

# **FLEXIBLE BRONCHOSCOPY INSPECTION, BAL, BX AND TBLB**

Bronchoscopy Education Project

10 point Checklists



# Checklists

A collection of checklists and user instructions:

- Moderate sedation
- Fluoroscopy
- Informed consent
- Procedural pause and Patient safety
- Practical Approach
- Bronchoscopy step-by-step
- Proctored bronchoscopy
- IFB Program completion

# Scoring Recommendations for CHECKLISTS

(Informed Consent, Procedural Pause, Fluoroscopy, Sedation, Practical Approach, Step by Step, Proctored Bronchoscopy,)

The goal of these checklists is to monitor a learner's progress from *novice* (Score < 60) to *advanced beginner* (Score 60-79), *intermediate* (score 80-99), and *competent* (score 100). The instructor should ascertain, by observing the learner's performance that each of the TEN elements in each checklist are covered satisfactorily. The frequency with which these checklists are used is at the discretion of program organizers.

Repeated testing demonstrates progressive knowledge and skill acquisition as learners climb the learning curve. When there is more one entry in an item category, partial scores for each entry are possible to help identify areas requiring additional training (for example, if there are two entries under one item, and a score of 10 is required for the item, each entry may be scored 5 points). Using mastery training philosophy, competency is the minimum acceptable standard. We therefore recommend that the maximum score possible be attained for each item to be scored as satisfactory, and that 100% scores for all items be necessary for the bronchoscopist to be considered to have satisfactorily satisfied training requirements measured using the checklist.

To maximize objective scoring, each task has been defined explicitly. Participation in *Train-the-Trainers* programs is encouraged to assist instructors achieve interobserver reliability, and to use this program to its fullest potential.

Scores can be plotted on a graph, and programs may choose their own cut-offs for a PASS grade. We recommend that a PASS grade warrants a score of 100.

In the absence of studies demonstrating standard normograms as is done for high-stakes testing, consensus of world renowned experts was obtained to delineate cut-off scores for the following four categories.

<b>Category</b>	<b>Score</b>
Novice	< 60
Advanced Beginner	60-79
Intermediate	80-99
Competent	100

Specific instructions are marked by an asterisk (\*).

## MODERATE SEDATION 10-Point CHECKLIST\*

Learner \_\_\_\_\_ Training Year \_\_\_\_\_

Faculty \_\_\_\_\_ Date \_\_\_\_\_

Interactive session     Patient environment

<b>Educational Item*</b> Items 1-10 scored 10 points each. (Partial points are possible)	<b>Satisfactory Yes/No</b>
1. Definitions <input type="checkbox"/> Moderate sedation <input type="checkbox"/> Deep sedation	Yes / No
2. Able to obtain moderate sedation informed consent	Yes / No
3. Able to describe ASA classification <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Yes / No
4. Able to identify high risk patients	Yes / No
5. Able to describe potential contraindications	Yes / No
6. Able to list equipment that must be available	Yes / No
7. Sedation agents: role, dosage, precautions <input type="checkbox"/> Midazolam <input type="checkbox"/> Fentanyl	Yes / No
8. Reversal agents: role, dosage, precautions <input type="checkbox"/> Flumazenil <input type="checkbox"/> Naloxone	Yes / No
9. Able to describe how to respond to complications such as <input type="checkbox"/> Vomiting <input type="checkbox"/> Seizure	Yes / No
10A. Able to describe how to respond to over-sedation and <input type="checkbox"/> Hypotension <input type="checkbox"/> Airway obstruction	Yes / No
10B. Able to describe how to respond to over-sedation and <input type="checkbox"/> Hypoxemia <input type="checkbox"/> Respiratory failure	Yes / No

\* Contains elements required by ACGME (patient care, medical knowledge, practice-based learning and improvement, interpersonal communication skills, professionalism, and systems-based practice).

**FINAL GRADE**    **PASS**    **FAIL**    **SCORE** \_\_\_\_\_/100

## FLUOROSCOPY 10-Point CHECKLIST\*

Learner \_\_\_\_\_ Training Year \_\_\_\_\_

Faculty \_\_\_\_\_ Date \_\_\_\_\_

Interactive session     Patient environment

<b>Educational Item*</b> Items 1-10 scored 10 points each (partial points are possible)	<b>Satisfactory Yes/No</b>
1. Able to list indications for using fluoroscopy	Yes / No
2. Able to describe the relevance of voltage and amperage <input type="checkbox"/> For image quality <input type="checkbox"/> For patient safety	Yes / No
3. Able to describe consequences of resolution, distortion, and lag <input type="checkbox"/> For image quality <input type="checkbox"/> For patient safety	Yes / No
4. Able to describe consequences of brightness and contrast <input type="checkbox"/> For image quality <input type="checkbox"/> For patient safety	Yes / No
5. Able to describe dangers of scattered radiation	Yes / No
6. Able to describe techniques to improve visibility of fluoroscopic image	Yes / No
7. Able to describe techniques used to reduce patient radiation exposure	Yes / No
8. Able to describe techniques used to reduce operator radiation exposure	Yes / No
9. Able to describe special precautions in case of suspected or known pregnancy <input type="checkbox"/> Patients <input type="checkbox"/> Health care providers	Yes / No
10. Able to describe basic operation procedures	Yes / No

