SECOND EDITION

INTRODUCTION TO ETHICS IN FLEXIBLE BRONCHOSCOPY

TRAINING MANUAL

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THE BRONCHOSCOPY EDUCATION PROJECT SERIES

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INTRODUCTION TO MEDICAL ETHICS

Summary: This document provides an overview of medical ethics, its historical background, and its application in clinical practice. Medical ethics has roots in ancient Greek medicine, particularly from the teachings of Hippocrates and later expanded by Claudius Galen, emphasizing virtue and ethical standards for physicians. Ethics, derived from Greek words meaning moral philosophy, is the study of morality. Medical ethics involves applying moral theories to medical practice, guiding physicians in decision-making and behaviors through questions about responsibility, norms, and moral conscience. Bronchoscopists face unique ethical dilemmas due to their dual roles in surgery and medicine, requiring them to balance clinical, emotional, and procedural responsibilities. The Four-principles approach by Beauchamp and Childress provides a well-proven framework for resolving ethical issues in healthcare, focusing on beneficence, nonmaleficence, respect for autonomy, and justice. This approach helps reach a reflective equilibrium, balancing competing moral obligations and considering specific case circumstances to resolve ethical conflicts.

I. What is Medical Ethics

Western medicine has a rich background of traditions, rules, and maxims to help guide behaviors. Presumably, these were first established by the Greek physician Hippocrates of the Asklepiads and his followers from the island of Cos (460-375 BCE). From what became known as the *Hippocratic Collection*, more than seventy books written during the next five hundred years, physicians in ancient Greece and the Hellenistic world learned all there was to know about the art (*techne*), duties (*deontology*), behaviors (*decorum*), and statesmanship (*politicos*) of medical practice.[i]

In the second century AD, Hippocratic teachings were expanded upon by Claudius Galen (129-240 CE), who was originally a Greek physician, surgeon, and philosopher from Pergamon, Turkey. He later moved to Rome, where he became the most influential medical thinker in the Roman Empire. Galen emphasized the importance of virtue, rather than rules and duties, to guide physician behaviors so that doctors might be looked upon most favorably by their patients and society. Over time, these and other concepts were transformed into a set of standards, an *ethics* that would help physicians conduct their art, science, and business honorably.

Ethics, from the Greek words *ēthos* and *ēthike philosophia* (moral philosophy), is traditionally defined as the study of morality. The Greek philosopher Aristotle (384-322 BCE), himself the son of a physician, wrote, “Every art and every inquiry, and similarly every action and pursuit, is thought to aim at some good…will not the knowledge of it, then, have a great influence on life?”[1]

Medical ethics, therefore, is a form of ethics in which moral theories are applied to the practice of medicine. In *clinical medical ethics*, a physician’s intuitive and real-life practical decision-making and behaviors from actual cases are influenced by these moral principles. For example:

- What ought I do in a particular situation?
- What are the limits of my responsibility?
- How do my actions and behaviors relate to particular norms, expectations, rules, or codes of conduct established by my profession and accepted by my peers?
- How do these norms, expectations, rules, and codes of conduct affect my individual person, family, community, and society?

[i] The Greek word for "doctor" is "iatros" (ἰατρός), subsequently transformed into “physician” in English.

- Do my actions reflect a moral conscience at the center of my being, or are they part of a system of thought dependent on religious or societal models of expected behaviors?
- In my desire to do *what is right*, what are the emotional, psychological, and practical consequences of my choice from among potentially opposing ethical concepts?
- Might I rely on both subjective and objective arguments to justify my decisions?
- Is moral reasoning a form of rational thought for which personal and societal values, virtues, and facts must be equally entertained?

II. What is Morality?

Moral philosophy is traditionally divided into three categories. *Metaethics* is the theoretical study (metaphysical, epistemological, semantic, psychological) of abstract thought, language, and meanings. *Normative ethics* is action-oriented and practical in that it investigates ethical theories, values, virtues, and principles to explain why an act might be right or wrong. *Descriptive ethics*, also known as comparative ethics, is the study of people's thoughts and views about morality put forward by society and accepted by almost all its members.

