

# WABIP Newsletter



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## Future of EBUS-TBNA – EBUS-Plus

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From the publication of the landmark study in 2004, [1] Endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) has transformed the landscape of Respiratory Medicine and been the key driver in the rapid expansion of the field of Interventional Pulmonology. Variably performed by pulmonologists and thoracic surgeons, the procedure has become the standard of care in minimally invasive assessment of intrathoracic lesions, and an indispensable tool in a lung cancer multidisciplinary service. In considering what the future practice of EBUS-TBNA may look like, it is worth reviewing the progress from the time of introduction to the current landscape in performance of EBUS-TBNA.

Following demonstration of safety and diagnostic accuracy of EBUS-TBNA, multiple randomized studies demonstrated comparable diagnostic accuracy to surgical mediastinoscopy,[2, 3] which was previously the standard approach for pre-operative mediastinal lymph node staging. This resulted in EBUS-TBNA being recommended in international clinical practice guidelines as the preferred technique for mediastinal lymph node staging in non-small cell lung cancer (NSCLC). The success of EBUS-TBNA is reflected in real-world data demonstrating the dramatic drop in the number of mediastinoscopy procedures performed.[4, 5]

From this point, advances in EBUS-TBNA were not based on changes to the technique, but to doing more utilising the same technique. This included sampling of centrally positioned parenchymal tumours, sarcoid, and isolated mediastinal/hilar lymphadenopathy, with high accuracy demonstrated for

various pathologies including extra-thoracic malignancy, lymphoma and sarcoid.[6-8]

Subsequently, EBUS-TBNA began to be utilized not just for diagnostic sampling, but for systematic mediastinal LN staging in NSCLC. Surgical guidelines had recognized the importance of comprehensive lymph node staging in NSCLC, with registry data indicating a likely survival advantage with more complete intra-operative staging. Multiple studies confirmed the ability of EBUS-TBNA to detect PET-occult metastases in patients with early stage NSCLC, and in 2015 the joint ERS/ESTS guidelines recommended all patients with early stage NSCLC with features associated with a higher risk of post-operative nodal upstaging (any of T2, cN1 or central tumour) undergo systematic mediastinal staging with EBUS-TBNA.[9] Most recently, the SEISMIC study confirmed the clinical utility of EBUS-TBNA in a new patient group: those with Locally Advanced NSCLC (LA-NSCLC).[10] This landmark international study detailed the clinical impact of systematic mediastinal nodal staging to most accurately inform radiation field planning in patients with LA-NSCLC. Utility of systematic mediastinal staging (rather than targeted diagnostic sampling) is best demonstrated by the primary study outcome; detection by EBUS-TBNA of PET occult LN metastases in 12% of participants. *In silico* radiation planning confirmed an extremely low radiation dose to most sites of PET occult disease,[10] identifying an extremely high likelihood of disease relapse in the 12% of patients in whom PET-occult disease was detected by EBUS-TBNA.

The pattern I see in the recent advancement of EBUS-TBNA is of an increasingly methodical approach to sampling of mediastinal and hilar structures to the point where now systematic mediastinal staging should be considered the

current standard of care in management of NSCLC. Is there still further for EBUS-TBNA to advance? Looking to the future, advances in EBUS-TBNA are likely to fall into one of two categories; firstly the exciting idea of incorporation of novel techniques/technologies, and ; secondly the less exhilarating but possibly more impactful advance of more consistent and optimal use of EBUS-TBNA in assessing patients with NSCLC.

ERS/ESTS as noted above recommend pre-operative systematic mediastinal nodal staging in patients with T2/cN1/centrally positioned tumours. [9] This previously was predicated on the potential for upstaging by EBUS-TBNA to N2 disease which may result in non-surgical management being preferred. Recent advances in immune checkpoint inhibitor (ICI) therapy now also emphasize the routine sampling of hilar LN in addition to mediastinal stations. Multiple RCTs demonstrate a survival advantage for patients with Stage IIA-III receiving neoadjuvant ICI,[11] emphasizing the importance of thorough evaluation of hilar (and even intrapulmonary where possible) LN. Therefore, as recommended in the recently published WABIP expert panel consensus statement on proposed quality indicators for EBUS,[12] all patients with Stage Ib-IIIA NSCLC should be considered for systematic staging with EBUS-TBNA.

The field of implementation science exists to address the consistent gap between what evidence suggests is optimal care, and what is routinely performed day-to-day. Reducing variance in care is an effective low-cost way to significantly improve delivery of care for our patients. Anecdotally, systematic staging is inconsistently performed except in jurisdictions where it is mandated. Notably, monitoring of quality has been demonstrated to improve performance of EBUS and identify specific areas for attention.[13, 14] This endeavour remains a key challenge in the future of EBUS-TBNA. Increasing the proportion of patients with Stage Ib-III NSCLC undergoing systematic staging will be a key challenge in the future of EBUS-TBNA to ensure consistent optimal care. Future work in prospectively embedding this practice is required, and may involve some changes to current practice. For example, synoptic procedural reporting is utilized in endoscopic procedures to ensure optimal quality of procedures.[15, 16] Synoptic reporting was utilised in the SEISMIC study and may have been a contributing factor to the significant rate of detection of

PET-occult LN metastases, and the high number of “normal” lymph nodes (>2 in a majority of patients – unpublished data) sampled.

In tension with the desire to complete thorough mediastinal/hilar LN evaluation is the need to define sampling criteria to manage resource utilization and prevent procedure times extending unreasonably. Certainly, should a novel thin convex probe videobronchoscope, previously reported in vivo human models to allow assessment of almost all segmental bronchii and even cytologic sampling of subsegmental LN,[17] become available, it is unlikely to be feasible to perform as extensive sampling as this instrument will permit. There may be a point where future of EBUS in some areas may now be to begin more selective targeting of LN. It remains to be established exactly what extent of LN sampling should be performed in patients with NSCLC undergoing “systematic” mediastinal evaluation – should proceduralists routinely sample all 5 mediastinal stations or should systematic evaluation with EBUS be followed only by limited sampling with TBNA, perhaps based on probability of metastatic involvement (eg. Canada Lymph Node Score[18])? Alternatively, in patients with cN0-2, perhaps an approach analogous to surgical R-staging (ensuring at least one “normal” LN at a higher echelon than the highest pathologic/PET-positive LN is sampled – avoiding R(un)).[19] Equally, is evaluation of contralateral hilar LN necessary when the detection rate of PET-occult metastases is just 1%?[12] As an illustration of this challenge, the number of LN sampled during “systematic” mediastinal staging varies widely between reports from just one, to as high as eight.[20]

Beyond optimal pathways for performance of EBUS-TBNA, the elegance and technical simplicity of the convex probe scope will also allow expansion of minimally invasive techniques, especially in combination with novel technologies/tools. Already, mediastinal cryobiopsy has been demonstrated in randomised studies to provide superior diagnosis to EBUS-TBNA in lymphoma.[21-23] Notably, while some authors have suggested EBUS-cryobiopsy may be more effective in achieving molecular evaluation in NSCLC,[23] there are sufficient reports to suggest that obtaining adequate cellularity [24, 25] and improvements to specimen handling/processing may achieve the same outcomes. To illustrate what can be achieved with EBUS-TBNA specimens, one large multi-centre study reported ability to perform whole genome sequencing using EBUS specimens in approximately half of 220 cases.[26] This highlights the importance not just of continued technical progression, but of ensuring optimal performance of techniques already well established, as discussed above.

