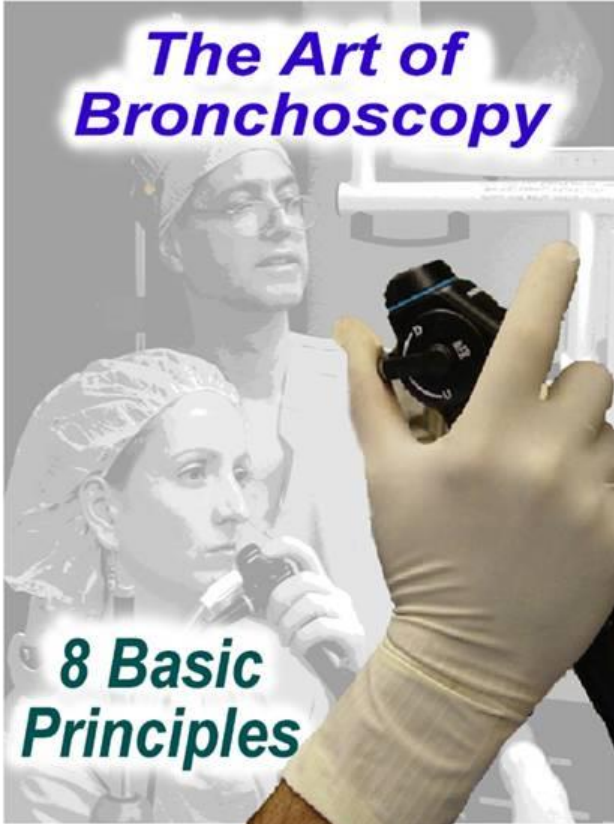


Flexible Bronchoscopy

Basic Techniques Part 1A: Introduction



***The Art of
Bronchoscopy***

**8 Basic
Principles**

- 1. The bronchoscope wants to do the bronchoscopy*
- 2. Stay in the midline
(Get off the wall).*
- 3. Moderation in everything;
slow down, think, act.*
- 4. If you don't know where you are
you probably shouldn't be there*
- 5. Force is wrong. Return to what you
know; then move on and grow.*
- 6. Slow down to finish faster.*
- 7. Treasure basic values: peace,
harmony and kindness*
- 8. You and the bronchoscope are one*

Prepared By
Bronchoscopy International
Contact us at BI@bronchoscopy.org

Bronchoscopy Haiku

Before starting bronchoscopy

I know where I am going.

The scope and I are One

Together, we explore, knowingly.

Inspired from Thich Nhat Hanh; The Path of Mindfulness in
Everyday Life, pg 31, Bantam Books, NY, 1991.

