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Opinion/Editorial

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The Role of ROSE during EBUS-TBNA – Does it make a difference?

Endobronchial ultrasound guided transbronchial needle aspiration (EBUS-TBNA) has emerged as a novel technology in our field for the pathological diagnosis of mediastinal/hilar lymph nodes as well as accessible lesions in the lung. The rapid uptake of this technology may be due to the fact that it can be done in a minimally invasive way under local anesthetic, which bronchoscopists are used to doing. More importantly, the real-time ultrasound guidance during TBNA, allowing the bronchoscopist to visualize the needle within the lesion, has increased the diagnostic yield significantly compared to conventional TBNA. Rapid on-site evaluation (ROSE) of cytological specimens obtained by EBUS-TBNA is typically performed by the cytopathologist. ROSE allows rapid intraprocedural assessment of the specimens. Immediate feedback of the results of the biopsy can guide the bronchoscopist during EBUS-TBNA. A positive result may eliminate additional biopsies whereas negative results may direct sampling of other lymph nodes. Inadequate sampling identified on ROSE can direct bronchoscopists to repeat the biopsy or change the method of biopsy. In an ideal world, all EBUS-TBNA procedures can be done with a cytopathologist in the bronchoscopy suite for ROSE. However, not all institutions have the luxury of having ROSE. There have been debates in terms of the role of ROSE during EBUS-TBNA. With such a high diagnostic yield, does ROSE add anything to EBUS-TBNA?

Several studies have addressed this question. One prospective randomized controlled trial randomized 120 patients with mediastinal adenopathy and high suspicion of lung cancer to EBUS-TBNA with or without ROSE (1). The study showed no differences in the diagnostic accuracy between the two groups (89% and 89%, respectively), but the mean puncture number was significantly lower in the ROSE group (2.2 vs 3.1 puncture, $p<0.001$) and need for additional staging and diagnostic procedure was reduced in the ROSE group (11% of patients in ROSE vs 57% in patients without ROSE, $p<0.001$). Two retrospective studies comparing the role of ROSE vs no ROSE during EBUS-TBNA showed that there were no significant differences in the diagnostic yield (2, 3). The guideline for acquisition and preparation of TBNA specimens of patients with lung cancer published by the WABIP Task Force also concluded that ROSE does not increase the diagnostic yield of EBUS-TBNA and that molecular analysis can be performed on the majority of cytological samples obtained by EBUS-TBNA, but largely depends on the absolute number of tumor cells and percentage of tumor cells present in the material (4).

Recently, a randomized trial of EBUS-TBNA with and without ROSE for lung cancer genotyping was published (5). This is the first study looking at the influence of ROSE on the yield EBUS-TBNA for multigene molecular analysis of lung cancer samples (EGFR and KRAS testing, followed by ALK testing for tumors with EGFR and KRAS wild-type status). Complete genotyping was achieved in 90.8% in the ROSE arm vs 80.3% in the non-ROSE arm ($p=0.09$). The patients in the ROSE arm were less likely to have samples that could only be used for pathologic diagnosis due to minimal tumor burden (0 vs 6, $p=0,05$) and more likely to have the procedure terminated after a single biopsy site (58.9% vs 44.1%, $p=0.01$). These results support previous studies and guidelines on the role of ROSE during EBUS-TBNA. From a cost perspective, an interesting study analyzed the laboratory resource utilization and patient care with the use of ROSE during EBUS-TBNA (6). A matched case-controlled EBUS-TBNA cohort of 340 patients for ROSE and non-ROSE were evaluated. ROSE was associated with reduction in the number of sites biopsied (33% reduction) and 30% decrease in total slides which had a significant impact on the cytopathology laboratory resource utilization.

Although there are still debates regarding the utilization of ROSE during EBUS-TBNA, it clearly provides the opportunity to adjust sampling methods or sampling sites according to the results obtained. The benefits of direct communication between the clinician and cytopathologist and the advantage of on-site triage of specimens for ancillary studies are self-evident. What has not been published and difficult to assess is the role of immediate feedback for teaching purposes, thus allowing the bronchoscopist to learn from each pass to improve their skills. I believe this is invaluable which may be difficult to prove in studies. If available, I believe ROSE should be utilized during EBUS-TBNA in a selective manner.

Editor in Chief
Kazuhiro Yasufuku

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Technology Corner

Technology corner: Tunneled Pleural Catheters for malignant pleural effusions

Introduction: A significant number of patients suffering from cancer develop pleural effusions, which may recur, cause symptoms and require palliation. Indwelling tunneled pleural catheters (TPCs) are now recommended by guidelines as a less invasive and potentially more cost-effective alternative to talc pleurodesis. An understanding of the differences in the commercially available indwelling tunneled pleural catheter kits is relevant for the operators involved in malignant pleural effusion (MPE) management.

Background: In the US, the commonly used TPCs mainly vary in the content of the kit, actual catheter design, size, locking mechanisms, control of fluid flow and drainage system (Table) (1-3). The flow control apparatus is relevant for systems that use a vacuum bottle for draining fluid as they allow patients or caregivers to reduce the discomfort during drainage by adjusting fluid flow velocity. All kits are supplied with a comprehensive list of accessories, including drapes, needles and dressings. The CareFusion kits may contain lidocaine, which is very convenient when the procedure is performed in the clinic, on an outpatient basis (1). Rocket Medical offers sets with plastic and metallic tunnellers as well as a smaller, simplified insertion set designed to be used post thoracoscopy (2). The Bard and Carefusion kits are supplied with a stylet that decreases the leakage of fluid during insertion and potentially facilitates insertion by stiffening the catheter (1, 3). For the CareFusion supplemental kit, the stylet also makes the catheter more rigid for ease of insertion into the valved introducer (1). The Bard system has a low vacuum siphon-activating pump, which makes it simple to initiate drainage and does not lose vacuum (3). In general, the technique of placement is similar but minor differences exist depending on the individual kit. For instance, for the Bard system, it is recommended that the catheter is flushed through the Y connector to hydrate the stylet and that the catheter is soaked in saline prior to insertion. To date, however, there is no data to prove that a distinct TPC offers better symptom relief or is safer than the other systems, although the drainage speed seems to vary among the available systems (3). Familiarity, availability and costs continue to impact operators' selection of a particular TPC.

