Pleural Assessment Tools©

UGSTAT
ICC-STAT

www.Bronchoscopy.org
UG-STAT

Ultrasound-Guidance Skills and Tasks Assessment Tool
for pleural diagnosis, thoracentesis and chest tube insertion*

*Clinical research/validated assessment tool with instructions, quiz and quiz answers applicable to an international audience of health care providers.
Designed and developed by Dr. Matthew Salamonsen and team, Brisbane, Australia See: Salamonsen M, McGrath D, Steiler G, et al. Chest 2013
Ultrasound-Guided Thoracentesis Skills and Tasks Assessment Tool (UGSTAT)

Name: __________________________________   Position _____________

Assessor Name: ___________________________ Date ______________

Prior thoracic US experience: Educational Course □ Yes □ No # US performed to date: ___

Instructions
Ensure all equipment is available including US machine, probes and US gel.
Please read instructions in red below. You may repeat instructions and assist with location of the US controls when asked, but Do NOT give any extra prompting or ask additional questions. If a participant requires prompting, score zero for that assessment point.

<table>
<thead>
<tr>
<th>Educational Item</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. &quot;Please tell me what the following controls on the US machine do: - name each control (1 point each, target 10 points)</td>
<td>Score ___/10</td>
</tr>
<tr>
<td>□ On/Off □ Depth □ Focus □ Time-gain-Compensation (TGC) □ Freeze □ Overall gain □ Harmonics □ Dynamic range □ Frequency control □ Image capture</td>
<td></td>
</tr>
<tr>
<td>2. &quot;Tell me the name of each of these probes&quot; point to linear and convex probe. (3 points each, target 6 points)</td>
<td>Score ___/6</td>
</tr>
<tr>
<td>□ Linear □ Curved</td>
<td></td>
</tr>
<tr>
<td>3. &quot;What would you do to prepare the US machine for the exam? What probe would you use? How would you position the patient?&quot; (3 points each, target 12 points)</td>
<td>Score ___/12</td>
</tr>
<tr>
<td>□ Patient data □ Presettings □ Probe □ Patient position</td>
<td></td>
</tr>
<tr>
<td>4. &quot;Now start the US exam. You may ask for the location of specific US controls. Describe what you are doing.&quot; Uses correct probe grip, orientation and handling. (3 points each, target 6 points)</td>
<td>Score ___/6</td>
</tr>
<tr>
<td>□ Grip □ Orientation and handling</td>
<td></td>
</tr>
<tr>
<td>5. Able to optimize sonographic image. You can assist if required but score zero if assistance is given. (3 points each, target 9 points)</td>
<td>Score ___/9</td>
</tr>
<tr>
<td>□ Depth □ Focus □ Time-Gain-Compensation</td>
<td></td>
</tr>
<tr>
<td>6. &quot;Please show me the liver/spleen (dependent on side), lung, and superior margin of rib&quot; (4 points each, target 12 points).</td>
<td>Score ___/12</td>
</tr>
<tr>
<td>□ Liver or Spleen inferior to effusion □ Lung superior to effusion □ Rib margin</td>
<td></td>
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<tr>
<td>7. &quot;Show me the area on the chest wall corresponding to the maximal depth of effusion&quot; (target 4 points)</td>
<td>Score ___/4</td>
</tr>
<tr>
<td>□ Identifies site on chest wall corresponding to maximal depth of effusion</td>
<td></td>
</tr>
<tr>
<td>8. &quot;Now measure the distance from skin to effusion and skin to a suitable needle depth&quot; (target 3 points)</td>
<td>Score ___/3</td>
</tr>
<tr>
<td>□ Accurately measures distance to effusion and suitable needle depth</td>
<td></td>
</tr>
<tr>
<td>9. &quot;Would you describe loculations as absent, minor or extensive? Please place your finger on the skin where you would mark to insert the needle&quot; Check the mark to confirm it is at superior border of rib. (4/3/3 points each, target 10 points)</td>
<td>Score ___/10</td>
</tr>
<tr>
<td>□ Correctly indicates absent loculations □ ID correct site on skin for needle insertion □ Site is at top of rib</td>
<td></td>
</tr>
<tr>
<td>10. Ask candidate to complete UGSTATQuiz questions sheets (1 point each, target 10 points)</td>
<td>Score ___/10</td>
</tr>
<tr>
<td>□ Image 1 □ Image 2 □ Image 3 □ Image 4 □ Image 5 □ Image 6 □ Image 7 □ Image 8 □ Image 9 □ Image 10</td>
<td></td>
</tr>
<tr>
<td>11. Overall performance/fluency of movement (Score 0 for unsatisfactory, 9 for satisfactory, 18 for excellent - target 18 points)</td>
<td>Score ___/18</td>
</tr>
<tr>
<td>□ Unsatisfactory □ Satisfactory □ Excellent</td>
<td></td>
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</table>

FINAL GRADE   PASS NEEDS IMPROVEMENT SCORE _______/100
UGSTAT Quiz Questions

Name ___________________

UGSTAT Question 10: Match the sonographic photo (A-F) to the corresponding 5 descriptions (Only one response per description)