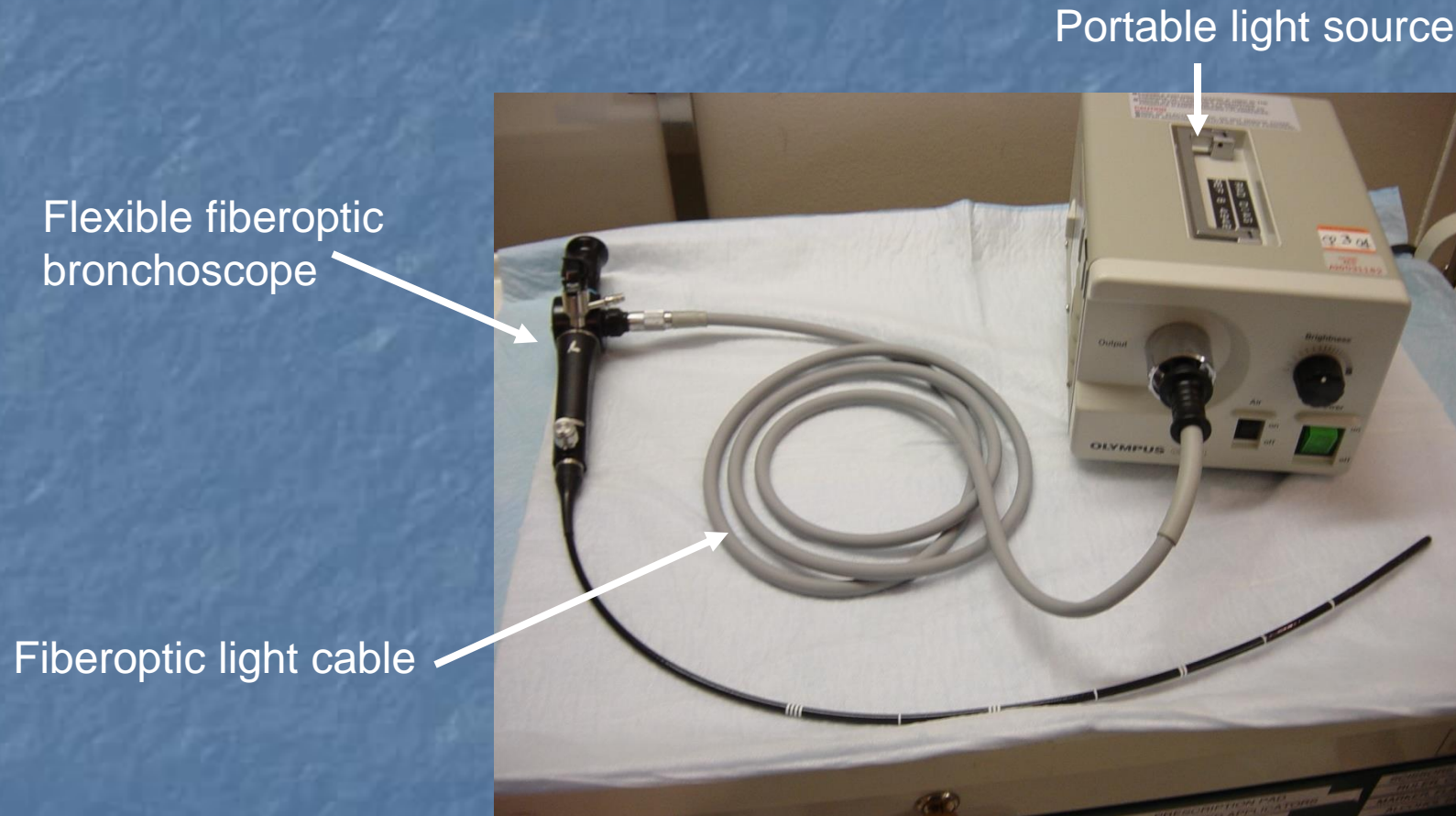
Normal Inspection

[Click here to view video presentation](#)

Video and audio will load (may take 10 seconds), then play automatically

Click to Continue

Fiberoptic Equipment



Instrumentation

The light guide section plugs into the light source via the light guide. Light is transmitted through fiberoptic bundles to the distal end of the bronchoscope via the universal cord, the control section (which includes the eyepiece section) and the insertion tube section.

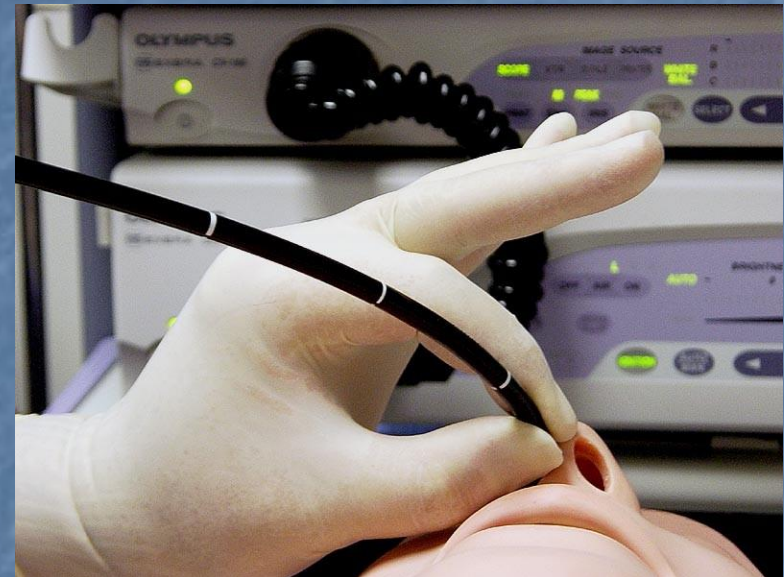
Each optic fiber is clad with glass in order to isolate it. Fibers are arranged into a coherent bundle, and are thus easily broken when the scope is knocked.