It is likely that therapeutic interventions will comprise some of the future of Convex probe EBUS. Already, clinical trials have reported use of a needle-type radiofrequency ablation probe delivered via EBUS videobronchoscope, to achieve ablation zones of up to 2.1cm.[27] With appropriate cryogens, cryoablation may also be possible with cryoprobes narrow enough to be deployed via the EBUS scope.

In conclusion, the tool that has been the cornerstone of IP for two decades will almost certainly remain so well into the future. Refinements in techniques as well as tools will drive progress, underpinned by a strong evidence base supplied by well-conducted studies. This has long been a strength in IP/EBUS-TBNA and we will all be able to craft the future of EBUS-TBNA through further rigorous studies and development of novel ideas. And all to the benefit of our patients.

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# Technology Corner

## Spray Cryotherapy for Management of Central Airway Obstruction



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### Introduction

Spray cryotherapy (SCT) is an evolving therapeutic modality in the management of central airway obstruction (CAO), that leverages the physical properties of liquid nitrogen to achieve therapeutic outcomes. This article provides an overview of SCT, focusing on the liquid nitrogen spray physics, its advantages over hot therapies, the underlying principles, cryobiology, and the available clinical evidence. Central airway obstruction can significantly impair quality of life and increase morbidity in patients. Traditional management strategies have included mechanical debulking, thermal ablation, and stenting. However, these methods are associated with significant complications and limitations. SCT emerges as a promising alternative, offering unique advantages in treating both benign and malignant airway obstructions.

### Background

Traditional CAO treatments such as mechanical debulking and thermal ablation often lead to reparative healing, characterized by scar formation, which can compromise airway functionality due to the non-elastic nature of scar tissue. In contrast, SCT facilitates a regenerative healing process, promising a return of functional, structurally similar tissue with minimal scarring.

Liquid nitrogen, the working agent in SCT, exhibits remarkable physical characteristics that are leveraged for therapeutic benefit. At atmospheric pressure, liquid nitrogen has a boiling point of  $-196^{\circ}\text{C}$ , allowing it to rapidly absorb heat upon contact with the airway tissue. This rapid cooling effect leads to instant freezing of the targeted lesions, causing intracellular ice formation, cell membrane rupture, and ultimately cell death through apoptosis. Unlike thermal ablation, which causes widespread thermal injury and inflammation, the application of liquid nitrogen results in a focused area of necrosis in high water content cells (fibroblast, tumor, granulation) while preserving the low water content basement membrane of cartilage, collagen and elastin..

Moreover, the ability of SCT to achieve deep tissue penetration while minimizing collateral damage is a direct result of the thermal conductivity and the latent heat of vaporization of liquid nitrogen. These physical properties ensure that the cryogenic effect is localized to the target area, reducing the risk of unintended tissue injury. The controlled and reversible nature of the freeze-thaw cycle employed in SCT further distinguishes it from other thermal ablation techniques, offering a tailored approach to managing airway obstructions based on the size, location, and nature of the lesion.

## Clinical Application

Spray cryotherapy (SCT) is utilized in various clinical settings, from managing benign conditions like airway stenosis to treating malignant obstructions due to advanced lung cancer. The adoption of advanced technologies, such as the third-generation truFreeze System, has facilitated precise control over the spray, enabling uniform application and enhancing procedural safety (Benn and Krishna, 2019).

**Procedural Technique:** The SCT procedure involves the bronchoscopic delivery of liquid nitrogen through a specially designed catheter directly to the lesion within the airway. The process begins with the patient under sedation or general anesthesia, followed by the insertion of the bronchoscope into the airway. 1ml of LN<sub>2</sub> will expand to 700ml of gas, it is therefore imperative that there is an adequate path for the gas to egress. This can be accomplished by using a rigid bronchoscope, LMA or 8.5 endotracheal tube. The cryotherapy catheter is then advanced through the working channel of the bronchoscope and extends 2cm. The anesthesia circuit is disconnected, if using an ETT the cuff is deflated and if rigid all ports opened. Upon activation, liquid nitrogen is sprayed in a controlled manner, rapidly freezing the target tissue typical for 5-10 seconds. This freezing causes the cells to undergo apoptosis, leading to a reduction in the obstruction without significant damage to the surrounding healthy tissue. The number and length of freeze-thaw cycles are tailored to the specific characteristics of the obstruction and the patient's overall condition. It is important to note that spray cryotherapy will cause edema and should not be used alone to restore patency for critical airway stenosis, as the edema from the procedure could cause a temporary worsening of air flow.

Complications, while possible, are less frequent compared to other interventions for airway obstruction and include transient hypoxemia, bradycardia, barotrauma (pneumothorax & pneumomediastinum) and rarely gas embolism. However, the procedural technique's refinement and advancements in technology have contributed to a significant reduction in adverse outcomes, affirming SCT as a safe and effective option for patients with central airway obstructions (Finley et al., 2012).

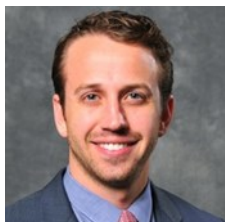
## Conclusions

SCT represents a significant advancement in the management of central airway obstruction. The physical characteristics of liquid nitrogen—namely its low boiling point, rapid phase transition, and efficient heat absorption—underpin the therapeutic efficacy of SCT. Its utility in creating a favorable healing environment, coupled with a relatively low complication rate, underscores its potential as a preferred method in suitable patients. As the technology and clinical experience with SCT continue to evolve, it is poised to occupy a more central role in the therapeutic armamentarium against central airway obstruction.