Only FIVE of these photos have corresponding image descriptions

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>E</td>
<td>F</td>
</tr>
</tbody>
</table>

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No Response

1. Complex effusion with hyperechogenic shadows

2. Multiloculated (complex septated) effusion

3. Ribs with posterior acoustic shadowing

4. Anechoic left-sided effusion

5. Lung consolidation (hepatization)

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UGSTAT Quiz Questions

Name ____________________

Only FIVE of these photos have corresponding image descriptions

UGSTAT Question 10: Match the sonographic photo (A-F) to the corresponding 5 descriptions (Only one response per description)

- No Response
- 6. Floating lung sign
- 7. Complex non septated effusion
- 8. Diaphragmatic nodules
- 9. Effusion in severely obese person
- 10. Large anechoic effusion
UGSTAT Question 10: Match the sonographic photo (A-F) to the corresponding 5 descriptions (Only one response per description)

- A
- B
- C
- D
- E
- F

No Response

1. Complex effusion with hyperechogenic shadows
2. Multiloculated (complex septated) effusion
3. Ribs with posterior acoustic shadowing
4. Anechoic left-sided effusion
5. Lung consolidation (hepatization)
UGSTAT Quiz Answers

Only FIVE of these photos have corresponding image descriptions

UGSTAT Question 10: Match the sonographic photo (A-F) to the corresponding 5 descriptions (Only one response per description)

<p>| | | | |</p>
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<tr>
<td>No Response</td>
<td>J (6. Floating lung sign)</td>
<td>H (7. Complex non septated effusion)</td>
<td></td>
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</table>
Bronchoscopy International is a transnational organization whose members are devoted to bronchoscopy education. Our vision is that patients need not suffer the burden of medical procedure-related training. Our mission is to help physicians become skilled practitioners, and to make bronchoscopy more readily available to patients so that we might defeat the effects of lung disease around the world.

Bronchoscopy International partners with national, regional, and international medical societies to train physicians and their health care teams, donate equipment, and implement learning programs that support the democratization of knowledge. The organization has developed a six part curriculum to enhance cognitive, affective and experiential knowledge and technical skill. With implementation of the Bronchoscopy Education Project, we also offer a uniform curriculum to training centers and educators around the world. The project is officially endorsed by numerous professional medical associations. Learning resources include books and training manuals, instructional videos, patient-centered problem-based exercises, simulation scenarios, and interactive on-site and on-line seminars. Faculty Development Programs are conducted to nurture a cadre of expert educators. To learn more about Bronchoscopy International and our global activities, please go to www.Bronchoscopy.org.
ICC-STAT

Intercostal Catheter Skills and Tasks Assessment Tool

Clinical research/validated assessment tool with instructions, quiz and quiz answers applicable to an international audience of health care providers.
Scoring Recommendations for ICC-STAT

The goal of the Intercostal Catheter Skills and Tasks Assessment Tool (ICC-STAT©) is to monitor progress along the learning curve from novice (Score <60) to competent (Score=100). By observing the learner’s performance several times each year, instructors are be able to ascertain that each of the TEN elements of the tool are addressed satisfactorily*.

Please note that items 1, 2 and 3, as well as items 8, 9, and 10 should be assessed regardless of the kind of chest tube being inserted. If assessing chest tube insertion skill using the blunt insertion technique, items 4 and 5 should be also be assessed (and items 6 and 7 may be ignored). To assess chest tube insertion skill using the Seldinger technique, items 6 and 7 should be assessed (and items 4 and 5 may be ignored).

The ICC-STAT Quiz© contains one single open question (ICC-STAT© item 10) that requires 20 separate answers. The ICC-STAT Quiz is the same regardless of which chest tube insertion technique is being tested. Its value is scored 20 points.

While instructors and training programs may choose their own achievement scores to determine minimum acceptable levels of competency, we recommend that a final PASS grade be achieved only with a score of 100. This recommendation is consistent with mastery learning educational methodologies for competency-based assessments.

ICC-STAT© is designed for a global audience. Users may modify instructional and testing techniques based on regional needs and variations in practice.

* ICC-STAT© has been validated and results published previously (previously referred to as TUBE-iCOMPT, by M. Salamonsen et al., published in Thorax, March 2014). Elements of the assessment tool were restructured to assure uniformity with other assessments designed and distributed by Bronchoscopy International© faculty. ICC-STAT can also be used in conjunction with The Chest Ultrasound-Guided Thoracentesis assessment tool (UG-STAT) available from www.Bronchoscopy.org.
## INTERCOSTAL CATHETER SKILLS AND TASK ASSESSMENT TOOL