Videobronchoscopes have a fragile charge coupled device (CCD) at the distal extremity of the insertion tube. Working channels range 1-3 mm in diameter. Insertion tubes range 2.5-6 mm in diameter.



Nasal Approach

- Check with patient for most patent nostril
 - Deviated Septum?
 - History of Broken Nose?
- Lubricate nostril liberally with 2% Lidocaine Jelly



Oral Approach

- A bite-block is necessary to protect the bronchoscope whenever the oral approach is chosen.
- It is best that the bite-block surround an endotracheal tube during bronchoscopy.

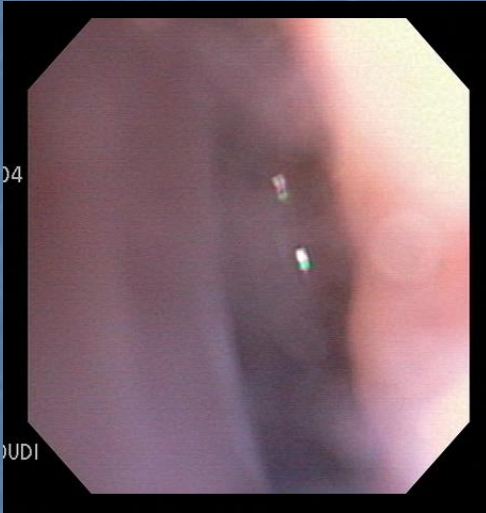


Expensive repairs are necessary!!!!!!



Scope has been bitten by patient

In case of problems



When visualization is blurred, the lens should be wiped with saline or alcohol in order to remove a film caused by blood, secretions, or inadequate drying during the cleaning-disinfection process.



If visualization does not improve, a leak-test should be performed because fluid may have entered the bronchoscope. No further washing and disinfection should be attempted. The bronchoscope needs to be sent out for repair.



These small black dots signify that

A) Water has leaked into the bronchoscope

B) The bronchoscope has been excessively exposed to radiation

C) Multiple fiberoptic bundles are broken

D) The bronchoscope needs to be replaced



Click here for correct answer: **C**

Technique: control section



The hand holding the control section is used to control the distal tip of the scope.

Keeping the arm “tucked” against the body stabilizes the bronchoscopist and helps keep the scope in the midline of the airway

Moving the control section improves access to the working suction for assistants.



Manipulating the control section



Elbow tucked in keeps hands steady.



No “flapping wings”

Elegance and Awareness

Flexion-extension

Extend UP



Flex DOWN



Right hand lever positions



Extension

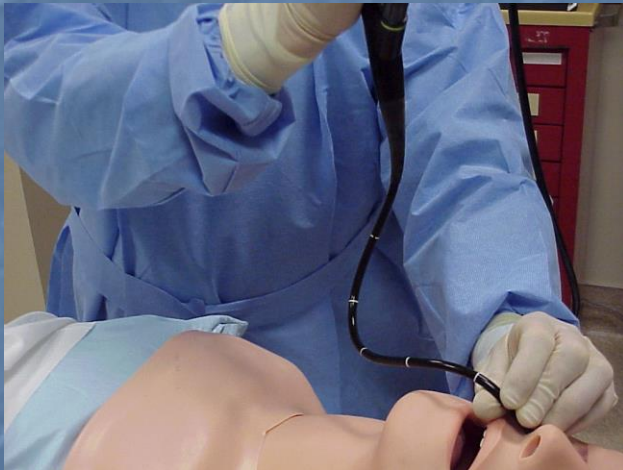
Neutral

Flexion

When rotating the scope, moving the lever back to neutral helps avoid hitting the wall. The technique, therefore, is lever to neutral-rotate scope-flex or extend scope to enter bronchial segment.

Manipulating the insertion tube

- Scope straight
- Back straight
- No body language



Technique: insertion tube



The hand holding the insertion tube is used to stabilize the scope at the mouth, and is never used to twist or turn the tube.

