear contact lenses while on duty or should I take any other medical action which would otherwise affect my vision or my ability to wear contact lenses. I am aware that if I become unable to wear contact lenses while on duty, I may be assigned to restricted duty assignments or take a sick leave until I can safely wear my contact lenses on duty.

I have been informed that, as part of the reasonable accommodation to the medical condition noted above, that my use of contact lenses may be subject to verification by my employer and to such medical eye examination as necessary in the judgment of the employer's occupational medical advisor.

By my signature below, I acknowledge and agree to the conditions of employment described above.

\_\_\_\_\_  
Employee Date

In my opinion the foregoing medical restrictions and conditions of employment are necessary for the safe performance of the essential functions of the job.

\_\_\_\_\_  
Occupational Medicine Physician Date

\_\_\_\_\_  
Designated Appointing Authority (employer) Date

## **Dermatology**

### **Section A: Medical Assessment of ISP Candidate Conditions**

#### **Group I Medical conditions shall include the following:**

- (1) Metastatic or locally extensive basal or squamous cell carcinoma or melanoma.
- (2) Any dermatologic condition that would not allow for a successful fit test for a gas mask required by the ISP.
- (3) Any dermatologic condition that results in the candidate not being able to safely perform one or more of the essential job tasks.

#### **Group II Medical conditions shall include the following:**

- (1)\* Skin conditions of a chronic or recurrent nature (eczema, cystic acne, psoriasis) that cause skin openings or inflammation or irritation of the skin surface.
- (2)\* Surgery or skin grafting.
- (3)\* Mycosis fungoides.
- (4)\* Cutaneous lupus erythematosus.
- (5)\* Raynaud's phenomenon.
- (6)\* Scleroderma (skin).
- (7)\* Vasculitic skin lesions.
- (8)\* Atopic dermatitis/eczema.
- (9)\* Contact or seborrheic dermatitis.
- (10)\* Stasis dermatitis.
- (11)\* Albinism, Darier's disease, ichthyosis, Marfan syndrome, neurofibromatosis, and other genetic conditions.
- (12)\* Folliculitis, pseudo-folliculitis, miliaria, keloid folliculitis.
- (13)\* Hidradenitis suppurativa, furuncles, carbuncles, or Grade IV acne (cystic).
- (14)\* Mechanobullous disorders (epidermolysis bullosa, Hailey pemphigus, porphyria, pemphigoid).

(15)\* Urticaria or angioedema.

## **Section B: Explanatory Section**

### **Group II**

- (1) The candidate should be evaluated for severity, chronicity, pain, likelihood of serious occupational infectious exposure, requirement for continuous medication, and impairment of ability to safely perform essential job tasks.
- (2) The candidate should be evaluated for thinned, stretched skin that is at risk for easy breakdown and damage, abnormal sensations, or infection.
- (3) The candidate should be evaluated for systemic involvement, skin involvement that interferes with essential job tasks, or presence of localized complications such as fissures, weeping, or ulcerations, due to risk of injury and/or infection.
- (4) The candidate should be evaluated for associated systemic lupus, skin integrity, and Raynaud's phenomenon.
- (5) The candidate should be evaluated for functional limitation of hand and/or foot when exposed to extreme cold or systemic involvement of skin, muscles, heart, lungs, or neurologic system that would compromise the safe performance of essential job tasks.
- (6) The candidate should be evaluated for sclerodactyly with significant loss of function or systemic involvement.
- (7) The candidate should be evaluated for associated leg swelling, loss of function, or systemic involvement.
- (8) The candidate should be evaluated for percent body involvement with redness and scaling, requirement for regular application of lubrication/medication, and/or potential effect on safe performance of essential job tasks.
- (9) The candidate should be evaluated for extent, severity, chronicity, and known precipitants with attention to potential risk of serious, occupational infectious exposures or other interference with safe performance of essential job tasks.
- (10) The candidate should be evaluated for swelling, redness, scaling, itching, weeping, and/or cracking, pain, loss of function, or ulceration.
- (11) The candidate should be evaluated for functional limitations, ability to wear riot gear, helmet, gas mask other respirators required with proper fit-testing, and protective clothing, and requirements for continuous treatment.

- (12) The candidate should be evaluated for extent, chronicity, and interference with safe performance of essential job tasks.
- (13) The candidate should be evaluated for extent, chronicity, pain, ability to wear riot gear, protective vest, helmet, gas mask, and risk of occupational infectious exposure.
- (14) The candidate should be evaluated for extent and acuity of blistering, loss of function, aggravating agent(s) if known, ability to wear riot/crowd control gear, protective vest, helmet, and gas mask, and the ability to tolerate moderate, incidental, job-related trauma to skin, risk of occupational infectious exposure, or ability to safely perform essential job tasks.
- (15) The candidate should be evaluated for severity, chronicity, job-related triggers, association with underlying medical condition, and requirement for medications (antihistamines) that interfere with the ability to safely perform essential job tasks.

## References

- Basra, M.K. & Shahrukh, M. (2009). Burden of skin diseases. *Expert Rev Pharmacoecon Outcomes Res*, 2(9), 271-83.
- Belsito, D.V. (2005). Occupational contact dermatitis: etiology, prevalence, and resultant impairment/disability. *J Am Acad Dermatol*, 53, 303-13.
- Zirwas, M.J. (2009). Management of occupational dermatitis. *Dermatol Clin*, 27, 365-83, vii-viii.
- Hong, J., Koo, B., & Koo, J. (2008). The psychosocial and occupational impact of chronic skin disease. *Dermatol Ther*, 21, 54-9.
- Lammintausta, K. & Maibach, H.I. (1988). Dermatologic considerations in worker fitness evaluation. *Occup Med*, 3, 341-50.
- Nethercott, J.R. (1994). Fitness to work with skin disease and the Americans with Disabilities Act of 1990. *Occup Med*, 9, 11-18.

## **Respiratory System**

### **Section A: Medical Assessment of ISP Candidate Conditions**

#### **Group I Medical conditions shall include the following:**

- (1) Active hemoptysis
- (2) Current empyema
- (3) Pulmonary hypertension
- (4) Active tuberculosis
- (5)\* A forced vital capacity (FVC) or forced expiratory volume in 1 second (FEV1) less than 70% predicted even independent of disease.
- (6)\* Hypoxemia-oxygen saturation less than 90% at rest or exercise desaturation by 4% or to less than 90% (exercise testing indicated when resting oxygen is less than 94% but greater than 90%).
- (7) Any pulmonary condition that results in the candidate not being able to safely perform one or more of the essential job tasks.
- (8) Lung transplant

#### **Group II medical conditions shall include the following:**

- (1)\* Pulmonary re-sectional surgery, chest wall surgery, and pneumothorax
- (2) Pleural effusion
- (3)\* Fibrothorax, chest wall deformity, and diaphragm abnormalities
- (4)\* Interstitial lung diseases
- (5)\* Pulmonary vascular diseases or history of pulmonary embolism
- (6)\* Bronchiectasis, if abnormal pulmonary function or recurrent infections
- (7) Infectious diseases of the lung or pleural space
- (8) Cystic fibrosis

- (9) Central or obstructive apnea (e.g., sleep apnea) if unresponsive to treatment
- (10)\* Obstructive lung diseases (e.g., emphysema, chronic bronchitis, asthma) with an absolute FEV<sub>1</sub>/FVC less than the LLN (refer to Appendix A).

## **Section B: Explanatory Section**

### **Group I**

- (5) An FVC or FEV<sub>1</sub> of less than 70% can result in the inability to safely perform essential job tasks due to limitations of endurance and prevents the safe use of respirators due to increased minute ventilation requirements.
- (6) Hypoxemic disorders can result in the inability to safely perform essential job tasks due to limitations of endurance.

### **Group II**

- (1) These conditions can result in the inability to safely perform essential job tasks due to limitations of strength or endurance and can result in the potential for sudden incapacitation (See: essential tasks II A-C and H).
- (3) Fibrothorax, chest wall deformity, and diaphragm abnormalities can result in the inability to safely perform essential job tasks due to limitations of endurance (See: essential tasks II A-C and H).
- (4) Interstitial lung diseases can result in the inability to safely perform essential job tasks due to limitations of endurance (See: essential tasks II A-C and H).
- (5) Pulmonary vascular diseases and pulmonary embolism can result in frequent episodes of pain and the inability to safely perform essential job tasks due to limitations of endurance and the potential for sudden incapacitation (See: essential tasks II A-C and H).
- (6) Bronchiectasis can result in the inability to safely perform essential job tasks due to limitations of endurance and frequent respiratory infections (See: essential tasks II A-C and H).
- (10) Chronic obstructive airways disease can result in the inability to safely perform essential job tasks due to limitations of endurance, tolerate harsh environmental conditions (e.g. poor air quality, dust, fumes, extremes of temperature, allergens) and the inability to safely wear personnel protective equipment (PPE) such as a respirator. Obstruction is suspected when the FEV<sub>1</sub>/FVC ratio (using absolute values rather than % predicted values) is less than the LLN (refer to Appendix A). However, obstruction can also occur with normal FEV<sub>1</sub>/FVC ratios due to airtrapping or mucous plugging. In asymptomatic

individuals with minimal reductions in spirometry measures (FEV<sub>1</sub>, FVC, or the absolute FEV<sub>1</sub>/FVC ratio), further evaluation (complete pulmonary function tests, exercise testing [refer to Appendix B], or challenge testing) might be necessary to determine if essential tasks can be performed safely.

### **Chronic Obstructive Respiratory Determinations:**

**Group A:** Obstructive pattern on spirogram (FEV<sub>1</sub>/FVC ratio is <LLN) or positive findings on lung auscultation (wheezing) but negative history of obstructive disease, EIB, or medication use in the last 10 years

*Level 1: FEV<sub>1</sub> and FVC are both =100% of predicted.*

These candidates have spirogram results that are interpreted as consistent with a normal physiologic variant (refer to Appendix A).

*Level 2: FEV<sub>1</sub> <100% of predicted*

These candidates should undergo an ET with pre/post spirometers including an estimation of V<sub>O<sub>2</sub></sub> max (refer to Appendix B). A recommendation for unrestricted duty should be based on a reliable history and the ability to reach 42 ml/kg/min-1 without clinically significant EIB.

If there is an objective reason to question the reliability of the history (for example, due to findings on exam or difficulty with spirometry testing), then, prior to determining medical clearance, the examining physician should consider review of any available medical records.

Note: Candidates who are restricted should be advised that they can be reevaluated at a future time if their condition improves (Fiorenzano, et al., 2010).

**Group B:** Admits to a positive history of obstructive disease or EIB, or medication use in last 10 years.

Carefully assess the variability in the candidate's disease and the need for pre/post exercise medication during the past two years.

*Level 1: Stable disease with no use of "pre-exercise" or "rescue" medications during the past two years.*

Note: Pre-exercise medication is defined as "medication prescribed for use prior to exercise to prevent an asthma attack." Rescue medications are defined as "quick-relief medications used as needed for rapid, short-term

symptom relief during an asthma attack."

Obtain an ET with pre/post spiograms. In general, no restrictions are necessary if the candidate is able to reach 42 ml O<sub>2</sub>/kg/min-1 without significant EIB without the need for pre-exercise medication. In addition, the medical records and work history should demonstrate no disability or significant (i.e., more than 10 days/year) sick leave related to obstructive disease.

***Level 2: Unstable or variable disease or use of medication during the past two years.***

The medical records and work history must be reviewed to assess for pulmonary impairment, use of pre-exercise or rescue medications and/or significant sick leave (more than 10 days/year) related to obstructive disease. A history of chronically frequent, recent, severe and unpredictable breathing problems should always be considered to be disqualifying for full active-service duty unless there is clear evidence of capacity to exercise at 42 ml O<sub>2</sub>/kg/ min-1 without EIB during symptomatic episodes. Candidates with infrequent breathing problems may be assessed as Level 1.

## References

American College of Occupational and Environmental Medicine. (2011). Spirometry in the Occupational Setting- 2011 Update. *JOEM*, 53, 569-584. Retrieved from <[http://www.acoem.org/uploadedFiles/Public\\_Affairs/Policies\\_And\\_Position\\_Statements/ACOEM%20Spirometry%20Statement.pdf](http://www.acoem.org/uploadedFiles/Public_Affairs/Policies_And_Position_Statements/ACOEM%20Spirometry%20Statement.pdf)>.

American Thoracic Society, (1999). Guidelines for methacholine and exercise challenge testing. *Am J Respir Crit Care Med*, 161, 309-329.

American Thoracic Society/European Respiratory Society. (2005). Standardization of lung function testing: Interpretative strategies for lung function tests. *Eur Respir J*, 26, 948. Retrieved from: <<http://www.thoracic.org/statements/resources/pft/PFT2.pdf>>.

Busse W.W., Boushey H.A., Camargo C.A., et al. Guidelines for the Diagnosis and Management of Asthma. National Asthma Education and Prevention Program, Expert Panel Report 3. NIH Pub No 08-5846, October 2007

Cazzola, M., Matera, M.G. & Donner, C.F. (2005). Inhaled beta2-adrenoceptor agonists: cardiovascular safety in patients with obstructive lung disease. *Drugs*, 65(12), 1595-610.

Fiorenzano, G., Santoriello, C., Musella, V., & Polverino, M. (2010). Exercise capacity in chronic respiratory diseases. *Eur Respir J*, 35(5), 1193-4.

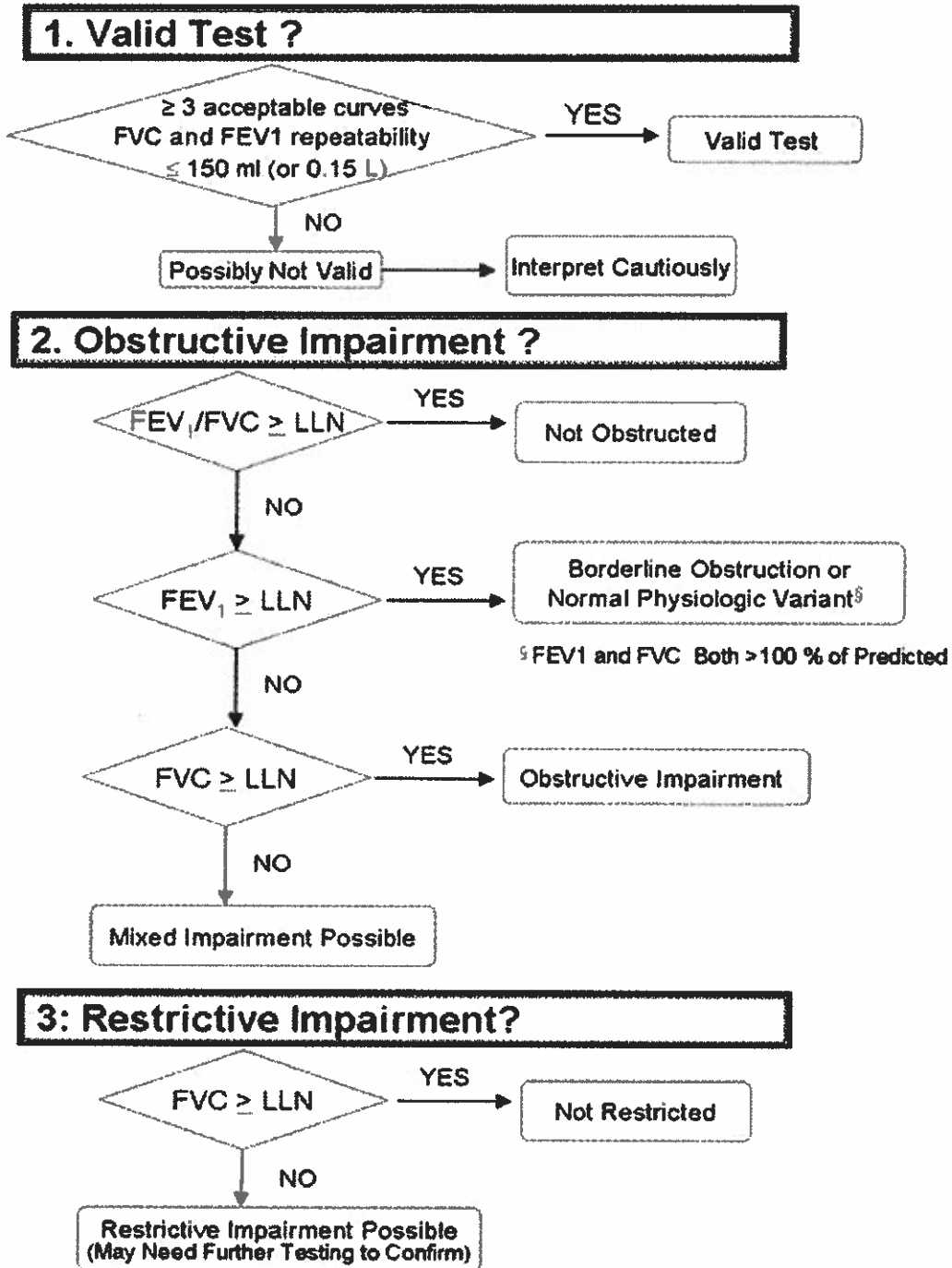
Parsons, J.P., Hallstrand, T.S., Mastronarde, J.G., Kaminsky, D.A., Rundell, K.W., Hull, J.H., Storms, W.W., Weiler, J.M., Cheek, F.M., Wilson, K.C., Anderson, S.D. (2013). An Official American Thoracic Society Clinical Practice Guideline: Exercise-induced Bronchoconstriction, *Am J Respir Crit Care Med*, 187(9), 1016-1027.