\* Contains elements required by ACGME (patient care, medical knowledge, practice-based learning and improvement, interpersonal communication skills, professionalism, and systems-based practice).

**FINAL GRADE**    **PASS**            **FAIL**            **SCORE**    \_\_\_\_\_/100

## INFORMED CONSENT 10-Point CHECKLIST\*

Learner \_\_\_\_\_ Training Year \_\_\_\_\_

Faculty \_\_\_\_\_ Date \_\_\_\_\_

Simulation Bronchoscopy Workshop     Patient-based Bronchoscopy Scenario

<b>Educational Item*</b> Items 1-10 scored 10 points each (Partial points are possible)	<b>Satisfactory Yes/No</b>
1. Able to define “Informed Consent”: <input type="checkbox"/> Informed decision-making regarding indications and expected outcomes, <input type="checkbox"/> Conflict of interest <input type="checkbox"/> Protection from liability <input type="checkbox"/> Provides opportunity to assess management strategies <input type="checkbox"/> Provides opportunity to discuss risks, benefits, and alternatives	Yes / No
2. Able to discuss diagnosis and pertinent clinical issues	Yes / No
3. Able to describe the purpose of the procedure	Yes / No
4. Able to describe the nature of the procedure	Yes / No
5. Able to describe procedure-related risks	Yes / No
6. Able to describe procedure-related benefits	Yes / No
7. Able to describe alternative procedures regardless of cost or health care coverage	Yes / No
8. Able to describe potential risks and benefits from choosing the alternatives	Yes / No
9. Able to describe the risks and benefits of not performing the procedure or not choosing any of the alternatives	Yes / No
10. Able to demonstrate “effectiveness” of the informed consent process by asking the patient to explain in his or her own words, their understanding of the procedure	Yes / No

\* Contains elements required by ACGME (patient care, medical knowledge, practice-based learning and improvement, interpersonal communication skills, professionalism, and systems-based practice).

**FINAL GRADE**    PASS                  FAIL                  **SCORE** \_\_\_\_\_/100

## PROCEDURAL PAUSE and PATIENT SAFETY 10-Point CHECKLIST\*

Learner \_\_\_\_\_ Training Year \_\_\_\_\_

Faculty \_\_\_\_\_ Date \_\_\_\_\_

Simulation Bronchoscopy Workshop     Patient-based Bronchoscopy Scenario

<b>Educational Item*</b> Items 1-10 scored 10 points each (Partial points are possible)	<b>Satisfactory Yes/No</b>
1. Able to define “Procedural Pause” as: <input type="checkbox"/> Time-Out <input type="checkbox"/> Wrong patient, site, procedure <input type="checkbox"/> Team communication/patient understanding <input type="checkbox"/> Mandatory in USA	Yes / No
2. Able to describe requirements of the procedural pause: <input type="checkbox"/> Immediately before procedure <input type="checkbox"/> Correct site, position, procedure <input type="checkbox"/> Correct patient <input type="checkbox"/> Pertinent medical records and equipment <input type="checkbox"/> Verbal acknowledgements by all team members <input type="checkbox"/> Elimination of environmental distractions	Yes / No
3. Able to describe the team leader’s role	Yes / No
4. Able to describe the nursing team’s role	Yes / No
5. Able to describe the patient’s role	Yes / No
6. Able to describe other person’s roles (technicians, other physicians)	Yes / No
7. Able to list the elements that must be covered: <input type="checkbox"/> Patient <input type="checkbox"/> Procedure <input type="checkbox"/> Side and site <input type="checkbox"/> Informed consent <input type="checkbox"/> Medical records and equipment <input type="checkbox"/> Medications <input type="checkbox"/> Allergies/drug reactions <input type="checkbox"/> Safety concerns based on history	Yes / No
8. Able to address behaviors in case of distractions	Yes / No
9. Able to describe behaviors in case of disagreements	Yes / No
10. Able to describe other elements that help assure a culture of safety: <input type="checkbox"/> Communication <input type="checkbox"/> Ability to prevent complications <input type="checkbox"/> Ability to respond to complications <input type="checkbox"/> Universal precautions <input type="checkbox"/> Droplet, and Airborne pathogen precautions	Yes / No

\* Contains elements required by ACGME (patient care, medical knowledge, practice-based learning and improvement, interpersonal communication skills, professionalism, and systems-based practice).