Pushing downwards on the bronchoscope is inelegant, bad for the posture, and risks damaging the scope.

Standing straight with weight equally distributed is much more comfortable.

Avoid bending the insertion tube



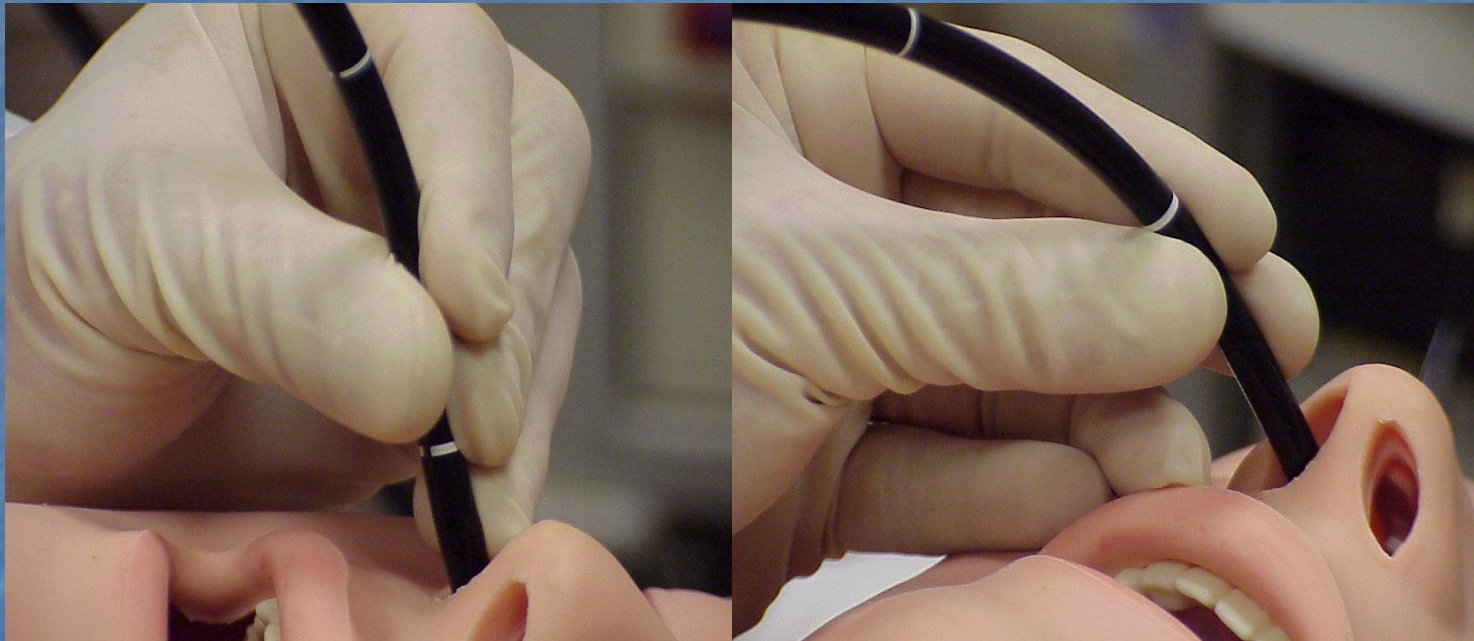
NO !!!!!!!!!!!



YES

Correct hand positions

Maintain control by gently placing a finger on the patient's face, or keeping the hand steady just a short distance above the patient's face.



Avoid pressure on the nostril or face

Curious hand positions

Gas attendant



Hang loose



Shovel



Tea time



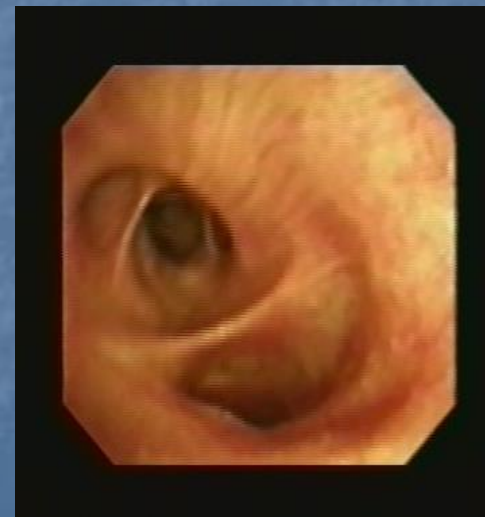
Weight and balance

- **Posture**
- **Position**
- **Poise**

Stand erect

Be decisive

Comfort the patient





Each of the following is considered poor technique when handling a flexible bronchoscope **except**

