# WABIP Newsletter


**Volume 08**

**Issue 02**

**May 2020**

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WABIP Newsletter

VOLUME 8, ISSUE 2 MAY 2020



# Guest Opinion/Editorial

## Bronchoscopy in Patients with Suspected or Confirmed COVID-19 Infection

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It has been more than 3 months since WHO was notified of the first cases of "pneumonia with unknown cause" in China. It's incredible to reflect on how dramatically the world has changed in such a short period. The total number of COVID-19 cases has passed three million, and the deaths related to COVID-19 is growing upwards of 217 thousand. No geographic region is spared from this pandemic. According to the latest WHO reports, the COVID-19 pandemic is spreading and taking grip in Africa after Asia, Europe, and America. The devastating effects of COVID-19 pandemic on human health, economy, and the social fabric of our global community will not be fully evident for years to come. Until then, extreme preventions, necessary infection control measures, and following expert advice from the professionals will be the most prudent approach. No one country can combat this global pandemic individually. Our approach to this highly fatal and devastating illness has to be global. Organizations like WABIP can genuinely play a global role in guiding its members around the world on how best to handle difficult issues of performing necessary bronchoscopies and airway procedures vs. postponing them during this crisis. We can provide leadership to our members on how best to balance providing service to our fellow citizens and preserving health care worker's safety without feeling guilty or shame. We, the health care workers, are a finite resource for the millions of very sick patients around the globe who need our help more than ever before. We need to be judicious in utilizing this resource. Pulmonary and Critical Care Medicine is at the heart of the medical management of COVID-19 patients. The vast majority of morbidity and mortality from COVID-19 stems from pulmonary problems.

Airway procedures, such as bronchoscopy, are being requested for reasons such as expeditious diagnosis, management of complications, optimizing ventilator management, and tracheostomy related to COVID -19 beside routine indications. It is more important than ever to be extremely mindful and judicious in making decisions as to the indications of these procedures. The risk and benefits must be thoroughly weighed before embarking upon any airway procedures in the backdrop of a highly contagious infection that has no specific prophylactic or therapeutic options. The implications of contamination of instruments and consequently infecting several people from a straightforward procedure such a bronchoalveolar lavage could be devastating. These procedures could start a cascade of effects jeopardizing the health of several health care workers and slow down the delivery of health care to numerous other patients due to the consequent lack of health care workers and shortage of personal protective equipment (PPE).

Below is the summary of guidelines provided by the American Association for Bronchology and Interventional Pomology (AABIP) and the Society of Advance Bronchoscopists (SAB) in their recent consensus statements (1,2).

1. It's preferable to collect upper respiratory samples via nasopharyngeal and oropharyngeal swabs for the diagnosis of COVID-19 at any stage of the disease.

2. Induced Sputum Collection is NOT recommended.

3. Bronchoscopy carries a very high risk of aerosolization of the virus. Hence it has a very limited role in the diagnosis of COVID-19 infection.

4. If an alternative diagnosis is suspected after COVID-19 infection has been ruled out, the patient should be intubated for bronchoscopy to minimize the aerosolization of the virus and to expose the physicians and the staff. This should only be done when there is a substantial change in management expected from new/alternative discovery.

5. Bronchoscopy should be performed in an Airborne Infection Isolation Room (AIIR ) negative pressure room.

6. Extreme care should be taken when collecting and handling specimens from patients who could be COVID-19 positive. Even the patients who were COVID-19 negative a few days prior to the procedure, could be positive for COVID-19 at the time of bronchoscopy. The current tests for COVID-19 are not 100% sensitive or specific.

7. Laboratory personnel should be alerted that the specimen is from suspected COVID-19 patients.

8. The bronchoscopy staff and specimen handling staff should be limited to the minimum required personnel.

9. All personnel should wear a powered, air-purifying respirator (PAPR) or N95 mask and eye protection.

10. All personnel should wear standard Personal Protective Equipment (PPE), which includes gown, gloves, respiratory protection, and eye protection.

11. Follow US Centers for Disease Control (CDC) instructions for proper donning and doffing of all protective equipment and disposable devices.

12. Disposable bronchoscopes should be used the first line when available.

13. Follow standard disinfection protocol of durable re-usable video monitors.

14. Follow standard high-level disinfection for re-usable bronchoscopes.

15. **Emergent bronchoscopy (same day)** should be considered for the following conditions: Acute foreign body aspiration, massive hemoptysis without obvious sources for embolization, and severe symptomatic airway obstruction.

16. **Urgent bronchoscopy (1-2 days)** should be considered in conditions such as neutropenic fevers with pulmonary infiltrates without any other explanation and lung transplant patients with clinical deterioration despite empiric therapy.

17. The numbers of COVID-19 patients around the world are declining slowly but surely. Procedure lists have obtained a short but robust experience in performing the invasive procedure with utmost care. Most centers are now performing lung cancer diagnosis and staging with bronchoscopy as soon as possible. The urgency of diagnosis and staging of lung cancer has superseded the ultra-conservative approach of delaying lung cancer diagnosis and staging. Bronchoscopy, for the diagnosis of recurrent or unresponsive lung cancer, is also considered as an urgent procedure requiring early attention. These decisions are best made under the auspices of multi-disciplinary lung cancer teams.

18. Bronchoscopic procedures such as Bronchoscopic Lung Volume Reduction (BLVR), Bronchial Thermoplasty (BT), specimen collection for chronic infections such as atypical mycobacterial and fungal infections, and routine surveillance bronchoscopies for lung transplant patients should be postponed until the polices for such procedures have been developed, and the risk of COVID-19 is significantly lower.

19. Avoid rigid bronchoscopy, if possible, and if necessary, use without jet ventilation .

20. If a bronchoscopist or a bronchoscopy team member is exposed during the procedure, he/she should let the other bronchoscopist/team member finish the case (if safely possible). He/she should be tested if the source patient is confirmed as positive for COVID-19. Return to work should follow the hospital and local polices around testing, resolution of symptoms, and permission from a physician.

In conclusion, bronchoscopy should be avoided in the vast majority of patients with suspected or proven COVID-19 unless there are emergent or urgent indications. If it must be performed, extreme precautions and safety measures should be taken by using proper PPE and curtailing of aerosolization of the virus. The recommendations for bronchoscopy and all other procedures are rapidly evolving with our understanding of transmission, virulence, possible therapies, and improving technologies for dealing with COVID-19. The recommendations may also vary depending upon the local burden of disease, resources, and expertise. Please continue to follow local and international guidelines and expert reports.

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# Technology Corner

## Trans-parenchymal nodule access

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**INTRODUCTION**

During the past decade, there has been a remarkable advancement in diagnostic technological innovations with respect to bronchoscopic approaches of an indeterminate pulmonary nodule. These include: ultrathin bronchoscopy, radial endobronchial ultrasound (rEBUS), virtual bronchoscopy, electromagnetic navigation bronchoscopy, robotic bronchoscopy as well as combinations of these techniques. The diagnostic yield of such technologies is usually dependent on several factors such as size of the pulmonary nodule, anatomical location, airway bronchus sign, eccentric or concentric view on rEBUS and CT-to-body divergence during bronchoscopy. Furthermore, airway anatomy is complex making navigation and maneuvering through several subsegments very challenging leading to probably lower yield beyond fourth-generation bronchial segments.

**BACKGROUND**

One of the limitations of the above technologies is the challenge of accessing a lung nodule without a bronchus sign on CT chest. Two novel bronchoscopic techniques, bronchoscopic trans-parenchymal nodule access (BTPNA) and transbronchial access tool (TBAT), have been developed that allows bronchoscopists to overcome such limitation by accessing nodules through an airway wall independent of an airway leading to the lesion.

