



CANDIDATE GUIDE

Intravenous (IV) and Intramuscular (IM)

Injections Pilot Station

April / May 2010

*Bloomington, Boston, Ft. Lauderdale, New York, Philadelphia,
Portland, St. Louis, and San Juan*

This Pilot Station will be conducted for volunteer Candidates on Sunday, the final day of testing for the Clinical Skills Examination, at the sites listed above. Copies of the [Evaluation Forms](#) used by the Examiners are provided for review.

Candidates are expected to carefully and thoroughly review the Candidate Orientation information contained in this document prior to arrival at the test center. Most of this information will not be repeated during the on-site Candidate Orientation.

Candidate Orientation Information: General

The Injections Pilot Station begins with an on-site orientation that all Candidates are required to attend. The on-site Candidate Orientation complements the information contained in this document. If you have latex allergies, please inform staff at check-in.

The Pilot Chief Examiner conducts the on-site Candidate Orientation. The Chief Examiner also serves as the Candidate advocate to assist with any problems that may arise. *There will not be any on-site training or familiarization with the simulated arm. As with CSE, Candidates will be expected to properly perform the skills based on the information in this guide and the evaluation forms.*

Candidates are expected to wear professional attire. Use “business casual” as a reference, which the National Board interprets as excluding jeans, T-shirts, garments that could be viewed to be immodest (e.g. tank tops), tennis shoes, and/or flip flops. Candidates may wear lab jackets, but identifying nametags or embroidered names should be removed or covered with opaque adhesive tape. Candidates should also cover any identifying information on their equipment with opaque adhesive tape if possible. However, Candidates are not required to bring any equipment with them to the Pilot Station other than a pen and pencil.

Cell phones must remain turned off during the Pilot Station and left with personal belongings in the Candidate orientation room. Cell phones may not be used by Candidates during the examination as timekeeping devices. Depending upon the site, the Candidate orientation room may or may not be secure. Candidates should take this into consideration when they decide what personal belongings they bring to the site.

No notes or other written materials may be taken into the examination room, including materials that have been downloaded from the National Board website. All notes and written materials must also be left in the Candidate orientation room. Candidates may not refer to notes or written materials during the examination.

It is likely that observer(s) may be present in the examination room. Observers are not there to watch a specific Candidate or Examiner; instead, they are there to watch the Pilot and the examination process. Observers are instructed not to converse or interact with Candidates or Examiners in the examination rooms. Observers are not part of the evaluation process.

The Pilot Station is comprised of 3 distinct procedures: preparation of both medications (simulated fluorescein sodium and simulated epinephrine), performing an intravenous injection for fluorescein angiography, and performing an intramuscular injection of epinephrine.

Given the nature and criticality of the injections to be performed at this Pilot Station, Candidates should assume that:

- an appropriate written Informed Consent has been discussed with and signed by the Patient prior to performing the injections.
- the Patient’s identity has been verified using 2 methods such as name, date of birth, last 4 digits of the SSN, and/or address prior to performing the injections.
- the nature of the injection procedure and the injection site have been verified by asking the Patient to verbalize his/her understanding of these issues.
- the Patient is male and has been found to have a normal BP measurement during the pre-procedure work-up.

Following the on-site Candidate Orientation, Candidates will be assigned to a specific room and examination cycle time for the injections station. Each Candidate badge, received during the on-site Pilot Station registration, shows the individual room and time assignment.

Five minutes are allotted for the Candidate to be in the exam room prior to the start of the station. Candidates may familiarize themselves with equipment in the exam room during any remaining rotation time after arriving

at the station. No clinical procedures should be performed before the station officially begins, as indicated by the “whistle.” Thus, during the 5 minute interval, Candidates may adjust the arm, sharps container, and other equipment as desired but injections may not be performed.