Pongdee, T., Li, J.T. (2013). Exercise-induced bronchoconstriction, *Annals of Allergy, Asthma & Immunology*, 110(5), 311-315, ISSN 1081-1206, <http://dx.doi.org/10.1016/j.anai.2013.02.002>. <<http://www.sciencedirect.com/science/article/pii/S1081120613000884>>.

Thottathil, P., Acharya, J., Moss, A.J., et al. (2008). International Long QT Syndrome Investigative Group: Risk of cardiac events in patients with asthma and long-QT syndrome treated with beta(2) agonists. *Am J Cardiol*, 102(7), 871-874.

Zhang, B., de Vries, F., Setakis, E. & van Staa, T.P. (2009) The pattern of risk of myocardial infarction in patients taking asthma medication: a study with the General Practice Research Database. *J Hypertens*, 27(7), 1485-1492.

APPENDIX A: Interpretation of Spirometry (ACOEM, 2011)



## APPENDIX B: Evaluation of Exercise Induced Bronchoconstriction (EIB)

The purpose of this test is to detect and evaluate the severity of exercise induced bronchoconstriction.

### Procedure:

1. Ask the candidate if he/she has used any "quick relief" inhalers or pills on the day of the test. Below are examples of such medications:

albuterol	Maxair	ProAir	ipratropium
Alupent	Proventil	Accuneb	Primatene
Atrovent	Ventolin	DuoNeb	adrenaline
Combivent	Xopenex	metaproterenol	epinephrine

The test should be canceled if any of these medications have been used within the past 6 hours.

2. Ask the candidate if he/she is having any current symptoms related to asthma. The presence of any current symptoms should be documented and the test cancelled. The candidate may be referred to pulmonologist for further assessment of their pulmonary condition before medical clearance is determined.
3. Perform pre-test spirometry. The screening spirogram cannot substitute for this unless it was done within three hours of exercise testing and using the same spirometer.
4. Provide the candidate with standard instructions for running on a treadmill, including reporting of symptoms that would warrant stopping the test. Encourage the candidate to run as long as possible (do not use heart rate criteria for stopping). Tell the candidate that less than maximal effort may result in an un-interpretable test which will need to be repeated on another day.
5. Run the candidate on a treadmill, preferably using the Bruce Protocol. Record the treadmill start time. Note: No EKG tracing is necessary unless a simultaneous Cardiac Stress Test is indicated by the pre-placement examining physician or physician determining medical clearance of candidates.

6. At termination, record the reasons for termination and treadmill stop time.
7. Perform spirometry at 5, 10 and 20 minutes post-treadmill. At each interval, only one blow should be done (unless the FEV<sub>1</sub> is clearly not valid). However, both unique volume-time and flow-volume graphs must be printed for testing at each interval. Record any reports of symptoms on the spirograms. NOTE: Exercise-induced bronchoconstriction is usually a self-limited, temporary condition. However, if the candidate demonstrates respiratory difficulties (ie, wheezing, persistent coughing, difficulty talking in full sentences), they have failed the test, and may be permitted to use any inhaler they may have brought with them.
8. A decrease in FEV<sub>1</sub> of more than 10% compared to the baseline is abnormal. However, clinical significance also depends on the absolute value of the FEV<sub>1</sub>, auscultatory findings, and symptoms. The primary concern is whether the candidate could re-initiate and sustain an exercise level requiring 42 ml O<sub>2</sub>/kg/min at the time of peak bronchoconstriction and symptoms. Candidates that require the use of pre exercise medication should be disqualified from performing the job of an ISP Trooper.

## **Heart and Vascular System**

### **Section A: Medical Assessment of ISP Candidate Conditions**

#### **Heart**

##### **Group I medical conditions shall include the following:**

- (1)\* Acute pericarditis, endocarditis, or myocarditis
- (2)\* Syncope, recurrent
- (3)\* Automatic implantable cardiac defibrillator or history of ventricular tachycardia or ventricular fibrillation due to ischemic or valvular heart disease or cardiomyopathy.
- (4)\* Cardiac pacemaker
- (5)\* Hypertrophic obstructive cardiomyopathy (previously IHSS)
- (6)\* Heart transplant
- (7) Any cardiac condition that results in the candidate not being able to perform one or more of the essential job tasks.

##### **Group II medical conditions shall include the following:**

- (1)\* Cardiomyopathy or congestive heart failure.
- (2)\* Coronary artery disease, including history of myocardial infarction, angina pectoris, coronary bypass surgery, coronary angioplasty, and similar procedures.
- (3)\* Valvular lesions of the heart, including prosthetic valves
- (4)\* Recurrent supraventricular or atrial tachycardia, flutter, or fibrillation
- (5)\* Third degree atrioventricular block
- (6)\* Left bundle branch block
- (7)\* Second-degree Type II atrioventricular block
- (8)\* Sinus pause more than 3 seconds
- (9)\* Ventricular arrhythmia including WPW
- (10)\* Cardiac hypertrophy
- (11)\* History of congenital abnormality

- (12)\* Chronic pericarditis, endocarditis, or myocarditis

## **Vascular System**

### **Group I medical conditions shall include the following:**

None

### **Group II medical conditions shall include the following:**

- (1)\* Hypertension
- (2)\* Thoracic or abdominal aortic aneurysm
- (3)\* Carotid artery stenosis or obstruction resulting in greater than or equal to 70 percent reduction in blood flow
- (4)\* Peripheral vascular disease resulting in symptomatic claudication
- (5) Vasospastic phenomena such as Raynaud's phenomenon
- (6)\* Thrombophlebitis, thrombosis, or varicosities
- (7)\* Chronic lymphedema due to lymphadenopathy or venous valvular incompetency
- (8)\* Congenital or acquired lesions of the aorta or major vessels
- (9)\* Circulatory instability as indicated by orthostatic hypotension, persistent tachycardia, and peripheral vasomotor disturbances
- (10) History of surgical repair of aneurysm of the heart or major vessel.

## **Section B: Explanatory Section**

### **Heart**

#### **Group I**

- (1) Acute pericarditis, acute endocarditis, and acute myocarditis compromise the candidate's ability to safely perform essential job tasks II A-H and are disqualifying.
- (2) Recurrent syncope compromises the candidate's ability to safely perform essential job tasks II A-H and is disqualifying.

- (3) A medical condition requiring an automatic implantable defibrillator compromises the candidate's ability to safely perform essential job tasks II A-H and is disqualifying.
- (4) A medical condition requiring a pacemaker compromises the candidate's ability to safely perform essential job tasks II A-H and is disqualifying.
- (5) Hypertrophic obstructive cardiomyopathy is associated with life-threatening arrhythmias and sudden cardiac death without previous symptoms of heart failure. HOC will compromise the candidate's ability to safely perform essential job tasks II A-H and is disqualifying.
- (6) Cardiac transplantation prevents a normal rise in heart rate and increases the risk of syncope and sudden cardiac death and therefore compromise the candidate's ability to safely perform essential job tasks II A-H and is disqualifying.

## **Group II**

- (1) The physician shall consider that if the heart failure is due to a reversible process that ultimately results in no abnormality in cardiac performance off all cardiac medications (e.g., hyperthyroidism, anemia), then a history of congestive heart failure alone does not permanently prevent a candidate from safely performing the essential job tasks. However, current congestive heart failure due to any etiology including any disease leading to signs and symptoms of compromised left or right ventricular function or rhythm, including dyspnea, S3 gallop, peripheral edema, enlarged ventricle, abnormal ejection fraction, and/or inability to increase cardiac output with exercise, even if corrected by medication, compromises the candidate's ability to safely perform essential job tasks II A-H and is disqualifying.
- (2) The following clinical conditions referable to coronary artery disease including history or myocardial infarction, coronary artery bypass surgery, coronary angioplasty with stent placement, or similar procedures compromise a candidate's ability to safely perform essential job tasks and are disqualifying:
  - (a) Current angina pectoris even if relieved by medication
  - (b) Persistent significant stenosis in any coronary artery (greater than 70 percent lumen diameter narrowing) following treatment
  - (c) Lower than normal left ventricular ejection fraction as measured by radionuclide scan, contrast ventriculography, or echocardiography
  - (d) Maximal exercise tolerance of less than 12 metabolic equivalents (METS)
  - (e) Exercise-induced ischemia or ventricular arrhythmias observed by radionuclide stress test during an evaluation reaching at least a 12-METS workload

(3) Specific recommendations include the following:

- (a) Moderate to severe mitral valve stenosis defined as valve area less than or equal to 1.5 cm<sup>2</sup> or pulmonary artery systolic pressure greater than 35 mm Hg compromises the candidate's ability to safely perform essential job tasks II A-C and H and is disqualifying.
- (b) Moderate to severe mitral valve insufficiency, defined as the presence of left ventricular dysfunction, compromises the candidate's ability to safely perform essential job tasks II A-C and H and is disqualifying.
- (c) Moderate to severe aortic valve stenosis defined as mean aortic valvular gradient greater than or equal to 20 mm Hg and/or valve area less than or equal to 1.0 cm<sup>2</sup> compromises the candidate's ability to safely perform essential job tasks II A-G and is disqualifying.
- (d) Moderate to severe aortic valve insufficiency when the cause of left ventricular dysfunction compromises the candidate's ability to safely perform essential job tasks II A-C and H and is disqualifying.
- (e) Prosthetic cardiac valves compromise the candidate's ability to safely perform essential job task II A-8 and is disqualifying if anticoagulation is required.

Mitral valve prolapse will interfere with the safe performance of critical job tasks and is disqualifying if associated with arrhythmias or if moderate to severe mitral regurgitation is present.

- (4) The physician shall consider that if the atrial fibrillation is recurrent but self-limited off cardiac medications, there is no evidence of ischemia, and the echocardiogram reveals both a normal mitral valve and a normal-sized left atrium, then the candidate might be able to safely perform full duties. However, other supraventricular arrhythmias, atrial fibrillation, or atrial flutter when persistent (even if rate controlled) or if anticoagulation is required, compromise the candidate's ability to safely perform essential job tasks II A-H and is disqualifying.
- (5) If cardiac structural (i.e., coronary arteries, valves, myocardium) abnormalities are present, if left ventricular function is abnormal, or if heart rate does not increase with exercise in the absence of a mechanical pacemaker that candidate is disqualified.

Third-degree or complete atrioventricular block compromises the candidate's ability to safely perform essential job tasks II A-H and are disqualifying.

- (6,7,8) Other types of heart block with sinus pauses greater than 3 seconds, left bundle branch block or second-degree Type II atrioventricular block might compromise the candidate's ability to safely perform job tasks II A-H unless cleared by a cardiologist.
- (9) The physician shall evaluate the candidate to determine if a history of ventricular arrhythmias (e.g., ventricular tachycardia and ventricular fibrillation) compromises the candidate's ability to safely perform essential job tasks II A-H. A history of ventricular ectopy might compromise the candidate's ability to safely perform essential job tasks II A-H and is disqualifying unless cleared by a cardiologist.

The physician shall consider the following:

- (a) A history of ventricular arrhythmias including ventricular tachycardia or ventricular fibrillation poses significant risk for life-threatening sudden incapacitation in the presence of either structural abnormalities, functional abnormalities, or ectopy that occurs during exercise.
- (b) A history of ventricular ectopy might pose a significant risk for life-threatening sudden incapacitation if structural or ischemic heart disease is present or if ventricular ectopy increases during exercise.
- (c) Holter monitoring (24-hour ECG recording) might show ventricular ectopy but should show no evidence of ventricular arrhythmias.
- (d) Echocardiogram must show normal function and no evidence of structural abnormalities.
- (e) Stress testing off cardiac medications must show no evidence for ischemia, ventricular tachycardia, or ventricular fibrillation.
- (f) Premature ventricular contractions (PVCs) should resolve with increasing levels of exercise up to 12 METS.

Wolff-Parkinson-White (WPW) syndrome with a history of supraventricular tachycardia (SVT) involving anterograde conduction down the accessory pathway compromises the candidate's ability to safely perform essential job tasks II A-H and is disqualifying.

- (10) The physician shall evaluate the candidate to determine if the hypertrophy is not due to HOCM. If it is secondary to aortic stenosis, then evaluate as per Group I (3) above. If it is secondary to hypertension then evaluate as per Group II (1). Uncomplicated hypertrophy may not interfere with performance of the essential job tasks.

- (11) A history of a cardiac congenital abnormality that has been treated by surgery but with residual complications or that has not been treated by surgery, leaving residuals or complications, might compromise the candidate's ability to safely perform essential job tasks II A-H and is disqualifying.
- (12) Chronic pericarditis, endocarditis, or myocarditis when resulting in heart failure or significant valvular incompetence or arrhythmias compromises the candidate's ability to safely perform essential job tasks II A-H and is disqualifying.

## **Vascular System**

### **Group II**

- (1) Uncontrolled or poorly controlled hypertension increases the risk of a sudden cardiac or cerebrovascular event and is disqualifying. A sudden cardiac or cerebrovascular event would cause sudden incapacitation, which would interfere with the safe performance of essential job tasks. Uncontrolled or poorly controlled hypertension can be defined as the presence of end organ damage or stage 2 hypertension (BP systolic >160 mm Hg or BP diastolic >100 mm Hg).

Chronic hypertension can damage the eye (retinopathy), the kidneys (nephropathy), the vascular system (stroke, transient ischemic attack, peripheral artery disease), and the heart (left ventricular hypertrophy, heart failure). These hypertension complications are known as end organ damage. The cardiac and vascular complications are associated with an increased risk of sudden incapacitation and sudden cardiac death.

Unfortunately, cardiac complications are frequently asymptomatic, and valid screening tests are not fast or inexpensive. Therefore, determining which candidates to screen for cardiac complications (such as ECG for left ventricular hypertrophy (LVH) or a measurement of left ventricular ejection fraction for heart failure) should be based on the severity and the duration of hypertension.

Individuals with stage 1 or stage 2 hypertension should be referred to their primary care physician for evaluation, lifestyle modification, and/or treatment. After appropriate and successful management of stage 1 or stage 2 hypertension, a candidate can be re-evaluated.

- (2) An aneurysm of the heart or major vessel, congenital or acquired, can result in the inability to safely perform essential job tasks and the potential for sudden incapacitation. Aortic aneurysm (thoracic aortic aneurysm of any size or abdominal aortic aneurysm greater than or equal to 4 cm) compromises the candidate's ability to safely perform essential job tasks II A-H and is disqualifying.

When evaluating a candidate with an abdominal aortic aneurysm less than 4 cm, the physician shall recognize that treatment requires careful control of blood pressure and regular follow-up with cardiac imaging. If surgically repaired, a

minimum of 6 months shall be required before the candidate can be reevaluated for hire.

- (3) Carotid artery disease when symptomatic and/or reduction in blood flow of greater than 70 percent is present compromises the candidate's ability to safely perform job tasks II A-H and is disqualifying.
- (4) Peripheral vascular disease can impair sensation, can increase the likelihood of injury, and can result in frequent episodes of pain or the inability to safely perform essential job tasks due to limitations of endurance and is disqualifying.

Peripheral vascular disease (arterial or venous) when symptomatic (claudication) compromises the candidate's ability to safely perform essential job tasks II A-C and H and is disqualifying.

- (6) Recurrent thrombophlebitis can result in frequent episodes of pain or the inability to safely perform essential job tasks and the inability to safely perform functions due to limitations of muscular endurance and is disqualifying.

Thrombophlebitis and/or deep venous thrombosis that is recurrent or persistent or requires anticoagulation compromises the candidate's ability to safely perform essential job tasks II A-C and H and is disqualifying.

Full-dose or low-dose anticoagulation with a medication other than an antiplatelet agent compromises the candidate's ability to safely perform essential job tasks II A-C and H and is disqualifying.

- (7) Chronic, severe lymphedema or massive edema of any type (e.g., due to lymphadenopathy, severe venous valvular incompetency, endocrine abnormalities, or low flow states) compromises the candidate's ability to safely perform essential job tasks II A-C and H and are disqualifying.

- (8) Congenital or acquired lesions of the aorta or major blood vessels might interfere with circulation and prevent the safe performance of essential job tasks II A-C and H due to limitations of endurance and are disqualifying.

Congenital or acquired lesions of the aorta or major blood vessels could increase the potential for life-threatening sudden incapacitation, which might compromise the candidate's ability to safely perform essential job tasks II A-H and are disqualifying.

- (9) Circulatory instability, as indicated by orthostatic hypotension or persistent tachycardia, compromises the candidate's ability to safely perform essential job tasks II A-H and is disqualifying.