BTPNA

The Archimedes Virtual Bronchoscopy Navigation System (Broncus Medical, Mountain View, California, USA) (Figure 1) reconstructs pre-procedural CT scan into a 3D model which provides guidance of a sheath from the point of entry on the airway wall through the lung parenchyma directly to the lung nodule using a balloon catheter equipped guided sheath. The point of exit to the airway wall can be computer selected or adjusted per physician preference. The vasculature is highlighted with a “virtual Doppler” function to help avoid vessels at the exit point. During the procedure, airway wall is punctured with a 18G needle followed by dilating the hole with a balloon then advancing the guide sheath with blunt stylet (steerable catheter) through parenchymal tissue into the nodule under real-time fluoroscopy. There is a fusion of the virtual plan from CT data with the real-time fluoroscopy image where the passage of the sheath can be corrected real time.

TBAT

The CrossCountry™ TBAT (Transbronchial Access Tool) (Medtronic, Minneapolis, Minnesota, USA) (Figure 2) has been also designed to allow access through an airway wall and into the lung parenchyma for lesions without an airway. Once the optimal airway exit point is planned, constructed from pre-procedural CT data and reached during the electromagnetic navigation bronchoscopy, a small sharp tipped wire is deployed through the airway wall and into the parenchyma. Then, a cone-shaped dilator is

advanced over the wire, through the airway wall and into the parenchyma to the lung nodule. Using Seldinger technique, the extended working channel/Edge™ catheter is advanced over the dilator while pulling the wire back. The catheter is directed over the central dilator until the proximal end of the lung nodule is reached. The wire and dilator are then removed leaving access for biopsy tools though the extended working channel/Edge™ catheter under fluoroscopy.

**CLINICAL APPLICATION**

Clinical data regarding BTPNA is still emerging. The first-in-human report was published by Herth et al. in 2015. 10 out of 12 patients with suspicious lung nodules were successfully accessed using Archimedes Virtual Bronchoscopy Navigation System in combination with computer-enhanced fused fluoroscopy transparenchymal access followed immediately by surgical resection. Adequate biopsies were obtained from the 10 patients (83%), which correlated with the histological findings from the surgical resection.[1] There were no peri or post-operative complications aside from a transient elevation of troponin in one patient. Inspection of the resected lobes showed no hemorrhage or parenchymal lacerations. Another small study performed in a bronchoscopy suite showed that successful BTPNA and adequate biopsy was obtained in 5 out of 6. Pneumothorax was reported in 2 of the 5 patients (one required chest tube) and no other adverse events were reported.[2] A large multicenter trial including 6 U.S., 1 Germany and 3 China sties, Evaluation of the Archimedes™ System for Transparenchymal Nodule Access 2 (EAST2) (NCT02867371), was recently completed with data presented in the recent ERS Congress.[3]A total of 106 patients were enrolled in the study and the results will hopefully provide further data on the technique's safety and diagnostic yield.

There is still paucity of literature regarding TBAT. Two small case series have been published on the safety and feasibility of such device. Anciano et al. described three cases using TBAT.[4] Although the nodule was successfully reached in all three cases, only 2 had definitive diagnosis. There were no adverse events reported. Another small case series by Bowling et al. used a combination of cone beam computed tomography scan, electromagnetic navigation and TBAT.[5] 9 out of 12 lung nodules/masses (75%) were successfully accessed with TBAT with a diagnostic yield of 66% (8 of 12). One patient had a pneumothorax and required a chest tube.

Furthermore, about a third of patients with potentially curable disease do not undergo surgical resection due to different reasons such as advanced lung disease, medical comorbidities or age. Trans-parenchymal nodule access may facilitate local treatment of early lung cancers in such patient population.

**CONCLUSION**

Numerous advanced bronchoscopic techniques have occurred in the pursuit of improved diagnostic yield for peripheral pulmonary nodules. The ability to safely access lung nodules located away from the bronchial airway for diagnostic and eventually therapeutic modality is appealing. However, high-quality multicenter trials to validate diagnostic yield and safety results as well as comparing such technique against transthoracic or even among different modalities of transbronchial lung biopsies are needed.

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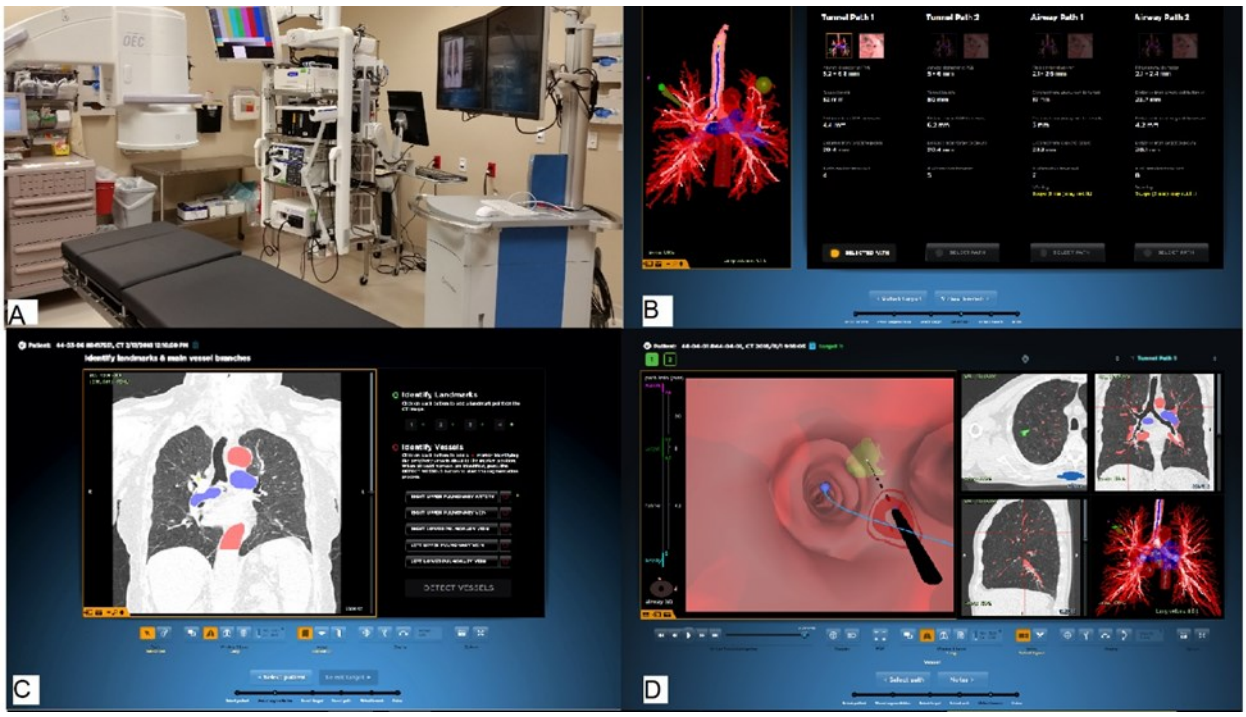


**Figure 1:** A. Procedure room, B. Selecting path image, C. Identifying vessels, D. Selecting point of exit (Images courtesy of Broncus Medical)