The total testing time at the Pilot Station is 20 minutes. Candidates are responsible for monitoring their time. Examiners will not remind Candidates of the remaining time at the station. If time expires before a Candidate completes the station, the items not performed will be scored as incorrect.

A “whistle” blows that officially begins and ends each 20-minute examination cycle. The purpose of this formal beginning is to standardize the amount of examining time for all Candidates. Therefore, Examiners have been instructed to ignore any Candidate procedures that precede the whistle, including general station items such as greeting the Patient. Candidates who begin before the whistle must repeat any task performed in order to be scored. Similarly, no notes are to be written before the whistle blows, since Examiners may be unable to distinguish notes created in the room from notes inappropriately brought into the room. **Writing notes in the room before the whistle blows may be cause for disqualification or dismissal from the Pilot.**

The Examiner will not enter the examination room until the starting “whistle” blows that begins the station. Upon entry, Candidates may ask questions regarding the equipment. The Examiner will answer questions such as **where** an equipment switch, room lighting control, or clinical material is located. Additionally, the Candidate may choose to ask the Examiner to re-position the arm based on comfort and handedness, so as not to knock over the IV bags and tangle the tubing. However, questions such as **how** to use the equipment or clinical material are **not** appropriate and will **not** be answered by the Examiner. Candidates may ask the Examiner “where” questions about the equipment and/or room lighting control throughout the stations during the 20-minute allocated station time. **No additional examination time will be provided for any questions and answers.**

Candidates may reread the instructions posted in the examination room before the station begins. The Examiner hands the Candidate a sheet of blank paper upon entering the room after the “whistle” blows that begins the station. This paper is for recording notes or data and is not scored. At the conclusion of each station, Candidates must leave behind any notes or data recorded during the station.

Since the Pilot consists of a single station, Candidates may exit the exam room after finishing the station and stating “I am finished.” It is not necessary for the Candidate to wait until the full 20-minute allocated station time has expired. The Candidate will be handed an Exit Survey to complete before leaving the clinic.

The skill evaluation forms contain the criteria that Examiners use to assess Candidate performance. The criteria are in the form of yes-no checklists, and the numbered performance items are sequenced in the order in which they should be optimally conducted. Candidates must perform the procedures in the following order: preparation of both medications (fluorescein and epinephrine), performing an intravenous injection for fluorescein angiography, and performing an intramuscular injection of epinephrine.

Candidates may alter the sequencing of the numbered items performed within a procedure without loss of credit but are strongly discouraged from doing so. For example donning of protective gloves could occur earlier although this sequence may interfere with the Candidate’s dexterity. However, certain items must be performed in order to receive full credit (e.g., application of the tourniquet prior to injection.) Thus, following the sequence as indicated on the evaluation forms helps ensure that Candidates will not forget to perform any required item and also facilitates Examiner scoring.

Candidates are randomly matched with Examiners. If, for a valid reason, Candidates feel that they may not be evaluated fairly by the Examiner with whom they have been matched, or if they are familiar with an Examiner, it is their responsibility to **immediately** request another Examiner. These requests must be made before the evaluation begins at the station.

Examiners may appear to be unfriendly. Candidates should not regard this as a personal dislike or an indication of performance quality. Examiners are instructed to conduct the examination in a personally neutral manner to promote uniform, equal treatment of Candidates. The Examiners' detachment produces a more objective, impartial evaluation. Examiners are allowed to say very little other than what has been scripted.

Examiners are responsible for ensuring safety. If an Examiner believes that the techniques or procedures used by a Candidate jeopardize safety, the Examiner has the responsibility to intervene or stop the injection procedure being assessed. If the Examiner intervenes, the Candidate will receive no credit for that item. If the Examiner stops the procedure, the Candidate will receive no credit for that item and any related subsequent items but, unlike CSE, will be allowed to proceed with the next logical item not affected by the procedure that was stopped (e.g., Candidate was stopped on item 33, the Candidate would receive no credit for items 33, 34, 35, 37, 38, 39 but would be allowed to perform items 36, 40-66). *In CSE, if a Candidate is stopped the Candidate will receive no credit for that item or the remaining items on that skill.*

Any open wound on a Candidate's finger or hand must be covered during the examination. This applies to pre-existing wounds and those that may develop during the examination. In the instance of the latter, a band-aid and gloves will be provided to protect the Candidate.