What constitutes morality, however, is complicated. Al Jonsen, a professor of ethics at Washington University in the United States, said, "Ethics is the analysis and study of morality — a set of standards that people maintain or not. Ethics is a way to understand how those standards are to be used. You can teach ethics, but you can't give a class on morality — that's fashioned generation by generation and in each society."[2]

Morality encompasses moral principles, rules, rights, ideals, obligations, virtues, and values that help define human standards of conduct. From a descriptive perspective, therefore, morality is a guide to conduct that is different from religion (which is usually more stringent) or the law (which has explicit rules and penalties in case of infractions). It is also more than simple etiquette (behavioral norms that are decent, proper, and judged acceptable by society).[3]

In some instances, morality is shared, in which case an "ethical standard" is adopted by almost all members of an individual's group; deviations from that standard may prompt criticisms, punishment, or exclusion from the group.[ii] In other instances, morality can be personal and not necessarily shared by other members of the group. Indeed, the word *morals* usually pertains to an individual's actions regarding what they believe is right, which in some circumstances may not be judged acceptable by their society.

These concepts are complicated because morals can change over time, and what is considered right or wrong, both on a personal and societal level, may vary depending on historical context and social environment. Therefore, *common morality* describes universally accepted norms such as virtues of charity or the notion of human rights to protect people from abuse. Even the idea of universality itself, however, is subject to debate. For example, the moral action *to not kill* is universally shared by most human societies today. However, killing might be permitted, even if it is not moral, in case of war or self-defense.

[ii] Groups can be entire societies, professions, communities, or any number of people with common goals and interests.

Nonuniversal norms are usually more specific and detail-oriented. Traditional teaching of Hippocrates's, *First, do no harm,* is one such example.[iii] Historically, this maxim was unique to physicians.[4, 5] It is not shared, for example, by groups such as the military. Also, philosophers distinguish *particular moralities* that may be shared among individuals within particular groups, cultures, religions, or professional communities from *personal moralities* that represent one individual's personal belief about what is right and wrong*,* regardless of laws, ethics, or societal norms. Of course, one's personal morality may be at odds with what is culturally or morally accepted by other members of society and, therefore, is in no way binding of another person's behavior.

III. Unique Aspects of Ethics in Bronchoscopy and Interventional Pulmonology

Bronchoscopy and Interventional Pulmonology are at the crossroads between surgery and medicine. Its practitioners are usually trained in pulmonary medicine, and many have additional training in critical care. As proceduralists, they likely have good hand-eye coordination, a propensity for finding creative solutions to technical problems, and a personal psychology inclined to thrive upon rather than avoid the pressures of managing patients in life-or-death type situations. As non-proceduralist medical doctors, they ideally learn to recognize and manage the clinical, emotional, and psychological aspects of caring for patients with chronic and sometimes life-long or incurable illnesses. This includes an ability to discuss both medical and procedural diagnostic or therapeutic alternatives, treatment recommendations in the face of an uncertain prognosis, and an awareness of quality-of-life decisions and end-of-life care.

Their responsibilities may range from being *technicians* who perform minimally invasive procedures, to *consultants* with both clinical and technical expertise, and *primary care providers* for patients with acute or chronic lung, airway, and pleural diseases. Their roles may be those of *maintaining health and well-being* through the performance of technical interventions over time, *palliative care* for patients with incurable disorders, or *emergency/critical care* in case of life-threatening situations.

Each of these roles and responsibilities carries their own distinctive ethical dilemmas. For example, in emergencies, there may be little time to consult others or perform an extensive review of a patient's medical history. The specialist may be asked to assure airway patency with little knowledge of the consequences of prolonged intubation in what might be a therapeutically futile situation. The consultant asked to perform tissue biopsies on a high-risk patient may feel powerless to refuse because of their fear of losing future referrals. Excited by their results, a bronchoscopist might post photographs of their successful treatment of an airway stricture on social media, only to discover later that the stricture became worse despite or because of their treatment. In one extreme but all-to-often real case example, the pulmonary specialist is also the primary care provider for a patient with interstitial lung disease. Later, they are the bronchoscopist/diagnostician for that same patient's new lung mass, eventually providing palliative care by draining their patient's recurrent pleural effusion, several months after which they are asked to consider their patient's request for euthanasia or physician-assisted suicide.

[iii] In "*Epidemics*," (and not part of the Hippocratic Oath), Hippocrates purportedly wrote, "As to diseases, make a habit of two things or at least to do no harm." In the Oath, he demands beneficence twice: "I will apply the regimens of treatment according to my ability and judgment for the benefit of my patients and protect them from harm and injustice," and "Into whatever house I enter, I will do so for the benefit of the sick..."