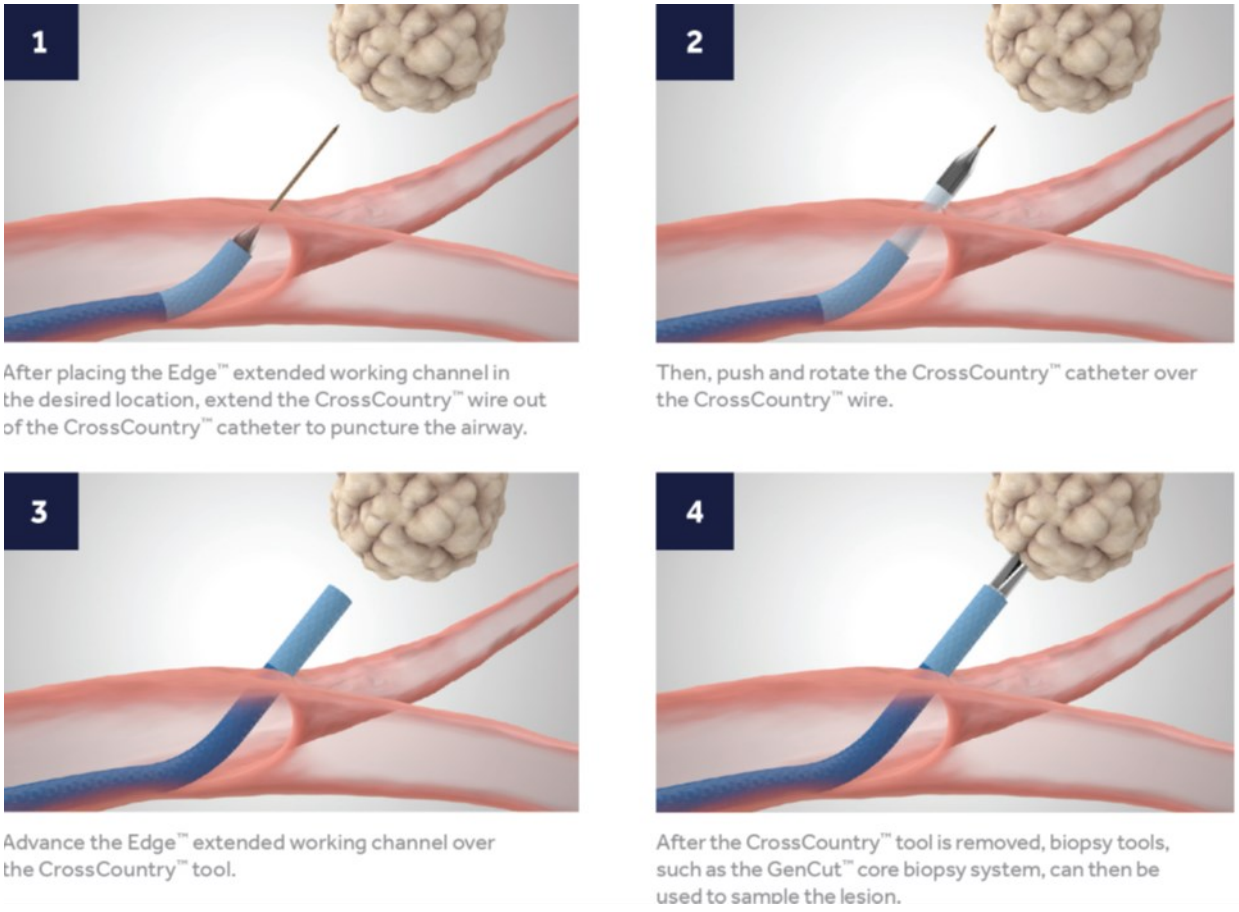


**Figure 2.** Crosscountry transbronchial access tool (Images courtesy of Medtronic)

# Tips for improving the navigation, visualization and specimen quality during Robotic Assisted Bronchoscopy

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**Introduction**

Lung cancer screening and the increased use of chest computed tomography (CT) has led to a significantly high rate of lung nodules detection. In the United States, 1.6 million nodules are predicted to be detected every year. The limitations of currently available conventional and guided bronchoscopy platforms for diagnosing peripheral lung nodules have led to the introduction of robot assisted bronchoscopy. This technology allows the bronchoscopists to navigate through small airways under direct visualization and EMN guidance. Two robotic systems have been commercially available for almost 2 years and have shown promising results in cadaveric models in regards to further reach to the periphery compared to conventional bronchoscopy. A recent retrospective post post-marketing multicenter study using the Monarch™ Auris robotic platform in 165 patients showed successful navigation (defined as acquisition of a r-EBUS image or diagnostic tissue) to 88.6% of the lung nodules. In this study, the maximum diagnostic yield was estimated at 77% and the majority (70.7%) of the nodules were located in the outer third of the lung. From this experience, we learned several planning and technical tips that we believe could lead to improved access and diagnostic yield.

**Planning**

Prior to each case, we carefully review the CT scan and identify the airways in the proximity of the lesion. If there is no airway directly leading to the lesion (lack of the “bronchus sign”), we follow the blood vessel adjacent or leading to it, based on the understanding of pulmonary segmental anatomy. This assumes that lesions without a “bronchus sign” with a vessel leading to them have an adjoining airway, even if not seen on the CT scan (as it’s often the case in patients with emphysema). We also always create our own manual path using the system’s software and do not only rely on the automatic planning. In addition, we write a “mental pathway” (scope orientation at each branching point).

A standard room set up is used with a dedicated team who received prior training. We ensure removal of any large metallic objects from the operating table and surrounding the EM field generator during the set up and EM navigation phase of the procedure. We use general anesthesia with an 8.5 endotracheal tube. An airway inspection is performed prior to the procedure to assess for endobronchial lesions and therapeutic aspiration of secretions. Once that is completed, the robotic bronchoscope is loaded and advanced to the trachea. Registration is completed by touching the carina and advancing the bronchoscope into the contralateral mainstem bronchus. This is a smooth, unrushed process while avoiding airway wall trauma. Unless precluded by the underlying disease, tidal volumes of 6-8 ml/kg and PEEP levels of 8-15 are used to splint open the distal airways. These settings are applied prior to wedging the robotic bronchoscope sheath in a segmental airway. The bronchoscope and the sheath are advanced as a unit into the target segmental or even sub-segmental airway. This helps wedge the scope and protect ipsilateral lobes or contralateral lung in case of bleeding. The inner bronchoscope is then advanced to the target segments based on virtual guidance from the EMN system or based on the operator’s own “mental plan”. While the RAB systems allow for an enhanced reach in the lung periphery, on occasion the small airway may not be visualized due to their collapsibility (as is the case in patients with severe emphysema). This can be overcome by allowing pressure equilibration between the target airway and the atmosphere by transiently disconnecting the proximal valve of the working channel. If this is not successful, the scope can be relaxed (it takes a co-axial position) and air can be insufflated through the working channel using a 60 ml syringe allowing for transient splinting of the small airways. While the airways are opening up with gentle air insufflation, the scope is advanced to the next generation airway. Occasionally, we use a closed forceps tool as a guidewire to enter increasingly smaller peripheral airways.

**Sampling**

Once we reach the target based in EMN guidance, radial-EBUS (rEBUS) is always performed to confirm the target and to assess its relation to the bronchial wall (Figure). Once an acceptable rEBUS view is obtained (concentric or eccentric), the bronchoscope is locked in place, and we start sampling using a transbronchial aspiration needle to perform 4-5 passes under fluoroscopic guidance. During sampling, in case an eccentric rEBUS view is noted, the scope can be oriented towards the target airway as rEBUS can be used to identify the location of lesion as long as peripheral visualization is maintained. Subsequently, the needle is advanced in the same direction to puncture through the airway wall and samples are obtained.

Rapid onsite cytology evaluation is performed in all cases in our institution, although the value of this practice remains to be determined. The Diff Quik smeared needle specimens are reviewed by a pathologist. If an adequate representative specimen is confirmed, we ensure that more adequate material is obtained for any ancillary testing including molecular markers; this involves performing extra needle passes (our molecular laboratory uses cytology smears for comprehensive molecular testing) and then we proceed with transbronchial forceps biopsies. If the needle aspiration is non-diagnostic after 4- 5 passes, then we use the Auris transbronchial biopsy forceps to perform 4-5 biopsies under fluoroscopic guidance. Touch preps are performed for rapid onsite cytopathology evaluation. These samples are sent for further histopathologic exam in 10% formalin solution. Of note, we do not flush the needles with saline unless there is difficulty reloading the stylet. If needles are flushed with saline, then they should be subsequently flushed with air several times until the working channel is dried out. This is because the presence of saline fluid in the working channel could compromise the quality of the subsequent Diff-Quik smear.

**Quality control**

Appropriate history and physical examination should be performed and the expected diagnostic yield, limitations, as well as the risk and benefits should be thoroughly discussed with the patient prior to proceeding with RAB. In patients with pacemakers or defibrillators, the use of the electromagnetic field generator may interfere with their functioning, and thus the use of an alternative technology of guided bronchoscopy or other modalities for biopsy should be considered until more data proves safety of RAB in this patient population.

