

Developing Bronchoscopy Educators

Curriculum Design and Train-the-Trainer Models

Model one-day programs from the Bronchoscopy Education Project



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Bronchoscopy Education Project Series
bronchoscopy.org

From procedural training to educational practice

Bronchoscopy education requires more than the transfer of technical skills. The program designs collected here integrate knowledge, procedural technique, clinical decision-making, communication, teamwork, simulation, feedback, and assessment. Together they illustrate a progression from introductory bronchoscopy training, to more advanced procedural practice, and finally to preparation of experienced bronchoscopists as educators.

Ethical and professional judgment is embedded throughout rather than treated as a separate exercise: informed consent, communication after complications, team responsibilities, difficult learner situations, and the 4-Box approach all ask participants to consider how procedural choices affect patients, colleagues, and the learning environment.

The three models were designed as one-day programs. The Introduction to Flexible Bronchoscopy course establishes a minimum standard of knowledge and skill for inspection bronchoscopy and common sampling techniques. Fundamentals of Flexible Bronchoscopy builds on prior knowledge and emphasizes a broader range of indications, complications, airway emergencies, and team leadership. The Train-the-Trainers program shifts the focus from performing bronchoscopy to teaching it.

These are models rather than fixed prescriptions. The Train-the-Trainers design explicitly encourages participants to experience multiple instructional methods and to assimilate useful components into their own training programs. The same principle applies to the learner courses: the curriculum can be adapted to local resources, learner experience, and educational needs while preserving its multidimensional structure.

1	2	3
Introduction	Fundamentals	Train-the-Trainers
Minimum knowledge and skill for inspection bronchoscopy and common sampling techniques.	Broader procedural judgment, complications, emergencies, and team leadership.	Teaching methods, curriculum design, feedback, assessment, and faculty development.

Introduction to Flexible Bronchoscopy



Objective. For learners to achieve a minimum standard of knowledge and skill needed for performing inspection bronchoscopy and sampling tissues using biopsy, brushing, lavage, transbronchial biopsy, and conventional transbronchial needle aspiration. Participants are introduced to competency-based materials, technical exercises, and principles of decision-making for a procedural consultation.

Flipped-classroom lectures

- The bronchoscopy report
- Airway anatomy and bronchoscopic inspection
- Diagnostic techniques: biopsy, brush, BAL, and TBLB
- Diagnostic techniques: conventional TBNA
- Potential problems and indications
- 4-Box Approach for bronchoscopy consultation
- Preparing specimens for cytopathology

Small-group exercises

- Informed consent: bronchoscopy with biopsy and BAL
- Procedural pause and universal precautions

Case-based discussions: 4-Box Practical Approach

- Bilateral pulmonary infiltrates in a patient with febrile neutropenia
- cTBNA in a patient with subcarinal adenopathy

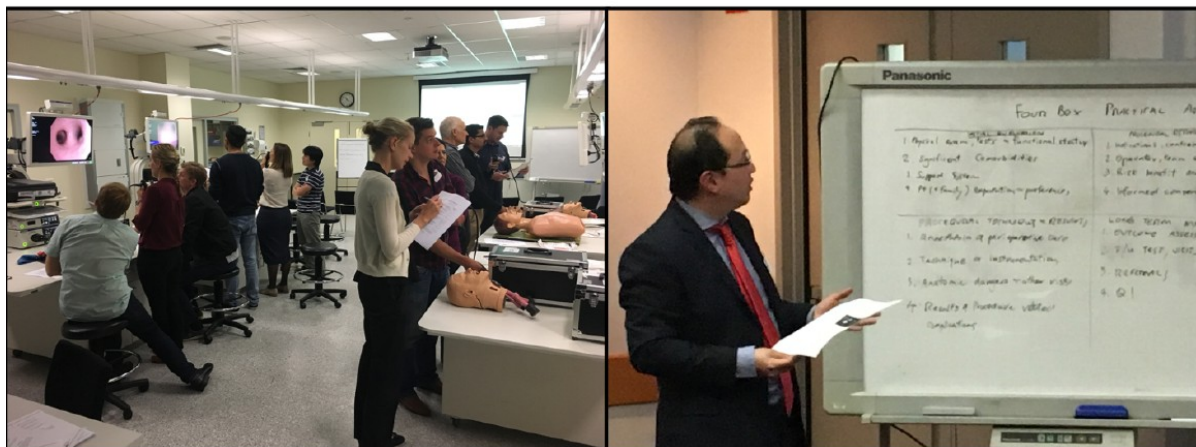
Hands-on workshops and simulation

- Bronchoscopy Step-by-Step
- BSTAT

Interactive didactic sessions

- Procedure-related complications
- Indications and expected results
- Do it, don't do it

Fundamentals of Flexible Bronchoscopy



Objective. For learners to build on prior knowledge in order to safely perform bronchoscopy for a wide array of indications and respond to bronchoscopy-related complications. Participants use competency-based materials and role-playing exercises to improve technical skills, identify weaknesses, and practice effective culturally-sensitive communication with patients and members of the bronchoscopy team.