- A. Twisting the insertion tube rather than rotating the entire instrument along its longitudinal axis.
- B. Advancing the bronchoscope by pushing down from the handle.
- C. Exerting excessive pressure with one's fingers on the patient's nostril or cheek.
- D. Attempting to pass an instrument through a fully flexed distal extremity of the bronchoscope
- E. Keeping the bronchoscope in the midline of the airway lumen throughout the procedure.

Click here for correct answer:

E

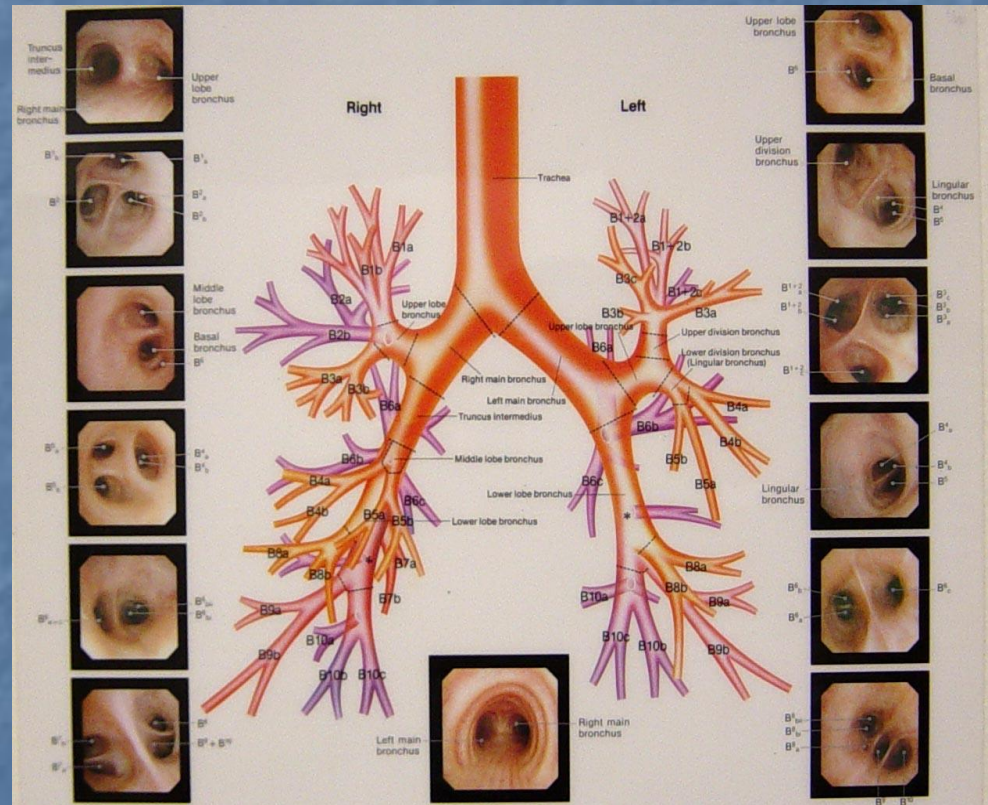
Procedure Begins

- Oxygen administered at 15 l/m via mask with hole cut to accommodate bronchoscope.
- Towel placed on patient's chest for protection.
- Bronchoscope lubricated with 2% Lidocaine Jelly.
- Physician advances bronchoscope through nose and pharynx until epiglottis and vocal cords are visualized.
- 1% Lidocaine is sprayed on the epiglottis and cords with a 5 cc slip-tip syringe (2 cc with a 2 cc air back).