A careful review of the chest CT scan prior to planning a robotic bronchoscopy is essential to set up for a successful procedure. Apart from identifying the lesion and the adjacent airways, it is also essential to assess for presence of possible endobronchial lesion, especially in the distal airways leading to the target lesion. If an endobronchial lesion is noted, a thin flexible bronchoscope can be used instead of a using the expensive RAB scope and tools to achieve the diagnosis. Similarly, the CT and PET/CT should be assessed for mediastinal adenopathy. If nodal enlargement or involvement is noted or expected, a linear EBUS may suffice to provide diagnosis and staging with a lower risk of complications and precluding the robotic assisted bronchoscopy altogether. On the other hand, if suspicion of nodal involvement is low, the RAB should be performed first, before the EBUS-TBNA. This is because we are learning that after approximately 20 mins of general anesthesia, certain areas of the lung may become atelectatic, making navigation more difficult and potentially giving false positive rEBUS or cone beam CT images.

The small robotic scope and a steady sheath provide the ability to navigate to distal airways, but in some patients with radiation associated fibrosis, COPD or tortuous airways, it might be difficult to navigate the robotic bronchoscope into the apical or posterior segments of the right upper lobe. In these cases, the operator should acknowledge the limitation, and if repeated attempts are unsuccessful, look for alternative modalities to achieve the diagnosis rather that risk injury to the airway by persistent maneuvering. The use of saline, in addition to potentially compromising the quality of the specimens, can also give false positive rEBUS image or cone beam CT images by causing alveolar filling. In cases with poor airway visualization, air insufflation can be used to enhance the view as mentioned above. Finally, a post-procedure radiography should be performed at the end of the procedure to assess for any complications.

**Conclusion**

RAB offers improved access to the periphery of the lung and stability while working at the target. After 18 months of experience with this technology, we learned several tips for improving planning, navigation, peripheral airway visualization and specimen handling. We trust that some of these technical aspects can be applied in future studies of RAB with the aim to further improve the initially reported diagnostic yield.

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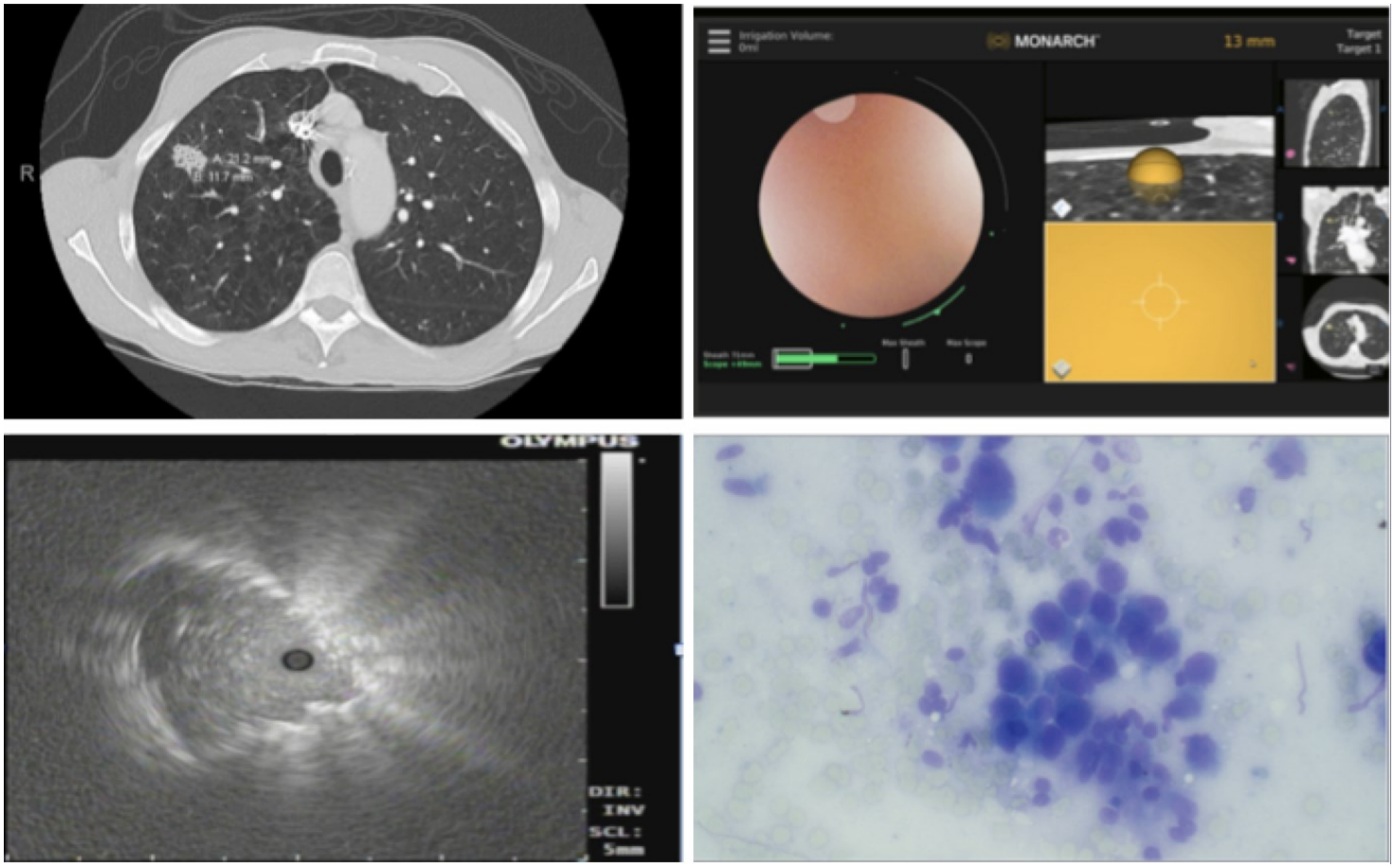


**Figure 1. Robotic bronchoscopy for a 2.1 cm peripheral right upper lobe nodule. Top Left: CT Chest demonstrating a 2.1 cm right upper lobe nodule. Top Right: Robot bronchoscopy using the Monarch Auris Robotic Assisted Bronchoscope with an endobronchial view and electromagnetic navigation guidance showing the location of the nodule. Bottom Left: Eccentric rEBUS view confirming the location of the nodule. Bottom Right: Diff Quick stain demonstrating adenocarcinoma.**

## ETHICS OF PUBLIC HEALTH DURING A PANDEMIC

Medicine and public health are two complementary and interacting approaches for promoting and protecting health. Yet medicine and public health can, and also must be differentiated, because in several important ways they are not the same. The fundamental difference involves the population emphasis of public health, which contrasts with the essentially individual focus of medical care. Public health identifies and measures threats to the health of populations, develops governmental policies in response to these concerns, and seeks to assure certain health and related services. In contrast, medical care focuses upon individuals-diagnosis, treatment, relief of suffering and rehabilitation.

In early bioethics, the good of the individual, and particularly his or her autonomy, was the dominant theme, not population health. The last two decades following infectious outbreaks and global health threats have produced a resurgence of visibility for public health. Additionally, it is becoming impossible to avoid the recognition that the health of populations is a function more of good public health measures and socioeconomic conditions than of biomedical advances, a well-known concept within the public health community, but that has been neglected by most outside the field.

Populations are constituted by diverse communities of heterogeneous beliefs and practices. These may at times come into conflict. Individual versus community rights and conflicts within and between communities are the origin of ethical discussions in public health practice. Hence, public health ethics must recognize and be able to reason through issues relating to social, political and cultural contexts; the existence of competing values and perspectives and perhaps, diverse and sometimes conflicting world views.

Along the years, public health, has struggled to define and articulate its core values and the language and structure of its ethics. Given its population focus, and its interest in the underlying conditions upon which health is predicated it seems evident that its ethical framework must express fundamental values in societal terms.

In social development, ethical discussions show the ongoing debate on values and choices in which each individual compares and reflects on his own experience and thought in juxtaposition to experience and thought of others. It is important to remind that the credibility and viability of a democratic societies depend critically on the conduct of ethical debate both amongst members of the public and between members of the public and decision-makers.