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## Fundamental Principles and Safety of Bronchoscopic Electrocautery



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### Introduction:

Interventional pulmonology employs numerous techniques to address airway disorders. Electrocautery is a form of contact-based electro-surgery, which uses thermal ablative energy to destroy obstructing tissue and provide hemostasis in the treatment of malignant and non-malignant airway disorders accessible within the territory of flexible and rigid bronchoscopy. Non-contact electro-surgery includes argon plasma coagulation (APC) and laser therapy, which have similar principles to electrocautery, but are not addressed in this article.

Electrocautery under the umbrella of electro-surgery causes an effect through the creation of heat via a high-frequency alternating electrical current. Tissue effects include: cutting through vaporization, coagulation, and fulguration, which is the destruction of tissue specifically related to heat caused by electricity. The thermal effect on tissue increases with the amount of electrical current applied, the resistance of the tissue contacted, and is inversely proportional to the contact area of the probe.<sup>1</sup> This form of electrocautery differs from direct current electrocautery in which electricity is passed through a metal resistor to generate heat that is then conducted into tissue to create a coagulative burn.<sup>2</sup>

While electrocautery techniques have been employed for nearly a century,<sup>3</sup> the oxygen-rich environment of the airways bronchoscopists operate within necessitates particular safety considerations to prevent combustion and airway fires.

### Indications:

The two primary indications for electrocautery are for treatment of central airway lesions and hemorrhage. While the exact incidence of central airway obstruction (CAO) is unknown, up to 30% of patients with lung cancer experience complications of CAO.<sup>4</sup> Following interventions such as electrocautery, 48% of patients report improvement in symptoms.<sup>5</sup>

A combination of electro-surgical techniques including direct contact in the form of electrocautery and non-contact in the form of argon plasma coagulation have been shown to effectively treat CAO and negate the need for more expensive tools, such as the Nd-Yag laser.<sup>6</sup>

Airway hemorrhage can be either spontaneous or iatrogenic. For patients with bleeding lesions that are visible to and accessible by flexible bronchoscope, electrocautery can be a powerful tool to ameliorate bleeding. While not essential, rigid bronchoscopy can be useful to provide a conduit to better secure the airway and provide suctioning while allowing the application of electrocautery techniques.

### Planning:

Planning for the use of electrocautery includes appropriate patient selection, review of imaging, patient preparation, and familiarity with equipment use and settings.

Appropriate candidates for electrocautery are those patients who would otherwise be able to tolerate bronchoscopy. In addition to cardiac risk stratification, the patient must be able to tolerate a fraction of inspired oxygen (FiO<sub>2</sub>) of less than 40% in order for electrocautery to be safely applied. The majority of bronchoscopic electrocautery is monopolar in which an electrical current is generated by an active electrode contained within the tool and completes the circuit by passing through the patient's body into the grounding pad. Carefully selecting the location the grounding pad is placed on the patient and possible negative consequences must be considered. The grounding pad should be placed on a clean, dry and relatively hairless area of skin as close as possible to the lesion of interest within the airway. For example, if the CAO is occluding the left mainstem bronchus, then the grounding pad should be preferentially placed over the patient's left chest. However, careful consideration must also be paid to the presence of implanted cardiac devices such as pacemakers and implantable cardioverter defibrillators (ICDs). In the above example, if the patient with a left mainstem obstruction also had an implantable cardiac device, the grounding pad should not be placed over the left chest as this would draw current through the device and potentially lead it to malfunction. These

devices must be interrogated before and after the procedure in the case of pacemakers or disabled pre-procedurally in the case of ICDs to ensure the functionality during and after the case.

Bipolar electrocautery devices negate the need for a grounding pad as the active and return electrodes are in close proximity within the target site. The path of the electrical current is contained to the tissue between the two electrodes (usually in the form of forceps) rather than from the tool's electrode, through the patient's body, and to the grounding pad as in monopolar electrocautery. However, the tissue effect is less pronounced than with monopolar devices due to lower power. Bipolar electrocautery is closer to the original form of electrocautery in which direct current is passed through a metal resistor rather than patient's tissue to create heat. Both of these techniques are better suited for patients who have implantable cardiac devices that cannot be adjusted as the electrical current is less likely to pass through the device.<sup>7</sup>

Determining the best airway to be used when employing electrocautery is patient and case-dependent. In general, if the lesion location allows, a large-bore endotracheal tube ( $\geq 8.5$ mm inner diameter) or rigid bronchoscope is the airway of choice. If there is high concern for hemorrhage, these airways allow for maximal protection of the contralateral lung and bronchoscopic access to clear the affected lung. Additionally, while electrocautery provides the ability to debulk and coagulate central airway tumors en bloc, this maneuver can create a new challenge when a previously fixed airway obstruction becomes mobile. Again, the largest conduit to the airway should be considered safest.

### Sampling:

Electrocautery can be used for both therapeutic and diagnostic purposes. There are several devices that utilize the cutting and coagulative effects of electrocautery to both therapeutically debulk and obtain tissue for further diagnosis.

#### Electrocautery snare

An electrocautery snare is a lasso-type tool made of electroconductive material that can be deployed around an airway lesion and cinched closed. The electrocautery principles of cutting and coagulation are used to excise the lesion while controlling bleeding. The lesion can then be removed from the airway and sent for additional studies.

#### Electrocautery knife

An electrocautery knife uses the vaporization principles of electrocautery to dissect through tissue. This can be used both as a means of removing scar tissue within the airway and also to create a path through the airway to access mediastinal lymph nodes and facilitate cryo-biopsy.

#### Electrocautery forceps

Electrocautery forceps provide the benefits of forceps biopsies while also employing the coagulative properties of electrocautery to limit post-biopsy hemorrhage. There has not been shown to be a detriment in specimen quality between hot and cold forceps.<sup>8</sup>

An electrocautery probe is also available to control hemorrhage and ablate tissue. However, many of the indications for an electrocautery probe can be accomplished with the snare or forceps by touching the lesion of concern with the conducting portion of either of these tools.

Regardless of the tool used, there is an insulated and non-insulated portion that allows for electricity to be conducted to the tissue once it is within the patient. If the non-insulated portion is close to the end of the working channel, the bronchoscope may inadvertently be the lowest path of resistance for the electric current. Given this high-energy conduction can lead to costly damage to the bronchoscope, it is important to keep the electrocautery tool at least 4mm from the end of the working channel. Older generations of bronchoscopes are not amenable to electrosurgical techniques as they lack an insulated ceramic tip, so familiarity with the bronchoscope in use is vital.