**FINAL GRADE**    **PASS**            **FAIL**            **SCORE**    \_\_\_\_\_/100

## PRACTICAL APPROACH 10 Point CHECKLIST\*

Learner \_\_\_\_\_ Training Year \_\_\_\_\_

Faculty \_\_\_\_\_ Date \_\_\_\_\_

Instructor-learner 30 minute session     Daily rounds & bronchoscopy consultation

<b>Educational Item*</b> Items 1-10 scored 10 points each (Partial points are possible)	<b>Satisfactory Yes/No</b>
1. Initial evaluation A <input type="checkbox"/> Physical examination, laboratory tests, and functional assessment <input type="checkbox"/> Comorbidities	Yes / No
2. Initial evaluation B <input type="checkbox"/> Support system <input type="checkbox"/> Preferences and expectations	Yes / No
3. Procedural strategies A <input type="checkbox"/> Indications, contraindications, expected results <input type="checkbox"/> Operator and team experience and expertise	Yes / No
4. Procedural strategies B <input type="checkbox"/> Risk-benefits and therapeutic alternatives <input type="checkbox"/> Informed consent	Yes / No
5. Techniques and results A <input type="checkbox"/> Anesthesia and perioperative care <input type="checkbox"/> Techniques and instruments	Yes / No
6. Techniques and results B <input type="checkbox"/> Anatomic dangers and other risks <input type="checkbox"/> Results and complications	Yes / No
7. Long-term management plan A <input type="checkbox"/> Outcome assessment <input type="checkbox"/> Follow-up tests and procedures	Yes / No
8. Long-term management plan B <input type="checkbox"/> Referrals to other specialists <input type="checkbox"/> Quality improvement and team evaluation	Yes / No
9. Able to answer case-specific questions <input type="checkbox"/> Question 1 <input type="checkbox"/> Question 2 <input type="checkbox"/> Question 3	Yes / No
10. General ability to provide evidence for and rationally justify decision making <input type="checkbox"/> Subjective assessment of learner ability	Yes / No

\* Contains elements required by ACGME (patient care, medical knowledge, practice-based learning and improvement, interpersonal communication skills, professionalism, and systems-based practice).

**FINAL GRADE**      **PASS**      **FAIL**      **SCORE** \_\_\_\_\_/100



## BRONCHOSCOPY STEP BY STEP® 10 point CHECKLIST

Learner \_\_\_\_\_ Training year \_\_\_\_\_

Instructor \_\_\_\_\_ Date \_\_\_\_\_

Simulation session     Patient environment

<b>Educational Items</b> Each item 1-10 valued at 10 points (No partial scores unless where indicated)	<b>Satisfactory Yes/No</b>
1. <b>Step 1</b> Nose to larynx (if not applicable, score as satisfactory) <input type="checkbox"/> Atraumatic, gentle <input type="checkbox"/> Correct path, larynx easily visualized	Yes / No
2. <b>Step 2</b> Larynx to subglottis <input type="checkbox"/> Scope kept midline <input type="checkbox"/> Able to pass cords atraumatically	Yes / No
3. <b>Step 3</b> Follow the curve to the carina <input type="checkbox"/> Scope kept midline, well controlled, no airway wall trauma	Yes / No
4. <b>Step 4</b> Carina to Right, Carina to Left, Carina Right/Left/Neutral <input type="checkbox"/> Carina-R <input type="checkbox"/> Carina- L <input type="checkbox"/> R – L- Neutral	Yes / No
5. <b>Step 5</b> Down/up Left bronchus—Down/up Right bronchus <input type="checkbox"/> Down the L (5 points) <input type="checkbox"/> Down the R (5 points)	Yes / No
6. <b>Step 6</b> Main Bronchus to Lobar bronchi (2 points each lobe) <input type="checkbox"/> LMB to LUL <input type="checkbox"/> LMB to LLL <input type="checkbox"/> RMB to RUL <input type="checkbox"/> RMB to BI <input type="checkbox"/> RMB to RLL	Yes / No
7. <b>Step 7L</b> Left segmental anatomy except for basal pyramid (2 points each segmental series) <input type="checkbox"/> LB1+2 <input type="checkbox"/> LB 3 <input type="checkbox"/> LB 4-5-6 <input type="checkbox"/> LB7 (if present) <input type="checkbox"/> entrance to LLL basal segments	Yes / No
8. <b>Step 7R</b> Right segmental anatomy except for basal pyramid (2 points each segmental series) <input type="checkbox"/> RB1 <input type="checkbox"/> RB2 <input type="checkbox"/> RB3 <input type="checkbox"/> RB 4-5-6 <input type="checkbox"/> entrance to RB7 and RLL basal segments	Yes / No
9. <b>Step 8L</b> Left lower lobe basal segments <input type="checkbox"/> LB 8-9-10 (pan pan pan)	Yes / No
10. <b>Step 8R</b> Right lower lobe basal segments <input type="checkbox"/> RB 7- 8 – 9 -10 (D'Ártagnan and the 3 musketeers)	Yes / No