Clinical applications: Indwelling TPCs are commonly used tools for managing symptomatic, recurrent MPEs. TPCs facilitate fluid drainage and provide symptom control in an ambulatory setting. Both pleurodesis and TPCs offer comparable improvement in symptom and quality-of-life measurements when used as first-line management of MPE, but TPCs may be more cost effective, especially in patients with poor performance status. Guidelines from the American College of Chest Physicians recommend TPCs or chemical pleurodesis in patients with a symptomatic recurrent MPE with documented re-expandable lung (Grade 1C) (4). In patients with a symptomatic recurrent MPE with lung trapping, TPCs are recommended for symptomatic relief and improvement in quality of life (Grade 1C) (4). Similarly, the British Thoracic Society guidelines offer a grade B recommendation for TPC placement as "effective in controlling recurrent and symptomatic malignant effusions in select patients." More recently, clinical outcomes related to the placement of TPCs for recurrent pleural effusion in patients with underlying hematologic malignancies have been evaluated. An overall 7.7% infection risk and 2.2% mortality were identified, despite the significant immunosuppression and pancytopenia often present in this population (5). Indeed, infectious complications remain a relatively common and concerning complication of TPC placement, with rates ranging from 4% to 25% (6-8). Newer TPC models may reduce this complication. Ongoing studies are evaluating the safety and efficacy of the silver nitrate-coated TPCs. Furthermore, TPC-related symptomatic loculations develop in up to 14% of patients, although the use of intrapleural fibrinolytic therapy can improve pleural fluid drainage and symptoms in selected patients with TPC and symptomatic loculations, but it carries a small risk of pleural bleeding (9).

Conclusions: Given the different design, size, maneuverability, drainage systems and available accessories, the available TPCs are likely not equal in terms of user friendliness and costs. In terms of clinical outcomes, a fair comparison between different catheters in the same patient population is not possible at this time as there are no data. A closer collaboration between parties involved (i.e. manufacturers, engineers, and proceduralists) may be helpful in designing future catheters that fulfill the characteristics required for a specific patient populations especially in regards to catheter related infections and obstruction.

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Table

Manufacturer	Catheter gauge/ material	Drainage system	Comments
CareFusion	15.5 Fr silicone	500 ml and 1000 ml vacuum	Includes a stylet to facilitate insertion/catheter orientation Contains three 5 ml ampoules of 1% lidocaine hydrochloride
Rocket Medical	16 Fr silicone	600 ml vacuum bottles	Simplified VATS insertion kit available Sets with plastic and metallic tunnellers Contains attachable valves
Bard	15.5 Fr silicone	1000 ml compact drainage bag	Low vacuum activating pump Distal and proximal trimmable catheter Includes a stylet with HydroGlide coating Contains attachable valves

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Managing complications from indwelling tunneled pleural catheters

Introduction

Indwelling tunneled pleural catheters (IPC) are considered one of the first line management alternatives for patients with dyspnea related to recurrent malignant pleural effusion. As is true for all medical devices, IPC are subject to post-implantation failures and complications. Timely recognition and treatment of most of these complications might prevent hospital admissions, additional interventions, and worsening quality of life.

The safety profile of IPC is acceptable and life-threatening complications are rare. Incidence of complications varies from 8% to 20% depending on the definitions used by investigators, and most of complications seem to occur within one month of IPC placement.

List of complications and recommended management

During IPC placement: *Bleeding* causing hemodynamic instability, is a rare complication and its true incidence is unknown, but likely less than 1 in 1000 IPC placements. Significant bleeding occurs in 0.4% of the cases. Bleeding during IPC placement is generally mild and subsides with application of local pressure. Significant bleeding can be prevented by identifying patients with risk factors before the procedure, including thrombocytopenia (especially if platelet count is less than 30K), use of anticoagulant or antiplatelet agents, and coagulation disorders (including severe liver and renal impairment). It is our practice to stop antiplatelet agents, except for aspirin that is usually continued, at least five days prior to intervention, re-starting them the next day after catheter insertion. Platelet counts are maintained at 30K or higher during catheter placement and for 48 hours after procedure. Anticoagulation is stopped, waiting enough time to allow for a normal coagulation function. Anticoagulants will be re-started the next day after IPC placement. Bleeding during chronic pleural fluid (PF) drainage using IPC is also unusual and seldom requires additional intervention. It might be caused by local trauma on the pleura or malignant pleural implants during the evacuation maneuver using negative pressure. In the rare event a hemothorax occurs, IPC can successfully be used to drain it, while establishing all needed supportive management.