## References

- Arena, R. et al. (2007). Assessment of functional capacity in clinical and research settings: A scientific statement from the American Heart Association Committee on Exercise, Rehabilitation, and Prevention of the Council on Clinical Cardiology and the Council on Cardiovascular Nursing. *Circulation*, 116(3), 329-43.
- Baumgartner, I., Schainfeld, R., & Graziani, L. (2005). Management of peripheral vascular disease. *Annual Review of Medicine*, 56, 249-72.
- Booher, A.M. & Bach, D.S. (2011). Exercise hemodynamics in valvular heart disease. *Current Cardiology Reports*, 13(3), 226-33.
- Ford, E.S., Greenlund, K.J. & Hong, Y. (2012). Ideal Cardiovascular Health and Mortality from All Causes and Diseases of the Circulatory System among Adults in the United States. *Circulation*, 125(8), 987-95.
- Fowler-Brown, A. et al. (2004). Exercise tolerance testing to screen for coronary heart disease: A systematic review for the technical support for the U.S. Preventive Services Task Force. *Ann Intern Med*, 140(7), W9-24.
- Gibbons, L.W. et al. (2000). Maximal exercise test as a predictor of risk for mortality from coronary heart disease in asymptomatic men. *Am J Cardiol*, 86(1), 53-8.
- Gibbons, R.J. et al. (2002). ACC/AHA 2002 guideline update for exercise testing: summary article: A report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Committee to Update the 1997 Exercise Testing Guidelines). *Circulation*, 106(14), 1883-92.
- Giese, E.A. et al. (2007). The athletic preparticipation evaluation: Cardiovascular assessment. *Am Fam Physician*, 75(7), 1008-14.
- Holtermann, A. et al. (2010). Physical demands at work, physical fitness, and 30-year ischaemic heart disease and all-cause mortality in the Copenhagen Male Study. *Scand J Work Environ Health*, 36(5), 357-65.
- Holtermann, A. et al. (2010). Fitness, work, and leisure-time physical activity and ischaemic heart disease and all-cause mortality among men with pre-existing cardiovascular disease. *Scand J Work Environ Health*, 36(5), 366-72.
- Holtermann, A. et al. (2011). Physical fitness and perceived psychological pressure at work: 30-year ischemic heart disease and all-cause mortality in the Copenhagen Male Study. *J Occup Environ Med*, 53(7), 743-50.
- Kerchner, K., Fleischer, A., & Yosipovitch, G. (2008). Lower extremity lymphedema update: Pathophysiology, diagnosis, and treatment guidelines. *J Am Aca of Derm*, 59(2), 324-31.

Krause, N. (2010). Physical activity and cardiovascular mortality-disentangling the roles of work, fitness, and leisure. *Scand J Work Environ Health*, 36(5), 349-55.

Lauer, M. et al. (2005). Exercise testing in asymptomatic adults: A statement for professionals from the American Heart Association Council on Clinical Cardiology, Subcommittee on Exercise, Cardiac Rehabilitation, and Prevention. *Circulation*, 112(5), 771-6.

Lloyd-Jones, D.M. et al. (2010). Defining and setting national goals for cardiovascular health promotion and disease reduction: The American Heart Association's strategic impact goal through 2020 and beyond. *Circulation*, 121(4), 586-613.

Maron, B.J. et al. (2004). Recommendations for physical activity and recreational sports participation for young patients with genetic cardiovascular diseases. *Circulation*, 109(22), 2807-16.

Morise, A.P. (2011). Exercise testing in nonatherosclerotic heart disease: Hypertrophic cardiomyopathy, valvular heart disease, and arrhythmias. *Circulation*, 123(2), 216-25.

Parker, M.W. & Thompson, P.D. (2011). Exercise in valvular heart disease: Risks and benefits. *Prog Cardiovasc Dis*, 53(6), 437-46.

Soteriades, E.S. et al. (2011). Cardiovascular disease in US firefighters: A systematic review. *Cardiology in Review*, 19(4), 202-15.

Zimmerman, F.H. (2012). Cardiovascular disease and risk factors in law enforcement personnel: A comprehensive review. *Cardiol Rev*, 20(4), 159-166.

## Endocrine and Metabolic Disorders

### Section A: Medical Assessment of ISP Candidate Conditions

#### Group I medical conditions shall include the following:

- (1)\* Type 1 diabetes mellitus, unless a candidate meets all of the following criteria:
  - (a) Is maintained by a physician knowledgeable in current management of diabetes mellitus on a basal/ bolus (can include subcutaneous insulin infusion pump) regimen using insulin analogs.
  - (b) / Has demonstrated over a period of at least 6 months the motivation and understanding required to closely monitor and control capillary blood glucose levels through nutritional therapy and insulin administration. Assessment shall take into consideration the erratic meal schedules and high aerobic and anaerobic workloads intrinsic to law enforcement.
  - (c) / Has a dilated retinal exam by a qualified ophthalmologist or optometrist that shows no higher grade of diabetic retinopathy than microaneurysms, as indicated on the International Clinical Diabetic Retinopathy Disease Severity Scale (Wilkinson, 2003).
  - (d) Has normal renal function based on a calculated clearance greater than 60 mL/min and absence of proteinuria. (Creatinine clearance can be calculated by use of the Cockcroft-Gault or similar formula. Proteinuria is defined as 24-hour urine excretion of greater than or equal to 300 mg protein or greater than or equal to 300 mg of albumin per gram of creatinine in a random sample.)
  - (e) Has no autonomic or peripheral neuropathy. (Peripheral neuropathy is determined by diminished ability to feel the vibration of a 128 cps tuning fork or the light touch of a 10-gram monofilament on the dorsum of the great toe proximal to the nail. Autonomic neuropathy might be determined by evidence of gastroparesis, postural hypotension, or abnormal tests of heart rate variability.)
  - (f) Has normal cardiac function without evidence of myocardial ischemia on cardiac stress testing (to at least 12 MET) by ECG and cardiac imaging.
  - (g) Has a completed and signed *Physician Evaluation Form for Diabetes* (See: Appendix A) and the candidate's medical records from an endocrinologist or a physician with demonstrated knowledge in the current management of diabetes mellitus as well as knowledge of the essential job tasks and hazards of law enforcement as described in the essential job tasks (II A-D and H). Once the form is completed, the ISP physician shall determine if the candidate meets the following criteria:

- i. Is being successfully maintained on a regimen consistent with (1)(a) and (1)(b).
  - ii. Has had hemoglobin A1C measured at least four times a year (intervals of 2 to 3 months) over the last 12 months prior to evaluation if the diagnosis of diabetes has been present over 1 year. A hemoglobin A1C reading of 8% or greater shall trigger a medical evaluation to determine if a condition exists in addition to diabetes that is responsible for the hemoglobin A1C not accurately reflecting average glucose levels. This shall include evidence of a set schedule for blood glucose monitoring and a thorough review of data from such monitoring.
  - iii. Does not have an increased risk of hypoglycemia due to alcohol use or other predisposing factors.
  - iv.\* Has had no episodes of severe hypoglycemia (defined as requiring assistance of another) in the preceding 1 year, with no more than 2 episodes of severe hypoglycemia in the preceding 3 years.
  - v. Is certified not to have a medical contraindication to law enforcement academy training and operations.
- (2) Insulin-requiring Type 2 diabetes mellitus, unless a candidate meets all of the following criteria:
- (a) Is maintained by a physician knowledgeable in current management of diabetes mellitus.
  - (b) Has demonstrated over a period of at least 3 months the motivation and understanding required to closely monitor and control capillary blood glucose levels through nutritional therapy and insulin administration.

Assessment shall take into consideration the erratic or interrupted meal schedules and high aerobic and anaerobic workloads intrinsic to the ISP Trooper's essential tasks (See: II A-D and H).

- (c) Has a dilated retinal exam by a qualified ophthalmologist or optometrist that shows no higher grade of diabetic retinopathy than microaneurysms, as indicated on the International Clinical Diabetic Retinopathy Disease Severity Scale.
- (d) Has normal renal function based on a calculated creatinine clearance greater than 60 mL/min and absence of proteinuria. (Creatinine clearance can be calculated by use of the Cockcroft-Gault or similar formula. Proteinuria is defined as 24-hour urine excretion of greater than or equal to 300 mg protein or greater than or equal to 300 mg of albumin per gram

of creatinine in a random sample).

- (e) Has no autonomic or peripheral neuropathy. (Peripheral neuropathy is determined by diminished ability to feel the vibration of a 128 cps tuning fork or the light touch of a 10-gram monofilament on the dorsum of the great toe proximal to the nail. Autonomic neuropathy can be determined by evidence of gastroparesis, postural hypotension, or abnormal tests of heart rate variability.)
  - (f) Has normal cardiac function without evidence of myocardial ischemia on cardiac stress testing (to at least 12 METS) by ECG and cardiac imaging.
  - (g) Has a signed statement and medical records from an endocrinologist or a physician with demonstrated knowledge in the current management of diabetes mellitus as well as knowledge of the essential job tasks (II A-D) and working conditions (II H) of the ISP Trooper allowing the ISP physician to determine whether the candidate meets the following criteria:
    - i. Is maintained on a stable insulin regimen and has demonstrated over a period of at least 3 months the motivation and understanding required to closely monitor and control capillary blood glucose levels despite varied activity schedules through nutritional therapy and insulin administration.
    - ii. Has had hemoglobin A1C measured at least four times a year (intervals of 2 to 3 months) over the last 12 months prior to evaluation if the diagnosis of diabetes has been present over 1 year. A hemoglobin A1C reading of 8% or greater shall trigger a medical evaluation to determine if a condition exists in addition to diabetes that is responsible for the hemoglobin A1C not accurately reflecting average glucose levels. This shall include evidence of a set schedule for blood glucose monitoring and a thorough review of data from such monitoring.
    - iii. Does not have an increased risk of hypoglycemia due to alcohol use or other predisposing factors.
    - iv.\* Has had no episodes of severe hypoglycemia (defined as requiring assistance of another) in the preceding 1 year, with no more than two episodes of severe hypoglycemia in the preceding 3 years
    - v. Is certified not to have a medical contraindication to law enforcement academy training and operations.
- (3) Any endocrine or metabolic condition that results in the candidate not being able to safely perform one or more of the essential job tasks (See: II A-D and H).

**Group II medical conditions shall include the following:**

- (1)\* Diseases of the adrenal gland, pituitary gland, parathyroid gland, or thyroid gland of clinical significance
- (2) Nutritional deficiency diseases or other metabolic disorder
- (3) Diabetes mellitus, not on insulin therapy, but controlled by diet, exercise, and/or oral hypoglycemic agents unless all of the following are met:
  - (a) Has had hemoglobin A1C measured at least four times a year (intervals of 2 to 3 months) over the last 12 months prior to evaluation if the diagnosis of diabetes has been present over 1 year. A hemoglobin A1C reading of 8% or greater shall trigger a medical evaluation to determine if a condition exists in addition to diabetes that is responsible for the hemoglobin A1C not accurately reflecting average glucose levels. This shall include evidence of a set schedule for blood glucose monitoring and a thorough review of data from such monitoring.
  - (b) If on oral hypoglycemic agents, has had no episodes of severe hypoglycemia (defined as requiring assistance of another) in the preceding year.
  - (c) Has a dilated retinal exam by a qualified ophthalmologist or optometrist that shows no higher grade of diabetic retinopathy than microaneurysms, as indicated on the International Clinical Diabetic Retinopathy Disease Severity Scale.
  - (d) Has normal renal function based on a calculated creatinine clearance greater than 60 mL/min and absence of proteinuria. (Creatinine clearance can be calculated by use of the Cockcroft-Gault or similar formula. Proteinuria is defined as 24-hour urine excretion of greater than or equal to 300 mg protein or greater than or equal to 300 mg of albumin per gram of creatinine in a random sample.)
  - (e) Has no autonomic or peripheral neuropathy. (Peripheral neuropathy is determined by diminished ability to feel the vibration of a 128 cps tuning fork or the light touch of a 10-gram monofilament on the dorsum of the great toe proximal to the nail. Autonomic neuropathy can be determined by evidence of gastroparesis, postural hypotension, or abnormal tests of heart rate variability.)
  - (f) Normal cardiac function without evidence of myocardial ischemia on cardiac stress testing (to at least 12 METs) by ECG and cardiac imaging.

## Section B: Explanatory Section

### Group I

- (1) Type 1 diabetes was previously called insulin dependent diabetes mellitus (IDDM) or juvenile-onset diabetes. Type 1 diabetes accounts for 5% to 10% of all diagnosed cases of diabetes. In order to survive, people with Type 1 diabetes must have insulin delivered by a pump or injections.

Type 2 diabetes was previously called non-insulin-dependent diabetes mellitus (NIDDM) or adult-onset diabetes. Type 2 diabetes accounts for about 90% to 95% of all diagnosed cases of diabetes. Many people with Type 2 diabetes control their blood glucose by following a careful diet and exercise program, losing excess weight, and taking oral medication. Among adults with diagnosed diabetes, about 12% take both insulin and oral medications, 19% take insulin only, 53% take oral medications only, and 15% do not take either insulin or oral medications.

Risk of hypoglycemia (low blood sugar) remains the major concern in regard to those with diabetes being or becoming ISP Troopers. This risk is greatest in those with Type 1 diabetes.

In general, persons treated with oral diabetes medications are at little risk of significant hypoglycemia. Individuals treated with sulfonylureas and related drugs have a risk of severe hypoglycemia less than 1% of the risk associated with insulin treatment. Persons treated with diet and exercise alone (no oral diabetes medications or insulin) are at no risk of hypoglycemia.

The job of an ISP Trooper entails a unique set of conditions that need to be considered in regard to those with diabetes and the risks of hypoglycemia. Unpredictable meal schedules, sudden periods of physical exertion, adrenergic stimulation all present challenges to candidates with diabetes. There are occasions when there is no safe access to food or other forms of oral glucose while wearing gas masks and/or riot helmets in dangerous environments, and the typical symptoms of hypoglycemia might not be recognized as easily in the midst of quelling a disturbance or responding to a crime in progress. As well, it is not always possible to exit a dangerous situation rapidly enough to treat hypoglycemic symptoms when detected. With careful individualized assessment, following the criteria listed above, it is possible to identify those with diabetes who can function fully as an ISP Troopers and who do not present a significant risk to themselves, their fellow Troopers, or the public.

The individualized assessment process and criteria included in this standard were set up to assure that only those who are managing their diabetes conscientiously using the most up-to-date approaches would be eligible to be an ISP Trooper. In addition, certain individuals have a greater tendency for significant hypoglycemia despite the quality of their diabetes management. Such individuals are not good candidates to be ISP Troopers and, accordingly, are disqualified under the criteria

in this standard.

This individualized assessment is possible in large part because a great deal of change has occurred in the treatment of diabetes in recent years. Regimens now referred to as "basal bolus" are composed of a very long-acting basal (or background) insulin, which controls glucose levels overnight and in the absence of glucose intake, and rapid-acting (bolus) insulins that are dosed just prior to, during, or even after meals based on blood glucose levels at that time, the amount of carbohydrate that the person expects to consume, and any anticipated change in physical activity patterns over the next number of hours. These regimens have resulted in improved overall blood glucose control with significantly less risk of hypoglycemia for many individuals.

Additional major advances in the size, speed, and sophistication of blood glucose meters provide for easy, accurate, and rapid assessment of blood glucose levels. Such monitoring techniques, as well as the generally increased self-awareness that accompanies consistent self-monitoring, enable the motivated ISP Trooper with diabetes to assess blood glucose levels and ingest a safety net of carbohydrates performing strenuous duties. Similarly, major advances in insulin delivery systems have greatly increased the ability of the motivated individual with diabetes to achieve a level of diabetes self-management consistent with the duties of ISP Trooper.

In order to get maximum effect from medical advances and to minimize the risk of hypoglycemia, individuals with diabetes must check their blood glucose level frequently (as recommended based on factors such as type of therapy and glycemic history), review those results on a regular basis, and see their diabetes care provider regularly for discussion in regard to any necessary changes in treatment. Individual evaluation needs to look for any of the known risk factors for serious hypoglycemia or evidence of any of the known microvascular (eye disease, kidney disease, or nerve disease) or macrovascular (cardiovascular disease, peripheral arterial disease) complications of diabetes. A 12 MET stress test is required because myocardial infarction remains the significant cause of fatalities, and diabetes is a risk factor for myocardial ischemia, especially asymptomatic silent myocardial ischemia.

Recognizing that there is variability in the relationship between the hemoglobin A1C and the 3-month average blood glucose, it is recommended that hemoglobin A1C levels greater than the 8% threshold be confirmed by a second determination before action is taken.

The physician evaluating an individual with a hemoglobin A1C >8% should consider a discordance between the A1C and the 3-month average glucose if any of the following conditions exists:

- (a) A repeated value is below the threshold.

- (b) A single A1C determination is discordant with prior or subsequent determinations with no other evidence of deterioration in glycemic control.
- (c) The individual's reported capillary blood glucose determinations and/or venous glucose determinations in the physician's office are significantly lower than those reflected by the estimated average glucose (eAG) calculator available at: <http://professional.diabetes.org/glucosecalculator.aspx>.
- (d) The individual has a personal history or other evidence of a hemoglobinopathy.
- (f) The individual is a member of an ethnic group with increased risk of hemoglobinopathy.

If the evaluating physician suspects that the A1C overestimates average blood glucose, further evaluation can include the following:


- (a) A repeat Hb A1C
- (b) Prior Hb A1C values
- (c) Serum fructosamine determination
- (d) Downloaded reports from a memory glucometer
- (e) Downloaded reports from a 72-hour continuous glucose monitor
- (f) Downloaded reports from a personal continuous glucose monitoring device

Possible explanations for discordance between the eAG based on A1C and the individual's true average glucose should be addressed by the endocrinologist or specialist.

- (2) (g)iv. Episodes of severe hypoglycemia are associated with an increased risk of subsequent episodes. Hypoglycemia can interfere with cognitive function and judgment. Presence of microvascular and neurological complications of diabetes can increase the risk of hypoglycemic events.

## Group II

- (1) The candidate should be evaluated for absence of orthostatic hypotension, electrolyte disorders, ability to maintain hydration during exercise under extreme environmental conditions, and normal thyroxine levels with supplementation.