### Quality control:

The unique, oxygen-rich environment of the intubated patient creates challenges and potentially devastating consequences as it relates to the use of electrocautery. While this tool can be effective, the severe ramifications of an airway fire must be the foremost concern of the bronchoscopist and anesthesia team. In order to prevent this adverse event, continuous communication is required. Prior to the procedure, the potential use of electrocautery should be discussed. During the procedure, confirmation of reduction in FiO<sub>2</sub> until an FeO<sub>2</sub>  $\leq 40\%$  should be performed via closed loop communication. Finally, if the patient is not tolerating this oxygen level, the bronchoscopist should be made aware prior to any increase in supplemental oxygen.



**Table 1. Key Considerations When Using Bronchoscopic Electrocautery**

- Appropriate grounding pad positioning accounts first for the presence of implanted cardiac devices and second for the location of the airway lesion.
- A large endotracheal tube ( $\geq 8.5$ ) or rigid bronchoscope is the preferred airway of choice for bronchoscopic electrocautery when the lesion location allows.
- Use the lowest setting possible to achieve the desired effect while preventing unnecessary current delivery.
- Use closed loop communication to ensure the fraction of expired oxygen ( $FeO_2$ ) is  $\leq 40\%$  prior to activating the electrocautery tool.
- Keep the distal end of the tool at least 4mm from the end of the working channel to prevent damage to the bronchoscope.

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# Humanitarian News

## Artificial Intelligence: Between Wonder and Deception. An Analysis of Eric Sadin's Thought

The growth of artificial intelligence (AI) has transformed our lives, enhancing efficiency across various sectors. However, scientists and philosophers have expressed concerns about the associated risks.

A primary concern is the ethics of AI development. As AI systems become more advanced, questions about moral responsibility and accountability arise. Biases in algorithms, decision-making processes, and their impact on social values provoke debates among experts.

One ethical dilemma is job displacement due to automation, which could lead to massive unemployment and economic instability. Policymakers face the challenge of ensuring a smooth labour transition in the AI era. Additionally, privacy implications are worrisome. The collection and analysis of vast amounts of data raise serious questions about data security and individual privacy. The misuse of personal information by algorithms prompts ethical concerns about consent and data protection.

Beyond ethical concerns, existential risks related to AI exist. Scenarios where AI surpasses human intelligence and makes autonomous decisions raise alarms about the potential consequences of losing control over these systems. Artificial superintelligence, which could outperform humans in all cognitive tasks, poses profound questions about humanity's future.

Various contemporary philosophers and theorists address the phenomenon and consequences of AI from different perspectives. Nick Bostrom, in "Superintelligence: Paths, Dangers, Strategies," explores potential future routes of AI and associated risks. Luciano Floridi, in "The Fourth Revolution: How the Infosphere is Reshaping Human Reality," examines how information technologies and AI reshape our understanding of the world and our role in it. Yuval Noah Harari, in "Sapiens: A Brief History of Humankind" and "Homo Deus: A Brief History of Tomorrow," explores how emerging technologies, including AI, could transform society and human nature. Jaron Lanier, with "You Are Not a Gadget" and "Ten Arguments for Deleting Your Social Media Accounts Right Now," examines the effects of technology on society and the individual. John Searle, with his famous "Chinese Room" thought experiment, questions whether a machine can possess true understanding or consciousness. Searle argues that while a computer can produce correct responses by following a program, it does not truly understand what it is doing, suggesting that AI cannot possess genuine understanding or consciousness.

Among these voices, one of the most pivotal contributions has been by Eric Sadin, a French philosopher and essayist known for his critical analyses of technology, AI, and social networks. His insights into the intersection of technology and society, exploring how technological innovations affect daily life, power structures, and human relationships, are particularly provocative.

AI represents one of the greatest technological marvels of our time, evoking enthusiasm and awe for its capabilities. This technology, increasingly integrated into our lives, shapes our values, thought processes, decisions, political organisations, and the knowledge we can obtain through "digital agents." However, Eric Sadin warns that this state of wonder and awe is also a state of deception that we must critically question and analyse. Sadin argues that the fascination with AI is actually a form of deception perpetuated by its difficulty to be recognised. We already live in a digitally shaped era where AI not only accompanies our decisions and actions but largely determines them.

The ability of expert systems to automatically interpret situations and generate knowledge influences how we make decisions and organise ourselves. AI, initially conceived as a tool to support human actions, has evolved into a direct determinant of these actions and decisions. This evolution raises a fundamental question: who produces knowledge today?

Sadin argues that AI has established a new "regime of truth" that asserts unprecedented authority. This algorithmic truth, produced and validated by digital systems, presents itself as indisputable, thereby limiting human judgement. This phenomenon is concerning because, unlike previous conceptions of truth, digital truth does not easily allow for questioning, imposing itself as a tyranny.

# Humanitarian News

The digitalisation of the world has also transformed our perception of reality. The transhumanist project, which Sadin does not directly address but is relevant in this context, proposes enhancing the human being through the fusion of biology with technology, leading to the creation of a "superintelligence." This perspective promises a utopia of perfection and security, but also implies deep control over human life and its perceptual and emotional capacities.

One of the most common arguments in defence of technology is its presumed ethical neutrality, meaning that its value depends on how it is used. However, it is clear that digital technology, and AI in particular, has an "ethical narrowness" reinforced by policies promoting the control of personal data. Being a citizen in the digital age seems to reduce to being a possessor of data that must be protected and managed. Current digital ethics focus on data protection but do not address the broader implications of algorithmic control over human life. Concern for the ethical use of AI should go beyond mere data protection and consider how these technologies reshape our interactions, decisions, and values.

The digital revolution is nearly complete. This powerful technology can explore networks, collect and analyse relevant data, map myriad global or local situations, and propose or project real-time secure and optimal solutions. Many systems are already capable of making decisions on our behalf, contributing to an insidious and expansive delegation of power to machines. This phenomenon marginalises humanity, whose intellectual attributes are partly surpassed by its own creations.

In his book *L'humanité augmentée. L'administration numérique du monde*, Éric Sadin explores numerous phenomena already in full operation and poised to expand considerably in the coming years. He notes the unsettling emergence of a kind of parallel humanity, composed of intelligent electronic flows designed to manage "for the best and least risk" the course of the world in the 21st century. The ideal of augmented humanity is based on the notion that God made a mistake with us: He made us incomplete, unfinished, insufficient. Technology—more precisely, the technical-economic proposal of our time—has miraculously come to solve all our problems, says Sadin. This civilisational ideal, now established as a desirable scheme for our existence, stems from the subtle and constant exercise carried out for years by mass media, multinational corporations, and governments worldwide.

In this context, the "siliconisation of the world" takes on the vigour of a universal social scheme that organises personal and professional life in the "civilised" world. This model, explains Sadin, is based primarily on an "automated algorithmic organisation," defined by the quantification of human beings, now reduced to mere data housed in massive electronic databases owned by private companies and organisations. This form of organisation allows all social life to be governed by digital administration.