Maintaining one's emotional and spiritual well-being in such strenuous circumstances is challenging. It is particularly difficult because physicians rarely have a place to turn for support and guidance. Team meetings where feelings are shared in a quest for personal, emotional, psychological, or spiritual healing are rare. Confiding in their superiors runs the risk of reprisals and seems hazardous because of mistrust of the medical hierarchy. Communing with colleagues is often perceived as weakness or a sign of burnout.

Furthermore, physicians usually refrain from "dumping" their emotional baggage onto their families and hesitate to share their work-related emotional concerns with loved ones, friends, or partners because of trepidations for misunderstanding and fear of disrupting interpersonal dynamics. Few will consult a mental health specialist because of the stigma attached to seeking professional help or fear of losing their medical license. Many are unaware of the real benefits of psychological and philosophical counseling. Struggling with ethical dilemmas thus adds even more weight to the already heavy burdens of medical practice.

IV. Approaching Ethical Issues using The Four-principles Approach

Among the many approaches medical professionals use to study and resolve ethical issues is the Four-principles approach initially proposed by Thomas Beauchamp and James Childress, two medical ethicists/philosophers from the Kennedy Institute at Georgetown University. Beauchamp and Childress's *Principles of Biomedical Ethics* rapidly became a cornerstone of healthcare ethics-related deliberations in the United States and much of the world. This groundbreaking work was first published almost fifty years ago (1977-1979).[6]

Rather than use rules, rights, and virtues as a framework for resolving ethical dilemmas, the authors proposed an approach based on four *prima-facie* moral principles. These are:

- Beneficence (the obligation to provide benefits and balance benefits against risk).
- Nonmaleficence (the obligation to avoid causing harm).
- Respect for autonomy (the obligation to respect the decision-making capacities of autonomous persons).
- Justice (obligations of fairness in the distribution of benefits and risks).[7]

Principle	Description
Respect for Autonomy	Respect for the individual patient and his or her ability to make decisions with regard to own health and future; right to self-determination
Beneficence	Doing and promoting good; preventing and removing evil or harm
Nonmaleficence	Doing no harm; avoiding harming
Justice	Maximizing benefit to patients and society while emphasizing equality, fairness, and impartiality

Figure: Four-principles approach to biomedical ethics. From: Beauchamp T, Childress J. *Principles of Biomedical Ethics.* 7th ed. New York, NY: Oxford University Press; 2012.[8]

Despite some philosophical objections and several competing offerings of principles-based methodologies,[9] including theology-based forms of principlism in some religious institutions, the ethics framework proposed by Beauchamp and Childress has stood the test of time.[10] It has also benefited from substantive analyses by medical practitioners, ethicists, philosophers, legal experts, and other professionals.

Most agree that principles are only a starting point for moral reflection about specific patient care-related issues. This is partly because *prima-facie* is commonly translated from Latin as "based on the first impression." The Scottish moral philosopher Sir William David Ross (1877-1971) used the term to describe duties that are binding and obligatory, and which take precedence over other duties unless they conflict with obligations associated with another moral principle.[11]

While there may exist almost universalizable moral agreement regarding the importance of each of the principles, the Four-principles approach to healthcare ethics does not dictate rules for resolving ethical conflicts. Instead, it provides a framework with which to consider potentially competing moral obligations in the context of a particular case. Two additional processes are therefore necessary to help make the Four-principles approach more applicable in the clinical setting. The first is *specification*; a filling-in of details that describes the circumstances in which the ethical conflict occurs. The second is *balancing*, which is an attempt to gauge the relative weight (i.e., priority) of conflicting principles. Often, one or more of the four principles together can be used to support the ethics of a particular medical intervention. For example, from a treating physician's individual perspective, each of the four principles applies to help justify a competent bronchoscopist's desire to safely diagnose disease in a consenting, albeit uninsured patient with pulmonary infiltrates.

When one moral principle competes on an almost equal basis with another, however, there is potential for an additional dilemma.

In the United States, for example, the maxim to "do what is in the patient's best interests" fostered paternalistic behaviors that dominated physician-patient relationships for more than a century. These behaviors were justified, in part, by the medical profession's interpretation of the principles of beneficence and nonmaleficence. Priorities for one or another principle may vary depending on changing societal norms and environmental cultures. Today, an increased regard for patient autonomy and self-determination has altered our cultural environment and patient expectations. Consequently, authoritative medical practices are being replaced by those derived from emphasizing a multidisciplinary care model and shared decision-making.