Obviously, ethics in public health cannot be divorced to the background values of the general society, and the particular communities, in which it will be carried out. It is not realistic to expect that health care could survive as some sort of separate enclave entirely different of society values. Those values — both good and bad — will inevitably permeate health care. However, this does not mean health care has to be merely a passive observer of what is happening in society.

A main concern about the possibility of defining a set of core ethical values in public health is that public health measures can quickly become politicized. Even when many times political controversy may be seen (and really becomes) and obstacle to rationality, the governmental role of public health turns politics unavoidable and necessary. Politics is a necessary component of public health, precisely in order to achieve public health policies and practices.

But beyond any political controversies and even in pluralistic and diverse societies, some ethical foundations should be a common ground shared by the whole society and the political leaders and those are the grounds of the respect of human rights.

Jonathan Mann famously theorized that public health, ethics, and human rights are complementary fields motivated by the paramount value of human well-being. He felt that people could not be healthy if governments did not respect their rights and dignity as well as engage in health policies guided by sound ethical values. Nor could people have their rights and dignity

if they were not healthy, Mann and his colleagues argued that public health and human rights are integrally connected: Human rights violations adversely affect the community's health, coercive public health policies violate human rights, and advancement of human rights and public health reinforce one another.

Thus, in the modern world, public health officials have, for the first time, two fundamental responsibilities to the public: to protect and promote public health, and to protect and promote human rights. Promoting and protecting human rights is inextricably linked with promoting and protecting health, because human rights offers a societal-level framework for identifying and responding to the underlying-societal—determinants of health. Human rights are respected not only for their instrumental value in contributing to public health goals but for themselves, as societal goods of pre-eminent importance. And some of the most relevant founding basis of human rights are the respect for human dignity, solidarity and justice and equity.

Mann, in both his national and international work, conceived of human rights and ethics as centrally important to the work of public health. Consequently, he passionately argued that the primary function of public health is to promote dignity, reduce inequity, and raise living standards for communities everywhere.

The Universal Declaration of Human Rights starts by placing dignity first, "all people are born equal in dignity and rights". Some scholars have argued that dignity does not have a vocabulary, or taxonomy to define dignity violations. Some have gone as far as declaring that dignity is a "useless concept". However, we all know when our dignity is violated or impugned.

Dignity can be defined in several different, but complementary ways, which fall broadly into two categories: these are 'inherent dignity' and 'non-inherent dignity'. Inherent dignity refers to a quality of value or worth belonging equally to every human being; it is permanent, unconditional, indivisible and inviolable. Inherent dignity is related to, and often used interchangeably with, the similar concept of 'intrinsic value' i.e. inviolable worth arising from within each person. Non-inherent dignity (NID) is an acquired and variable condition; it is contingent upon a person's circumstances and behaviour.

As Alasdair MacIntyre has pointed out, moral concepts are not timeless or unchanging and so, the concept of dignity has been used over time, in a variety of contexts with different meanings. But the concept of inherent dignity can be traced from remote times. A conception of unconditional inherent dignity has been developed in both Christianity and Judaism. A theological understanding of dignity continues to be for some people based on the belief that humans are made in the image of God and considered sufficient to ground for the inviolability of human life.

This concept of dignity being connected to human nature is found in the Summa Theologiae by Aquinas and persisted during the Renaissance period, when it began to be associated with freedom and autonomy.

However, there is no doubt that the most important development about dignity were the writings of Immanuel Kant. Kant argued that dignity is grounded in morality and autonomy. The Kantian conception of dignity forms the foundation of the current understanding of inherent dignity used in much of human rights legislation. Kant's conception of inherent dignity did not depend on God in the traditional way, Kant laid the way for a secular understanding of inherent dignity. In his own words *"A rational being belongs to the realm of ends as a member when he gives universal laws in it while also himself subject to those laws. He belongs to it as sovereign when he, as legislating, is subject to the will of no other."*

Following publication of Darwin's Origin of Species in 1859 some people questioned assumptions about our species, and under the influence of Social Darwinism the unique inherent value of humans was rejected and even enabled the advancement of the field of eugenics. After the atrocities of WW2, an emphasis on dignity re-emerged in much of the international legislation and the world returned to the concept of inherent dignity in declaring that all humans were inherently equal and had intrinsic value, and thus that all human lives deserved protection. Thus the United Nations in the UDHR (1948), states in the preamble*, 'recognition of the inherent dignity and of the equal and inalienable rights of all members of the human family*

*is the foundation of freedom, justice and peace in the world"*. Human dignity is now the most widely accepted fundamental moral and legal value, appearing in the constitutions of 157 countries, it is 81 per cent of the total number of sovereign states of the UN.

"Full inherent dignity" is a quality of value or worth belonging equally to every being with full moral status and thus it is indivisible: there are not degrees of dignity, either a being has it or they do not; it cannot be had in part. Full inherent dignity is both a permanent and unconditional quality.

The fundamental premise to the concept of full inherent human dignity is that it is innate to all human beings; in this regard it can be thought to amount to (at least part of) what it is to be human. It implies that human dignity comes from belonging to a natural kind, whose members have full moral status, such as humankind and determines the requirement that one be treated with deference and respect, irrespective of circumstances, no matter his age, race, sex, cognitive autonomy, contribution to society or the well-being of others. Each life is unique and irreplaceable, human beings should be treated as an end in themselves and not as a means to something else. Just because they are human they value in itself and their inherent value does not depend on anything else, that is the foundation of the Kantian imperative *"Act in such a way that you treat humanity, whether in your own person or in the person of another, always at the same time as an end and never simply as a means"*. Therefore, inherent human dignity has normative implications grounding fundamental human rights, such as the rights to freedom and equality, and the right to live free from cruel and degrading treatment.

The Italian philosopher Corrado Viafora has advocated for the incorporation of human dignity in ethically driven clinical case management and some scholars have applied his concepts to public health. According to Viafora *"In dealing with issues of commutative and distributive justice, clinical ethics extends beyond its specific competence and steps, respectively, into the field of politics and in the field of law."* The recognition of "intrinsic value" based on the recognition of human dignity, is thus the ultimate criterion for distinguishing amongst moral and immoral practices."

A reference to human dignity has been incorporated into the 1997 Oviedo Convention of the Council of Europe and also into the Charter of Fundamental Rights of the EU in 2000, establishing a common ethico-legal foundation for all 28 societies of the EU Member States. According to Lucy Michael *"(human) dignity matters, because it forms the foundation of civilized society."*

As such, human dignity understood in a public health ethical context should have the potential to function as a common basis for justifying legislative endeavors through ethical judgments in a pluralistic society, as being the value that fosters cultural understanding to grant citizens a dignified life and above all to guarantee the unconditional worth of every human being.

But we human beings not only have dignity in common. In *Dependent Rational Animals*, Alasdair MacIntyre remarks that the philosophical tradition has neglected the importance of need or dependence as an aspect of human life. Especially since the Enlightenment, the nature of human beings has been focused only on their freedom, rationality, or autonomy. But some areas of philosophy (mainly but not exclusively amongst Christian thinkers) have always understood the human situation as one of dignity and dependence: a dignity that is common to all human beings but equally a neediness that is common to all. While some individuals may think themselves independent and even self-made or self-sufficient, we are all dependent not only physically but also culturally and intellectually, on a wider community and a longer tradition. All human beings are more or less dependent on one another and accounts of human dignity should not seek to obscure this fact.

In the last two decades, several outbreaks of viral diseases that created a new global public health threat. It has been argued there is an urgent necessity of intense and transnationally coordinated preparation of public health systems to combat those pandemic threats. Consequently, transnational collaborations are considered crucial to effective exchange of genomic, clinical, and epidemiologic data leading to the development of vaccines and treatment protocols and the identification of popu-

lation-based strategies. It is well known by experts in the epidemiological field that a timely preventive preparation of healthcare systems can be effective in saving dozens of thousands of lives. Avoiding this "hidden death threat" is first and foremost a task of establishing a sustainable health prevention policy that cares for its citizens on a population basis and on grounds of human dignity, having as its first and indeclinable objective to protect the life of each individual citizen.