**Appendix A**



## References

American College of Occupational and Environmental Medicine (ACOEM). (2007). *Guidance for the Medical Evaluation of Law Enforcement Officers. Diabetes Mellitus*. Chapter 4.3 p 1-11.

American Diabetes Association (ADA) (2013a). *American Diabetes Association Releases New Research Estimating Annual Cost of Diabetes at \$245 billion*. Press Release March 6, 2013. <<http://www.diabetes.org/for-media/2013/annual-costs-of-diabetes-2013.html>>.

American Diabetes Association (ADA). (2013). Executive Summary: Standards of Medical Care in Diabetes. *Diabetes Care*, 36, (Suppl. 1), (S4-S10).

American Diabetes Association (ADA). (2013). Diagnosis and Classification of Diabetes Mellitus. *Diabetes Care*, 36, (Suppl. 1). S67-S74.

American Diabetes Association (ADA). (2009). Diabetes and Employment. *Diabetes Care*, 32, (Suppl. 1), S80-S84.

American Diabetes Association (ADA). (2006). Physical Activity/Exercise and Type 2 Diabetes: A consensus statement from the American Diabetes Association. *Diabetes Care*, 29, 6, (1443-38).

American Diabetes Association (ADA). (2004a). Clinical practice recommendations: physical activity/exercise and diabetes. *Diabetes Care*, (Suppl. 1) 27, S58-S62.

American Diabetes Association. (2004b). Clinical practice recommendations: The standards of care in diabetes. *Diabetes Care*, (Suppl. 1) 27, S15-S35.

American Diabetes Association (ADA). (2003). Blood glucose monitors and data management. *Diabetes Forecast*, 77-103).

Benbassat, C.A. et al. (2001). Pulmonary function in patients with diabetes mellitus. *Am J Med Sci*, 3, 127-32.

Centers for Disease Control (CDC). (2011). *National Diabetes Fact Sheet*. <<http://www.cdc.gov/diabetes/pubs/factsheet11.htm>>.

Cohen, O., Basu, R., Bock, G., et al. (2006). Prediction of postprandial glycaemic exposure: utility of fasting and 2-h glucose measurements alone and in combination with assessment of body composition, fitness, and strength. *Diabetes Care*, 29(12): 2708-13.

Cohen, R.M. (2007). A1C: does one size fit all? *Diabetes Care*, 30(10), 2756-2758.

Cohen, R.M., Franco, R.S., Khera, P.K., Smith, E.P. et al. (2008). Red cell life span heterogeneity in hematologically normal people is sufficient to alter HbA1c. *Blood*, 112(10), 4284-4291.

Cox, D.J. et al. (2002a). The effects of glucose fluctuation on cognitive function and QOL. *Int J Clin Pract Suppl*, 129, 20-26.

Cox, D.J., Gonder-Frederick, L.A., Kovatchev, B.P., & Clarke W.L. (2002b). The metabolic demands of driving for drivers with type 1 diabetes mellitus. *Diabetes Metab Res Rev*, 18(5), 381-385.

Cox, D.J. et al. (2005). Relationships between hyperglycemia and cognitive performance among adults type 1 and type 2 Diabetes, *Diabetes Care*, 28, 71-77.

DCCT Research Group. (1991). Epidemiology of severe hypoglycemia in the diabetes control and complications trial. *Am J Med*, 90, 450-459.

DCCT Research Group. (1993). The effects of intensive treatment of diabetes on the development and progression of long-term complications in insulin-dependent diabetes mellitus. *NEJM*, 329, 977-86.

DCCT Research Group. (1997). Hypoglycemia in the diabetes control and complications trial, *Diabetes*, 46, 271-86.

Deary, I.J. (1999). Symptoms of hypoglycemia and effects on mental performance and emotions. In: *Hypoglycaemia in Clinical Diabetes*. Frier, B.M. & Fisher, B.M. (eds.). Chrickester, UK: Wiley and Sons.

Draelos, M.T. et al. (1995). Cognitive function in patients with insulin-dependent diabetes during hyperglycemia and hypoglycemia. *Am J Med*, 98, 135-44.

Erlinger, T.P. & Brancati, F.L. (2001). Post challenge hyperglycemia in a national sample of U.S. adults with type 2 diabetes. *Diabetes Care*, 24, 1734-38.

Fong, D.S. et al. (2004). Retinopathy in diabetes. *Diabetes Care*, 27, S84-S87.

Holstein, A. et al. (2001). Lower incidence of severe hypoglycaemia in patients with type 2 diabetes treated with glimepiride. *Diabetes Metab Res Rev*, 17, 467-73.

Holstein, A. & Egberts, E.H. (2003). Risk of hypoglycaemia with oral antidiabetic agents in patients with type 2 diabetes. *Exp Clin Endocrinol Diabetes*, 111, 405-14.

Industrial/Organizational Solutions (2010). *Job Analysis Report for the Rank of Trooper*. Westchester, IL: I/O Solutions Technical Report.

Jennings, A.M. et al. (1989). Symptomatic hypoglycemia in NIDDM patients treated with oral hypoglycemic agents. *Diabetes Care*, 12, 203-8.

Jensen, T. et al. (1998). Impaired aerobic work capacity in insulin dependent diabetics with increased urinary albumin excretion. *Brit Med J*, 296, 1352-4.

Khera, P.K., Joiner, C.H., Carruthers, A., Lindsell, C.J., Smith, E.P. et al. (2008). Evidence for interindividual heterogeneity in the glucose gradient across the human red blood cell membrane and its relationship to hemoglobin glycation. *Diabetes*, 57(9), 2445-2452.

Kirk, J.K., D'Agostino, R.B., Bell, R.A., Passmore, L.V., Bonds, D.E. et al. (2006). Disparities in HbA1c levels between African-American and non-Hispanic white adults with diabetes: a meta-analysis. *Diabetes Care*, 29(9), 2130-2136.

Klonoff, D. et al. (2011). Continuous Glucose Monitoring: An Endocrine Society Clinical Practice Guideline. *J Clin Endocrinol Metab*, 96(10), 2968-2979.

Korzon-Buirakowska, A. et al. (1998). Effects of glycemic control on protective responses against hypoglycemia in type 2 diabetes. *Diabetes Care*, 21, 283-290.

Kovatchev, B.P., Cox, D.J., Gonder-Frederick, L.A., Young-Hyman, D., Schlundt, D. & Clarke, W.L. (1998). Assessment of risk for severe hypoglycemia among adults with IDDM. *Diabetes Care*, 21, 1870-5.

Kovatchev, B.P., Cox, D.J., Gonder-Frederick, L.A., & Clarke, W.L. (2002). Methods for quantifying self-monitoring blood glucose profiles. *Diabetes Technology & Therapeutics*, 4, 295-303.

Kovatchev, B.P., Cox, D.J., Kumar, A., Gonder-Frederick, L.A. & Clarke, W.L. (2003). Algorithmic evaluation of metabolic control and risk of severe hypoglycemia in type 1 and type 2 diabetes using self-monitoring blood glucose data. *Diabetes Technology & Therapeutics*, 5, 817-28.

Kristensen, J.S. et al. (2000). Compared with repaglinide sulfonylurea treatment in type 2 diabetes is associated with a 2.5-fold increase in symptomatic hypoglycemia with blood glucose levels <45 mg/dl [abstract]. *Diabetes*, 49 Suppl. 1, A131.

Leese, G.P. et al. (2003). Frequency of severe hypoglycemia requiring emergency treatment in type 1 and type 2 diabetics. *Diabetes Care*, 26, 1176-1180.

MacLeod, K.M., Hepburn, D.A., & Frier, B.M. (1993). Frequency and morbidity of severe hypoglycemia in insulin-treated diabetic patients. *Diabetic Med*, 10, 238-45.

MED-TOX Health Services (2013). *Sensory Abilities Task Validation & Working Conditions Analysis for the Illinois State Police*. Ontario, CA: MED-TOX Technical Report.

Nathan, D.M., Buse, J.B., Davidson, M.B., Ferrannini, E., Holman, R.R. et al. (2009). Medical management of hyperglycaemia in type 2 diabetes mellitus: A consensus algorithm for the initiation and adjustment of therapy. A consensus statement from the American Diabetes Association and the European Association for the study of diabetes. *Diabetologia*, 52, 17-30.

National Institutes of Health (NIH). (2007). *Estimated Diabetes Costs in the United States in 2007*. <<http://diabetes.niddk.nih.gov/dm/pubs/statistics/index.htm#costs>>.

National Institutes of Health. (October, 2012). Sick cell trait and other hemoglobinopathies and diabetes: important information for providers. National Diabetes Information Clearing House. NIH Publication No 13-6287 <<http://diabetes.niddk.nih.gov/dm/pubs/hemovari-A1C/>>.

Salorant, C. et al. (2002). Efficacy and safety of nateglinide in type 2 diabetic patients with modest fasting hyperglycemia. *J Clin Endocrinol Metab*, 87, 4171-6.

Seltzer, H.S. (1989). Drug-induced hypoglycemia: A review of 1418 cases. *Endocrinol Metab Clin N Am*, 18, 163-83.

Soranzo, N., Sanna, S., Wheeler, E., Gieger C. & Radke, D. (2010). Common variants at 10 genomic loci influence hemoglobin A1(C) levels via glyceimic and nonglyceimic pathways. *Diabetes*, 59(12), 3229-3239.

Stratton, I.M. et al. (2000). Association of glycaemia with macrovascular and microvascular complications of type 2 diabetes (UKPDS 35): Prospective observational study. *Brit J Med*, 321, 405-12.

Viberti, G., Lachin, J., Holman, R., Zinman, B., Haffner, S. et al. (2006). A Diabetes Outcome Progression Trial (ADOPT): baseline characteristics of Type 2 diabetic patients in North America and Europe. *Diabet Med*, 23(12), 1289-1294.

Weinger, K. et al. (1995). Blood glucose estimation and symptoms during hyperglycemia and hypoglycemia in patients with insulin-dependent diabetes mellitus. *Am J Med*, 98, 22-31.

Wilkinson, C.P. et al. (2003). Proposed international clinical diabetic retinopathy and diabetic macularedema disease severity scales. *Ophthalmology*, 110(9), 1677-1682.

Ziemer, D.C., Kolm, P., Weintraub, W.S., Vaccarino, V. et al. (2010). Glucose-independent, black-white differences in hemoglobin A1c levels: a cross-sectional analysis of 2 studies. *Ann Intern Med*, 152(12), 770-777.

**ILLINOIS STATE POLICE**  
**Physician Evaluation Form for Diabetes**

**I. Introduction**

Applicant Name \_\_\_\_\_

You are being asked to evaluate a candidate for a position as an Illinois State Trooper (IST). It is essential that the candidate undergo an individualized assessment of his or her diabetes to determine whether the candidate's condition permits safe and effective job performance. This evaluation is based on the guidance established by the American College of Occupational and Environmental Medicine (ACOEM). The relevant sections of these guidances are listed below in bold, followed by the information needed to assess whether the individual meets these. The educated and motivated IST or applicant with well-managed diabetes mellitus can be capable of safe and effective job performance. An individualized assessment of the IST's or applicant's diabetes should be performed including an assessment of the following:

- History of blood glucose control
- Current stability of blood glucose
- Risk for significant hypoglycemia or hyperglycemia
- Presence of diabetic complications
- Knowledge of diabetes and its management.

Risk of hypoglycemia remains the major concern in regard to those with diabetes being or becoming ISTs. This risk occurs primarily in those taking insulin, particularly those with type 1 diabetes, although it may also occur in those with type 2 diabetes who take insulin and/or sulfonylureas and other secretagogues.

State Trooper work entails a unique set of conditions that need to be considered in regard to those with diabetes and the risks of either hypo or hyperglycemia. These may include (depending upon the duties of the particular position):

- unpredictable meal schedules;
- brief periods of maximal physical exertion;
- prolonged driving with responsibility for others in the vehicle;
- high-speed pursuit driving;
- surveillance requiring sustained attention for prolonged periods of time;
- rapid decision making regarding the use of force, including deadly force;
- rapid analysis of complex visual stimuli to differentiate weapons from other objects; and
- control of one's emotions under stress.

**II. Assessment**

1. The candidate has been under the care of an endocrinologist or other physician knowledgeable about diabetes management. Outpatient and inpatient medical record(s) of the last three years or since date of diagnosis (whichever is shorter) should be reviewed by the treating physician and provided to the occupational medicine physician.

*My credentials as a physician knowledgeable about diabetes management are as follows (or attach CV):*

---

---

---

---

*This person has: \_\_\_\_\_ type 1 diabetes \_\_\_\_\_ type 2 diabetes*

*Date of diagnosis: \_\_\_/\_\_\_/\_\_\_*

*Attach records for prior 3 years or since onset of diabetes whichever is shorter for:*

*\_\_\_\_outpatient treatment \_\_\_\_inpatient treatment*

2. If type 1 diabetes, has been on a basal/bolus regimen or an insulin pump using analogue insulins for the six (6) months prior to evaluation.

Current insulin regimen: Insulin pump brand \_\_\_\_\_

*Multiple dose insulin (specify regimen)*

---



---



---



---

Start Time					
Rate					

Start Time					
Rate					

**Bolus doses:**

Breakfast	
Lunch	
Dinner	
Other	

**Correction Factor:**

*Multiple dose insulin (specify regimen)*

**Basal:**

---



---

**Bolus:**

---



---

Starting date on current regimen: \_\_\_/\_\_\_/\_\_\_

3. If type 2 diabetes on insulin, has been on a stable medication regimen for the three (3) months prior to evaluation. If on oral agents alone, should be on a stable medication regimen for the month prior to evaluation.

Current medication regimen:

Oral Agents	Insulin

Starting date on current regimen: \_\_\_/\_\_\_/\_\_\_

4. Has documentation of ongoing self-monitoring of blood glucose. This must be done with a glucose meter that stores every reading, records date and time of reading and from which data can be downloaded.

Monitoring records must be available covering the time periods (1, 3, or 6 months), as described in Sections 2 and 3, following a schedule acceptable to the occupational medicine physician.

\_\_\_ *The individual has been asked to test glucose \_\_\_\_\_ times a day, and is adhering to my recommended schedule for testing.*

\_\_\_ *The individual is not adhering to my recommended schedule for testing.*

*Glucose logs:*

\_\_\_ *are attached for review*

\_\_\_ *are not attached for review (please explain):*

5. Has been educated in diabetes and its management and thoroughly informed of and understands the procedures that must be followed to monitor and manage his/her diabetes and what procedures should be followed if complications arise.

*The individual has completed the following diabetes education (include year of completion):*

---

---

6. If an insulin pump user, documents:

- proper understanding and education in the use of the insulin pump
- start date for the use of the pump
- history of insulin site infections
- history of pump cessation and pump malfunction
- backup plan for pump malfunction including use of injectable insulin
- frequency of infusion set changes

*The individual has completed the following education in the use of a continuous insulin infusion pump (indicate year of completion):*

---

---

*The individual routinely carries appropriate supplies to compensate for pump malfunction, including syringes and insulin vials or insulin pens.*

\_\_\_Yes \_\_\_No - please explain

---

---

*The individual has had more than one pump site infection that caused him/her to miss work or usual daily activities in the preceding six months.*

\_\_\_Yes \_\_\_No - please explain

---

---

7. Has had hemoglobin A1C measured at least four times a year (intervals of two to three months) over the last 12 months prior to evaluation if diagnosis has been present over a year.

<i>Date</i>	<i>HbA1C</i>

8. If the individual's A1C was found to be 8% or above on one or more occasions, has the validity of that level been confirmed by a second determination?

Yes  No - please explain

9. If the second determination specified was done, is there any reason to suspect that the original 1C level(s) overstates average blood glucose?

Yes  No

10. Incapacitating events -- Has not had any within the past one (1) year and no more than two (2) episodes in the past three (3) years, or since diagnosis of diabetes (whichever is shorter) episodes of:

a. severe hypoglycemia (loss of consciousness, seizures or coma, requiring the assistance of others or needing urgent treatment [glucagon injection or IV glucose]) or

b. a blood sugar < 60 mg/dl with unawareness demonstrated in current glucose logs.

*Has this individual had an episode of hypoglycemia as described above?*

Yes  No

*If the individual has had such episode(s), please describe episodes and provide dates of episodes:*

11. Has had a complete eye exam by a qualified ophthalmologist or optometrist, including a dilated retinal exam, demonstrating no more than mild background diabetic retinopathy.

*Copy of ophthalmology or optometry report is attached:*

Yes  No - please explain

12. Has normal vibratory testing with 128 Hz tuning fork, has normal testing with 10 gram Semmes-Weinstein monofilament and normal orthostatic blood pressure and pulse testing.

<b>Vibration sensation:</b>	
<b>Monofilament:</b>	
<b>BP supine:</b>	<b>Pulse supine</b>
<b>BP standing:</b>	<b>Pulse standing:</b>

13. Has normal cardiac physical exam and normal cardiac stress testing to at least 12 METS. Annual cardiac stress testing should begin when any of the following criteria are met:

- age greater than 35 years
- Type 1 DM greater than 15 years duration
- Type 2 DM greater than 10 years duration
- signs of target organ damage (eyes, kidneys, autonomic, cardiac)
- any other coronary artery disease risk factors

*Copy of stress test report performed within the last 12 months is attached:*

Yes  No - please explain

14. Has normal renal function based on albumin/creatinine ratio  $\leq 30:1$ , and measured or calculated creatinine clearance  $> 60$  ml/min.