By using the Four-principles approach, however, it is possible to reach a state of *reflective equilibrium* whereby prima-facie rights, principles, rules, and obligations are matched against other moral considerations to form judgements about whether clinical decisions or health care policies are right or wrong. As mentioned previously, a prima-facie obligation must govern actions unless it conflicts with an equal or stronger morally compelling alternative.[12] Reflecting on the inter-relatedness of autonomy, beneficence, maleficence, and justice will identify whether these prima-facie principles are in conflict and how they are enmeshed with the particular circumstances of the clinical case.[iv] Potential resolutions to the ethical dilemma are then discussed based on an appreciation of the interconnectedness of these elements.[13, 14]

[iv] University of Washington professor of medical history and ethics, Al Jonsen (1931-2020), taught the importance of *casuistry* (i.e. context), which he defined as case-based reasoning. Jonsen argued that concrete circumstances of a clinical case should prompt us to expect different perspectives and "substantively different conclusions" from individuals making moral judgments.

The following example helps illustrate the relative importance of casuistry. A bronchoscopist's duty to do what they believe is in the patient's best interests, even if it means using an expensive accessory instrument, might override their fiscal responsibility to provide cost-effective care. If, on the other hand, the bronchoscopist is also the department chief who is accountable for hospital expenditures and resource allocation, their priorities may be different, especially if excess expenditures will deprive the department of resources needed to care for a greater number of other patients.

MEDICAL INDICATIONS	PATIENT PREFERENCES
Beneficence and Nonmaleficence • What is the patient's medical problem? History? Diagnosis? Prognosis? • Is the problem acute? Chronic? Critical? Emergent? Reversible? • What are the goals of treatment? • What are the probabilities of success? • What are the plans in case of therapeutic failure? • In sum, how can this patient be benefited by medical and nursing care, and how can harm be avoided?	**Respect for Patient Autonomy** • Is the patient mentally capable and legally competent? Is there evidence of capacity? • If competent, what is the patient stating about preferences for treatment? • Has the patient been informed of benefits and risks, understood this information, and given consent? • If incapacitated, who is the appropriate surrogate? Is the surrogate using appropriate standards for decision making? • Has the patient expressed prior preferences (eg, advance directives)? • Is the patient unwilling or unable to cooperate with medical treatment? If so, why? • In sum, is the patient's right to choose being respected to the extent possible in ethics and law?
QUALITY OF LIFE	**CONTEXTUAL FEATURES**
Beneficence, Nonmaleficence, and Respect for Patient Autonomy • What are the prospects, with or without treatment, for a return to normal life? • What physical, mental, and social deficits is the patient likely to experience if treatment succeeds? • Are there biases that might prejudice the provider's evaluation of the patient's quality of life? • Is the patient's present or future condition such that his or her continued life might be judged as undesirable? • Is there any plan and rationale to forgo treatment? • Are there plans for comfort and palliative care?	**Loyalty and Fairness** • Are there family issues that might influence treatment decisions? • Are there provider (physician, nurse) issues that might influence treatment decisions? • Are there financial and economic factors? • Are there religious or cultural factors? • Are there limits on confidentiality? • Are there problems of allocation of resources? • How does the law affect treatment decisions? • Is clinical research or teaching involved? • Is there any conflict of interest on the part of the providers or the institution?

Figure: Al Jonsen's 4-box practical approach. From: Jonsen AR, Siegler M, Winslade WJ. *Clinical Ethics: A Practical Approach to Ethical Decisions in Clinical Medicine*. 6th ed. New York, NY: McGraw-Hill; 2006.[15]

V. Conclusion

Finding an ethically defensible resolution to ethical dilemmas warrants a rational discussion of many interrelated factors. Sometimes, a moral judgment appears straightforward and consistent with consensus-based opinions voiced by experts in a particular field. Other times, an ethical dilemma seems unique or atypical by virtue of the setting and clinical circumstances. Moral judgments, too, may vary depending on one's cultural perspective, overriding values, and skill at ethical reasoning.

Choosing from among conflicting duties, values, and principles is neither easy nor straightforward, but implementing a structured approach to analyzing ethical issues is a step in the right direction. When answers seem beyond reach or when there appear to be irreconcilable

differences between healthcare team members, patients, families, or societal expectations, clarification from a disinterested outside party, such as medical ethicists, can be beneficial.