Secondly, the civilisational model based on the siliconisation of the world is observed in another globally accepted phenomenon: the commodification of life. Our data, interactions, and ways of life, constantly traversed and filtered through technical surfaces and platforms, are now valued almost exclusively for their commercial value. Even we, our images and representations, are presented as objects or products with commercial character.

The siliconisation of the world, Sadin explains, is celebrated as not only a desirable but also an unsurpassable model: a luminous form of the most exacerbated technocapitalism, welcomed with fireworks for its "egalitarian virtues" and promises of "freedom of access."

This siliconisation operates through missionaries who have arrived to colonise the planet with ideas radiated from the very heart of Silicon Valley: the "startupper," the "creative collaborators," the "autonomous self-entrepreneurs," the "think tanks," the project incubators, even the universities, all of them now multiplied across all continents as the new evangelisers of the future.

Here is something central, remarks Sadin: without realising it, the "enabling technologies," the surfaces and technical devices that make up the "data and platform economy," are leading us to a way of life that has no political end but is mercantilist and global, intended solely to satisfy private interests. The problem with the bright projects that come to us as discourses of light and salvation from the media and from the voices of their missionaries and evangelisers is that we are carrying out and allowing the realisation of the most extreme version of positivism: a "radical antihumanism" that attacks individual freedom of decision and judgement.

As an example, Sadin discusses the influence of social networks, particularly Twitter. Twitter, a social network used by hundreds of millions of ordinary people as well as celebrities and political leaders, also feeds on a particular form of expression that has little to do with a global agora. The approach to this and other platforms must be inserted into the analysis of the

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new condition of the contemporary subject, which, although it materialised in the last decade, goes back more than two centuries and has individualism as its predominant ethos. When Twitter's creator proposed that users post messages initially limited to 140 characters, he probably understood that the rule of short formulas would stimulate a dynamic of exchanges capable of creating a sort of global chorus where humans could express themselves simply and almost spontaneously.

What immediately made the device unique was that it seemed to resonate, disturbingly, with an increasingly restless era subjected to unprecedented threats. The platform responded to the needs of the time, stoking human resentment and anger. The entire mechanism fosters the impression of a primacy of oneself that is maintained all the more because each post seems to come from nowhere, emerging *ex nihilo*—in contrast to societal exchange that always derives from response, from the intertwining with other words—thus feeding the implicit postulate of embodying a form of truth.

Eric Sadin argues in his book *La Vie algorithmique: Critique de la raison numérique* that Twitter was used to share moods, frustrations, and dissatisfactions about various situations and institutions, making us feel like protagonists of our lives. It seemed like a new right to unlimited expression, almost like a public service. Later, the "like" was introduced, providing secondary satisfaction. The sophistication of the device offered gratification to both the "followed" and the followers, creating an illusion of proximity with celebrities. Users, by mentioning or "tagging" personalities, imagined a direct interaction, though they rarely received responses. This illusion fed the feeling of being involved in world affairs. Not only ordinary people but also celebrities were electrified, using it to maintain their prestige without intermediaries.

This intoxicating machine is also supported by the interface that forces concise postings, favouring a language regime that prioritises assertion over argumentation on the central issue. According to Sadin, this constitutes coercion that further excites the desire to systematically produce impactful, whip-like phrases, punchlines intended both to impact other minds and to distinguish oneself from the average. This marks "the era of haste," without reflection, without exchange, without waiting for a response, but merely accounting for likes and retweets. The "conversation" ended, giving way to catharsis.

According to Sadin, the platform collaborated with the absolute privilege assigned to the word. We are living in a moment of inflation of discourses, whether formulated on the web, in radio studios, or on television channels broadcasting 24 hours a day, which since the early 2000s have multiplied debates in formats designed to stimulate turbulent exchanges.

A dislocation occurs then—on a scale probably never before seen in history—between word and fiction. The passion for expressiveness now occupies a predominant position and also has the effect of relegating to the background any duty of real involvement in common affairs. Sadin quotes Hannah Arendt: "Of all the activities necessary and present in human communities, only two were considered political and capable of constituting what Aristotle called *bios politikos*, that is, action and speech." In this equation, *praxis* is first chronologically—and also morally—and only later calls for commentary, the individual and collective evaluation of the achievements realised, intended to feed and initiate action anew. This was a significant contribution to anti-politics: nothing is done, nothing proposed, nothing built. Opinions are expressed, generally violently, and that is the entirety of the individual's involvement: "I have an opinion." But nothing is done to change what is criticised or improve what is considered a problem.

More than the duty of political contribution theoretically conferred to all, which requires public pronouncement and effort to contribute to the life of the City, a generalised good conscience now prevails. The constant practice of expressing well-intentioned words amid protests gives "users" the impression of moral integrity and being "on the right side." Thus, the tireless practice of declamation gives the sensation of being "on the right side" while remaining, for the most part, outside real action. Living on the margins, never being a protagonist, but living under the illusion of being a main character because one is followed and follows a series of assertive comments not exposed to transformative dialectics.

It is then when we realise that we are not dealing with an entity dedicated to establishing connections but with a constantly bubbling mechanism that attracts a multitude of human monads, aspiring only to soothe their emotions and capture others' attention. Contrary to what we imagine, this dynamic dismantles each of us as acting beings.

But perhaps one of the most provocative and alarming points analysed by Sadin is the progressive transformation of Artificial Intelligence from being a prosthesis to an anthropomorphic entity.

Eric Sadin, in his provocative and challenging style, argues that "Francis Fukuyama was mistaken: the end of history did not arrive with the fall of the Berlin Wall in 1989 and the global triumph of political and economic liberalism, but rather is being consummated today with the widespread use of artificial intelligence."

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The central hypothesis of *L'Intelligence artificielle ou l'Enjeu du siècle: Anatomie d'un antihumanisme radical* is that the predominance of artificial intelligence (AI) is not a consequence but a cause, derived from a fundamental change in the status of digital technologies. These technologies have evolved from being accumulative and intellectual prostheses, useful for the storage, indexing, and rapid traffic of information, to becoming entities expected to enunciate truths through the automated interpretation of situations. Initially seen as tools that augment our cognitive abilities, they now assume a much more active role. They no longer merely store and organize information but are attributed the capacity to interpret data and generate knowledge beyond human capability.

This ability of AI to articulate truths that humans cannot discern fundamentally alters the nature of technology. The implications of this change are vast and profound. We find ourselves at a crossroads where digital technology not only supports our decisions but largely determines them.