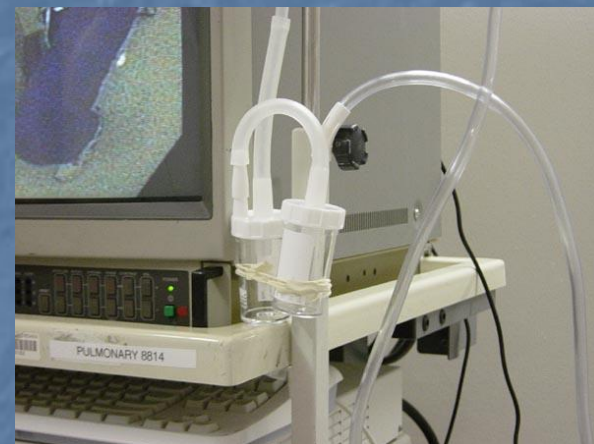
Anatomic Exam

- The bronchoscope is advanced through the vocal cords and into the trachea.
- 1% Lidocaine again is administered through the bronchoscope biopsy channel.
- The trachea, main bronchi, lower, middle and upper lobes of the lungs are visualized and examined by bronchoscopist as he/she carefully advances and skillfully guides the flexible bronchoscope while observing the video images.



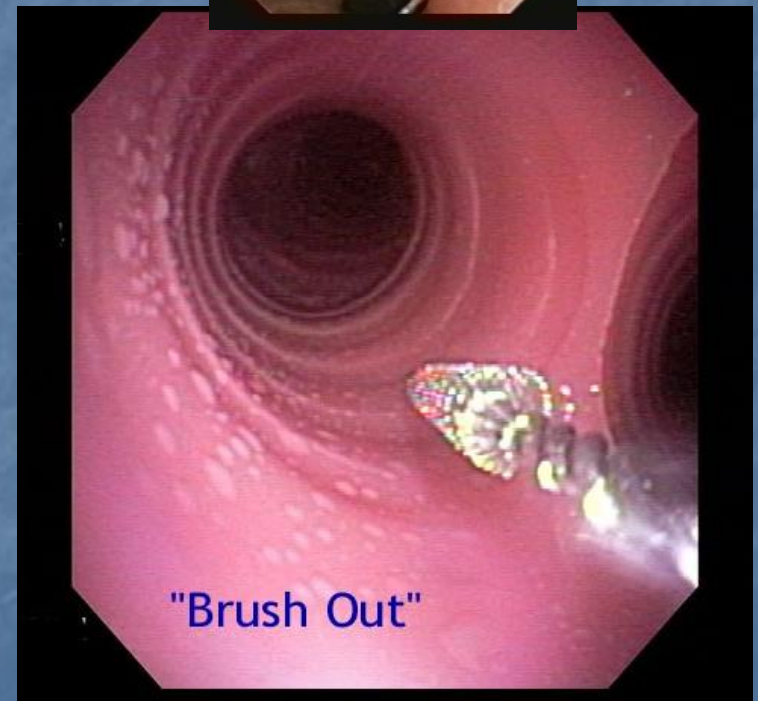
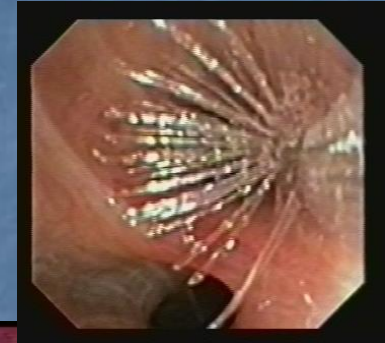
Washings and Bronchial Alveolar Lavage

- **Bronchial Washings and lavage are obtained by injecting normal saline through the working channel of the bronchoscope in 30 -50 cc increments up to 150cc of solution.**
- **Suction traps are connected by the technician at the bronchoscopist's direction, "Traps on."**
- **After each washing, suction is applied by the bronchoscopist and collected in the suction traps.**
- **When the process is completed the bronchoscopist instructs the technician to disconnect the suction with the direction, "Traps off."**
- **For BAL, the scope is wedged into a targeted segmental bronchus administering saline. Aspirate may have a sudsy appearance signifying presence of surfactant.**



Bronchial Brushings

- The sheathed brush is advanced by the technician or bronchoscopist through the working channel until visualized.
- The brush is advanced and unsheathed by the technician at the bronchoscopist's instruction, "Brush out."
- The sample is obtained by the bronchoscopist moving the brush in and out along the targeted area vigorously but also gently to prevent bleeding.
- "Brush in," resheaths the brush before it is removed.
- Brush samples are applied by the technician to glass slides. Microbiology slides are air dried. Cytology slides are immediately fixed by immersing in alcohol.