Flipped-classroom lectures

- Evaluation of central airway obstruction
- Bronchoscopy in special populations
- Complications of bronchoscopy
- Organization of the bronchoscopy suite

Small-group exercises

- Delivering bad news after a bronchoscopy-related complication
- Bronchoscopy team leadership before and during an airway emergency

Case-based discussions: 4-Box Practical Approach

- Bronchoscopy in a patient with subglottic tracheal stenosis
- Bronchoscopy with cTBNA of a left-sided mediastinal mass

Hands-on workshops and simulation

- Managing airway emergencies and bronchoscopic intubation
- Foreign body extraction using the flexible bronchoscope
- Emergency control of airway bleeding
- BRadSTAT and BSTAT

Interactive didactic sessions

- Moderate sedation and anesthesia
- Complex management decisions
- Do it, don't do it

Train-the-Trainers Program



Objective. For experienced bronchoscopists to become familiar with various teaching techniques and educational philosophies. Participants use several instructional methods as they experience and implement a competency-based, multidimensional curriculum, parts of which may be assimilated into their own training programs.

Flipped-classroom lectures

- Curricular structure and competency-based learning
- Educational methods and philosophies
- History of bronchoscopy education
- The value of simulation

Small-group exercises

- Teaching strengths and weaknesses: auto-evaluation and 360-degree peer review
- Building a hands-on bronchoscopy workshop
- Building a one-day bronchoscopy training course

Case-based discussions: 4-Box Practical Approach

- Constructing a 4-Box Practical Approach exercise
- How to work with a difficult learner
- Crisis and conflicts

Hands-on workshops and simulation

- Teaching Bronchoscopy Step-by-Step
- Providing feedback and positive reinforcement
- How to conduct role-playing exercises
- How to use BSTAT for testing and teaching

Interactive didactic sessions

- Using multiple lecture styles to teach bronchoscopy

An additional "third" day was envisioned as an opportunity for participants to teach an Introduction to Flexible Bronchoscopy or Fundamentals of Flexible Bronchoscopy course.

Principles illustrated by the three programs

Across the three curricula, the same educational architecture appears repeatedly. The emphasis is not on a single teaching format, but on combining complementary methods so learners must know, do, discuss, reflect, and receive feedback.

Flipped classroom

Didactic content is used to establish or reinforce the knowledge needed for the practical work that follows.

Small-group learning

Exercises address communication, informed consent, team leadership, difficult learners, and other situations that require discussion and reflection.

Case-based clinical judgment

The 4-Box Practical Approach is used to connect procedural decisions with patient context, risks, alternatives, and longer-term planning.

Hands-on simulation

Technical practice is incorporated through Bronchoscopy Step-by-Step, airway-emergency exercises, and other simulated procedural tasks.

Assessment as a teaching tool

BSTAT and BRadSTAT are used not only to test performance, but also to identify weaknesses and structure teaching.

Feedback and self-evaluation

The educator curriculum includes positive reinforcement, auto-evaluation, and 360-degree peer review.

Adaptation and transfer

The Train-the-Trainers program is explicitly designed so participants can assimilate useful parts of the curriculum into their own local training programs.

What the training changed

The value of faculty development is difficult to capture in a schedule alone. These comments from participants describe the broader effect of the educational approach.

“This was much more than a bronchoscopy training course. It was more like a psychologic catharsis.”

— Spencer Camargo, MD, Brazil, participant

“This course was almost revolutionary in the way it affected my approach to training!”

— Silvia Quadrelli, MD, PhD, Argentina, former Chairman of WABIP

A model for adaptation

These curricula are presented as examples of how bronchoscopy education can combine knowledge, technical practice, clinical judgment, communication, assessment, and faculty development within a coherent program. Their value lies not in reproducing every session exactly, but in showing how those elements can be deliberately assembled into a training experience.

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