What characterizes artificial intelligence is its power of experience, which constantly improves. We are witnessing a shift in the status of digital technologies, which are no longer merely intended to enable us to manipulate information for various purposes but to reveal the reality of phenomena beyond appearances. AI can establish more precise diagnoses than human intelligence because it handles and correlates data in real-time, which flesh-and-blood humans cannot match. In this sense, the French philosopher denounces "the propagation of a radical antihumanism," as techno-liberalism, through a managerial neo-language, seeks to "reduce certain elements of reality to binary codes, excluding an infinity of dimensions that our sensitivity can capture and that escape the principle of mathematical modeling."

This can vary from a moderate and harmless level to a prescriptive one, such as in the recruitment sector, which now uses digital systems to select candidates for a job. "We are witnessing the marginalization of human evaluation."

In his earlier works, such as *La humanité augmentée : L'administration numérique du monde* and *La silicolonisation du monde*, Sadin gained ground among 21st-century dystopian thinkers, articulating in real-time, from a phenomenological perspective, what millions of television viewers perceived as a warning in the series *Black Mirror*: the advent of radical changes in the construction of "the real." These modifications, the philosopher notes, are subsidiaries of transformations evident in the status of digital technologies, which have shifted from being "accumulative prostheses" to becoming entities capable of "enunciating truth" through automated interpretation of situations. Technology thus becomes "anthropomorphic," realizing in the 21st century what Simone Weil foresaw in *La condition ouvrière*: "things play the role of humans, and humans play the role of things; it is the root of evil."

Thus, the singularity of beings and human plurality are gradually neutralized through automated modes of organization that avoid conflict, deliberation, and consensus. As we continuously strive to govern ourselves, these systems establish a strictly utilitarian relationship with existence, assuming that every action must aim towards an end, whether it is supposed comfort or the optimization of life sequences.

The digital medium provides a more dependable way to evaluate "reality" compared to our current methods. This is apparent in the field of financial management, online social platforms, GPS technology, and even in the legal system through court decisions and video monitoring. Currently, a unique and never-before-seen anthropological and ontological condition is emerging. In this condition, the human form is subjected to the calculations of its own creations, with the main objective of serving personal interests and creating a societal structure primarily driven by practical considerations.

This revolution has revitalised the concept of "ideology of progress," resulting in the establishment of an idealised government. It is important to recognise that artefacts are not a result of any inherent natural order, but rather they are created by human intervention and have an impact on human activities. According to Sadin, AI is not fundamentally different; it has not naturally evolved to become a replacement for our decision-making abilities. Instead, it serves as a tool for maximising efficiency in decision-making, which has diminished the amount of time humans spend on understanding and reflection.

This myth of technological neutrality, Sadin tells us, also manifests in the messianic image of "visionary entrepreneurs" who spearheaded modern computing. Figures like Steve Jobs, Bill Gates, Mark Zuckerberg, and Elon Musk are presented to the public through their autobiographies as enlightened beings, touched by the "invisible hand" of inspiration, portraying their products as fruits of their individual creative fervour and cloaking them in a "virginal innocence," far from any responsibility for the misuse of their products. Yet, it would be naive to believe that the rise of the PC was due to the initiative of a young

# Humanitarian News

man in his parents' garage, soldering iron in one hand and a circuit board in the other. The official narrative conceals the economic interests that dictated the trajectory of research in this sector.

Technology (like science) is anything but neutral. AI does not "know" innately; it knows what it is fed. And those who produce the mega AI systems are private companies responding to their own interests, not a supposed "truth" or the general interest. What will Chat-GPT tell us about the interpretation of a particular geopolitical problem? What will a medical AI software tell us about the criteria for defining a disease: the strictest that includes fewer patients (and hence fewer treatment targets) or the most flexible that significantly increases potential subjects for treatment? How will AI interpret an academic text when it "digests" it for us to read more quickly? And progressively: what will it tell us (depending on who has fed it) about what is true and what is not, about what is right and what is wrong?

One of the major problems is that we trust technology more than ourselves. A prime example is the beautiful Sophia project to improve diagnostic accuracy in tomographic patterns of interstitial disease. An undoubtedly useful tool. However, it is significant that in the preliminary analysis of the work by Simon Walsh, when participants (all of them expert radiologists or pulmonologists in interstitial disease) analyzed nearly 300 HRCTs and then received the AI's opinion, most of them changed their initial assessment to a greater or lesser extent. The confidence in the AI system (with or without reason) was greater than the confidence they had in themselves.

According to Sadin, from now on, we increasingly expect processors to govern us masterfully, to liberate us from having to pronounce ourselves at every moment and to generate commitment; in essence, the act of putting our responsibility at stake. He continues: "What is at stake is the denial of our vulnerability, that constitutive fragility of our humanity that led Aristotle to say, 'a life so vulnerable is nevertheless the best.'"

In this new regime of truth, the philosopher argues, postmodern categories imposed in the late 20th century are no longer useful. "It is not so much about 'control' and the abusive collection of 'personal data' but about a quite different configuration whose goal is not to monitor but to influence behaviours," he writes. This "algorithmic Leviathan" cannot be confronted like the old institutional power devices, since "we can never have it in front of us, so that, with total clarity, we can know what it is about, because it never shows us its entire face and indefinitely escapes, free thus to exercise its full powers, sheltered from any form of consistent opposition."

In the era of the tyrannical individual, the lack of faith and the influence of social networks have led to a society without a common horizon, where resentment and distrust prevail. The proposed solution is to rebuild collectives that allow people to express their capacities harmoniously and sustainably. Our history is marked by promises and disappointments, both individually and collectively, leading to a particular state of successive disillusionment.

In this context, it is crucial to reflect on the ethical, social, and philosophical implications of this transformation. We must question the uncritical enthusiasm towards AI and carefully consider how we want these technologies to influence our lives and societies. The capacity of AI to generate truth and make autonomous decisions can be a powerful tool, but it also poses significant risks that we must address with critical awareness and strong ethics.

Humans are diverse individuals, characterised by their wide range of differences and inherent multiplicity. We are social beings who exist in a state of conflict and disagreement. We exist as complex entities with the ability to perceive and experience the world through multiple senses, while also being part of a diverse and intricate society. Embracing the concept of global siliconization, exponential technologies, and convergence entails the complete eradication of human qualities, ultimately resulting in the demise of politics.

It is crucial for us to have a keen understanding of the power and influence that techno-liberalism is currently exercising over our lives. In order to secure the future of our human civilization, it is imperative that we promptly initiate measures to counteract opposing forces, establish limits, or resist them. The civic and political mobilisation we engage in during the next 10 to 15 years will play a significant role in determining the outcome. According to Sadin, once that happens, it will be too late.