Sometimes human beings can be morally responsible for the outcomes of not man-made disasters, blaming disgrace does not erase such responsibility ascriptions that will most often be grounded in culpable negligence, including the culpable failure to prevent the side-effects of our actions or omissions. Denialism (as defined by Hoofnagle & Hoofnagle) is not a minor component of these wrong policies. HIV does not cause AIDS, the world was created in 4004 BCE, smoking does not cause cancer, there were no gas chambers in Auschwitz and climate change has nothing to do with man-made CO2 emissions.

The consequences of policies based on views such as these can be fatal. Thabo Mbeki's denial that that HIV caused AIDS prevented thousands of HIV positive mothers in South Africa from receiving anti-retrovirals so that they, unnecessarily, transmitted the disease to their children. Denialism, defined as the employment of rhetorical arguments to give the appearance of legitimate debate where there is none, is driven by a range of motivations, from greed, lured by some big corporations to ideology or faith, causing them to reject anything incompatible with their fundamental beliefs. Whichever the reasons, the potentially fatal consequences of those attitudes make people responsible of contributing to them or using them whichever their purposes. The higher in the hierarchy of decisions about health care policies and decisions, the higher the responsibility.

The application of general ethical principles to public health decisions can be difficult. The mandate of public health has been prevention, and the arena of public health practice has been the community. In situations when the entire community is assumed to be vulnerable and in need of protection, collective interventions are proposed which are mandatory, universal, and passive, to minimize the risks. Public health disasters accelerate and accentuate the vulnerability dimensions of human life.

Since the mission of public health is to achieve the greatest health benefits for the greatest number of people, it draws from the traditions of utilitarianism or consequentialism. The "public health model," has been told, assumes that the appropriate mode of evaluating options is some form of cost-benefit (or cost-effectiveness) calculation across individuals. Public health, according to this view, appears to permit, or even to require, that the most fundamental interests of individuals be sacrificed in order to produce the best overall outcome. But that oversimplification misperceives, that the field of public health is interested in securing the greatest benefits for the most.

The evolution of PHE frameworks signifies turning to the collective values and more specified norms such as utility, evidence based effectiveness, distributive justice and fairness, solidarity and social responsibility, community empowerment and participation, transparency, accountability and trust that some of them can be considered as mid-level principles. In addition to distributive justice, what should be considered in developing a PHE framework is considering the achievement of well-being dimensions adequately signifies developing healthy social structures, promoting individual capabilities, developing ability to reasoning and strengthening autonomy based on the theory of social justice.

Public health and ethics are undeniably bound together. Many people in public health even see the multidisciplinary public health as a moral endeavour: to protect the health of whole populations and to draw special attention to the weaker members of societies.

The national policy agenda of any nation in front of a pandemic is set and resolved by the competitive interplay of special-interest groups, but what claims are privileged, which priorities are defined and which members of the society are going to be given the strongest protection, is an ethical decision made by the policy makers and adhered to (or not) by the general

society.

Ethics in public health cannot turned into concrete measures without taking into consideration the values of the general society as well as that of the particular communities where the public ethical course of action is needed. As Kotalik argues "*every discourse about health care has not only a scientific but also a moral dimension, [pandemic influenza] plans also presuppose certain ethical values, principles, norms, interests and preferences*".

Beyond different moral theories and a not completely ethical framework developed for public health, the guiding principle should be the common agreement about the supreme value of a human life. The quest for dignity is universally accepted and should be a starting point as a guarantee of the respect of human rights. Human rights are shared values. Human rights are our common possession. When abuses are committed against anyone in any society, the dignity of humanity as a whole is compromised. When we abandon efforts to sustain human dignity, we forfeit the essential meaning of being human, and when we hesitate in our commitment to the idea of human rights, we abandon our moral principles.

On those basis, whichever the policies adopted in order to control a pandemic, the responsible policy-makers should be able to rationally demonstrate that preserving human life, any and every human life and preventing premature deaths are their governing principles. Otherwise, the acceptance that in some circumstance human life is worthy sacrificing, would radically change many of the universal ethical assumptions we uphold today from euthanasia to end of life dilemmas, from resource allocation policies to the provision of expensive treatments. Political leaders must give robust ethically grounded reasons for any measure that cannot be indisputably grounded in the values enshrined in the Universal Declaration of Human Rights and above all, the universal precepts that everyone's right to life shall be protected by law and that human dignity is inviolable and must be respected and protected in any circumstance. Just because humanity, which is present in even the lowliest of men, gives each individual a dignity that must be respected by all other individuals, society, and the state. A dignity that cannot be taken away from us ever, not by anyone.

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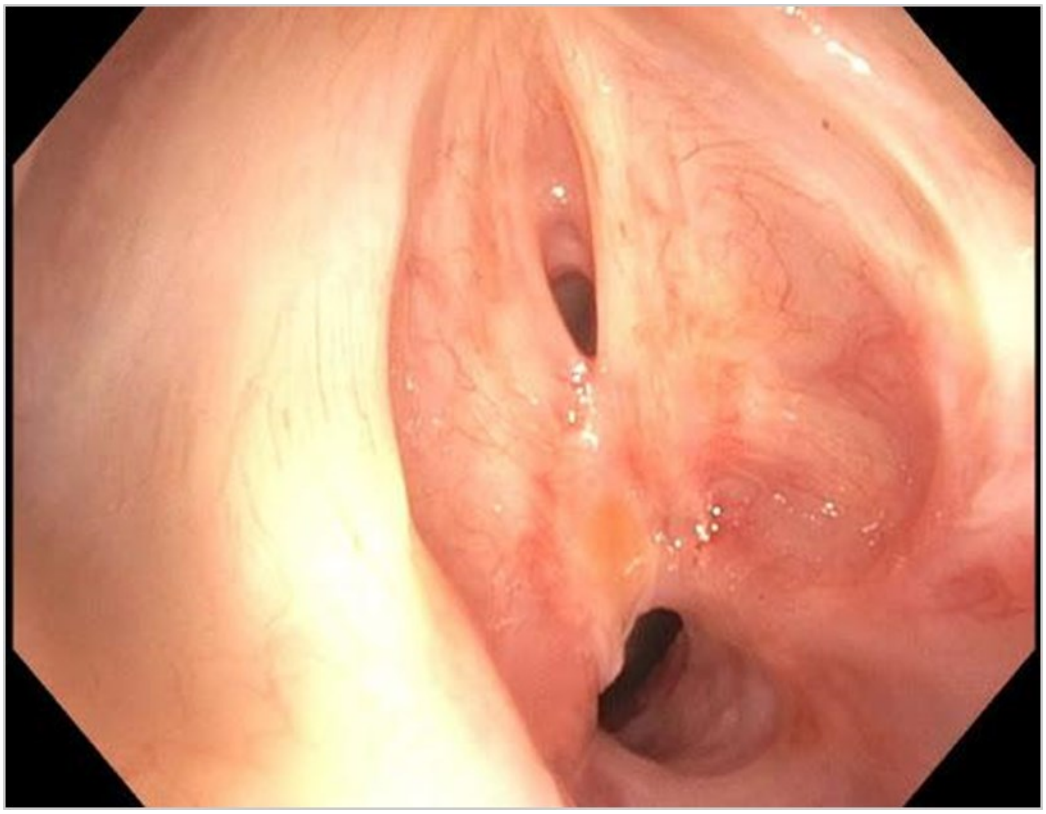
**The views expressed in this article are those of the author (Silvia Quadrelli) and do not necessarily reflect the official positions of the Executive Board or International Board of Regents of the WABIP.*

# Best Image Contest

## Best Image Contest 2020 Recipient (2 of 3)



**Description:** Proximal airway of a 59 year-old female presenting with 3 months of progressive dyspnea following a non-tramautic intubation in the setting of surgical resection of the colon. In this picture, we are visualizing proximal subglottic stenosis that is actually tacking open the true vocal cords (also visualized).