The incidence of *Pneumothorax* is 5% to 10%. Most of the pneumothoraces are identified immediately after IPC placement and could be the result of a non-expandable lung or room air entering the pleural cavity during IPC placement. Additional interventions are rarely needed, and patients are instructed to start drainage the following day. If there is a concern that the pneumothorax can worsen and/or cause deterioration of patient's respiratory status, overnight hospital observation is warranted and repeat chest x-rays at 4 and 12 hours after intervention are warranted. Pneumothorax caused by local damage of the visceral pleura during chronic PF drainage using negative pressure is rare, and generally does not require additional intervention, but only continuation of regular PF drainage. IPC can be connected preferably to a wet close drainage system to relieve a symptomatic or tension pneumothorax and to evaluate the amount of air leak in the subsequent days. Application of suction to a close drainage system is in general discouraged unless symptoms are not relieved, since it could perpetuate air leaks. Additional interventions (chest tubes, placement of intrabronchial valves or thoracotomy) are very seldom needed.

Kinked IPC is reported in 0.4% of the cases. Attention to proper catheter insertion technique is the only way to avoid this problem. It generally occurs when IPC is not sitting properly on the tunnel tract or if a suture is accidentally placed around the catheter.

Catheter related infections: Infection is the most common long-term risk after IPC placement, and occurs in up to 25% of the cases in a single publication. However most of the studies report an incidence below 10%. Our group divides this complication into *local infection* and *empyema or systemic infection*. Patients with *local infection* (cellulitis) present without fever or symptoms of systemic infection. The IPC insertion site and/or tunnel tract are erythematous and indurated, on occasions with tenderness. Purulent secretion at the catheter exit site can be observed, and samples are obtained for gram stain and culture if that is the case. Empiric oral antibiotic treatment (10-15 days) for Staphylococcus aureus (MRSA) is started and adjusted according to clinical response and culture results. Patients are clinically evaluated twice during the first week and then weekly for a month. Progression of infection is unusual and removal of IPC is rarely needed.

Patients with *empyema* or *systemic infection* present with fever, rigors or other clinical evidence of systemic inflammatory response syndrome. Drained PF might be purulent, but on occasions it is clear and a diagnostic thoracentesis is recommended to prove infection of the pleural space in these situations. PF drained using IPC should not be submitted for microbiology studies, since false positive results are com-

mon due to intraluminal catheter bacterial colonization. Drainage of fluid is paramount, and it can be accomplished with IPC. Evaluation of residual fluid with CT chest and thoracic ultrasound is needed, and drainage of residual PF should be accomplished either with chest tubes or thoracentesis. Thoracoscopy or thoracotomy are seldom required, and risk and benefits of these interventions should be carefully considered in patients with advanced malignant disease. Due to increased risk of bleeding, use of intrapleural fibrinolytic agents with or without mucolytic agents is not routinely recommended on empyemas occurring in patients with pleural metastatic disease. Empiric intravenous antibiotics to cover MRSA should be started and modified according to culture results and clinical response. Antibiotic treatment is continued for 2 to 4 weeks following defervescence. IPC can often be removed after completing antibiotic treatment, and pleurodesis is often achieved.

Mechanical complications: *Obstruction or clogging of IPC* has been reported in 3 to 9.1% of patients. It is important to correctly identify patients with this complication. Patients presenting with sudden reduction of PF drainage, having significant residual fluid identified by ultrasound or computed tomography on areas expected to be drained by a properly placed IPC, are very likely to have an obstructed catheter. We recommend to initially flush the IPC with 20 cc of saline solution. If drainage of PF following this maneuver remains below 150 cc, then we proceed with instillation of 4 mg of tPA diluted on 20 cc of saline solution with a dwell time of one hour. A second 4 mg tPA dose with a dwell time of 12-24 hours is used if PF drainage after the first dose remains below 150 cc. Chest x-ray PA and lateral is requested at any time more than a 150 cc of PF are obtained, to evaluate and document successful removal of residual PF. If drainage of PF remains below 150 cc after second tPA dose, treatment is considered a failure, and additional procedures to remove PF are considered to alleviate patients dyspnea. Restoration of IPC flow with tPA is reported in about 80% of patients, with a reocclusion incidence of 18% to 33%.
Leakage around catheter is also rare (less than 2% incidence) occurring most often immediately after insertion and persisting for a few days. Increasing frequency of drainage using IPC generally resolves the problem. Leakage presenting several days after IPC placement should prompt an evaluation for a catheter related infection.
Dislodge catheter occurs in up to 6% of patients after catheter insertion. Making small incisions (0.5 cm), intentionally forcing the catheter polyester cuff into the tunnel and leaving an anchoring suture for two weeks, are our recommendations to prevent this complication. Patients presenting with dislodged catheters after fibrous adhesions have formed around the polyester cuff should also prompt an evaluation for a catheter related infection.

Pain: During the first 48 hours after IPC placement some degree of pain is expected related to catheter insertion. If needed, acetaminophen or NSAIDs can be prescribed to alleviate discomfort. Also, some mild to moderate pleurisy is expected at the end of the drainage procedure. Its cause is not well established but it might be related to shearing forces over the parietal pleura caused by PF drainage. Pleurisy improves rapidly after drainage is stopped, lasting less than thirty minutes. On rare occasion, pleuritic pain might be intense. Premedication twenty to thirty minutes before PF drainage with acetaminophen, NSAID or oral narcotics is recommended in these situations. Additional maneuvers that could help decrease pleurisy include pinching or kinking the tubing system to decrease PF flow and/or stopping drainage after reaching a certain amount of fluid before pain occurs. Persistent pain caused by nerve or periosteum damage and requiring removal of IPC has been reported in 0.4% of patients.

Tumor seeding of insertion tract: It might occur with any tumor type, but over 90% of the cases are patients with mesothelioma. The reported incidence of this complication is as low as 0.4% but was 10% in one case series. This complication develops two months or more after IPC insertion. Some groups advocated for prophylactic radiation therapy within 2 weeks after the procedure, but there is not enough evidence to support this approach. Once catheter tract metastases developed, palliative radiation is safe and effective in controlling pain and local disease progression.