\* A score of 100 percent is warranted to PASS. Items 1-10 for which partial points are obtained should be scored as NO. Partial points are designed to identify learning needs.

**FINAL GRADE**      **PASS**      **FAIL**      **SCORE** \_\_\_\_\_/100

## PROCTORED FLEXIBLE BRONCHOSCOPY 10-Point CHECKLIST\*

Learner \_\_\_\_\_ Training Year \_\_\_\_\_

Faculty \_\_\_\_\_ Date \_\_\_\_\_

Simulation Bronchoscopy Workshop     Patient-based Bronchoscopy Scenario

<b>Educational Item*</b> Items 1-10 scored 10 points each (Partial points are possible)	<b>Satisfactory Yes/No</b>
1. Formulation of effective plan and strategy: <input type="checkbox"/> Informed consent obtained, signed and in medical record <input type="checkbox"/> History and physical <input type="checkbox"/> Review imaging studies <input type="checkbox"/> Cost-effective practice <input type="checkbox"/> Use of information resources <input type="checkbox"/> Applies evidence-based medicine <input type="checkbox"/> Use of systems resources	Yes / No
2. Patient safety: <input type="checkbox"/> ASA assessment <input type="checkbox"/> Airway assessment <input type="checkbox"/> Allergies <input type="checkbox"/> Medications <input type="checkbox"/> Comorbidities	Yes / No
3. Patient safety: <input type="checkbox"/> Positioning <input type="checkbox"/> Supplemental oxygen <input type="checkbox"/> Vital signs <input type="checkbox"/> Suction <input type="checkbox"/> Bite-block and/or ET tube if applicable <input type="checkbox"/> Verifies ability to respond to complications and accessibility of resuscitation equipment	Yes / No
4. Patient and procedural team safety: <input type="checkbox"/> Protection from radiation/lead shielding; badge use <input type="checkbox"/> Eye protection <input type="checkbox"/> Knowledgeable use of fluoroscopy <input type="checkbox"/> Hand disinfection <input type="checkbox"/> Universal precautions <input type="checkbox"/> "Time-Out".	Yes / No
5. Procedure: <input type="checkbox"/> Premedication <input type="checkbox"/> Moderate sedation <input type="checkbox"/> Topical anesthetic	Yes / No
6. Procedure: <input type="checkbox"/> Scope insertion <input type="checkbox"/> Topical anesthetic <input type="checkbox"/> Passage through vocal cords <input type="checkbox"/> Empathy and communication with patient	Yes / No
7. Procedure: <input type="checkbox"/> Inspection of tracheobronchial tree <input type="checkbox"/> Identification of abnormalities <input type="checkbox"/> Atraumatic removal of bronchoscope	Yes / No
8. Procedure: <input type="checkbox"/> BAL <input type="checkbox"/> Mucosal biopsy <input type="checkbox"/> Lung biopsy <input type="checkbox"/> Brush <input type="checkbox"/> TBNA <input type="checkbox"/> EBUS	Yes / No
9. Communication with staff, patient, and patient family <input type="checkbox"/> Puts needs of patient first <input type="checkbox"/> Punctuality <input type="checkbox"/> Respect <input type="checkbox"/> Listening skills <input type="checkbox"/> Personal appearance <input type="checkbox"/> Initiative & Motivation <input type="checkbox"/> Empathy <input type="checkbox"/> Honesty <input type="checkbox"/> Accepts responsibility	Yes / No
10. Documentation/procedure note <input type="checkbox"/> Informative <input type="checkbox"/> Accurate <input type="checkbox"/> Communication with colleagues	Yes / No

\* Contains elements required by ACGME (patient care, medical knowledge, practice-based learning and improvement, interpersonal communication skills, professionalism, and systems-based practice).