**Submitter**: Dr. Daniel G. Dunlap

*****

This image is 1 of 3 selected among 100+ submissions to our Best Image Contest held in 2019. Please stay tuned to the next Image Contest, opening later this year!

Find the above image and more at the **WABIP Academy Image Library** !


https://www.wabipacademy.com/imagelibrary

# WABIP NEWS

**Biennial Board of Regents Meeting** —We are pleased to announce that the Board of Regents meeting will be held this September in which BOR members will be able to connect via Zoom teleconferencing. The Vice-chair elections shall also take place during this teleconference using anonymous online ballots.

**WCBIP 2026 bids & presentations**—The WABIP has postponed 2026 presentations & voting to WCBIP 2022. In the coming months, we will re-open and accept additional applications for 2026 bids. The Board of Regents shall vote on the 2026 host site and congress president in April 2022 in Marseille, France.

**New member society** - We are pleased to announce that the *Vietnam Respiratory Society* (VNRS) has joined the WABIP. Please join us in welcoming one of the fastest growing respiratory societies in Southeast Asia. VNRS was established in 2014 as a non-profit organization dedicated to respiratory work, community and research in Vietnam. We will be partnering with VNRS executive members Prof.Dr. Ngo Quy Chau & Prof. Giap Vu Van in organizing a bronchoscopy workshop co-sponsored by the WABIP at the VNRS annual congress this November 2020. Society website: http://hoihohapvietnam.org/en

# UPCOMING EVENTS

**11th Bronchoscopy Workshop - SCOPE 2020: Interventional Pulmonology in Lung Cancer (Philippines)**
When: August, 2020
Where: Novotel, Manila, Philippines
Program Director: Ronald A. Fajardo, MD
Program Type: Educational seminar (postgraduate may include physicians in practice and trainees), Hands-on workshop, Conference (didactic lectures)

**21st World Congress for Bronchology and Interventional Pulmonology (WCBIP)**
When: September 24-27, 2020
Where: Shanghai, China
President: Guangfa Wang, MD, PhD
Website: https://www.WCBIP.org

**6th European Congress for Bronchology and Interventional Pulmonology**
When: April 22-24, 2021
Where: Megaron Athens International Conference Centre - Athens, Greece
President: Prof. Grigoris Stratakos
Website: http://www.ecbip2021.org/

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# Research

## Cryobiopsy: Is it worth the risk?

Specimens from transbronchial lung biopsies are usually very small and lack architectural integrity due to crush artifact to diagnose diffuse lung diseases with confidence. Transbronchial Lung Cryobiopsy (TBLC) is a novel, minimally invasive technique for obtaining lung tissue for histopathological assessment in Interstitial Lung Disease (ILD). The major advantage of this procedure is that larger tissue samples with a higher percentage of alveolar tissue can be obtained with fewer crush artifacts and less atelectasis.

The cryosurgical equipment operates by the Joule–Thompson effect, which dictates that a compressed gas released at high flow rapidly expands and creates a very low temperature. The cooling agent (carbon dioxide or nitrous oxide) is applied under high pressure through the central canal of the probe. The gas at the tip suddenly expands due to the difference in pressure (relative to atmospheric pressure), causing a drop in temperature at the tip of the probe (in the tissue of approximately −50°C to −60°C). The probe is cooled for approximately 3 to 6 seconds (larger probe cooled for 7–8 seconds). The frozen tissue attached to the probe's tip is removed by pulling the cryoprobe together with the bronchoscope. The frozen specimen is then thawed in physiological saline and fixed in formalin.

Recently several studies have been published on the feasibility and safety of this technique. The fundamental question regarding this technique remains the balance between the risk of complications and the benefit of getting a better sample with a higher yield for diagnosis.

A prospective, multicenter, diagnostic accuracy study (COLDICE) (1) investigated diagnostic concordance between TBLC and Surgical Lung Biopsy (SLB)- the gold standard, across nine Australian hospitals. A multidisciplinary team of physicians decided if the patient needed a lung biopsy to establish a definitive diagnosis. The patients were then referred for a sequential TBLC and SLB under one procedural setup. Pathologists were blinded as to the nature of the procedure performed to obtain the samples. A multidisciplinary team of physicians and radiologists then evaluated the pathological report in a blinded fashion with the clinical and radiographic information to render the final diagnosis. Co-primary endpoints were the agreement of histopathological features in TBLC and SLB for patterns of definite or probable usual interstitial pneumonia (UIP), indeterminate for UIP, and alternative diagnosis; and for the agreement of consensus clinical diagnosis using TBLC and SLB at Multi-Disciplinary Discussion (MDD).

Sixty-five patients (31 [48%] men, 34 [52%] women; TBLC (7·1 mm, SD 1·9) and SLB (46·5 mm, 14·9) underwent lung biopsies. Samples were taken from two separate ipsilateral lobes. Histopathological agreement between TBLC and SLB was 70·8%, and the diagnostic agreement at MDD was 76·9%. For TBLC with high or definite diagnostic confidence at MDD (39 [60%] of 65 cases), 37 (95%) were concordant with SLB diagnoses. In the 26 (40%) of 65 cases with low-confidence or unclassifiable TBLC diagnoses, SLB reclassified six (23%) to alternative high-confidence or definite MDD diagnoses. Mild-moderate airway bleeding occurred in 14 (22%) patients due to TBLC. The 90-day mortality was 2% (one of 65 patients), following acute exacerbation of idiopathic pulmonary fibrosis.

A large metanalysis published in 2017 (2) compared the TLBC with Video-Assisted Thoracoscopic Surgery (VATS) which revealed that TBLC pooled diagnostic yield was 83.7% (76.9-88.8%), pooled sensitivity was 87% (85-89%), and a pooled specificity was 57% (40-73%). In contrast, VATS pooled diagnostic yield was 92.7% (87.6-95.8%), pooled sensitivity was 91.0% (89-92%), and pooled specificity was 58% (31-81%). The incidence of moderate to severe endobronchial bleeding after TBLC and of post-procedural pneumothorax was 4.9% (2.2-10.7%) and 9.5% (5.9-14.9%), respectively. This metanalysis shows that the diagnostic yield of TBLC is significantly lower than the VATS. However, the risk of potential procedural complications, such as pneumothorax and moderate to severe bleeding, need to be weighed in when considering this procedure.

Another study (3) looking at the complications of TBLC demonstrated that out of 257 TBLCs analyzed, complications were observed in 15.2% of patients, and only 5.4% of all patients required hospital admission on the day of the procedure. Hemorrhage was the most frequent complication. In the 30 and 90 days following the TBLC, rates of readmission were 1.3% and 3.5%. No outpatients died in the first 30 days. The 30- and 90-day mortality rates were 0.37% and 0.78%, respectively, but none of the deaths were linked to the TBLC procedure.

In view of evolving experience and data, TBLC should be considered a specialized procedure that should be offered in centers with expertise and resources to perform the procedure safely. I refer readers to the following recommendations from the American College of Chest Physician's Guidelines, 2020 (4).