Student _________________________________   Training Year _______________

Faculty __________________________________   Date _______________________

- Simulation Workshop
- Patient-based Scenario

Method of insertion: □ Seldinger technique   □ Blunt dissection technique

### Educational Item*

<table>
<thead>
<tr>
<th>Items 1-10 scored as per bracketed instructions</th>
<th>Satisfactory Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Patient positioning and site selection (2 points each) □ Time out (patient identification and informed consent □ Patient positioned appropriately □ Identifies triangle of safety using anatomical landmarks □ Describes the benefits of using ultrasound</td>
<td>Yes / No Score ___/8</td>
</tr>
<tr>
<td>2. Local anesthetic technique (2 points each) □ Aseptic technique □ Adequate volume □ Knows maximum dose □ Needle inserted over superior border of rib □ Needle perpendicular to skin aiming for axial center of chest □ Pleural space aspirated □ Specifically infiltrates parietal pleura and skin □ Notes depth to pleural space</td>
<td>Yes / No Score ___/16</td>
</tr>
<tr>
<td>3. Local anesthetic: Overall fluidity of movement and skill</td>
<td>Yes / No Score ___/8</td>
</tr>
<tr>
<td>4. Blunt Dissection Technique (3 points each) ** □ Remove trocar from chest tube □ Skin incision □ Blunt dissection through chest wall □ Uses nondominant hand to control forceps at skin □ Punctures pleura □ Assures adequate track size for tube □ Inserts ICC with forceps without excessive force □ Assures all catheter side holes are within pleural cavity and confirms drainage of pleural contents</td>
<td>Yes / No Score ___/24</td>
</tr>
<tr>
<td>5. Blunt dissection: Overall fluidity of movement and skill**</td>
<td>Yes / No Score ___/8</td>
</tr>
<tr>
<td>6. Seldinger Technique (2 points each)*** □ Introducer needle over rib □ Pleural space aspirated □ Insertion of guidewire □ Confirms guidewire moves freely □ Guidewire not kinked or contaminated □ Knows to start again if guidewire resistance is felt □ Skin incision pre-dilatation □ Needle track dilated making sure instruments are inserted in same plane □ Dilators not passed greater than 1 cm past pleura □ Chest tube inserted over wire without excessive force □ Ensures all side-holes of chest tube within pleural cavity □ Confirms drainage of pleural contents</td>
<td>Yes / No Score ___/24</td>
</tr>
</tbody>
</table>
7. Seldinger technique: Overall fluidity of movement and skill***

<table>
<thead>
<tr>
<th>Unsatisfactory</th>
<th>Below average</th>
<th>Satisfactory</th>
<th>Above average</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

Yes / No
Score __/8

8. Drain connection, Suturing, and Dressing techniques
- Attaches tube to drain or clamps/turns off 3-way tap
- Uses non-absorbable suture
- Secures and anchors chest tube
- Chest tube not compressed
- Sutures are tight (chest tube does not loosen with movement)
- Applies appropriate dressing to tube insertion site
- Secures or tapes junction of ICC to drain tube
- Applies tape to secure chest tube/drain tube to patient

Yes / No
Score ____/8

9. Post-procedure Checks (2 points each)
- Confirms pleural placement (fluid fluctuation/swing in drainage device)
- Examines drainage device for fluid or air leak
- Orders chest x-ray
- Considers ongoing analgesia

Yes / No
Score ____/8

10. ICC-STAT Quiz

Yes / No
Score ____/20

* Each of the 10 items contains elements required by ACGME (patient care, medical knowledge, practice-based learning and improvement, interpersonal communication skills, professionalism, and systems-based practice).

** Use items 4 and 5 if assessing Blunt insertion technique (ignore items 6 and 7).

*** Use items 6 and 7 if assessing Seldinger technique (ignore items 4 and 5).

**FINAL GRADE**  PASS____  FAIL____  **SCORE**  _______/100

§
ICC-STAT Quiz (20 points)

INSTRUCTIONS: Please list TWENTY major items that should be reviewed during the “time out” prior to inserting an intercostal catheter.

1. __________________________  11.____________________________
2. __________________________  12.____________________________
3. __________________________  13.____________________________
4. __________________________  14.____________________________
5. __________________________  15.____________________________
6. __________________________  16.____________________________
7. __________________________  17.____________________________
8. __________________________  18.____________________________
9. __________________________  19.____________________________
10.__________________________  20.__________________________

SCORE (# OF CORRECT ANSWERS) ____________/20

Bronchoscopy International® Assessment Tool: Pleural Disease
INTERCOSTAL CATHETER SKILLS AND TASKS ASSESSMENT TOOL (ICC-STAT©)

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ICC-STAT Quiz Answers (20 points)

The following TWENTY major items (listed here in alphabetical order) should be reviewed during a “time out” prior to inserting an intercostal catheter.

1. Assure equipment is available in case of complications
2. Assure intravenous access
3. Assure that oximetry is available
4. Assure that sharps precautions are adequate
5. Assure that systemic blood pressure monitoring is available
6. Assure that universal precautions are respected
7. Confirm correct patient (chart, self-declared name, name badge)
8. Confirm correct place
9. Confirm correct procedure
10. Confirm correct time
11. Confirm that a procedural assistant is present
12. Confirm that informed consent was obtained
13. Confirm pleural ultrasound results (if applicable)
14. Confirm the chest tube insertion site (side and anatomical location)
15. Review chest radiographic studies
16. Review coagulation studies
17. Review the patient’s medication list
18. Review premedication/sedation plan for the procedure
19. Review chest tube insertion, drainage, and sampling procedural plan
20. Review results of clinical examination and note any changes

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