

Rater instructions

In the following you can read about different types of bias to be aware of and how the different items should be evaluated. To minimize bias, you need to be aware of the three following types of bias:

1. End-aversion bias: Raters can be reluctant to use extreme scores on the rating scale with a tendency to choose middle range scores. Therefore, give 1 point if the performance of the participant is unsatisfactory and you do not think they are able to do the procedure safely. Give 7 points if the performance is excellent.
2. Positive skew: Describes a tendency to assess performances better than they are, without regard to quality. You should try to avoid this.
3. Halo effect: The rater evaluate the participant's performance based on unrelated things or based on the general impression of the participant. It is important that you rate the items individually and do not take into account what other scores the participant obtained earlier.

Item assessment:

- Item 1: The participant has to explain correct patient positioning. This can either be lying in a supine position with the arm above the head, presenting the "triangle of safety" or in a sitting position with the back turned towards the physician. Only one of the positions needs to be described. If the participant answers "as the phantom lies now" a "no" is given.
- Item 2: If the participant can produce an image and describe basic anatomic landmarks, e.g. chest wall, fluid, a "yes" should be given. If the scanning were not clearly described, a "no" should be given.
- Item 3: The participant has to explain correct entry point. This involves describing the triangle of safety and/or identifying intrapleural fluid and/or the superior border of the rib.
- Item 4: If the participant at any time becomes unsterile and do not change gloves, a "no" is given. If the participant does not use surgical aperture drape, a "no" is given. If the rater is in doubt, a "no" is given.
- Item 5: When asked, the participant should answer that he/she uses at least 5-10 ml of 1% lidocaine. Other or no answers should be given a "no". If administration of sufficient amount (at least 5 ml) were observed, a "yes" is given.
- Item 6: The participant should show or describe how they insert the pigtail catheter above the superior border of a rib. If they do not, a "no" is given. If correct insertion site is observed, but not described, a "yes" is given.
- Item 7: The participant shows or describes how he/she infiltrates all layers of the skin with the needle and syringe containing local anaesthetic. A "no" is given if the amount observed or administered in Item 5 is insufficient.
- Item 8: After insertion, participant should aspirate to confirm intrapleural positioning.
- Item 9: **GLOBAL SCORE:** This score describes the overall performance of Domain 1: Patient positioning and local anaesthetic. **Do not look at the item scores.** If the participant shows insecure procedural skills, a low score is given. The highest possible score (7) is given to the participant who demonstrates the procedure with apparent ease.
- Item 10: The participant makes a small superficial stab incision. If the participant cuts further or enlarges the incision, a "no" is given.
- Item 11: The participant advances the fully assembled pigtail catheter into the pleural cavity. If any deviations or misuse of the catheter system is observed, a "no" is given.

- Item 12: When asked, the participant describes that he/she would reposition the pigtail catheter and try another direction. Other explanations are given a “no”.
- Item 13: Once the catheter is placed and the needle is removed, the participant should aspirate to confirm correct intrapleural positioning.
- Item 14: If the guidewire is not kept in an unchanged position, a “no” is given.
- Item 15: Any sudden movements or reckless handling of the catheter in- or outside the patient, should be given a “no”.
- Item 16: If the participant removes the guidewire while securing the catheter, a “no” is given.
- Item 17: All side holes of the catheter should be positioned in the pleural cavity.
- Item 18: Once the catheter is placed, the participant aspirates to confirm correct intrapleural positioning. This can be done either before or after attaching the drainage system.
- Item 19: The participant shows that he/she knows how to connect the catheter to drainage system
- Item 20: The participant remembers to remove the surgical aperture drape with caution. If the catheter patch (drain fix) sticks to the surgical aperture drape, a “no” should be given.
- Item 21: The participant shows that he/she knows how to attach the pigtail catheter to the patient with a patch (drain fix)
- Item 22: **GLOBAL SCORE:** This score describes the overall performance of Domain 2: Insertion of pigtail catheter. **Do not look at the item scores**. If the participant shows insecure procedural skills, a low score is given. The highest possible score (7) is given to the participant who demonstrates the procedure with apparent ease.