Quality Control: Dedicated outpatient clinics to follow up patients after IPC insertion might help to promptly identified and treat complications related to catheter placement and use. Additionally, systematic data collection from these encounters will help implementing institutional quality assessment/quality improvement programs to improve patient care. Our group follows up patients 2 weeks after IPC insertion (suture removal is done at this time), and then every month for as long as the catheter is in place. Patients are evaluated clinically and only a chest x-ray PA and lateral is requested. Patients are also encouraged to contact our clinic if they have questions or concerns related to the IPC. Clear guidelines are needed to know when IPC can be removed due to pleurodesis, avoiding prolonged unnecessary IPC dwell time. Once daily catheter drainage is 150 cc or less for three consecutive days, our patients are instructed to drain PF every other day. While draining every other day, if there is less than 150 cc of fluid in three consecutive occasions, patients are instructed to contact our clinic for evaluation of IPC removal.
Finally, placement of IPC using maximal sterile barrier precautions, on a standardized location, and with the assistance of ancillary personnel familiarized with catheter placement techniques, might decrease the incidence of catheter related infections.

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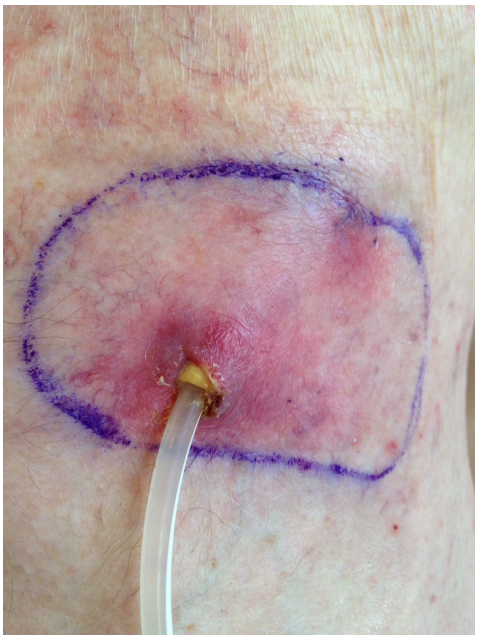

Figure 1: Local infection. Cellulitis affecting catheter exit site and tunnel. Empiric treatment with TMP-SMX was prescribed. Culture of exit site secretion grew S. aureus.

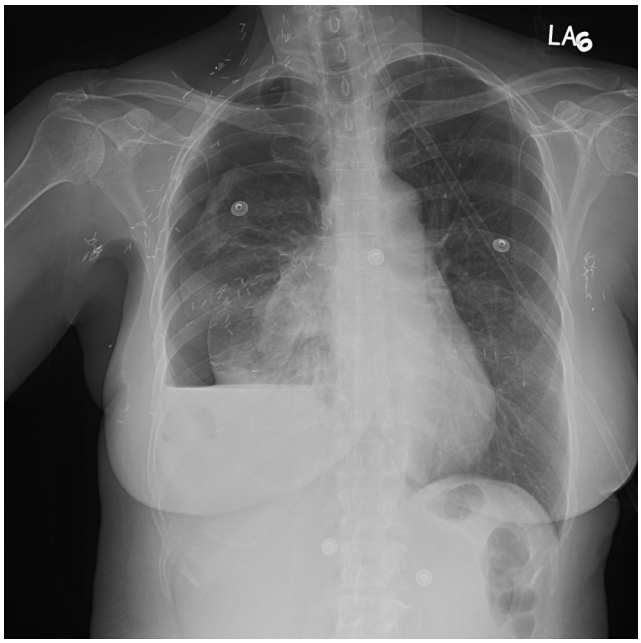

Figure 2a: Hydropneumothorax on breast cancer patient with non-expandable lung post drainage of 1800 cc of pleural fluid. Patient had improvement of dyspnea post-procedure. There were no clinical or radiographic evidence of tension pneumothorax.

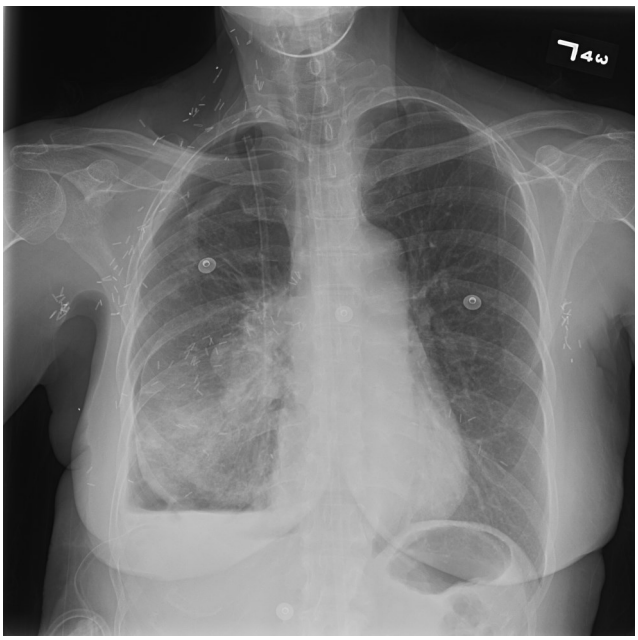

Figure 2b: Chest x-ray after IPC placement and drainage of 650 cc of fluid with air. Drainage was stopped due to chest pressure. IPC insertion was done 24 hours after therapeutic thoracentesis. Daily drainage of fluid using IPC was continued.