"Again, the work of man is achieved only in accordance with practical wisdom as well as with moral virtue; for virtue makes us aim at the right mark, and practical wisdom makes us take the right means."[16]

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Examples of Ethical Issues in the Practice of Flexible Bronchoscopy

1. Informed Consent

- Ensuring patients fully understand the risks, benefits, and alternatives to bronchoscopy can be challenging, especially if patients are critically ill, sedated, or with limited health literacy.
- Patients might feel pressured to consent due to the urgency or complexity of the situation, raising questions about possible coercion or the voluntariness of the patient's decision.

2. Balancing Risks and Benefits

- Because bronchoscopy has a risk of complications, including procedure-related adverse events, allergic reactions, and even death, clinicians must weigh the potential benefits (e.g., obtaining a diagnosis) against the risks (e.g., respiratory compromise, bleeding).

3. Resource Allocation

- In resource-limited settings, prioritizing which patients undergo bronchoscopy when there is limited equipment, staff, or time raises questions about fairness and equity.

4. End-of-Life Care

- Using bronchoscopy to manage symptoms (e.g., airway obstruction) in terminally ill patients may conflict with palliative goals of care if it causes unnecessary discomfort or prolongs suffering. In other cases, bronchoscopy-related respiratory/cardiac arrest in patients with a Do-Not-Resuscitate order can be problematic if not addressed beforehand.
- Deciding when or when not to intervene can be difficult in situations where family members have differing views on the patient's care.

5. Privacy and Confidentiality

- Bronchoscopy often involves obtaining biopsies or lavage samples for diagnostic purposes, such as detecting infectious diseases like tuberculosis or cancer. Ensuring confidentiality of these results, especially in stigmatizing conditions, is essential.

6. Procedural Training

- In teaching hospitals, ethical concerns can arise when residents or fellows perform bronchoscopies alone or under supervision. Patients must be informed if a trainee will perform the procedure and should consent to this explicitly.

7. Use of Sedation

- The choice of sedation or anesthesia involves ethical considerations, particularly in high-risk patients where sedation may pose significant risks. Balancing patient comfort with safety is critical.

8. Experimental or Non-Standard Procedures

- When bronchoscopy is used for experimental techniques or novel indications (not yet standard of practice), ensuring proper ethical oversight, patient consent, and understanding of the experimental nature of the procedure is vital.

9. Cultural and Religious Considerations

- In some cultures and religions, invasive procedures may conflict with personal beliefs, values, or society-based norms. Physicians must navigate these sensitivities while respecting patient autonomy and cultural diversity.

10. Error Disclosure

- Complications or errors during bronchoscopy, as well as failed procedures, necessitate transparent disclosure to the patient or their family to maintain their trust.

11. Conflict of interest

- Potential conflicts of interest that favor the bronchoscopist should be disclosed, and if possible avoided. Examples include having a financial interest in the type of procedure or accessory instruments used in the procedure, financial reward from enlisting patients into a clinical study, opting to perform a less desirable procedure rather than refer patients to a different health care facility where the more optimal procedure is offered.

12. Impact of using artificial intelligence (AI)

- AI might help clinicians achieve more accurate diagnoses, better decision-making, safer procedures, and more personalized patient care. Its integration into bronchoscopy practice raises concerns about data gathering, patient privacy, liability, personal and institutional systems-based trust, over-reliance on automated systems, amount of human oversight required to maintain patient safety and clinician accountability, and disparities of care due to high implementation costs and unequal access to AI technologies.

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Case Descriptions for Ethical Issues in the Practice of Flexible Bronchoscopy

Case 1: *An otherwise fully functional 50-year-old woman with tracheal obstruction from thyroid cancer has significant tachypnea, hypoxemia, and chest pain. An emergency chest radiograph shows proximal migration of a tracheal stent that is now abutting the vocal cords. While you discuss the need for therapeutic bronchoscopy with her family, the patient has a cardiac arrest. Your assistant begins chest compressions and calls for the emergency airway team, but a nurse declares the patient signed a Do Not Resuscitate order that same morning.*

