



Interventional pulmonology: between ambition and wisdom

Hervé Dutau¹ and David Feller-Kopman²

Affiliations: ¹Dept of Thoracic Oncology, Pleural Diseases and Interventional Pulmonology, North University Hospital, Marseille, France. ²Interventional Pulmonology, Division of Pulmonary and Critical Care Medicine, Dept, Johns Hopkins Hospital, Baltimore, MD, USA.

Correspondence: Hervé Dutau, Dept of Thoracic Oncology, Pleural Disease and Interventional Pulmonology, Hôpital Nord, Assistance Publique-Hôpitaux de Marseille, Chemin des Bourrely, 13015 Marseille, France. E-mail: hdutau@ap-hm.fr

 @ERSpublications

Interventional pulmonology has undergone amazing ambitious changes and innovations over the past decades, which have to find their place in a wise multidisciplinary management of respiratory diseases
<https://bit.ly/3dD237L>

Cite this article as: Dutau H, Feller-Kopman D. Interventional pulmonology: between ambition and wisdom. *Eur Respir Rev* 2020; 29: 200146 [<https://doi.org/10.1183/16000617.0146-2020>].

It is always useful to remember the past in order to understand and appreciate the present. In the past decades, we have experienced extraordinary changes and innovations in our discipline: interventional pulmonology. Almost all aspects of this sub-specialty have been transformed. Diagnostic bronchoscopy, previously limited to central airways, can now assess the periphery of the lungs thanks to new smaller bronchoscopes and innovative guiding techniques (virtual bronchoscopy, electromagnetic navigation, radial ultrasound, cone-beam computed tomography (CT)), allowing us to reach previously inaccessible nodules [1]. Mediastinal and hilar nodes are now routinely sampled using endobronchial ultrasound guidance, replacing surgical staging as the initial procedure of choice in many institutions [2]. Diseases which were previously almost considered as contraindications to bronchoscopy, such as asthma and COPD/emphysema, can now, in selected cases, be treated endoscopically [3]. Therapeutic bronchoscopy for central airway diseases remains the realm of rigid bronchoscopy and airway stenting. Stenting is at the edge of a new era with customised/3-dimensional printed, biodegradable and bioactive stents [4]. Therapeutic bronchoscopy for peripheral and inoperable early stage lung cancer is one of the most promising areas for research and clinical applications, which could eventually compete one day with surgical resection or stereotactic radioablative therapy [5]. The minimally invasive diagnostic and therapeutic approach to pleural disease has also been fascinating. Ultrasound-guided pleural interventions, small-bore chest tubes, mini-thoracoscopy and indwelling pleural catheters have drastically changed the way we care for patients [6]. Training has shifted from the “see one, do one, teach one” directly on patients to more structured programmes in which simulation is an integral part of the educational experience [7]. Scientific publications in interventional pulmonology have moved from case reports, expert opinions and monocentric retrospective studies to randomised, prospective and multicentric trials [8, 9]. All the different topics listed above will be addressed in detail in the articles in the forthcoming new “Interventional pulmonology” series in the *European Respiratory Review*. The first of which, by DeMaio and Sterman [10], is published in the current issue.

It is important to point out that all these innovations are very costly and require dedicated, implemented and well-organised infrastructure, most commonly seen in tertiary referral centres [11]. Costs and budgets

Provenance: Commissioned article, peer reviewed

Received: 14 May 2020 | Accepted after revision: 1 June 2020

Copyright ©ERS 2020. This article is open access and distributed under the terms of the Creative Commons Attribution Non-Commercial Licence 4.0.

are, in the vast majority of countries in this world, issues that cannot be ignored and only economically wealthy countries could afford all these new technologies before they prove to be clinically useful or have an impact on the course of some diseases, let alone when there is ample evidence that they can improve patient care. For example, is the histological proof of a peripheral, isolated and hypermetabolic nodule using the combination of electromagnetic navigation or cone beam-CT and radial ultrasound always necessary? If a cancerous lesion is diagnosed, the next step will most often be surgical resection, but surgery may also be necessary in the case of non-diagnostic sampling [12].