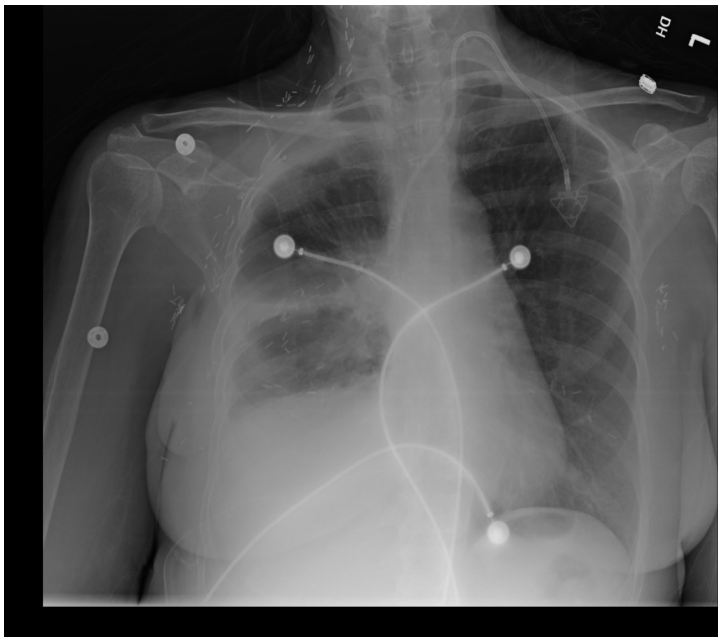

Figure 2c: Chest x-ray four weeks after IPC insertion. Resolution of hydropneumothorax with repositioning of the right hemidiaphragm and minimal residual pleural fluid.

News of Humanitarian Activities

In times of natural and man-made disasters, physicians and other healthcare professionals gather together to help people in need. The same occurs every day in underserved countries, as healthcare providers risk their lives, and their livelihoods, to assist distressed populations. Usually, the medical specialties most involved in such humanitarian actions come from emergency room, anesthesia, surgery, obstetrics, pediatrics, public health, and family medicine specialties, and it is perhaps unfortunate, for many of the members in the WABIP, that more opportunities might not exist for physicians whose base of practice is interventional pulmonology.

I recently spoke with a friend who is currently working in Switzerland, waiting for her assignment with an international NGO in a far away and dangerous land. Why, I wondered, would she leave her home and her family to live a year in discomfort, putting herself in harm's way, and sacrificing revenue, career, and all the amenities of home? What drives her, and many others, to make such a decision, especially when it is no longer the simple quest for adventure, hunger for experience, or restlessness of youth?

The moral foundation for such an action comes perhaps from one's personal feelings of social justice, responsibility and duty. But also, from a perspective of Levinasian ethics, an understanding that personal responsibility is founded in the irrefutable demand of what Levinas called the *Other*, proposing that we are born into a world of social relationships that we have not chosen and therefore cannot ignore. Others, suggests Levinas, expect something from us throughout each and every moment of our lives. We are, as he puts it, beings-*for*-the-other, bound to certain behaviors that find their source elsewhere than from our internal deliberations about what is ethical behavior, or in other words, about what we *ought* to do to be *good*.

French-Lithuanian philosopher Emmanuel Levinas (1906-1995) suffered the tragic loss of many family members in the *Shoah* and was himself a prisoner of war during World War II. His writings helped explore ethical thinking in the face of many tragedies of the twentieth century, and had a major influence on post-modern philosophers such as Jacques Derrida and Paul Ricoeur. In his two major works, *Totality and Infinity* (1961), and *Otherwise than Being or Beyond Essence* (1974), he suggests that the encounter between the self and the other defines the basis for all human relations, awakening a moral demand for responsibility that cannot be ignored. "*I,"* Levinas writes, "means here I am, answering for everything and for everyone."
This *other* may literally be the person next door, a neighbor, a colleague, a patient, or strangers in a far- away land, and it is, above all, the defenselessness of the other that calls us to be responsible. The widow and the orphan, the homeless, the impoverished or the refugee, are vulnerable not because their suffering is more intense than our own, but because they are marginalized. They exist outside of society, outside of traditional family relationships, and outside of any settings of institutionalized responsibility. This perspective of responsibility contributes, I believe, to the moral foundation that forms the basis for my friend's choice to pursue her humanitarian aid ambitions; to relieve suffering, to combat injustice, and to overcome existential threats that consume the lives of those in need. Levinas puts it well when he writes that "responsibility is what is incumbent on me exclusively, and what humanly, I cannot refuse…I can substitute myself for everyone, but no one can substitute himself for me."

My friend has already had experience witnessing what may be among the highest degrees of pain, vulnerability, and human suffering known to man. Genocide, murder, illness, rape, torture, loss of home, state, and human dignity are common place, in part because more than 85% of war-related casualties today are incurred among civilians. For her, and for others who choose to put themselves in harm's way, the decision for direct engagement suggests, at the least, a subconscious understanding of how this perspective of responsibility clarifies what it is to be human.

*The views expressed in this article are those of the author and do not necessarily reflect the official positions of the Executive Board or International Board of Regents of the WABIP. Dr. Colt has consistently authored the Humanitarian, Education, and BOR News Section of the WABIP Newsletter and is Chair of the WABIP.