*Serum Creatinine:* \_\_\_\_\_

*Calculated creatinine clearance (Specify Method):* \_\_\_\_\_

*Cockcroft Gault or*

*MDRD*

*Urine microalbumin/creatinine ratio:* \_\_\_\_\_

### III. Treating Physician Statement

The above named individual meets all of the criteria provided on this form:

*Yes* - It is my opinion that the above named individual is well-educated and well motivated in diabetes self-management and has achieved a level of diabetes management to be capable of safe and effective job performance as an Illinois State Trooper. I have reached this opinion after careful review of the above criteria.

*No* - I do not recommended for this individual for the job of State Trooper.

*No* - But, I do recommend this individual for job of State Trooper (letter of explanation attached).

\_\_\_\_\_  
**Treating Physician Signature**

\_\_\_\_\_  
**Date**

\_\_\_\_\_  
**Printed Name of Physician**

\_\_\_\_\_  
**Phone Number**



## **Gastrointestinal System**

### **Section A: Medical Assessment of ISP Candidate Conditions**

#### **Group I medical conditions shall include the following:**

- (1) Any gastrointestinal condition that results in the candidate not being able to safely perform one or more of the essential job tasks

#### **Group II medical conditions shall include the following:**

- (1)\* Cholecystitis
- (2)\* Gastritis
- (3)\* GI bleeding
- (4)\* Acute hepatitis
- (5)\* Hernia including the following:
  - (a) Uncorrected umbilical, ventral, or incisional hernia if significant risk exists for infection or strangulation.
  - (b) Significant symptomatic hiatal hernia if associated with asthma, recurrent pneumonia, chronic pain, or chronic ulcers.
  - (c) Surgically corrected hernia more than 3 months postoperative with persistent <sup>symptoms</sup> complaints of pain, or nonhealing surgical site.
- (6)\* Inflammatory bowel disease or irritable bowel syndrome
- (7)\* Intestinal obstruction
- (8)\* Pancreatitis
- (9) Diverticulitis
- (10)\* History of gastrointestinal surgery
- (11)\* Peptic or duodenal ulcer or Zollinger-Ellison syndrome
- (12)\* Asplenia
- (13)\* Cirrhosis, hepatic or biliary
- (14)\* Chronic active hepatitis

## Section B: Explanatory Section

- (1) Cholecystitis (that which causes frequent pain due to stones or infection) can result in frequent episodes of pain, resulting in incapacitation, and the inability to safely perform essential job tasks (See: essential tasks II A-C and H).
- (2) Gastritis (that which causes recurrent pain and impairment) can result in frequent episodes of pain, resulting in incapacitation, and the inability to safely perform essential job tasks (See: essential tasks II A-C and H).
- (3) GI bleeding can cause fatigue and/or hemodynamic instability resulting in the inability to safely perform essential job tasks (See: essential tasks II A-C and H).
- (4) Acute hepatitis (until resolution of acute hepatitis as determined by clinical examination and appropriate laboratory testing) can result in frequent episodes of pain, resulting in incapacitation, and the inability to safely perform essential job tasks (See: essential tasks II A-C and H). Review of the candidate's medical records and referral to their personal physician or gastroenterologist for further evaluation and management plans may be indicated before medical clearance may be determined.
- (5) The role of the ISP Trooper requires heavy lifting, dynamic or static exertion resulting in explosive or sustained increased intra abdominal pressure (See: essential tasks II A-C and H). These activities can trigger hernia in persons with underlying susceptibilities, or cause strangulation with painful incapacitation in persons with pre-existing hernias. The candidate should be evaluated for persistent abnormality causing increased risk of infection and/or strangulation.
- (6) Inflammatory bowel disease (that which causes disabling pain or diarrhea) can result in frequent episodes of pain, resulting in incapacitation, and the inability to safely perform essential job tasks (See: essential tasks II A-C and H). It is a progressive illness leading to functional impairment.

Candidates with mild ulcerative colitis based on symptoms and laboratory tests, and who have been relapse free for one year or more with little or no excessive work absence history should not have any limitations from performing the job duties of an ISP Trooper. For example, Candidates who have well-controlled and predictable IBS symptoms such as morning diarrhea with no prior evidence of excessive work absences may not require any restrictions.

However, candidates with moderate to severe disease activity, who have had: one or more flares of ulcerative colitis in the previous one year; experienced significant medication side effects; or a history of disease-related excessive work absences should be referred to a gastroenterologist for further evaluation and management prior to making a medical clearance determination.

Moderate to severe IBS can adversely impact the candidate's capacity to perform the essential duties of an ISP Trooper because of unpredictable episodes of severe abdominal pain/spasms, resulting in incapacitation, diarrhea, and fecal urgency. Treatment of IBS with medications (e.g., opioids, anticholinergics, tricyclic antidepressants) that have sedating side effects may also interfere with the vigilance and responsiveness required for the job of an ISP Trooper (II C-E).

Candidates with moderate to severe IBS requiring the use of sedating medications or a history of excessive work absences may have significant functional impairment that would preclude them from performing the essential functions of the job of an ISP Trooper. It is important that these candidates be referred to their personal physician or gastroenterologist for further evaluation and management prior to making a medical clearance determination.

- (7) Intestinal obstruction (that is, recent obstruction with impairment) can result in frequent episodes of pain, resulting in incapacitation, and the inability to safely perform essential job tasks (See: essential tasks II A-C and H). A review of the medical records to ensure appropriate treatment was successful and there is no indication of an unstable medical condition.
- (8) Pancreatitis (chronic or recurrent) can result in frequent episodes of pain, resulting in incapacitation, and the inability to safely perform essential job tasks (See: essential job II A-C and H).
- (10) A bowel resection (if frequent diarrhea precludes performance of duty) can result in frequent episodes of pain, resulting in incapacitation, and the inability to safely perform essential job tasks (See: essential tasks II A-C and H).
- (11) A gastrointestinal ulcer (where symptoms are uncontrolled by drugs or surgery) can result in frequent episodes of pain, resulting in incapacitation, and the inability to safely perform essential job tasks (See: essential tasks II A-C and H).
- (12) The candidate should be evaluated for underlying disease, history of trauma, or associated infections.
- (13) Cirrhosis, hepatic or biliary (that which is symptomatic or in danger of bleeding), can result in frequent episodes of pain, resulting in incapacitation, and the inability to safely perform essential job tasks (See: essential tasks II A-C and H).
- (14) Chronic active hepatitis can result in weakness, general malaise, and the inability to safely perform essential job tasks (See: essential tasks II A-C and H).

## References

- American Gastroenterological Association. (2006). Medical Position Statement on Corticosteroids, Immunomodulators, and Infliximab in Inflammatory Bowel Disease. *Gastroenterology*, 130(3), 935-39.
- American Gastroenterological Association. (2008). Medical Position Statement on the Management of Gastroesophageal Reflux Disease. *Gastroenterology*, 134(4), 1383-91.
- American Gastroenterological Association. (2004). Medical Position Statement: Diagnosis and Treatment of Hemorrhoids. *Gastroenterology*, 126(5), 1461-62.
- American Gastroenterological Association. (2006). Medical Position Statement on the Management of Hepatitis C. *Gastroenterology*, 130(1), 225-30.
- American Gastroenterological Association. (2002). Medical Position Statement: Evaluation of Liver Chemistry Tests. *Gastroenterology*, 123(4), 1364-66.
- American Gastroenterological Association. (2002). Medical Position Statement: Irritable Bowel Syndrome. *Gastroenterology*, 123(6), 2105-2017.
- Cappell, M.S. (2008). Acute Pancreatitis: etiology, clinical presentation, diagnosis and therapy. *Medical Clin North Am*, 92(4), 889-923
- Everhart, J.E. & Ruhl, C.E. (2009). Burden of digestive diseases in the United States part I: overall and upper gastrointestinal diseases. *Gastroenterology*, 136(2), 376-86.
- Everhart, J.E. & Ruhl, C.E. (2009). Burden of digestive diseases in the United States part II: lower gastrointestinal diseases. *Gastroenterology*, 136(3), 741-54.
- Everhart, J.E. & Ruhl, C.E. (2009). Burden of digestive diseases in the United States Part III: Liver, biliary tract, and pancreas. *Gastroenterology*, 136(4), 1134-44.
- Hall, E.H. & Crowe, S.E. (2011). Environmental and lifestyle influences on disorders of the large and small intestine: implications for treatment. *Dig Dis*, 1(29), 2, 249-54.
- Kang, J.Y., Melville, D. & Maxwell, J.D. (2004). Epidemiology and management of diverticular disease of the colon. *Drugs Aging*, 21(4), 211-28.
- Kashiwagi, H. (2005). Ulcers and gastritis. *Endoscopy*, 37(2), 110-15.
- Kucharzik, T., Maaser, C., Lügering, A., Kagnoff, M., Mayer, L., et al. (2006). Recent understanding of IBD pathogenesis: implications for future therapies. *Inflamm Bowel Dis*, 12(11), 1068-83.

Longstreth, G.F., Thompson, W.G., Chey, W.D., Houghton, L.A., Mearin, F. & Spiller, R.C. (2006). Functional bowel disorders. *Gastroenterology*, 130(5), 1480-91.

Quinn, D.N. & Pfeil, S.A. (2002). Gastroenterology. *Clin Podiatr Med Surg*, 19(1), 23-42.

Riley, T.R. & Bhatti, A.M. (2001). Preventive strategies in chronic liver disease: part II. Cirrhosis. *Am Fam Physician*, 64(10), 1735-40.

U.S. Department of Health and Human Services. *Your Digestive System and How it Works*. National Digestive Diseases information Clearinghouse. National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health. <<http://digestive.niddk.nih.gov/diseases/pubs/yrdd/>>.

## **Genitourinary and Reproductive System**

### **Section A: Medical Assessment of ISP Candidate Conditions**

#### **Group I Medical conditions shall include the following:**

- (1) Any genital condition that results in inability to safely perform one or more of the essential job tasks (See: essential tasks II A-C and H).
- (2) Renal failure or insufficiency requiring continuous ambulatory peritoneal dialysis (CAPD) or hemodialysis.
- (3) Any urinary condition that results in the candidate not being able to safely perform one or more of the essential job tasks (See: essential tasks II A-C and H).

#### **Group II Medical conditions shall include the following:**

- (1)\* Pregnancy
- (2) Dysmenorrhea
- (3) Endometriosis, ovarian cysts, or other gynecologic conditions
- (4) Testicular or epididymal mass
- (5)\* Hydrocele
- (6)\* Varicocele
- (7)\* Disease of the kidney
- (8)\* Diseases of the ureter, bladder, or prostate

### **Section B: Explanatory Section**

#### **Group II**

- (1) The state of pregnancy in law enforcement officer candidates raises issues of inability to perform, injury to self (the mother), and injury to others (the fetus). However, the U.S. Supreme Court, in its landmark *United Auto Workers v. Johnson Controls* decision, ruled that employer fetal protection policies are not legal. Therefore, the examining physician cannot consider risks to the fetus.

Inability to perform and risks of injury to self generally arise in the third trimester. However, women who are better conditioned to performing tasks such as heavy lifting and running prior to pregnancy are likely to be able to safely continue to do these activities longer than someone who was not athletic prior to pregnancy.

Given the legal limitations referred to above, the best course of action is to provide the physical demands of the job and the academy physical training curriculum to the candidate's obstetrician, and to rely on this physician for appropriate work limitations. While the employer cannot restrict a woman to protect the fetus, the private treating physician does not have such a prohibition.

The obstetrician should be made aware of not only the physical requirements, but also the unavoidable exposure to high levels of impulse noise from firing ranges. According to the ACGIH (1998), "There is evidence to suggest that noise exposure in excess of a C-weighted, 8 hour TWA of 115 dBC or a peak exposure of 155 dBC to the abdomen of pregnant workers, beyond the fifth month of pregnancy, may cause hearing loss in the fetus."

Of concern is the fact that 155 dBC is about the noise level of a gunshot from greater than 0.22 caliber weapon. Given these noise levels, the obstetrician may have concerns of damage to the fetal hearing system. A recommendation in writing should be required as to when critical components of training such as firearms training, running, wrestling, jumping, and lifting should cease. Additionally, a statement regarding how many weeks the obstetrician will keep the candidate at home postpartum should also be required.

- (5) Small hydroceles (<1 cm) are not of functional significance. Medium (1-20 cm) and large (>20 cm) require treatment prior to placement.
- (6) If large, the varicocele may be associated with scrotal pain, a symptom aggravated by lifting or straining. Candidates should be questioned about any pain, heaviness, or swelling. Referral to an urologist in these cases is recommended.
- (7&8) Undiagnosed, newly diagnosed or chronic urinary conditions may require assessment by a nephrologist prior to medical clearance determination for State Troopers. Any candidate who has hematuria or proteinuria on urinalysis should be carefully assessed by a nephrologist or urologist based on the initial findings to exclude any condition which may suddenly worsen and require urgent medical attention. Persons with autosomal dominant polycystic kidney disease (ADPKD) are advised to avoid contact sports to prevent rupture of the kidney cysts; therefore, candidates with ADPKD are unlikely to be able to perform the full duties of State Troopers because of the potential for physical contact combative and violent subjects.

## References

American Conference of Government and Industrial Hygienists (ACGIH) (1998). *Today*, 6, 8.

American College of Obstetricians and Gynecologists Committee Obstetric Practice. (2002). Exercise during pregnancy and the postpartum period. (Opinion Number 267), *Obstet Gynecol*, 1, 171-173.

Centers for Disease Control. (2007). Prevalence of chronic kidney disease and associated risk factors--United States, 1999-2004. *Morb Mortal Wkly Rep*, 56(8), 161-165.

Fassett, R.G., Robertson, I.K. et al. (2009). Physical activity levels in patients with chronic kidney disease entering the LORD trial. *Med Sci Sports Exerc*, 41(5), 985-991.

Koufaki, P. & Kouidiand E. (2010). Current best evidence recommendations on measurement and interpretation of physical function in patients with chronic kidney disease. *Sports Med*, 40(12), 1055-1074.

Spetie, D.N., Haller, L.U., et al. (2002). Updates in nephrology. A summary of common diagnoses encountered in the clinical practice. *Clin Podiatr Med Surg*, 19(1), 43-64.

Thomas, R., Kanso, A., et al. (2008). Chronic kidney disease and its complications. *Prim Care*, 35(2), 329-344.

United Auto Workers v. Johnson Controls, Inc. 499 USC 187 (1991).

## **Hematopoietic Conditions**

### **Section A: Medical Assessment of ISP Candidate Conditions**

#### **Group I Medical conditions shall include the following:**

- (1) Hemorrhagic states requiring replacement therapy
- (2)\* Sickle cell disease (homozygous)
- (3)\* Clotting disorders or use of anticoagulants
- (4) Any hematological condition that results in inability to safely perform one or more of the essential job tasks (See: II A and H)

#### **Group II Medical conditions shall include the following:**

- (1)\* Anemia
- (2)\* Thalassemia
- (3) Leukopenia
- (4) Polycythemia vera
- (5) Splenomegaly
- (6) History of thromboembolic disease
- (7) Any other hematological condition that results in inability to safely perform essential job tasks (See: II A and H)

### **Section B: Explanatory Section**

#### **Group I**

- (2) Persons with sickle cell anemia are advised to avoid dehydration in the presence of environmental extremes (e.g., high temperatures, low humidity, etc.) and to preserve oxygen carrying capacity by avoiding the following: high altitudes (above 5,000 ft), use of an artificial breathing apparatus (gas mask), and exposure to toxins. Therefore, these candidates (homozygous) are precluded from performing the essential functions of an ISP Trooper.

- (3) Clotting disorders, or the use of anticoagulants such as warfarin increase the risk of serious injury as a result of physical trauma associated with subduing combative subjects and other essential job functions (See: essential tasks II A 166, 168, 203, etc.). Therefore, bleeding into joints, the retroperitoneal area, and intracranial bleeding are serious health risks. Regarding the risks "to self" posed by ISP Trooper duties, intracranial hemorrhage (ICH) from minor head trauma is the greatest concern.

Anticoagulant medications that prolong the prothrombin time (PT), partial thromboplastin time (PTT) or international normalized ratio (INR) increase the risk of injury during essential job functions. Use of , warfarin or replacement therapies presents a significant risk to the safety and health of the individual and others; therefore, precluding the candidate from performing the job functions of an ISP Trooper (See: II A and H).

## **Group II**

- (1) If anemia is present, candidates may need further evaluation such as iron studies, colonoscopy, esophagogastroduodenoscopy or hematologist consultation to determine the cause of the anemia. Given the potential for iron-deficiency anemia (IDA) to impair performance, the examining physician should require candidates with history of anemia to have a recent complete blood count (CBC). In the case of IDA, treatment should be aimed at correcting the cause of iron deficiency (such as control of bleeding) and may require dietary iron supplementation. The candidate may be required to bring documentation from their treating physician to show that their posttreatment hemoglobin levels have normalized. Candidates with anemia must demonstrate an exercise testing capacity of at least 12 METS. Anemia can limit an ISP Trooper's ability to safely perform in a wide variety of physically demanding situations.
- (2) Depending on the severity of clinical manifestations of the thalassemia, candidates must be assessed with an exercise test and must demonstrate a capacity of at least 12 METS.

## References

Hirsh, J. et al. (2008) Parenteral Anticoagulants: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines (8th Edition). *Chest*, 133(6 Suppl), 141S-159S.