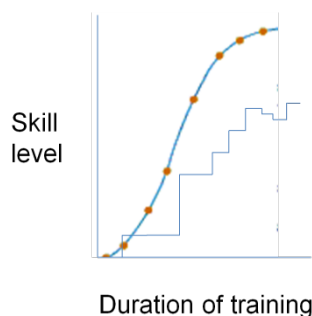
**FINAL GRADE**      **PASS**            **FAIL**            **SCORE** \_\_\_\_\_/100

# Recommendations for Using the Introduction to Flexible Bronchoscopy Program Completion Checklist

This checklist contains all of the elements comprised in the Introduction to flexible bronchoscopy program curriculum. The purpose of this curriculum is to help trainees climb the learning curve from novice and advanced beginner to intermediate and then competent bronchoscopist able to perform flexible bronchoscopy independently. Not all learners will progress at the same speed<sup>1</sup>. It is also assumed that learners may become competent at certain procedures before they become competent in others. The frequency with which the checklists and assessments tools pertaining to the individual components of the curriculum are administered is based on user discretion.

This curriculum assures that all learners have completed certain materials to the satisfaction of their instructors. It is understood that some may need to repeat certain elements of the curriculum until they obtain a passing grade. Some institutions may wish for their trainees to repeat parts of the curriculum during the course of their training (yearly for example, or during the months prior to completing their training). To maximize objective scoring, each element in the program checklist has been defined explicitly. Participation in *Train-the-Trainers* programs is encouraged to help instructors achieve inter-rater reliability and use this program to its fullest potential.

A PASS grade signifies that each student has achieved a satisfactory (passing) score in each of the ten elements contained in the curriculum. The overall number of procedures performed by the student should also be recorded. We recommend that learners keep a diary-log of their procedures, and that program directors conduct feedback sessions with students to monitor patient-care related outcomes.



<sup>1</sup> German psychologist Hermann Ebbinghaus (1850-1909) is credited with originally describing the learning curve in his work on memory (see RH Wozniak. Introduction to Memory. Classics in psychology 1855-1914: Historical essays. Bristol UK, Thoemmes Press, 1999). Learning curves can be mathematically calculated and may have different shapes representing incremental change, including a series of plateaus, rises and dips, and the traditional ogive “S” shaped curve.

## Introduction to Flexible Bronchoscopy Program Program Completion Checklist

Educational Item*	Completed Yes/No	Assessment Item	Pass/Fail/Incomplete
1. Participation in regional introductory course	Yes / No	Post-test scores Target 12/20 (60% correct) Score _____%	Pass / Fail / Incomplete
2. Assigned reading: <i>The Essential Bronchoscopist</i>	Yes / No	Post-test scores Target 7/10 (70% correct)	Pass / Fail / Incomplete
Module 1	Yes / No	Score _____	Pass / Fail / Incomplete
Module 2	Yes / No	Score _____	Pass / Fail / Incomplete
Module 3	Yes / No	Score _____	Pass / Fail / Incomplete
Module 4	Yes / No	Score _____	Pass / Fail / Incomplete
Module 5	Yes / No	Score _____	Pass / Fail / Incomplete
Module 6	Yes / No	Score _____	Pass / Fail / Incomplete
3. <i>Sedation module</i>	Yes/No	Score _____	Pass / Fail / Incomplete
4. <i>Fluoroscopy Module</i>	Yes/No	Score _____	Pass / Fail / Incomplete
5. Informed consent, patient safety, and procedural pause simulation workshops	Yes / No Yes / No Yes / No	IC 10-pt Checklist Target 100% Score _____% on each	Pass / Fail / Incomplete
6. Informed consent, patient safety, and procedural pause patient-based scenarios	Yes / No Yes / No Yes / No	IC 10-pt Checklist Target 100% Score _____% on each	Pass / Fail / Incomplete
7. Practical Approach interactive workshop	Yes / No	Subjective scores Target Pass	Pass / Fail / Incomplete
8. Flexible bronchoscopy simulation workshop	Yes / No	Target scores 100% BSTAT _____%  TBLB/TBNA _____%	Pass / Fail / Incomplete
9. Flexible bronchoscopy patient-based scenario	Yes / No	Target scores 100% BSTAT _____%  TBLB/TBNA _____%	Pass / Fail / Incomplete
10. Proctored case bronchoscopy checklist	Yes / No	FB 10-pt Checklist Target 100% Score _____%	Pass / Fail / Incomplete

\*When completed, learners are assumed to be able to perform flexible bronchoscopy independently. Programs may still require observation and faculty presence based on training regulations and preferences.



Bronchoscopy International, Foundation for the Advancement of Medicine, is a transnational charitable 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](http://www.Bronchoscopy.org).