Selected Readings:

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(People gathering at local health clinic, Northern Sudan. Photo courtesy H. Colt)

Education and Training

ITEM 1: Bronchoscopy Education Project activity in Asuncion, Paraguay

In August, 2015, Dr. Henri Colt, with Doctors Pedro Garcia Mantilla (certified instructor, Peru), and Patricia Vujacich (Master instructor, Argentina) traveled to Asuncion, Paraguay to assist program director Dr. Domingo Perez (Asuncion, Paraguay) with an *Introduction to Flexible Bronchoscopy Course* and *Faculty Development Program* (Train the Trainers) that included bronchoscopy opinion leaders from Paraguay, Uruguay, and Argentina. Learners listened to didactic lectures and participated in interactive discussions, as well as obtained step-by-step bronchoscopy training using a variety of inanimate models. Simulation scenarios, case-based discussions, checklists, and validated assessment tools were used to monitor progress and achieve competency. This was the very first seminar of its kind in Paraguay, and a great step forward to building a team of certified Bronchoscopy Education Project instructors in that country, who will also be able to assist BEP program development elsewhere in Latin America. Most noteworthy is that as a result of this seminar, Doming Perez, a recognized leader and key bronchoscopy educator in Paraguay, is building special taskforces from among his instructors to develop and implement checklists and protocols pertaining to informed consent and step by step instruction that will dramatically change the impact of bronchoscopic practice in Paraguay.

Figure 1A: Dr. Domingo Perez, conducting an interactive true-false session during the Introduction to Flexible Bronchoscopy course in Asuncion, Paraguay. Domingo is the leader of the Paraguayan bronchology group and Regent for Paraguay in the WABIP International Board of Regents. **Figure 1B**. Dr. Hernan Iannella (Argentina) and Dr. Sergio Cardenas (Paraguay) conducting an informed consent simulation session during the recent Faculty Development Program (Train The Trainers) held in Asuncion.

Figure 2A: Group of educators from Paraguay, Argentina, and Uruguay now graduates from the Bronchoscopy Education Project Train the Trainers program held in Asuncion, Paraguay. **Figure 2B.** More than 20 pulmonologists from Paraguay participated in the Introduction to Flexible Bronchoscopy program co-sponsored by the WABIP, The Paraguayan Pulmonary Society, and Bronchoscopy International.

Education and Training

Item 2: WABIP Academy Publications

Work has almost been completed developing the ***WABIP Literature Library***. This important collection of articles will include selections of papers published in the WABIP's official journals (Respiration, Respirology, and JOBIP, as well as from CHEST and the AJRCCM). Under the leadership of Roberto Casal (with WABIP Literature library co-editors Marcus Kennedy (Ireland), and Marco Solis (Argentina)), the library will continue to grow to include several papers each year that may be accessed through the WABIP website. The Library will "launch" at the World Congress in Florence, where there will also be a key literature session series of lectures. **The WABIP Academy** is designed to assist practitioners and physicians in-training achieve greater competency in all aspects of Bronchoscopy and Interventional Pulmonology, and to support the mission and vision of the World Association for Bronchology.

Figure 3: WABIP Literature Library editor Roberto Casals (Baylor College of Medicine, Houston, TX, USA)

Vision of the WABIP Academy: The Academy includes a variety of educational activities and assessment instruments designed to enhance knowledge and document commitment to advancing the art and science of Bronchology and Interventional Pulmonology. Contents will be organized into a standardized evidence and experience-based curriculum that provides a foundation of knowledge designed to grow as new topics and materials become available**.** Each WABIP Academy activity is led by a Section editor and team of Associate Section Editors who review materials, invite contributions of scientific content, and compose multiple-choice questions as part of an on-line assessment instrument that may be used for CME and EACME accreditation. ***The WABIP Literature Library*** will contain 3-5 pertinent articles from peer reviewed literature (original research papers and review articles) beginning in 2012. Each article will be followed with a short multiple-choice test for Continued Medical Education credit purposes. Furthermore, a Literature session conducted by the section editor and coeditors is now a routine part of each and every WCBIP world congress beginning in Florence, 2016.

Figure 4: Screen shot of webcast page on the new WABIP Academy webpage at www.wabip.com

BOARD OF REGENTS NEWS

ITEM 1: The WABIP is pleased to announce the creation of two new sections of the WABIP. The reason for these sections is to enhance networking and educational opportunities for bronchologists and specialists interested in Pediatric bronchoscopy, and Rare lung, airway, and pleural disorders. If you have a specific interest in either or both of these new sections, please send your name and email to Michael Mendoza mmendoza@wabip.com.

Pediatric Bronchoscopy Section of the WABIP: Almost forty WABIP members have already enrolled in the Pediatric bronchoscopy section chaired by **Dr. Ashkan Moslehi**. Ashkan is an Associate Professor and head of the Pediatric Pulmonology Department at Shiraz University Hospital in Teheran, Iran. He is an experienced interventional pediatric pulmonologist and organizer of various pediatric pulmonology workshops. The Co-chair of the section is **Dr. Praveen Chenna**. Praveen is the IP Fellowship director at the Washington University Hospital in Saint Louis (USA). He has close ties with the children's Hospital there, particularly using EBUS in the pediatric population. He will become Chair of the section after the 2018 World Congress, prior to which a new Co-chair will be elected. The focus of this group will be to network among pediatric bronchoscopists around the world, and incorporate pediatric bronchoscopy topics and training modalities into our diverse programs and congresses.