Simpson, M.L. & Valentino, L.A. (2012). Management of joint bleeding in hemophilia. *Expert Rev Hematol*, 5(4), 459-68.

## **Musculoskeletal System**

### **Section A: Medical Assessment of ISP Candidate Conditions**

#### **Head**

##### **Group I medical conditions shall include the following:**

- (1) Defect of skull preventing helmet use or leaving underlying brain unprotected from trauma (See: essential tasks II A)
- (2) Any skull or facial deformity that would not allow for a successful fit test for a gas mask or other tactical gear used by the ISP (See: essential tasks II H)
- (3) Any head condition that results in the candidate not being able to safely perform one or more of the essential job tasks (See: essential tasks II A-H).

##### **Group II medical conditions shall include the following:**

- (1)\* Deformities of the skull such as depressions or exostoses
- (2)\* Deformities of the skull associated with evidence of disease of the brain, spinal cord, or peripheral nerves
- (3)\* Loss or congenital absence of the bony substance of the skull

#### **Neck**

##### **Group I medical conditions shall include the following:**

- (1) Any neck condition that results in the candidate not being able to safely perform one or more of the essential job tasks (See: essential tasks II A-H).

##### **Group II medical conditions shall include the following:**

- (1)\* Thoracic outlet syndrome
- (2)\* Congenital cysts, chronic draining fistulas, or similar lesions
- (3)\* Contraction of neck muscles

#### **Back**

##### **Group I medical conditions shall include the following:**

- (1) Scoliosis of thoracic or lumbar spine with angle greater than or equal to 40 degrees.

- (2) History of spinal surgery with rods that are still in place.
- (3) Any spinal or skeletal condition producing sensory or motor deficit(s) or pain due to radiculopathy or nerve root compression.
- (4) Any spinal or skeletal condition causing pain that frequently or recurrently requires narcotic analgesic medication.
- (5) Cervical vertebral fractures with multiple vertebral body compression greater than 25 percent; evidence of posterior element involvement, nerve root damage, disc involvement, dislocation (partial, moderate, severe), abnormal exam, ligament instability, symptomatic, and/or less than 6 months post injury or less than 1 year since surgery.
- (6) Thoracic vertebral fractures with vertebral body compression greater than 50 percent; evidence of posterior element involvement, nerve root damage, disc involvement, dislocation (severe-with or without surgery), abnormal exam, ligament instability, symptomatic, and/or less than 6 months post injury or less than 1 year since surgery.
- (7) Lumbosacral vertebral fractures with vertebral body compression greater than 50 percent; evidence of posterior element involvement, nerve root damage, disc involvement, dislocation (partial, moderate, severe), fragmentation, abnormal exam, ligament instability, symptomatic, and/or less than 6 months post injury or less than 1 year since surgery.
- (8)\* Any spinal or skeletal condition that results in the candidate not being able to safely perform one or more of the essential job tasks (See: essential tasks II A-H).

**Group II medical conditions shall include the following:**

- (1) Congenital or developmental malformations of the back, particularly those that can cause instability, neurological deficits, pain, or limit flexibility.
- (2) Scoliosis with angle less than 40 degrees.
- (3) Arthritis of the cervical, thoracic, or lumbosacral spine.

- (4) Facet atrophism, high lumbosacral angle, hyperlordosis, Scheuermann's disease, spina bifida occulta, spondylolisthesis, spondylolysis, or transitional vertebrae.
- (5) History of infections or infarcts in the spinal cord, epidural space, vertebrae, or axial skeletal joints.
- (6) History of discectomy or laminectomy or vertebral fractures.
- (7) History of spine fusion that results in instability, reduced mobility, strength, or range of motion; or persistent pain.

## **Extremities**

### **Group I medical conditions shall include the following:**

- (1) Joint replacement, unless all of the following conditions are met:
  - (a) Normal range of motion without history of dislocations post-replacement.
  - (b) Repetitive and prolonged pulling, bending, rotations, kneeling, crawling and climbing without pain or impairment.
  - (c) No limiting pain.
  - (d) Evaluation by an orthopedic specialist who concurs that the candidate can complete all essential tasks of the ISP Trooper job.
- (2) Amputation or congenital absence of upper-extremity limb (hand or higher).
- (3) Amputation of either thumb proximal to the mid-proximal phalanx.
- (4) Amputation or congenital absence of lower-extremity limb (foot or above) unless the candidate meets all the following conditions:
  - (a) Stable, unilateral below-the-knee (BKA) amputation with at least the proximal third of the tibia present for a strong and stable attachment point with the prosthesis.
  - (b) Fitted with a prosthesis that will tolerate the conditions present in policing worn in conjunction with standard PPE (vest, gunbelt, etc.).
  - (c) At least 6 months of prosthetic use in a variety of activities with no functional difficulties.
  - (d) Amputee limb healed with no significant inflammation, persistent pain, necrosis, or indications of instability at the amputee limb attachment point.

- (e) No significant psychological issues pertaining to the loss of limb or use of prosthesis.
  - (f) Evaluated by a prosthetist or orthopedic specialist with expertise in the fitting and function of prosthetic limbs who concurs that the candidate can complete all essential tasks, including wearing personal protective equipment, climbing walls or fences, and running, walking or crawling over rough and uneven terrain, or in conditions that may be wet or icy.
  - (g) Has passed the ISP's physical ability test without accommodations or modifications of the protocol.
- (5) Chronic nonhealing or recent bone grafts.
  - (6) History of more than one dislocation of shoulder without surgical repair or with history of recurrent shoulder disorders within the last 5 years with pain or loss of motion, and with or without radiographic deviations from normal.
  - (7) Any extremity condition that results in the candidate not being able to safely perform one or more of the essential job tasks (See: essential tasks II A-H).

**Group II medical conditions shall include the following:**

- (1)\* History of shoulder dislocation with surgical repair.
- (2) Significant limitation of function of shoulder, elbow, wrist, hand, or finger due to weakness, reduced range of motion, atrophy, unequal length, absence, or partial amputation.
- (3) Significant lack of full function of hip, knee, ankle, foot, or toes due to weakness, reduced range of motion, atrophy, unequal length, absence, or partial amputation.
- (4)\* History of meniscectomy or ligamentous repair of knee.
- (5)\* History of intra-articular, malunited, or nonunion of upper or lower extremity fracture.
- (6)\* History of osteomyelitis, septic, or rheumatoid arthritis.
- (7) Bone hardware such as metal plates or rods supporting bone during healing

## **Section B: Explanatory Section**

### **Head**

#### **Group I**

- (1) Deformities of the skull can result in the candidate's inability to properly wear protective helmet.
- (2) These deformities can result in the potential for sudden incapacitation, the inability to properly wear protective helmet and the inability to communicate effectively due to oropharyngeal dysfunction.
- (3) Loss of or congenital absence of the bony substance of the skull can result in the inability to properly wear helmet and the inability to communicate effectively due to oropharyngeal dysfunction.

### **Neck**

#### **Group II**

- (1) Thoracic outlet syndrome can result in frequent episodes of pain or inability to safely perform essential tasks (See: essential tasks II A-H).
- (2) Congenital cysts, chronic draining fistulas, or similar lesions can result in the inability to properly wear tactical gear and equipment and the inability to communicate effectively due to oropharyngeal dysfunction.
- (3) The contraction of neck muscles can result in the inability to properly wear protective gear and the inability to safely perform essential job tasks due to limitation of flexibility and movement (See: essential tasks II A-H).

### **Back**

#### **Group I**

- (8) Essential tasks of the job of an ISP Trooper include extremely physical activities such as the control of combative suspects, responding to emergencies while running, holding equipment, and lifting or pulling an unconscious body. More routine physical activities require standing, walking and sitting for prolonged periods and repetitive activities such as climbing stairs, stooping, bending and lifting heavy objects. ISP Troopers are also expected to possess the ability to endure unexpected and spontaneous physical assault; therefore, any impairment of the musculoskeletal system such as restriction in range of motion of the joints, decrease in muscle strength, or instability, may limit the candidate's ability to perform the essential tasks required of an ISP Trooper and may pose a danger to both the Trooper, colleagues and the public. Those candidates with chronic pain

requiring frequent narcotic analgesic should be disqualified from the job of an ISP Trooper.

In addition to physical tasks, the impact of the working conditions should also be taken into consideration when examining candidates with a history or evidence of musculoskeletal disorders. For example, ISP Troopers are required to work in extremes of temperature such as cold environments during the course of their normal work shift. Certain musculoskeletal conditions such as generalized arthritis and Raynaud's phenomenon (vasospastic disorder causing painful discoloration of the fingers and toes) may be made worse or triggered by cold (See: essential tasks II H).

## **Extremities**

### **Group II**

- (1) The candidate should be evaluated for residual instability (subluxation) or significant limitation of motion.
- (4) The candidate should be evaluated for residual instability or laxity of ligament or intra-articular arthritis, which could cause instability in limb, inadequate range of motion, or increased pain or would limit crawling, kneeling, jumping, climbing, or dragging victims (See: essential tasks II A and H).
- (5) The candidate should be evaluated for residual signs or symptoms (e.g., pain, swelling, atrophy, range of motion, gait).
- (6) The candidate should be evaluated for resulting functional impairment, disease activity, and chronicity.

## References

- Adenuga, B.D., Hassan et al. (2010). Hip pain without injury. *Am Fam Physician*, 82(1), 31.
- Bartleson, J.D. (2006). Spine disorder case studies. *Neurol Clin*. 24(2), 309-330.
- Chou, R., Fu, R. et al. (2009). Imaging strategies for low-back pain, systematic review and meta-analysis. *Lancet*, 373(9662), 463-472.
- Chou, R., Qaseem, A. et al. (2011). Diagnostic imaging for low back pain, advice for high-value health care from the American College of Physicians. *Ann Intern Med*, 154(3), 181-189.
- Chow, S.P. & Ng, C. (1993). Hand function after digital amputation. *J Hand Surg Br*, 18(1), 125-128.
- Corwin, H.M. (2006). Compression neuropathies of the upper extremity. *Clin Occup Environ Med*, 5(2), 333-352, viii.
- Devereaux, M. (2009). Low back pain. *Med Clin North Am*, 93(2), 477-501.
- Devereaux, M. (2009). Neck pain. *Med Clin North Am*, 93(2), 273-284.
- Ebell, M.H. (2005). Evaluating the patient with a knee injury. *Am Fam Physician*, 71(6), 1169-1172.
- Englund, M., Guermazi, A. et al. (2009). The meniscus in knee osteoarthritis. *Rheum Dis Clin North Am*, 35(3), 579-590.
- Guzman, J., Haldeman, S. et al. (2009). Clinical practice implications of the Bone and Joint Decade 2000-2010 Task Force on Neck Pain and Its Associated Disorders, from concepts and findings to recommendations. *J Manipulative Physiol Ther*, 32(2 Suppl), S227-243.
- Iannotti, J.P. & Kwon Y.W. (2005). Management of persistent shoulder pain, a treatment algorithm. *Am J Orthop*, 34(12 Suppl), 16-23.
- LeBlanc, K.E. & LeBlanc, L.L. (2010). Musculoskeletal disorders. *Prim Care*, 37(2), 389-406.
- McCamey, K. & Evans, P. (2007). Low back pain. *Prim Care*, 34(1), 71-82.
- Polston, D.W. (2007). Cervical radiculopathy. *Neurol Clin*, 25(2), 373-385.
- Renner, J.B. (2009). Conventional radiography in musculoskeletal imaging. *Radiol Clin North Am*, 47(3), 357-372.
- Shapiro, B.E. & Preston, D.C. (2009). Entrapment and compressive neuropathies. *Med Clin North Am*, 93(2), 285-315, vii.

van Abbema, R., Lakke, S.E. et al. (2011). Factors associated with functional capacity test results in patients with non-specific chronic low back pain, a systematic review. *J Occup Rehabil*, 21(4), 455-473.

Verrill, M. M., Hall, M.N. et al. (2012). Evaluation of hip pain in older adults. *Am Fam Physician*, 86(4), Online.

## Neurology

### Section A: Medical Assessment of ISP Candidate Conditions

#### Group I Medical conditions shall include the following:

- (1) Ataxias of heredodegenerative type.
- (2) Cerebral arteriosclerosis as evidenced by a history of transient ischemic attack, reversible ischemic neurological deficit, or ischemic stroke.
- (3) Hemiparalysis or paralysis of a limb.
- (4)\* Multiple sclerosis with activity or evidence of progression within previous 3 years.
- (5)\* Myasthenia gravis with activity or evidence of progression within previous 3 years.
- (6) Progressive muscular dystrophy or atrophy.
- (7) Uncorrected cerebral aneurysm.
- (8) All single unprovoked seizures and epileptic conditions, including simple partial, complex partial, generalized, and psychomotor seizure disorders unless the candidate meets all of the following:
  - (a) No seizures for 1 year off all antiepileptic medication or 5 years seizure free on a stable medical regimen.
  - (b) Neurologic examination is normal.
  - (c) Imaging (CAT or MRI scan) studies are normal.
  - (d) Awake and asleep EEG studies with photic stimulation and hyperventilation are normal
  - (e) A definitive statement from a qualified neurological specialist that the candidate meets the criteria specified in (a) through (d) above and that the candidate is neurologically cleared for academy training and the performance of all ISP Trooper's essential job tasks (See: essential tasks II A-G and H).
- (9) Dementia (Alzheimer's and other neurodegenerative diseases) with symptomatic loss of function or cognitive impairment (e.g., less than or equal to 28 on Mini-Mental Status Exam).
- (10) Parkinson's disease and other movement disorders resulting in uncontrolled movements, bradykinesia, or cognitive impairment (e.g., less than or equal to 28 on Mini-Mental Status Exam).

- (11) Any neurological condition that results in the candidate not being able to safely perform one or more of the essential job tasks.

**Group II Medical conditions shall include the following:**

- (1) Congenital malformations
- (2)\* Migraine
- (3) Clinical disorders with paresis, dyscoordination, deformity, abnormal motor activity, abnormality of sensation, or complaint of pain.
- (4) History of subarachnoid or intraparenchymal hemorrhage.
- (5) Abnormalities from recent head injury such as severe cerebral contusion or concussion

**Section B: Explanatory Section**

**Group I**

- (4) The candidate should be free of clinical disease for 3 years, a neurologic exam should be normal, and the candidate should not require drugs that can impair ability to safely perform essential job tasks. In considering performance of essential job tasks, the impact of the operational environment (e.g., heat, stress, activity, variable night shifts) on exacerbations should be considered and specifically addressed by a neurological specialist so that an informed determination can be made by the ISP's physician.
- (5) The candidate should be free of clinical disease for 3 years and off all drug and other treatment. Cognitive function, neurologic exam, and respiratory status should all be normal, and the candidate should be free of disease exacerbations for 3 years and off all drug treatment.

**Group II**

- (2) Exam and imaging studies should be normal, and medications needed to control chronic pain should not affect neurologic or cardiac function (energy, cognitive ability, equilibrium, etc.). Examples include the following:
  - (a) Neuropathy (cranial, peripheral, plexus, etc.). Motor and sensory neurologic exams and diagnostic/imaging studies (as needed) should be normal, and medications needed to control pain should not affect nervous system function (energy, cognitive ability, equilibrium, etc.).

## References

- Feldman, E.L., Cornblath, D.R., Porter, J. Dworking, R, Scherer, S. (2006). National Institute of Neurological Disorders and Stroke (NINDS): *Advances in Understanding and Treating Neuropathy*. Bethesda, Maryland: NIH Peripheral Neuropathy Conference.
- Headache Classification Subcommittee of the International Headache Society. (2004). The International classification of headache disorders, 2nd ed. *Cephalalgia*, 24, Suppl 1, 1-160.
- Martikainen, K.K., Luukkaala, T.H. & Marttila, R.J. (2006). Parkinson's disease and working capacity. *Mov Disord*, 21, 12. 2187-91.
- Panayiotopoulos, C.P. (2005) *The Epilepsies: Seizures, Syndromes and Management*. Oxfordshire (UK): Bladon Medical Publishing.
- Shivmore, K., Shah, D., Naik, P., Negi, S., Atre, K. et al. (2013) Dementia- it's different from alzheimer's disease: a review. *Int J Cur Res Rev*, 5 (9), 85-91.
- Teasell, R., Bayona, N., Lippert, C., Villamere, J. & Hellings, C. (2007). Post-traumatic seizure disorder following acquired brain injury. *Brain Inj*, 21, 2, 201-14.
- Trouth, A,J., Dabi, A., Solieman, N., Kurukumbi, M. & Janaki Kalyanam, J. (2012). Myasthenia gravis: a review. *Autoimmune Dis*, doi:10.1155/2012/874680.
- Warren, S.A. Olivo, S.A., Contreras, J.F., Turpin, K.V., Gross, D.P. et al. (2013). Traumatic Injury and Multiple sclerosis: a systematic review and meta-analysis. *Can J Neurol Sci*, 40(2), 168-176.

## **Oncology**

### **Section A: Medical Assessment of ISP Candidate Conditions**

#### **Tumors and Malignant Diseases**

##### **Group I Medical conditions shall include the following:**

- (1)\* Malignant disease that is newly diagnosed, untreated, or currently being treated.
- (2) Any tumor or similar condition that results in the candidate not being able to safely perform one or more of the essential job tasks (See: essential tasks II A-C and H).