- at least two different sites (either different segments in the same lobe or different lobes should be biopsied to ensure ample tissue acquisition
- the biopsy should be performed with the tip of the cryoprobe located 1 cm from the pleura
- fluoroscopy should be used
- a bronchial blocker either through an endotracheal tube or rigid bronchoscope should be utilized
- a small cryoprobe (1.9 mm) rather than a larger cryoprobe (2.4 mm) should be used

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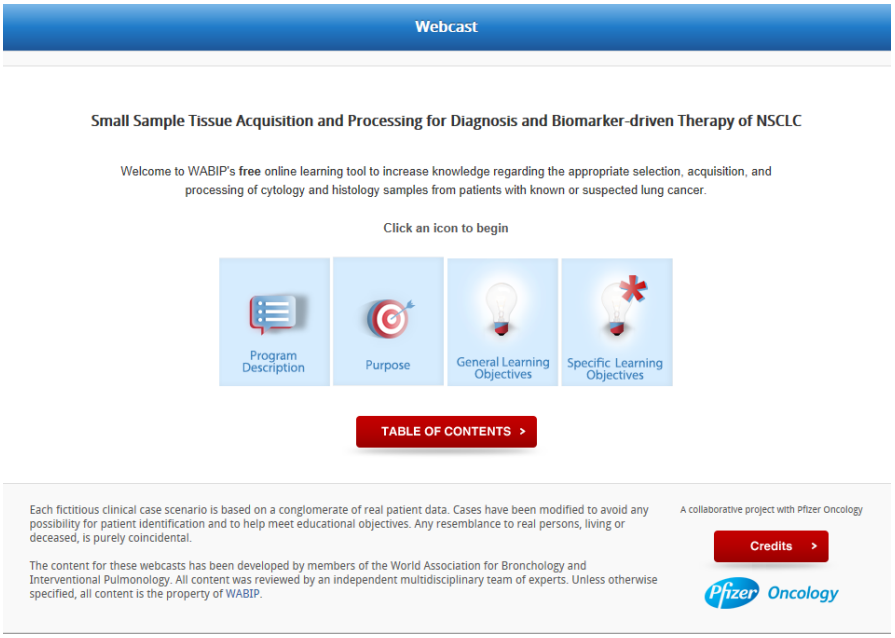
## WABIP ACADEMY- WEBCASTS

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**




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

# Links

| | |
|---|---|
| www.bronchology.com | Home of the Journal of Bronchology |
| www.bronchoscopy.org | International educational website for bronchoscopy training with u-tube and facebook interfaces, numerous teachiing videos, and step by step testing and assess ment tools |
| www.aabronchology.org | American Association for Bronchology and I nterventional Pulmonology (AABIP) |
| www.eabip.org | European Association for Bronchology and Interventional Pulmonology |
| www.chestnet.org | Interventional Chest/Diagnostic Procedures (IC/DP) NetWork |
| www.thoracic.org | American Thoracic Society |
| www.ctsnet.org | The leading online resource of educational and scientific research information for cardiothoracic surgeons. |
| www.jrs.or.jp | The Japanese Respirology Society |
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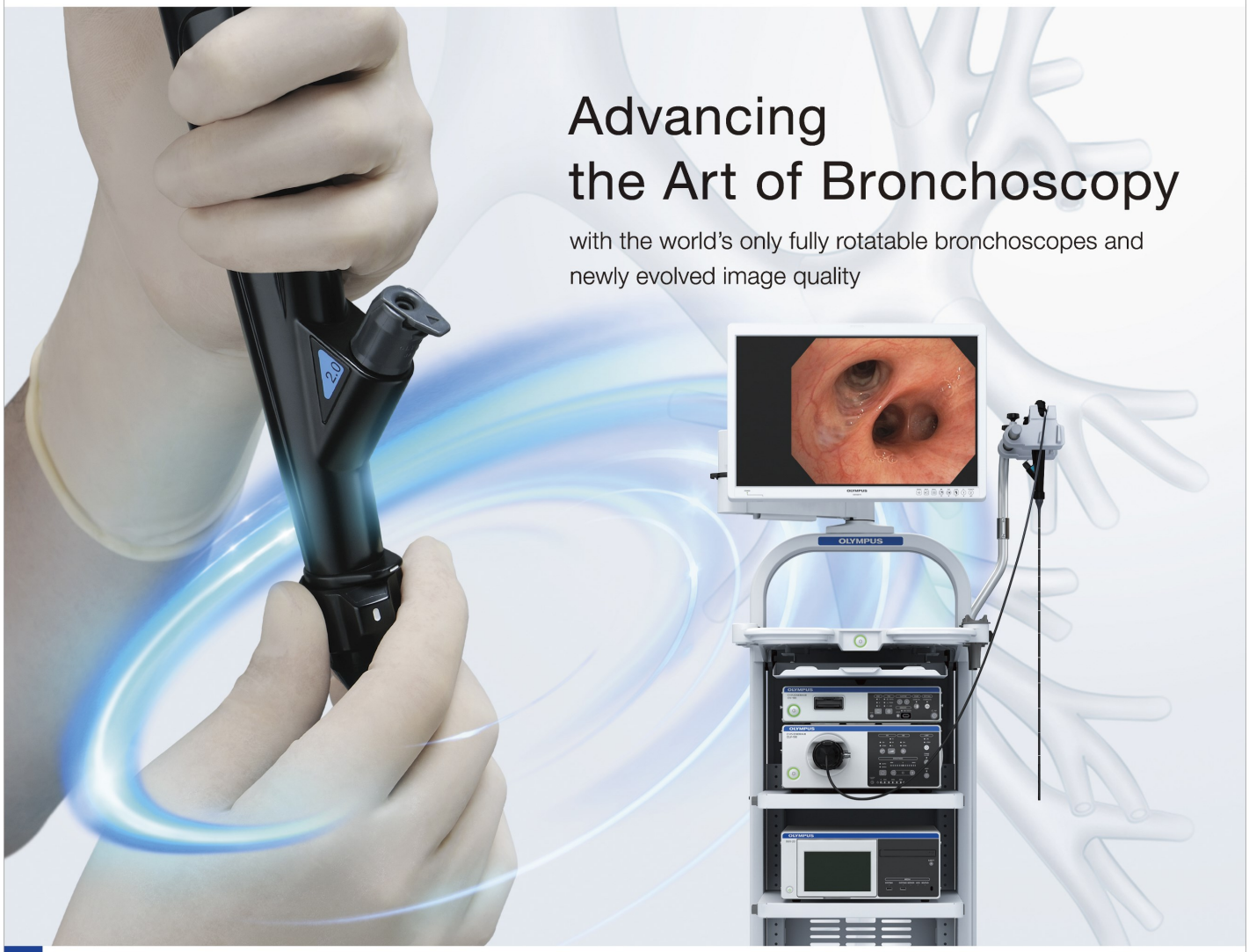


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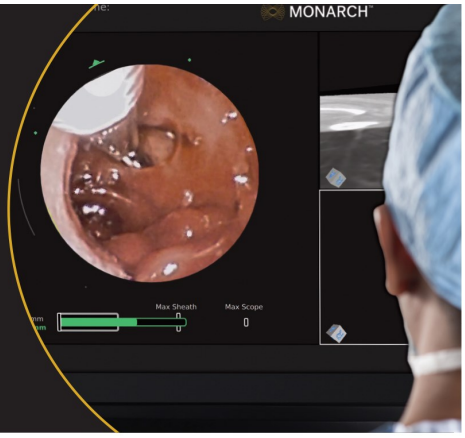



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1. Chen AC, Pastis NJ, Mahajan A, et al. Multicenter, prospective pilot and feasibility study of robotic-assisted bronchoscopy for peripheral pulmonary lesions. Chest. 2019;156(4), Supplement, Pages A2260–A2261.

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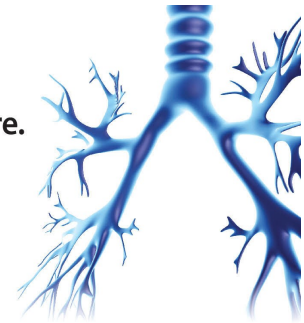

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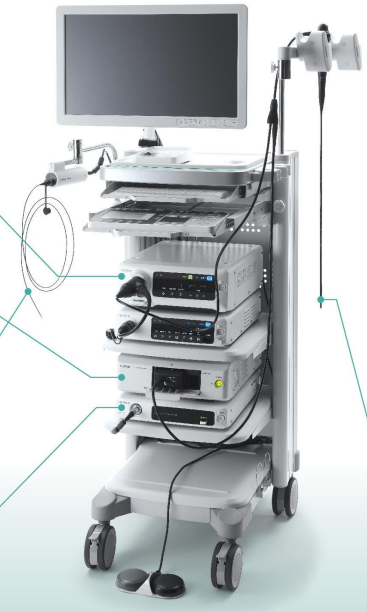

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