Candidates who wish to repeat one or more items within a procedure may do so at their discretion, **if** they have not begun the next procedure. However, Candidates who have begun the next procedure and wish to return to a prior procedure to repeat one or more items, or perform one or more omitted items, are expected to redo the **entire** procedure (*this is unlike CSE where Candidates who have left a skill must redo the entire skill*). These Candidates must announce this intent to the Examiner and return to the first item in the procedure (except for any general station procedures such as greeting the Patient). In repeating the procedure, **all** of the prior marks recorded by the Examiner are erased, and the Candidate proceeds and is evaluated as if performing the entire procedure for the first time.

Candidates are responsible for facilitating Examiner observations. Occasionally, the Examiner may ask a Candidate to repeat one or more items if the Examiner is not able to observe it.

Some items require the Candidate to give instructions to the Patient, who will be portrayed by the Examiner. Thus, some items are interactive between the Candidate and the Examiner.

Some items require the Candidate to state clinical findings to the Examiner. Candidates are reminded that specific performance items in each station, as indicated on the evaluation forms, require that the obtained findings be **stated** to the Examiner verbally in the same manner as they should be entered into a patient record. Speaking clearly and audibly is important for these performance items, since these items also test communication skills.

Candidates should indicate to the Examiner when they have completed the Pilot Station by stating "I am finished."

Any procedural questions that Candidates have should be addressed directly to the Chief Examiner or Examiner. **No other communication should occur between Candidates and Examiners or among Candidates during the Pilot Station, including rotation time before the station. "Communication" includes conversation, text messaging, and passing notes, as examples. In addition, no communication is to occur among Candidates before leaving the test center.**

While no Candidate Debriefing will be conducted following the Pilot Station, Candidates are expected to complete a brief written Exit Survey on-site.

Candidates must *not* leave the test center until dismissed nor re-enter the test center after dismissal. Candidates must return their badges, and Candidates must *not* remove any testing materials from the test center.

Candidate Orientation Information: Specific

While the medication vials are labeled appropriately (“25% fluorescein sodium” for IV injection and “1:1000 epinephrine” for IM injection), the solutions in both vials are clear. Thus, after withdrawing the medications into two separate syringes (using the 5mL syringe for fluorescein sodium and the 1mL syringe for epinephrine), the only distinguishing factors between the medications will be the volume contained in the syringes (3.0 mL of fluorescein sodium for IV injection and 0.4 mL of 1:1000 epinephrine for IM injection) as well as the size of the syringes. Thus, it will be important for the Candidate to ensure that the correct medication is being injected.

If there is flexibility on where the sharps container can be positioned (e.g., it is not wall-mounted), the Candidate should position the sharps container appropriately given his/her handedness (e.g., the hand holding the needle should not cross over the other hand/arm to reach the sharps containing, risking a needle stick).

This station integrates IV injection, as would be done for fluorescein angiography, with the intramuscular injection of epinephrine. This is clinically realistic since a needle/syringe filled with 1:1000 epinephrine could be prepared prior to performing fluorescein angiography in the event the patient experiences an anaphylactic reaction due to the injection of fluorescein sodium dye. Preparing the syringes for both procedures at the beginning of the station also results in appropriate streamlining of items pertaining to handwashing and the donning of protective gloves. The gloves that are donned in performing an intravenous injection for fluorescein angiography may be left on through performing an intramuscular injection of epinephrine.

A standard multi-use medication vial will be provided labeled “25% fluorescein sodium” with an expiration date; however, the solution in the vial will be clear. The National Board recognizes that injectable fluorescein sodium is also commonly available in single-use glass ampules.