##### **Group II Medical conditions shall include the following:**

- (1)\* Benign tumors
- (2)\* History of CNS tumor or malignancy
- (3)\* History of head and neck malignancy
- (4)\* History of lung cancer
- (5)\* History of GI or GU malignancy
- (6)\* History of bone or soft tissue tumors or malignancies
- (7)\* History of hematological malignancy

### **Section B: Explanatory Section**

#### **Tumors and Malignant Diseases**

##### **Group I**

- (1) Routine testing of all candidates regardless of history include spirometry, urinalysis, metabolic panel, liver function tests and complete blood count. These laboratory data should be carefully reviewed for any indications of cancer recurrence or side effects of cancer treatment.

##### **Group II**

The candidate should be evaluated on the basis of current physical condition and the staging and prognosis of the malignancy (i.e., likelihood that the disease will recur or progress). If impairment is more likely than not in the immediate future, the physician may recommend a deferral of the candidate until this risk abates. To make this

assessment, current information on tumor recurrence rates or relative survival rates can be utilized as a guide. This information can be obtained at different electronic sites such as OncoLink, Abramson Cancer Center of the University of Pennsylvania, and The Surveillance, Epidemiology, and End Results (SEER) database. In using this data, the physician should be aware that relative survival rates are not the same as relapse free or disease-free rates.

- (1)\* The candidate should be evaluated for space-occupying lesion, treatment, and sequelae affecting ability to perform essential job tasks (See: essential tasks II A-C and H).
- (2)\* The candidate should be evaluated for history or risk of seizure; residual effects on balance, coordination, strength, speech, judgment; and medication requirements. (See: essential tasks II A-C and H).
- (3)\* The candidate should be evaluated for ability to wear a gas mask, maintain nutrition and oral hydration, and sequelae affecting ability to perform essential job tasks (See: essential tasks II D-G)
- (4)\* The candidate should be evaluated for residual pulmonary function and medication requirements.
- (5)\* The candidate should be evaluated for abnormal bowel or urinary function that would interfere with emergency situations where toilet facilities are unavailable, the ability to maintain nutrition, hydration, and medication requirements. In addition, the candidate should be evaluated for any medical devices or aids that would interfere with the ability to wear the uniform, protective vest and gun belt.
- (6)\* The candidate should be evaluated for muscle strength, deformity interfering with function, and the ability to wear vest and gas mask.
- (7)\* The candidate should be evaluated for anemia, leukopenia, thrombocytopenia, and residual cardiac, pulmonary, GI, dermatological, or neurological effects of surgery, radiation, or chemotherapy.

## References

OncoLink, Abramson Cancer Center of the University of Pennsylvania, <<http://www.oncolink.org/types/>>.

National Cancer Institute. (2011). *SEER Cancer Statistics Review, 1975-2008*. Bethesda, MD: National Cancer Institute. <[http://seer.cancer.gov/csr/1975\\_2008/](http://seer.cancer.gov/csr/1975_2008/)>.

National Cancer Institute. (2011). *The Surveillance, Epidemiology, and End Results (SEER) Database. Five-Year Cause-Specific survival*. National Cancer Institute. Bethesda, MD:<<http://seer.cancer.gov/faststats/selections.php?#Output>>.

## **Infectious Disease**

### **Section A: Medical Assessment of ISP Candidate Conditions**

#### **Group I Medical conditions shall include the following:**

- (1)\* AIDS with significant organ damage and/or dysfunction
- (2)\* Tuberculosis with positive radiograph, active and/or untreated

#### **Group II Medical conditions shall include the following:**

- (1)\* Acute hepatitis
- (2)\* Chronic active hepatitis
- (3)\* Herpes Simplex Virus (HSV)
- (4)\* Human Immunodeficiency Virus (HIV)
- (5)\* AIDS without significant organ damage and/or dysfunction
- (6)\* Tuberculosis
- (7)\* Immunizations

### **Section B: Explanatory Section**

#### **Infectious Disease**

##### **Group I**

- (1) A diagnosis of AIDS requires laboratory confirmation of HIV infection and CD4+ T-lymphocyte count of <200 cells  $\mu$ L or CD4+ T-lymphocyte percentage of <14 with significant organ damage and/or dysfunction resulting from HIV infection. Definitive diagnosis methods for these conditions are available in Appendix C of the 1993 revised HIV classification system and the expanded AIDS case definition available at <http://www.cdc.gov/hiv/resources/guidelines/index.htm#surveillance>. The length of time that these candidates would be capable of unrestricted duties would be expected to be of a short duration, since death is likely to be preceded by a considerable period of disability.
- (2) Tuberculosis with positive chest radiograph: A radiograph suggestive of active pulmonary tuberculosis would require evaluation/treatment by the candidate's private physician. Candidates with active pulmonary tuberculosis are disqualified until certified as noncommunicable.

## Group II

- (1) Hepatitis, when not acute or when chronic but without symptoms and without significant liver dysfunction or other organ system dysfunction, does not prevent the successful and safe performance of essential law enforcement tasks.

Hepatitis A, when not acute, is no longer a public health risk.

Hepatitis B and C are blood-borne pathogens and are not a public health risk.

Immunity to Hepatitis B should be documented. Current vaccination information may be obtained from the Centers for Disease Control (CDC) website.

Treatment to prevent Hepatitis C from progressing to liver insufficiency or failure (cirrhosis) is now available and FDA approved. The combination drug therapy protocol can produce dehydration, fatigue, depression, anemia, thrombocytopenia (bleeding disorder), and pain. Candidates receiving this treatment need to be evaluated by clinical examination and appropriate laboratory testing, to determine their ability to safely perform their essential job tasks.

- (2) Chronic active hepatitis can result in weakness, general malaise, and the inability to safely perform essential job tasks.
- (3) Active Herpes Simplex Virus (HSV) lesions of lips, face and hands requires treatment prior to placement.
- (4) HIV without AIDS does not prevent the successful and safe performance of essential law enforcement job tasks. HIV is a blood borne pathogen and is not a public health risk, as universal precautions to prevent the spread of HIV are commonplace.
- (5) The candidate with AIDS but without significant organ dysfunction must be evaluated to determine if they are able to safely perform the essential job tasks (See: essential tasks II A-C and H). Treatment to prevent AIDS from occurring when HIV infection occurs or to control the progression of AIDS is available and FDA approved. Candidates receiving this treatment need to be regularly evaluated to determine their ability to safely perform the essential job tasks (See: essential tasks II A-C and H). This evaluation should assess any functional limitations, exercise capacity, and any psychiatric or neurologic manifestations of the disease. The necessary combination drug therapy protocol can produce dehydration, fatigue, depression, anemia, thrombocytopenia (bleeding disorder), and pain. Routine reevaluation (testing) every six months is recommended (Henderson, 2010).

- (6) Tuberculosis screening must be performed prior to medially clearing a candidate for the duties of an ISP Trooper. Per CDC guidelines (2006), a TST or QFT-G should be mandatory for candidates who do not have a documented history of a positive result. To improve the accuracy of the baseline result, a two-step TST or a single-step QFT-G should be used for the initial screening of candidates who have not been tested during the preceding 12 months.

Candidates who have a positive TST or QFT-G result should have a chest radiograph taken and interpreted and should be required to have a thorough medical evaluation; if TB disease is excluded as a diagnosis, such persons should be considered for LTBI therapy. Candidates with a history of tuberculosis, a positive chest radiograph, or a positive skin test should be evaluated as follows:

- (a) History of Active Pulmonary Tuberculosis: The primary concern here is whether adequate treatment was given and whether there is any residual lung damage. The latter can be evaluated by spirometry, chest radiograph and an exercise test, if necessary. A history of adequate treatment should reveal compliance with medications consistent with the CDC Guidelines (CDC, 2006). Furthermore, there should be documentation of sputum conversion (with three negative sputum tests) and a stable chest radiograph.
- (b) Positive Skin Test with Negative Chest Radiograph: About 4% of US citizens are skin-test positive. If the chest radiograph is negative and there is no history of recent symptoms attributable to tuberculosis such as night sweats or unplanned weight loss, these candidates are at a very low risk of developing active TB in the near future. However, prophylactic treatment, consistent with CDC Guidelines, is strongly recommended. A treatment regimen will not likely interfere with an ISP Trooper's duties.
- (7) Documentation of immunity to vaccine preventable diseases such as measles/mumps/rubella (MMR), tetanus, diphtheria, pertussis (whooping cough) and varicella should be verified by the examining physician.

## References

Centers for Disease Control and Prevention. (2013). Diagnoses of HIV infection in the United States and dependent areas: 2011. *HIV Surveillance Report*, 23. <<http://www.cdc.gov/hiv/topics/surveillance/resources/reports/>>.

Centers for Disease Control and Prevention. (2011). Immunization of health-care personnel: Recommendations of the Advisory Committee on Immunization Practices (ACIP) Recommendations and Reports. *MMWR*, 60(7), 1-45.

Centers for Disease Control and Prevention. (2010). Updated recommendations for use of tetanus toxoid, reduced diphtheria toxoid and acellular pertussis (Tdap) vaccine from the Advisory Committee on Immunization Practices, *MMRW*, 60(1), 13-15.

Centers for Disease Control and Prevention. (2008). Revised surveillance case definitions for hiv infection among adults, adolescents, and children aged <18 months and for HIV infection and AIDS among children aged 18 months to <13 years - United States. *MMRW*, 57(10), 1-8.

Centers for Disease Control and Prevention. (2006). Prevention and control of tuberculosis in correctional and detention facilities: recommendations from CDC. *MMWR*, 55(9), 1-44.

Centers for Disease Control and Prevention. (2005). Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HIV and Recommendations for Postexposure Prophylaxis. *MMWR*, 54(9), 1-24.

Centers for Disease Control and Prevention. (1992). 1993 Revised Classification System for HIV Infection and Expanded Surveillance Case Definition for AIDS among Adolescents and Adults. *MMWR*, 41(17), 51-57. <<http://www.cdc.gov/hiv/resources/guidelines/index.htm#surveillance>>.

Henderson, D., Dembry L., et al. (2010). SHEA Guideline for Management of Healthcare Workers Who Are Infected with Hepatitis B Virus, Hepatitis C Virus, and/or Human Immunodeficiency Virus. *Infect Cont Hosp Epidem*, 31(3), 203-232.

## **Psychological Standards**

### **I. Introduction**

The pre-employment psychological evaluation is a specialized examination of an applicant's psychological suitability for the ISP Trooper position. Psychological suitability includes the absence of job-relevant mental, behavioral, learning or emotional conditions that would reasonably be expected to interfere with safe and effective performance. The psychological standards in this document set as a minimum the conditions that if present would serve to disqualify a candidate from employment as an Illinois State Police officer.

### **II. Essential Tasks Required to be performed by ISP Troopers.**

The essential job tasks listed below have been validated by the ISP. The occupational medicine physician and police psychologist shall use the validated list of essential job tasks in evaluating the ability of a Trooper with specific psychological/psychiatric conditions to perform specific job tasks. Essential job tasks that are referenced throughout this document correspond to the following list:

#### **A. Psychological Tasks**

1. Communicate effectively with others and, if necessary, endure verbal abuse from suspects, arrestees, and others encountered in antagonistic situations.
2. Restrain persons, including violent individuals, when necessary to safeguard the person or others.
3. Engage in defense of self and others using physical force, including approved weapons and instruments.
4. Affect an arrest, forcibly as required, using handcuffs and other restraints.
5. Load, unload, aim, and fire the ISP handgun from a variety of body positions, under conditions of stress, in adverse conditions, with appropriate proficiency.
6. Carry a loaded shotgun in a safe manner for an extended period of time.
7. Perform crowd control duties at rallies, demonstrations, or riots.
8. While under adverse conditions, put on and function while wearing a gas mask.
9. Possess sufficient physical resources to stay alert, focused, and functional after extended tours of duty, rotating shifts, and repeated rapid changes from sedentary activity to strenuous physical activity.
10. Operate ISP vehicles at all times of the day (both daylight and darkness) and during various inclement weather conditions.
11. Hear, comprehend, and react to radio transmissions. Communicate on the radio effectively and coherently.
12. Obtain and broadcast accurate descriptions of suspects and/or vehicles.
13. Communicate with the public via telephone and in person to address their needs and requests.

14. Gather information from a variety of sources and prepare various reports in a timely fashion using appropriate grammar, symbols and punctuation.
15. Testify in court proceedings in a concise and understandable manner.
16. Exercise independent judgment within legal guidelines to determine compliance with applicable motor vehicle and criminal laws/statutes.
17. Under the stress of emergency situations, dispatch patrols and other emergency personnel while simultaneously handling the public.
18. Possess sufficient mental and emotional resources to complete the physical and academic training away from home while attending the Illinois State Police Academy.

## **B. Ability Areas**

The ISP essential tasks (above) directly relate to the abilities that follow which are necessary for an ISP Trooper to safely and effectively perform duties in a manner that does not expose the Illinois State Police to wrongful hires. Candidates exhibiting learning, emotional and/or behavioral problems in the following standards can reasonably be expected to not meet the requirements for the ISP position. Further, these problems/conditions will not be exacerbated, aggravated nor accelerated when performing essential job functions. A reasonable inability to perform duties poses an unnecessary risk to the ISP and the public at large. These abilities include those from the ISP Job Analysis Report (I/O Solution, 2010, 69-70):

1. Problem-Analysis/Problem Solving
2. Judgment and Reasoning
3. Decision-Making Ability
4. Planning and Organization
5. Interpersonal Skill
6. Oral Communication
7. Teamwork Orientation
8. Self-Motivation
9. Composure
10. Conflict Resolution
11. Honesty and Integrity
12. Written Communication
13. Reading Comprehension
14. Basic Arithmetic
15. Public Relations Skill

## **III. Guidelines for Psychological Assessment of Illinois State Police (ISP) Trooper Candidates**

These guidelines shall provide specific requirements for candidates based on medical/psychological conditions that can affect a candidate's ability to safely perform the essential job tasks of an ISP Trooper. The psychological assessment of a candidate shall be conducted prior to the candidate being placed in the recruit training program. The psychological

assessment of a candidate shall include an interview with a police psychologist during which the history that is obtained from the candidate, examination of candidate, and integration of psychological testing results are synthesized to detect condition(s) that could adversely affect the candidate's ability to safely perform the essential job tasks described.

Conditions that can affect a candidate's ability to safely perform essential job tasks shall be designated either Group I or Group II.

- (1) Candidates with Group I conditions shall *not* be certified as meeting the requirements of the guideline.
- (2) Candidates with Group II conditions shall be certified as meeting the medical requirements of this guideline *only* if they can perform the essential job tasks without posing a significant safety and health risk to themselves, other ISP Troopers, or civilians.

### **Section A: Psychological Assessment of ISP Candidate Conditions**

#### **Group I**

- (1) Disqualifying conditions determined by medical examination of primary physiological conditions. These include dementia, delirium and amnesic disorders. Applicable Job Tasks 1-18
- (2) Mental and Behavioral Disorders Due To Psychoactive Substance Use including:
  - (a) Active use of illicit substances and non-prescribed controlled medications is disqualifying.
  - (b) Active alcohol abuse and dependence is disqualifying.
  - (c) History of substance abuse (i.e., not experimentation) is disqualifying and defined as:
  - (d) Use of cannabis: No illegal use of cannabis in the last two (2) years or no illegal habitual use of cannabis.
  - (e) Use of paint, glue, or other inhalants for the purpose of intoxication within the last five years.
  - (f) Use of hallucinogenic drugs, including, but not limited to LSD, PCP or Psilocybin within the last five (5) years or more than 5 times.
  - (g) Abuse of prescription medicines, whether prescribed to them or another person, in the last five years.

- (h) Use of anabolic steroids for any reason other than the treatment of a medical condition, and as authorized by and under the direction of a licensed physician, within the last five years.
- (i) Use of heroin, cocaine and other similar controlled dangerous substances/narcotic drugs within the last five (5) years or more than 5 times.
- (j) Use of any of the drugs listed above at any time while serving as a law enforcement officer, correctional officer, security officer, firefighter/EMT or member of any branch of the military.  
Applicable Job Tasks include but not limited to 1, 2, 7, 9, 10, 11, 15, 16, 17, 18.

(3) Mental Disorders Due To Disorders of Thought including:

- (a) Schizophrenia, Schizotypal, Delusional, and Other Non-Mood Psychotic Disorders are disqualifying.  
Applicable Job Tasks 1-18

(4) Disorders of Mood including:

- (a) Major Depression when actively present within one year of examination.
- (b) Adjustment Disorders when actively present within six months of examination.

Applicable Job Tasks include but not limited to 1, 2, 3, 8, 9, 10, 11, 16, 17, 18

(5) Disorders of Anxiety including:

- (a) Panic Disorder, Agoraphobia, Obsessive-Compulsive and Phobias are disqualifying if present at the time of examination.
- (b) Somatoform disorders including Pain Disorder and Hypochondriasis conditions are disqualifying if present at the time of examination.
- (c) Dissociative disorders are disqualifying.
- (d) Posttraumatic Stress (acute, chronic or delayed) is disqualifying if present within one year of examination.