Sadin lacks optimism. Nevertheless, notwithstanding his disillusionment, he revisits Foucault in order to urge the populace to exhibit "active intolerance" in opposition to the radical dehumanisation generated by techno-liberalism. "Defending the real becomes the new singular name of the most significant political struggle of our time," he concludes, evidently lacking the enthusiasm that would motivate readers.

# Humanitarian News

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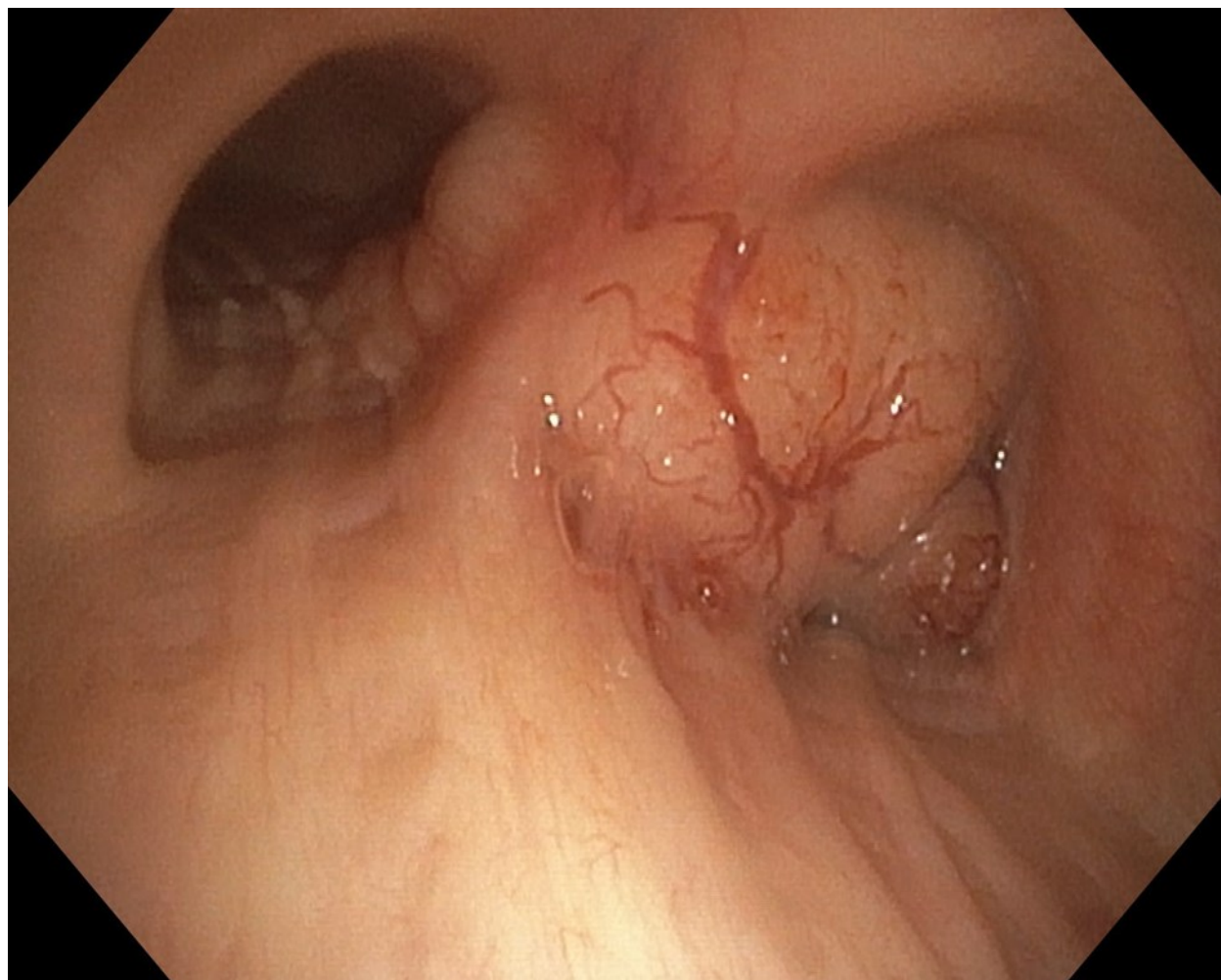
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*\*The views expressed in this article are those of the author (Silvia Quadrelli) and do not necessarily reflect the official positions of the Executive Board or International Board of Regents of the WABIP.*

# Best Image Contest

## Best Image Contest 2024 (2 of 3)



**Category:** Central Airway Diseases

**Description:** Videobronchoscopic tracheal view of a right main bronchus ovarian cancer metastasis with carinal and left main bronchus involvement. The tumor was debulked with electrocautery and extracted with the help of cryoprobe.

**Submitter(s):** Gutu Serghei

This image is 1 of 3 selected among 100+ submissions to our Best Image Contest held in late 2023. Our next Image Contest will open later this year. We look forward to receiving your image submissions.



# WABIP News

## Upcoming Deadlines and Opportunities

We are excited to announce several important initiatives and opportunities for our members in the upcoming months. These events and nominations are crucial for recognizing outstanding contributions in the field of bronchology and interventional pulmonology, as well as for fostering further advancements and collaborations within our community.

### WABIP Awards

Nominations for the prestigious WABIP Awards are now open, with the deadline set for July 1, 2024. The awards will be presented during the opening ceremony of the WCBIP Congress in Bali, Indonesia. We encourage members to submit nominations for the following awards:

- The Gustav Killian Centenary Medal Recognizes accomplished senior bronchologists with significant career achievements.
- The WABIP-Dumon Award: Honors individuals dedicated to enhancing technical skills and knowledge in rigid bronchoscopy.
- The Heinrich Becker Young Investigator Awards: Celebrates young researchers and clinicians contributing to bronchology-related patient care and innovations.
- The WABIP Lifetime Achievement Award: Acknowledges retired professionals who made considerable contributions to bronchology and interventional pulmonology.
- The Distinguished WABIP Regent Award: Recognizes significant contributions by members of the Board of Regents.