Figure 1: Dr. Ashkan Moslehi (Chair) and Praveen Chenna (Co-chair) of the news WABIP Pediatric Bronchoscopy section

Rare lung, airway, and pleura disorders Section of the WABIP: The Chair of the rare lung, airway, and pleura disorders section is **Dr. Rakesh Chawla** from India. Rakesh is a Senior Consultant attached to the Rajiv Gandhi Cancer Institute, Jaipur Golden Hospital, and Saroj Superspeciality Hospital in New Delhi, India. He is an experienced workshop organizer and interventional pulmonologist performing dozens of diagnostic and therapeutic airway and pleural procedures. The current Co-chair of the section is **Dr. Kassem Harris**. Kassem is an Assistant Professor of Oncology and Medicine at Roswell Park Cancer Institute in Buffalo, NY USA . His interventional program includes many referrals for rare lung, airway and pleural disorders including those from inflammatory bowel disease, myofibroblastic tumor, and mesothelioma. He will become chair of the section after the 2018 World Congress. There are already more than 60 WABIP members enrolled in the Rare lung, airway, and pleural disorders section. The focus of this group will be to address bronchoscopic procedures, diagnosis, treatment, and the growing field of genetics in rare lung, airway, and pleura disorders.

Figure 2: Dr. Rakesh Chawla (Chair), and Dr. Kassem Harris (Co-chair) of the new WABIP Rare lung, airways, and pleural disorders section

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ITEM 2: The WABIP welcomes more member societies in our growing organization; The Bronchology group of the Israel Pulmonology Society under the leadership of Dr. Amir Abramovich (http://www.ipus.org.il/) and the Iran Medical Society under the leadership of Dr. Ashkan Moslehi (Shiraz University Hospital). The WABIP looks forward to growing membership in these regions of the world, and is honored by the membership of these two new societies!

Figure 2: Dr. Ashkan Moslehi (Iran), and Dr. Amir Abramovich (Israel)

ITEM 3: Bronchoscopy around the world: Argentina and the WABIP

This new item of the WABIP Newsletter is devoted to national bronchology associations and provides a forum for association leaders to describe their bronchology group and the state of bronchoscopy and interventional pulmonology in their regions or countries. The first article for the section is provided by Artemio Garcia (Regent for South American Endoscopy Association), and Silvia Quadrelli (Argentina), who is the Coordinator for the new International Regents Global Activities Program.

Argentina has an estimated population of 43 million. The Association for Respiratory Medicine has a membership of 2500 and the Argentinean Association for Bronchology (AABE), about 300. Bronchoscopy training is included in the curriculum during residency and in University postgraduate Pulmonary Medicine programs. Additionally, the AABE runs an annual Postgraduate Certification Course for specialists in Pulmonary, Intensive Care or Thoracic Surgery, specifically devoted to training in flexible bronchoscopy. It includes didactic lectures and Problem-based learning (PBL) activities, but mainly practical training adhering to Bronchoscopy Education Program techniques and contents with an initial phase of training on inanimate models and no less than 100 supervised bronchoscopies in patients. Checklists and validated assessment tools are used to monitor progress along the trainee's learning curve. There is an additional educational program for training in rigid bronchoscopy for a select number of individuals. While completion of the Postgraduate Course is not a formal requirement to practice bronchoscopy, certification is strongly encouraged by all the major institutions.

Bronchoscopy is performed in every private and public hospital in the major cities and is available all over the Argentinean geography in mid-level complexity institutions. More than 80% of bronchoscopists are pulmonologists. In smaller cities, thoracic surgeons are often in charge of performing bronchoscopy. Interventional bronchoscopy is available in all the major cities, but remote areas of the country usually require transfer to larger institutions. Therapeutic bronchoscopy with dilation, stent placement and electrocautery is available in most of the large cities. A few major institutions are able to provide cryobiopsy, laser resection, bronchial thermoplasty, NBI or placement of bronchial valves.

Main indications for bronchoscopy in Argentina are the investigation of hemoptysis, suspicion of lung cancer and bacteriological analysis. In some geographical areas and selected hospitals, tuberculosis is still a major diagnostic indication. Sedation is routinely performed in private institutions, always with the cooperation of certified anesthesiologists. In public institutions, more than 50% of standard diagnostic procedures are performed under local anesthesia.

The strong support of the WABIP has allowed the Argentinean Association to provide training in bronchoscopy to several countries in South America, and Argentina is a frequent destination for longer training of many South American pulmonologists.

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ITEM 4: 19th WCBIP/WCBE in Florence, Italy from May 8-May 11, 2016.

Whether you are new to our society, or a veteran of our growing organization, Florence offers opportunities to renew friendships, meet colleagues from around the world, share your experiences with others, improve your skills and knowledge of procedures and disease processes, and indulge in a variety of great cultural experiences in the setting of Renaissance Italy. Before the conference, there will be a series of hands-on workshops where you can practice technical applications in new and well established interventional procedures. Skilled and experienced instructors will coach you through airway maneuvers until you gain enough confidence to take these procedures home to your patients. During the conference, there will be didactic lectures, interactive sessions, and expert panel discussions to highlight clinical problems and new scientific findings. There will be keynote lectures and plenty of opportunities to meet with WABIP award recipients, committee chairs, members, and international regents so you can express your needs and tell us more about yourself, your region, and what you would like the WABIP to do for you to enhance your clinical, educational, and research practices.

So join us in Florence for an exciting number of days catching up with old friends, meeting many new ones, enjoying fine Italian hospitality, food, music, and culture in one of the art and sculpture capitals of the world. We look forward to seeing you this spring!

Regents, MARK YOUR CALENDARS- the BOR meeting will be held Sunday, May 8.

Figure 3: Flyer of Florence World Congress

Research

Expanding Horizon : Ultrathin Bronchoscope with Navigation Guidance and Ultrasound Confirmation reaches where bronchoscope has never reached before

Get your Christmas list ready! A recent study from Japan combines multiple modalities to reach the peripheral and small nodules with a high success rate.