Applicable Job Tasks include but not limited to 1, 2, 7, 9, 10, 11, 16, 17, 18

- (6) Disorders of Adult Personality and Behavior.
  - (a) These conditions are always disqualifying. The presence of personality psychopathology is associated with rule-violating behaviors, impulsive and risk-taking behaviors and/or interpersonal difficulties. Examples include but are not limited to: Narcissistic Personality, Antisocial Personality, Schizoid Personality, Borderline Personality, Dependent Personality, Gender Identity, Paraphilias and Impulse Control disorders (such as Kleptomania and Pathological Gambling).
  - (b) Other Disorders of Behavior such as Eating Disorders and Nonorganic sleep disorders are disqualifying if present within one year of examination. Applicable Job Tasks include but not limited to 1, 10, 17, 18
- (7) Cognitive and Learning Conditions.
  - (a) Intellectual functioning at or below the borderline range of intellectual functioning is disqualifying. Applicable Job Tasks include but not limited to 1, 11, 12, 14, 15, 16, 17, 18

## **Group II**

- (1) Candidates with a history or previous diagnosis of a psychological/psychiatric condition listed in Group I or who have been treated with psychotropic medication or therapy shall be asked to provide relevant records before a final psychological determination of stability and suitability can be rendered on a case-by-case basis.
- (2) All medication requirements, including psychotropic medication, will be evaluated as part of the medical evaluation to ensure that safe and efficient job performance will not be affected adversely.
- (3) A history of any psychological/psychiatric condition, behavior disorders including personality traits, substance abuse problems and learning problems not covered in Group I. The condition shall be evaluated based on the candidate's history, current status, and ability to perform the essential job functions. These conditions include but not restricted to:
  - (a) Pervasive and Specific Developmental Disorders
  - (b) Behavioral and Emotional Disorders with Onset Usually Occurring in Childhood and Adolescence
  - (c) Pervasive and Specific Developmental Disorders
  - (d) Autism spectrum disorders

- (e) Behavioral and Emotional Disorders with Onset Usually Occurring in Childhood and Adolescence including Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder
- (f) Conditions associated with Elimination and Tic disorders
- (g) Unspecified Mental Disorders not specifically listed in these psychological standards, which interfere with the safe, efficient and expected performance of the essential duties and responsibilities, may also constitute grounds for disqualification.

#### **IV. Procedures for Evaluation**

##### **A. Standards for Evaluator Qualification**

The psychological assessment domain has historically been within the purview of psychologists licensed at the doctoral level of education. The education and training of psychologists provides the necessary foundation for the selection and interpretation of psychological tests. While other disciplines may be authorized by local statutes/regulations/license to engage in psychological assessments the minimum standard is having psychologists licensed at the independent practitioner level. Further, the discipline of police and public safety psychology is a proficiency that is acquired through doctoral and post-doctoral training and education. The highest level of credentialing is Board Certification in Police and Public Safety Psychology. Board certification is extended after exhaustive study, submission of documents related to practice and ethics, and an oral examination. Board certification is provided through the American Board of Professional Psychology.

An ISP standard that sets board certification is an aspirational goal. Thus, minimum standards should require demonstrating training in psychometrics and continuing education through professional police psychology organizations. The recommended standard is evaluators documenting ten hours annually of continuing education through either the Police Psychological Services Section of the International Association of Chiefs of Police (IACP), Police and Public Safety Psychology (Division 18) of the American Psychological Association (APA), Council of Police Psychological Services, or Society for Police and Criminal Psychology.

##### **B. Standards for Psychological Measures and Assessments**

An evaluation of a candidate for the ISP must meet the requirements provided in the Guidelines for Pre-employment Psychological Evaluations approved by the International Association of Chiefs of Police.

1. Recommended standards for measures utilized for assessing psychological stability and suitability for ISP are:
  - Minnesota Multiphasic Personality Inventory-2-Restructured Form (MMPI-2-RF),

- The Sixteen Personality Inventory Questionnaire (16PF),
- Inwald Personality Inventory/Inwald Personality Inventory-2,
- Shipley-2 (or similar) that measures knowledge gained through education and experience and the capacity to use logic to learn and acquire new information or solve problems, and assesses intellectual level of functioning.
- Wide Range Achievement Test (or similar) that measures a candidate's Reading and Math abilities.
- Psychological semi-structured interview , and
- Other measures, as needed based on individual assessment, to assist in rendering a determination of psychological stability and suitability. The following is an example only: a history of combat exposure may warrant the administration of the Combat Exposure Scale.

**C. Report of Examination Results**

The psychological assessment synthesizes the data from across multiple sources including testing results and interview. The results from the examination are required to provide an assessment rating of the candidate's ability to perform the essential job functions and abilities. The candidate must be rated as MEET STANDARDS or NOT MEET standards. The candidate that MEETS all domains of abilities is recommended. A candidate that does NOT MEET one or more of the domains of abilities and associated essential job tasks is not recommended.

## References

I/O Solutions (2010). *Job Analysis Report*. I/O Solutions technical report.

Keane, T., Fairbank, J., Caddell, J., Zimering, R., Taylor, K., & Mora, C. (1989). Clinical evaluation of a measure to assess combat exposure. *Psychological Assessment*, 1, 53-55.

International Association of Chiefs of Police. (2009). Pre-employment Psychological Evaluations. Arlington, VA: International Association of Chiefs of Police. Available at: [http://theiacp.org/psych\\_services\\_section/pdfs/Psych-preemploymentPsychEval.pdf](http://theiacp.org/psych_services_section/pdfs/Psych-preemploymentPsychEval.pdf).

## **Psychological Standards**

### **I. Introduction**

The pre-employment psychological evaluation is a specialized examination of an applicant's psychological suitability for the ISP Trooper position. Psychological suitability includes the absence of job-relevant mental, behavioral, learning or emotional conditions that would reasonably be expected to interfere with safe and effective performance. The psychological standards in this document set as a minimum the conditions that if present would serve to disqualify a candidate from employment as an Illinois State Police officer.

### **II. Essential Tasks Required to be performed by ISP Troopers.**

The essential job tasks listed below have been validated by the ISP. The occupational medicine physician and police psychologist shall use the validated list of essential job tasks in evaluating the ability of a Trooper with specific psychological/psychiatric conditions to perform specific job tasks. Essential job tasks that are referenced throughout this document correspond to the following list:

#### **A. Psychological Tasks**

1. Communicate effectively with others and, if necessary, endure verbal abuse from suspects, arrestees, and others encountered in antagonistic situations.
2. Restrain persons, including violent individuals, when necessary to safeguard the person or others.
3. Engage in defense of self and others using physical force, including approved weapons and instruments.
4. Affect an arrest, forcibly as required, using handcuffs and other restraints.
5. Load, unload, aim, and fire the ISP handgun from a variety of body positions, under conditions of stress, in adverse conditions, with appropriate proficiency.
6. Carry a loaded shotgun in a safe manner for an extended period of time.
7. Perform crowd control duties at rallies, demonstrations, or riots.
8. While under adverse conditions, put on and function while wearing a gas mask.
9. Possess sufficient physical resources to stay alert, focused, and functional after extended tours of duty, rotating shifts, and repeated rapid changes from sedentary activity to strenuous physical activity.
10. Operate ISP vehicles at all times of the day (both daylight and darkness) and during various inclement weather conditions.
11. Hear, comprehend, and react to radio transmissions. Communicate on the radio effectively and coherently.
12. Obtain and broadcast accurate descriptions of suspects and/or vehicles.
13. Communicate with the public via telephone and in person to address their needs and requests.

14. Gather information from a variety of sources and prepare various reports in a timely fashion using appropriate grammar, symbols and punctuation.
15. Testify in court proceedings in a concise and understandable manner.
16. Exercise independent judgment within legal guidelines to determine compliance with applicable motor vehicle and criminal laws/statutes.
17. Under the stress of emergency situations, dispatch patrols and other emergency personnel while simultaneously handling the public.
18. Possess sufficient mental and emotional resources to complete the physical and academic training away from home while attending the Illinois State Police Academy.

## **B. Ability Areas**

The ISP essential tasks (above) directly relate to the abilities that follow which are necessary for an ISP Trooper to safely and effectively perform duties in a manner that does not expose the Illinois State Police to wrongful hires. Candidates exhibiting learning, emotional and/or behavioral problems in the following standards can reasonably be expected to not meet the requirements for the ISP position. Further, these problems/conditions will not be exacerbated, aggravated nor accelerated when performing essential job functions. A reasonable inability to perform duties poses an unnecessary risk to the ISP and the public at large. These abilities include those from the ISP Job Analysis Report (I/O Solution, 2010, 69-70):

1. Problem-Analysis/Problem Solving
2. Judgment and Reasoning
3. Decision-Making Ability
4. Planning and Organization
5. Interpersonal Skill
6. Oral Communication
7. Teamwork Orientation
8. Self-Motivation
9. Composure
10. Conflict Resolution
11. Honesty and Integrity
12. Written Communication
13. Reading Comprehension
14. Basic Arithmetic
15. Public Relations Skill

## **III. Guidelines for Psychological Assessment of Illinois State Police (ISP) Trooper Candidates**

These guidelines shall provide specific requirements for candidates based on medical/psychological conditions that can affect a candidate's ability to safely perform the essential job tasks of an ISP Trooper. The psychological assessment of a candidate shall be conducted prior to the candidate being placed in the recruit training program. The psychological

assessment of a candidate shall include an interview with a police psychologist during which the history that is obtained from the candidate, examination of candidate, and integration of psychological testing results are synthesized to detect condition(s) that could adversely affect the candidate's ability to safely perform the essential job tasks described.

Conditions that can affect a candidate's ability to safely perform essential job tasks shall be designated either Group I or Group II.

- (1) Candidates with Group I conditions shall *not* be certified as meeting the requirements of the guideline.
- (2) Candidates with Group II conditions shall be certified as meeting the medical requirements of this guideline *only* if they can perform the essential job tasks without posing a significant safety and health risk to themselves, other ISP Troopers, or civilians.

### **Section A: Psychological Assessment of ISP Candidate Conditions**

#### **Group I**

- (1) Disqualifying conditions determined by medical examination of primary physiological conditions. These include dementia, delirium and amnesic disorders. Applicable Job Tasks 1-18
- (2) Mental and Behavioral Disorders Due To Psychoactive Substance Use including:
  - (a) Active use of illicit substances and non-prescribed controlled medications is disqualifying.
  - (b) Active alcohol abuse and dependence is disqualifying.
  - (c) History of substance abuse (i.e., not experimentation) is disqualifying and defined as:
    - (d) Use of cannabis: No illegal use of cannabis in the last two (2) years or no illegal habitual use of cannabis.
    - (e) Use of paint, glue, or other inhalants for the purpose of intoxication within the last five years.
    - (f) Use of hallucinogenic drugs, including, but not limited to LSD, PCP or Psilocybin within the last five (5) years or more than 5 times.
    - (g) Abuse of prescription medicines, whether prescribed to them or another person, in the last five years.

- (h) Use of anabolic steroids for any reason other than the treatment of a medical condition, and as authorized by and under the direction of a licensed physician, within the last five years.
- (i) Use of heroin, cocaine and other similar controlled dangerous substances/narcotic drugs within the last five (5) years or more than 5 times.
- (j) Use of any of the drugs listed above at any time while serving as a law enforcement officer, correctional officer, security officer, firefighter/EMT or member of any branch of the military.  
Applicable Job Tasks include but not limited to 1, 2, 7, 9, 10, 11, 15, 16, 17, 18.

(3) Mental Disorders Due To Disorders of Thought including:

- (a) Schizophrenia, Schizotypal, Delusional, and Other Non-Mood Psychotic Disorders are disqualifying.  
Applicable Job Tasks 1-18

(4) Disorders of Mood including:

- (a) Major Depression when actively present within one year of examination.
- (b) Adjustment Disorders when actively present within six months of examination.

Applicable Job Tasks include but not limited to 1, 2, 3, 8, 9, 10, 11, 16, 17, 18

(5) Disorders of Anxiety including:

- (a) Panic Disorder, Agoraphobia, Obsessive-Compulsive and Phobias are disqualifying if present at the time of examination.
- (b) Somatoform disorders including Pain Disorder and Hypochondriasis conditions are disqualifying if present at the time of examination.
- (c) Dissociative disorders are disqualifying.
- (d) Posttraumatic Stress (acute, chronic or delayed) is disqualifying if present within one year of examination.

Applicable Job Tasks include but not limited to 1, 2, 7, 9, 10, 11, 16, 17, 18

- (6) Disorders of Adult Personality and Behavior.
  - (a) These conditions are always disqualifying. The presence of personality psychopathology is associated with rule-violating behaviors, impulsive and risk-taking behaviors and/or interpersonal difficulties. Examples include but are not limited to: Narcissistic Personality, Antisocial Personality, Schizoid Personality, Borderline Personality, Dependent Personality, Gender Identity, Paraphilias and Impulse Control disorders (such as Kleptomania and Pathological Gambling).
  - (b) Other Disorders of Behavior such as Eating Disorders and Nonorganic sleep disorders are disqualifying if present within one year of examination. Applicable Job Tasks include but not limited to 1, 10, 17, 18
- (7) Cognitive and Learning Conditions.
  - (a) Intellectual functioning at or below the borderline range of intellectual functioning is disqualifying. Applicable Job Tasks include but not limited to 1, 11, 12, 14, 15, 16, 17, 18

## **Group II**

- (1) Candidates with a history or previous diagnosis of a psychological/psychiatric condition listed in Group I or who have been treated with psychotropic medication or therapy shall be asked to provide relevant records before a final psychological determination of stability and suitability can be rendered on a case-by-case basis.
- (2) All medication requirements, including psychotropic medication, will be evaluated as part of the medical evaluation to ensure that safe and efficient job performance will not be affected adversely.
- (3) A history of any psychological/psychiatric condition, behavior disorders including personality traits, substance abuse problems and learning problems not covered in Group I. The condition shall be evaluated based on the candidate's history, current status, and ability to perform the essential job functions. These conditions include but not restricted to:
  - (a) Pervasive and Specific Developmental Disorders
  - (b) Behavioral and Emotional Disorders with Onset Usually Occurring in Childhood and Adolescence
  - (c) Pervasive and Specific Developmental Disorders
  - (d) Autism spectrum disorders

- (e) Behavioral and Emotional Disorders with Onset Usually Occurring in Childhood and Adolescence including Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder
- (f) Conditions associated with Elimination and Tic disorders
- (g) Unspecified Mental Disorders not specifically listed in these psychological standards, which interfere with the safe, efficient and expected performance of the essential duties and responsibilities, may also constitute grounds for disqualification.

#### **IV. Procedures for Evaluation**

##### **A. Standards for Evaluator Qualification**

The psychological assessment domain has historically been within the purview of psychologists licensed at the doctoral level of education. The education and training of psychologists provides the necessary foundation for the selection and interpretation of psychological tests. While other disciplines may be authorized by local statutes/regulations/license to engage in psychological assessments the minimum standard is having psychologists licensed at the independent practitioner level. Further, the discipline of police and public safety psychology is a proficiency that is acquired through doctoral and post-doctoral training and education. The highest level of credentialing is Board Certification in Police and Public Safety Psychology. Board certification is extended after exhaustive study, submission of documents related to practice and ethics, and an oral examination. Board certification is provided through the American Board of Professional Psychology.

An ISP standard that sets board certification is an aspirational goal. Thus, minimum standards should require demonstrating training in psychometrics and continuing education through professional police psychology organizations. The recommended standard is evaluators documenting ten hours annually of continuing education through either the Police Psychological Services Section of the International Association of Chiefs of Police (IACP), Police and Public Safety Psychology (Division 18) of the American Psychological Association (APA), Council of Police Psychological Services, or Society for Police and Criminal Psychology.

##### **B. Standards for Psychological Measures and Assessments**

An evaluation of a candidate for the ISP must meet the requirements provided in the Guidelines for Pre-employment Psychological Evaluations approved by the International Association of Chiefs of Police.

1. Recommended standards for measures utilized for assessing psychological stability and suitability for ISP are:
  - Minnesota Multiphasic Personality Inventory-2-Restructured Form (MMPI-2-RF),

- The Sixteen Personality Inventory Questionnaire (16PF),
- Inwald Personality Inventory/Inwald Personality Inventory-2,
- Shipley-2 (or similar) that measures knowledge gained through education and experience and the capacity to use logic to learn and acquire new information or solve problems, and assesses intellectual level of functioning.
- Wide Range Achievement Test (or similar) that measures a candidate's Reading and Math abilities.
- Psychological semi-structured interview , and
- Other measures, as needed based on individual assessment, to assist in rendering a determination of psychological stability and suitability. The following is an example only: a history of combat exposure may warrant the administration of the Combat Exposure Scale.

**C. Report of Examination Results**

The psychological assessment synthesizes the data from across multiple sources including testing results and interview. The results from the examination are required to provide an assessment rating of the candidate's ability to perform the essential job functions and abilities. The candidate must be rated as MEET STANDARDS or NOT MEET standards. The candidate that MEETS all domains of abilities is recommended. A candidate that does NOT MEET one or more of the domains of abilities and associated essential job tasks is not recommended.

## References

I/O Solutions (2010). *Job Analysis Report*. I/O Solutions technical report.

Keane, T., Fairbank, J., Caddell, J., Zimering, R., Taylor, K., & Mora, C. (1989). Clinical evaluation of a measure to assess combat exposure. *Psychological Assessment*, 1, 53-55.

International Association of Chiefs of Police. (2009). Pre-employment Psychological Evaluations. Arlington, VA: International Association of Chiefs of Police. Available at: [http://theiacp.org/psych\\_services\\_section/pdfs/Psych-preemploymentPsychEval.pdf](http://theiacp.org/psych_services_section/pdfs/Psych-preemploymentPsychEval.pdf).