Interventional pulmonologists have to be ambitious and wise. Interventional pulmonology should be part of an honest and transparent multidisciplinary team that is structured around the good of our patients, rather than competing with colleagues and friends such as thoracic surgeons, ENT surgeons or radiologists. We need to be ambitious to improve our existing techniques and innovate on new ones. We also need to be confident in sharing strong data with our colleagues and changing practice from “this is the way we have always done it” to “this is the way we do it now”.

Our field needs to be wise and humble as well because we cannot do what we do in isolation. For example, we depend on our primary care and oncology colleagues to refer patients with lung nodules, and we must communicate with medical oncology and pathology to ensure we obtain not just enough tissue for a diagnosis, but enough tissue to guide precision therapy. We work on a daily basis with our thoracic surgeons and interventional radiologists in the care of patients with pleural infection. Medicine can no longer be practiced in silos.

In our daily life, interventional pulmonologists should take into account the strengths, weaknesses and needs of their own institutions before considering which techniques and technologies should be acquired. For instance, if interventional radiologists are structured and skilled enough to sample peripheral lesions with an acceptable safety profile, is it necessary to acquire cone-beam CT or other guiding techniques? Likewise, cone-beam CT can also already exist in an institution and could be shared with other specialties without extra costs.

The duty of referral centres as well interventional pulmonology experts is to teach, train and expose young domestic or international trainees or fellows to interventional pulmonology techniques according to their needs or wishes. We have both had glorious mentors and know how much we owe them. In return, we are obligated to guide a new generation of interventional pulmonologists with ambition and wisdom.

Conflict of interest: H. Dutau reports personal fees from Novatech, outside the submitted work. D. Feller-Kopman reports personal fees for consultation from Veran Medical, during the conduct of the study.

References

- 1 Fielding D, Oki M. Technologies for targeting the peripheral pulmonary nodule including robotics. *Respirology* 2020; in press [https://doi.org.10.1111/resp.13791].
- 2 Gregor A, Inage T, Hwangbo B, *et al.* Lung cancer staging: state of the art in the era of ablative therapies and surgical segmentectomy. *Respirology* 2020; in press [https://doi.org.10.1111/resp.13827].
- 3 Shafiq M, Lee H, Yarmus L, *et al.* Recent advances in interventional pulmonology. *Ann Am Thorac Soc* 2019; 16: 786–796.
- 4 Guibert N, Saka H, Dutau H. Airway stenting: technological advancements and its role in interventional pulmonology. *Respirology* 2020; in press [https://doi.org. 10.1111/resp.13801].
- 5 Hsia DW, Musani AI. Bronchoscopic therapies for peripheral lung malignancies. *Clin Chest Med* 2018; 39: 245–259.
- 6 Feller-Kopman DJ, Reddy CB, DeCamp MM, *et al.* Management of malignant pleural effusions. An Official ATS/STS/STR Clinical Practice Guideline. *Am J Respir Crit Care Med* 2018; 198: 839–849.
- 7 Corbetta L. Training to competence in interventional pulmonology. *Panminerva Med* 2019; 61: 201–202.
- 8 Dutau H, Di Palma F, Thibout Y, *et al.* Impact of silicone stent placement in symptomatic airway obstruction due to non-small cell lung carcinoma: a French prospective, multicenter and randomized study: The SPOC trial. *Respiration* 2020; 99: 344–352.
- 9 Bhatnagar R, Keenan EK, Morley AJ, *et al.* Outpatient talc administration by indwelling pleural catheter for malignant effusion. *N Engl J Med* 2018; 378: 1313–1322.
- 10 DeMaio A, Sterman D. Bronchoscopic intratumoural therapies for non-small cell lung cancer. *Eur Respir Rev* 2020; 29: 200028.
- 11 Erb CT, Ernst A, Michaud GC. The business of interventional pulmonology. *Clin Chest Med* 2013; 34: 583–591.
- 12 Kaaki S, Kidane B, Srinathan S, *et al.* Is tissue still the issue? Lobectomy for suspicious lung nodules without confirmation of malignancy. *J Surg Oncol* 2018; 117: 977–984.