Endobronchial and Transbronchial Biopsies

- The biopsy forceps is advanced by the technician or bronchoscopist through the working channel until visualized seen on a fluoroscopy monitor.
- Biopsies are obtained at the bronchoscopist's instruction, "Open" and then "Close."
- Biopsy samples are placed in formalin by the technician. The forceps are then rinsed in saline.



Transbronchial Needle Biopsies (TBNA)

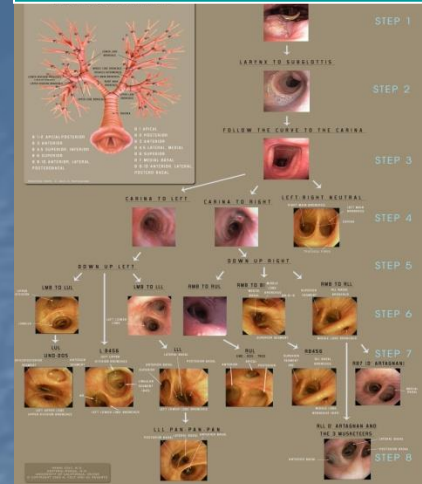
- To obtain transcarinal or transbronchial needle biopsies the sheathed needle is advanced by the technician or bronchoscopist through the working channel until visualized.
- The needle is unsheathed by the technician at the bronchoscopist's instruction, "Needle out."
- The sample is obtained by the bronchoscopist by inserting the needle into the targeted area and then applying suction at the instruction, "Suction."
- "Needle in," resheaths the needle before it is removed.
- Samples are applied by the technician to glass slides and immediately fixed by immersing in alcohol.
- Onsite Cytology can make an immediate diagnosis.



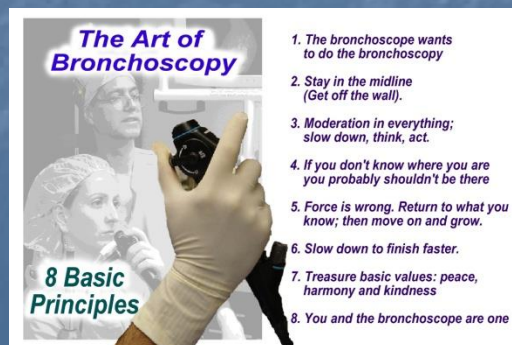
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A new curriculum

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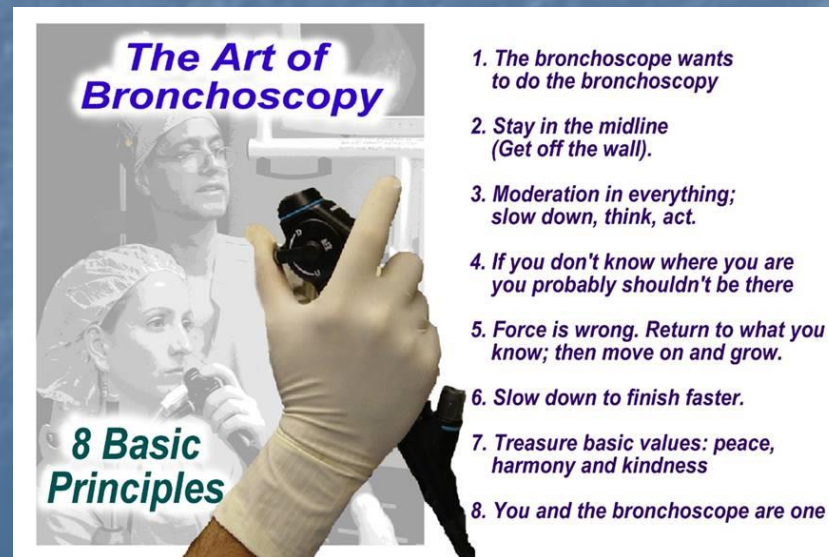
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Thank you