For the preparation for intramuscular injection of epinephrine, a standard multi-use medication vial will be provided labeled “1:1000 epinephrine” with an expiration date. The National Board recognizes that that injectable epinephrine solution is also available in commercially available auto-injectors (e.g., EpiPen®).

If desired, Candidates may wash their hands while wearing the protective gloves.

IM injection of 1:1000 epinephrine solution is to be performed in the deltoid muscle pad on the simulated arm. The National Board recognizes that injection of epinephrine to treat an anaphylactic reaction is usually administered intramuscularly in the outer thigh of a patient. However, the Board views the skills needed to perform IM injection in the deltoid muscle pad of the simulated arm to be similar to the administration of epinephrine by injection at another anatomical site as performed clinically.

CANDIDATE INSTRUCTIONS FOR THE PILOT STATION INTRAVENOUS AND INTRAMUSCULAR INJECTIONS

Use any remaining rotation time before the station begins to inspect the equipment. If you have questions about the equipment, ask the Examiner after the “whistle” sounds to begin the station. You may ask the Examiner “where” questions about the equipment and/or room lighting control throughout the station. Additionally, the Candidate may choose to ask the Examiner to reposition the arm based on comfort and handedness, so as not to knock over the IV bags and tangle the tubing. Proceed with the items as if the simulated arm belongs to an actual patient.

Preparation of Both Medications—Procedure 1. Some items are interactive between the Candidate and the Examiner, who portrays the Patient.

Prepare a 5mL syringe and needle appropriately for intravenous injection of 25% fluorescein sodium while maintaining aseptic technique, including wiping the stopper of the medication vial with an alcohol pad. Properly withdraw slightly more than 3.0 mL of medication into the syringe. After withdrawing the medication, ejecting air from the syringe, and recapping the needle using the one-handed “scoop” technique, hold the syringe vertically (capped needle up) and show the syringe to the Examiner so that the volume of medication withdrawn can be verified.

Prepare a 1mL syringe and needle appropriately for intramuscular injection of 1:1000 epinephrine while maintaining aseptic technique, including wiping the stopper of the medication vial with an alcohol pad. Properly withdraw slightly more than 0.4 mL of medication into the syringe. After withdrawing the medication, ejecting air from the syringe, and recapping the needle using the one-handed “scoop” technique, hold the syringe vertically (capped needle up) and show the syringe to the Examiner so that the volume of medication withdrawn can be verified.

Performing an Intravenous Injection for Fluorescein Angiography-Procedure 2. It is not necessary for the Examiner to open and close the fist in response to your instruction to do so. Using the winged infusion set, perform an intravenous injection of fluorescein sodium into an appropriate venous site of the simulated arm (hand, antecubital, or other site in the lower arm). After completing the injection, discard the needle and the winged infusion set with the attached syringe into the sharps container. Other items that came in contact with the artificial blood (e.g., cotton balls, protective gloves) may be discarded into a wastebasket as non-biohazards. State verbally to the Examiner the injection elements that should be documented in a patient record (drug, dose, delivery method, location).

Performing an Intramuscular Injection of Epinephrine-Procedure 3. Some items are interactive between the Candidate and the Examiner, who portrays the Patient.

Perform an intramuscular injection of 1:1000 epinephrine into the deltoid muscle pad on the simulated arm. When aspirating to ensure that the needle is not in a blood vessel, it is possible that bubbles may appear due to the nature of the simulated arm. After completing the injection, discard the syringe and the attached needle (without capping) into the sharps container. Other items that came in contact with the artificial blood (e.g., cotton balls, protective gloves) may be discarded into a wastebasket as non-biohazards. State verbally to the Examiner the injection elements that should be documented in a patient record (drug, dose, delivery method, location).

[Station Evaluation Forms \(click here\)](#)