Pulmonary Nodules have always been the “bread and butter” for the pulmonologists. It is more true now than ever due to increased interest in lung cancer screening after the publication of National Lung Cancer Screening Trial (NLST) in 2011 (1). The current estimates are for more than 3 million nodules every year in the US as the screening CTs (computed tomography) gain traction. The burden of sampling of these nodules in increasing numbers continues to challenge our skills and efficiency. We have come a long way from fluoroscopy guided Transbronchial and CT/ fluoroscopic guided transthoracic biopsies to avoid unnecessary surgeries in the recent past. In the last decade we have seen the rise of several novel modalities such as Electromagnetic Navigation Bronchoscopy (ENB), radial ultrasound, smaller scopes and recently Trans-Parenchymal Nodule Access (TPNA) (2).

Currently the focus has been on combining the technologies to obtain the highest yield to reach the smaller and more peripheral nodules with minimal complications. The Japanese group of interventional pulmonologists and thoracic surgeons recently showed that in skilled hands and with the right instruments, this is an achievable task (3).

In their study, multiple centers with mostly expert bronchoscopists participated in a prospective randomized trial comparing two different combinations of modalities to biopsy pulmonary nodules in 310 patients.
1. radial EBUS, fluoroscopy, and virtual bronchoscopic navigation guidance using a **3.0-mm** ultrathin bronchoscope (UTB group)
2. radial EBUS **with guide sheath (GS)**, fluoroscopy, and virtual bronchoscopy **using 4.0-mm** thin bronchoscope (TB), (TB-GS group)
The main difference in the two techniques were, in the 2nd method, a larger bronchoscope (4.00 mm) was used that allowed guide sheath use compared to the 1st method in which a smaller bronchoscope (UTB-3.00 mm) was used which did not allow use of a guide sheath due to its smaller working channel (1.5mm) but went further away in to the periphery of the lungs, approximately one more generation of airways.

The study showed a significant improvement in the yield of the combination of UTB (3.00 mm) bronchoscope and no guide sheath vs 4.00 mm bronchoscope and guide sheath, (74% (42% for benign and 81% for malignant lesions) of the UTB group and 59% (36% for benign and 70% for malignant lesions) of the TB-GS group).

Complications including pneumothorax, bleeding, chest pain, and pneumonia occurred in 3% and 5% in the respective groups.
With miniaturization of technologies over the last decade, we have been able to make smaller and more compact instruments such as bronchoscope with excellent functionality and precision. Same is true for ultrasound probes and biopsy instruments. Marriage of such

technologies to improve our ability to reach smaller and peripheral nodules not only allows for minimally invasive methods to sample them but also opens the door for future therapeutic interventions such as ablative therapies for early stage cancers in patients who are otherwise poor surgical candidates.

References
1. Aberle DR et al. N Engl J Med. 2011; 365(5):395-409.
2. Herth FJ et al. Thorax 2015; 70:326–332
3. Oki M et al. Am J Respir Crit Care Med 2015; 192:468–476

Figure 1: (A) The 3.0-mm ultrathin bronchoscope with a 1.7-mm working channel (left), and the 4.0-mm thin bronchoscope with a 2.0-mm working channel (right).

Figure 2: A 3.0-mm ultrathin bronchoscope with a 1.4-mm ultrasonic probe (left), and a 4.0-mm bronchoscope with a 1.95-mm guide sheath and a 1.4-mm ultrasonic probe (right).

Images courtesy of Dr. Masahide Oki

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
sites.google.com/site/asendoscopiarespiratoria/	Asociación Sudamericana de Endoscopía Respiratoria

NEW 5 YEAR DATA

Established long-term effectiveness and safety

Newly published data confirm Bronchial Thermoplasty (BT), delivered by the Alair™ System, as a safe and minimally invasive procedure that provides a long-term reduction in asthma exacerbations for patients with severe asthma.

Fewer respiratory-related emergency room visits

- **84% reduction in emergency room visits** for respiratory symptoms at 1 year compared with sham-controlled patients, with reduction maintained out to 5 years[1,2]

Fewer exacerbations, with effectiveness maintained out to 5 years

- **32% decrease in severe asthma exacerbations** (requiring systemic corticosteroids) at 1 year compared with sham-controlled patients, with reduction maintained out to 5 years[1,2]

  —The decrease in severe exacerbations over 5 years included a substantial reduction in the use of systemic corticosteroids associated with those exacerbations[2]

- No increase in hospitalizations, asthma symptoms, or respiratory adverse events over 5-year period[2]

View the 5-year clinical trial results at BT5years.com

Brief Statement of Relevant Indications for Use, Contraindications, Warnings, and Adverse Events: The Alair Bronchial Thermoplasty System is indicated for the treatment of severe persistent asthma in patients 18 years and older whose asthma is not well controlled with inhaled corticosteroids and long-acting beta-agonists. The Alair System is not for use in patients with an active implantable electronic device or known sensitivity to medications used in bronchoscopy. Previously treated airways of the lung should not be retreated with the Alair System. Patients should be stable and suitable to undergo bronchoscopy. The most common adverse event of BT is an expected transient increase in the frequency and worsening of respiratory-related symptoms. Rx only.

CAUTION: Law restricts this device to sale by or on the order of a physician. Indications, contraindications, precautions, and warnings can be found with product labeling.

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for the treatment of severe asthma in adults

Bronchial Thermoplasty™

References: 1. Castro M, et al, for the AIR2 Trial Study Group. *Am J Respir Crit Care Med.* 2010;181:116-124. **2.** Wechsler M, et al; for the AIR2 Trial Study Group. *J Allergy Clin Immunol.* 2013; 132:1295-1302.