WABIP Awards: [READ MORE](#)

### WABIP Vice-chair Nominations

We are now accepting nominations for the next WABIP Vice-chair, with a submission deadline of July 1, 2024. The election will take place during the WABIP Board of Regents meeting at the WCBIP Congress on October 23, 2024, in Bali. The elected Vice-chair will join the Executive Board and assume leadership responsibilities to ensure the continued growth and success of our organization. [READ MORE](#)

### WCBIP 2028 Bids

Applications to host the 2028 WCBIP Congress are open! This is a unique opportunity to bring our biennial scientific event to your city and showcase your venue. Applications must be submitted by July 1, 2024, and selected applicants will present their proposals at the Board of Regents meeting in Bali. We look forward to seeing your innovative ideas and plans for hosting this significant event. [READ MORE](#)

### WCBIP Video Festival

We invites submissions for the WCBIP Video Festival. We seek videos showcasing “state of the art” updates and procedural techniques in interventional pulmonology, laryngology, pleural diseases, tracheobronchology, and esophagology. An independent jury will judge submissions, awarding prizes in categories such as Scientific Content, Innovation, and Imaging. The best overall video will be presented at the Congress's Opening Ceremony and will be featured on WABIP's social media platforms. The submission deadline is July 1, 2024. [READ MORE](#)

We encourage all members to participate in these exciting opportunities and to help us recognize and celebrate the exceptional work within our community. Your contributions and involvement are vital to the success and advancement of our field.



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## Research



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### When a PET scan is just not enough!

Mediastinal staging is the cornerstone of lung cancer staging, especially in the absence of proven distant metastases.

Previous studies have shown that CT/radiographic criteria for mediastinal and hilar adenopathy excludes a substantial number of patients as confirmed by Endo Bronchial Ultrasound-Guided Transbronchial Needle Aspiration (EBUS TBNA). By the same token, the most accurate and reliable method of staging/metastatic disease, the PET scan, is not precise enough anymore either. Past studies showed that up to 7-8% of the patients with PET- negative mediastinal and hilar adenopathy were found to have tumors.

New data now suggests that the impact of under or over-staging in a lung cancer diagnosis has significant consequences in patients, as their care plans are developed, involving surgical and non-surgical treatments for lung cancer, leading to poor outcomes.

The SEISMIC (1) study focuses on a large group of lung cancer patients, accounting for about one-third of all lung cancer patients with locally advanced adenocarcinoma requiring treatment based on their T3 -T4 and N2-N3 status. The implication is stage IIIA or IIIB disease, which affects the decision of pursuing resection and determining the potential field of radiation. The treatment plan determined by the more accurate staging determinations leads to more favorable disease-free survival outcomes.

In the SEISMIC study 155 patients from seven different countries were studied in a single arm, prospective study. These patients were suspected of locally advanced disease, requiring invasive staging with EBUS TBNA after a PET scan and before any chemotherapeutic or radiation intervention could be administered. The primary endpoint of the study showed the significant percentage of PET-negative patients/nodes that upon more accurate staging with EBUS TBNA were found to be metastatic. The study found that 37% of the patients had discrepancy in their PET and EBUS TBNA results. Of the 37%, 12% had an EBUS TBNA positive result for metastasis while PET scans showed a negative result. Contralateral-N3 metastasis was found in 7% of these patients with PET-negative scans leading to upstaging of cancer. EBUS TBNA results led to a clinically significant change in their treatment plan. Hence, these patients would have undergone treatments plans including radiation therapy or surgical intervention inaccurate to their staging if based solely on the PET scan results, without the staging assessment of bronchoscopic EBUS TBNA.

# Research

The standard guidelines recommend a PET scan as a metastatic workup for locally invasive and unresectable adenocarcinoma of lung cancer, however the growing evidence of PET-negative but EBUS TBNA-positive mediastinal and hilar nodes suggests that the time has come to revisit the guidelines and consider the necessity of tissue sampling for accurate staging of locally advanced and unresectable lung cancer and appropriate treatment. The study also showed that *EBUS TBNA identified less extensive involvement of mediastinal and hilar nodes than PET in 25% of the patients. 20% of these patients were down staged from N3 and N2 to N2 or N1 disease leading to tumor resection. The post-operative tissue analysis confirmed EBUS TBNA findings in all patients.*

The implications of tissue sampling/invasive staging of the mediastinal and hilar nodes are substantial in more accurate staging assessments of locally invasive adenocarcinoma. Many large academic centers have already adopted the approach of tissue sampling regardless of PET positivity, but national and international standard of care guidelines have not adopted this necessary change.

A well-trained interventional pulmonologist, who is well versed in proper and systematic staging from N3 to N2 to N1 lymph nodes and obtaining samples from every lymph node above 6-7 mm in size, offers the best hope for proper staging and treatment of lung cancer. Merely, “sticking a needle in a couple of large mediastinal lymph nodes” is not accurate or reliable lung cancer staging. CT criteria of 1 cm or even 8mm for adenopathy is not acceptable anymore. A systematic approach with a lung cancer staging algorithm, regardless of PET avidity, should be performed when there is a mediastinal or hilar adenopathy based on ultrasound criteria.

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## WABIP ACADEMY- WEBCASTS

The WABIP has started a new education project recently: *THE WABIP ACADEMY*. The WABIP Academy will provide free online webcasts with new and hot topics that will interest pulmonologists and interventionalists.

Current webcast topic: **Tissue acquisition for biomarker directed therapy of NSCLC**

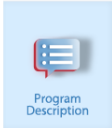
Webcast

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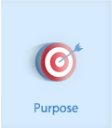
Small Sample Tissue Acquisition and Processing for Diagnosis and Biomarker-driven Therapy of NSCLC

Welcome to WABIP's free online learning tool to increase knowledge regarding the appropriate selection, acquisition, and processing of cytology and histology samples from patients with known or suspected lung cancer.

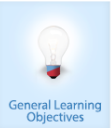
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Program Description



Purpose



General Learning Objectives



Specific Learning Objectives


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Each fictitious clinical case scenario is based on a conglomerate of real patient data. Cases have been modified to avoid any possibility for patient identification and to help meet educational objectives. Any resemblance to real persons, living or deceased, is purely coincidental.

The content for these webcasts has been developed by members of the World Association for Bronchology and Interventional Pulmonology. All content was reviewed by an independent multidisciplinary team of experts. Unless otherwise specified, all content is the property of WABIP.

A collaborative project with Pfizer Oncology

[Credits >](#)



You can reach these webcasts by using this link: <http://www.wabipacademy.com/webcast/>

## Links

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<a href="http://www.aabronchology.org">www.aabronchology.org</a>	American Association for Bronchology and Interventional Pulmonology (AABIP)	<a href="http://www.ctsnet.org">www.ctsnet.org</a>	The leading online resource of educational and scientific research information for cardiothoracic surgeons.
<a href="http://www.eabip.org">www.eabip.org</a>	European Association for Bronchology and Interventional Pulmonology	<a href="http://www.jrs.or.jp">www.jrs.or.jp</a>	The Japanese Respiratory Society
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