Case 2: *You have advocated for the purchase of an endobronchial ultrasound machine (EBUS) for more than two years. Your request has been ignored despite providing hospital administration with peer-reviewed publications by experts in the field who demonstrate this minimally invasive technology has become state-of-the-art for exploring the mediastinum and staging lung cancer. The chief of thoracic surgery is also the associate dean of the medical school and a leading proponent of mediastinoscopy and surgical staging. He has never been a strong supporter of the pulmonary division. You struggle with what to advise your patients with suspected lung cancer, especially since your colleague at the private clinic nearby has been performing EBUS for three years.*

Case 3: *A 60-year-old man has bilateral pulmonary infiltrates on chest radiograph and computed tomography scan suggestive of interstitial lung disease. You recently returned from an international conference and hands-on workshop where you learned to perform transbronchial cryobiopsy in a deceased animal model. A few days ago, an industry representative loaned a cryotherapy machine to your institution so you can "do a few cases" before buying the machine.*

Case 4: *A fully cognizant, 80-year-old man with several significant comorbidities consults you because of a lung mass and clinically significant hemoptysis. Flexible bronchoscopy reveals an exophytic lesion in the left lower lobe bronchus. Biopsy is positive for squamous cell carcinoma. Mediastinal staging is recommended prior to discussing therapeutic options, but the patient refuses further intervention because he does not want to become a burden for his family.*

Case 5: *An elderly woman with known dementia is transferred to your hospital from a long-term respiratory care center. She is ventilator dependent and has a tracheotomy. The referring physician states that the ventilator's inspiratory alarm is often triggered, and that suctioning through the tracheotomy tube is difficult and causes bleeding. The patient's husband wants everything done. Her daughter, however, says that her mother would never have wanted to live this way and that she should be allowed to pass away peacefully.*

Case 6: *During the consultation last week, your patient's family repeatedly mentioned that God will guide your hands and assure your patient's safety and well-being. Today, you meet with the family briefly prior to moving your patient into the bronchoscopy suite. The family asks you to pray with them.*

Case 7: *Shortly after diagnosing your patient with metastatic lung cancer with painful bone metastases and an infiltrating right lower lobe bronchial mucosal lesion, you promise to never let them live with intractable shortness of breath, pain or discomfort. Six months later, your patient is admitted after ten days of excruciating back pain despite all therapeutic efforts. Physical examination reveals cauda equina syndrome "I have said my goodbyes," the patient tells you. "It is time to keep your promise. Let's end it all now."*

Case 8: *A 40-year-old woman with chronic cough comes to you for exploratory flexible bronchoscopy. After administering a generous dose of moderate sedation and anesthetizing the patient's nose and throat, your trainee, who has never performed a bronchoscopy, asks if he can perform the procedure. "I have to learn some time," she says, "and I have been watching you all week. Can I start?"*

Case 9: *In each of the following scenarios, how likely are you to NOT tell the truth and why?*

(1) Although you have performed many flexible bronchoscopies, this is your first transbronchial needle aspiration. While obtaining informed consent, your patient asks you how often you have performed the procedure.

(2) While inserting the flexible bronchoscope through the right nares of your patient, you accidently cause a moderate to severe nosebleed. No one in the bronchoscopy suite knows that you had exerted substantial force to push the bronchoscope through a very narrowed nasal passage, and that you probably should have changed nares.

(3) You and your boss go out for dinner after work and your boss drinks excessively. The next morning, he does not show up in the operating theater and his case must be rescheduled. The nursing team asks you where you both went the night before and why he is not at work.

(4) During an informal visit with a colleague in another institution, you watch as she misidentifies the bronchial segment from which she obtains an endobronchial biopsy. When you have lunch together after the procedure, she asks what you thought of her procedural technique.

Case 10: *A young woman with a residual bronchial stricture from endobronchial tuberculosis was your patient four years ago. Blood tests now show her to be HIV positive. Her new husband is unaware of her medical history but wants to know why she is seeing you again in consultation.*

Case 11: *A 40-year-old woman with shortness of breath and bilateral upper lobe pulmonary infiltrates undergoes flexible bronchoscopy with bronchoalveolar lavage, brushings, and transbronchial lung biopsies of the left upper lobe. The procedure is performed using moderate sedation. Moderate bleeding occurs during the first biopsy, prompting you to stop sampling the left upper lobe and to instead obtain additional biopsies from the right upper lobe, even though right-sided sampling was not described in the informed consent. After the third biopsy, fluoroscopy reveals a moderate-size pneumothorax.*

Case 12: *To cut costs, your hospital wants to implement an AI-response to patient messaging system. Doctors and nurses in your department ask you to contest the hospital's decision.*

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