

Executive Summary of Training and Competence Standards for the Interventional Pulmonology Master Program in Italy

Lorenzo Corbetta, MD,*† Marco Patelli, MD,*
and the Consensus Committee

Interventional pulmonology (IP) is experiencing a rapid evolution of new technologies. As patient safety and outcome-based evaluation of clinical practice and procedures have become priorities, we must consider the need for standardization in procedural training continuing even after the pulmonary and critical care fellowships.¹ There is a need to develop structured training programs, organized in high-volume expert centers, to improve trainee education, including the development of validated metrics for their competency assessment.^{2,3} Concerning teaching methods, a gradual progression from theory to practice, using new teaching techniques, including live sessions and low-fidelity and high-fidelity simulation, flipped classroom models, and problem-based learning exercises, would provide a training setting more suitable for our current need to improve skills and update professionals. Training programs should be learner centered and competence oriented, as well as being based on a spiral-shaped approach in which the same subject is addressed many times, from new and different perspectives of knowledge, ability, behavior, and attitude, until the trainee has demonstrated a high degree of skill and professionalism.²⁻⁵

On the basis of the model of ultra-specialty disciplines, such as Interventional Cardiology and Digestive Endoscopy, several international projects are underway to establish structured training and certification programs for IP as well.^{6,7} In the United States, > 30 new postspecialty fellowships in IP have been established since 2005, each one lasting 1 or 2 years. The Association of Interventional Pulmonology Program Directors (AIPPD), in collaboration with the American Association for Bronchology and Interventional Pulmonology (AABIP) and the American College of Chest Physicians (ACCP), have launched a program aimed at standardizing competencies and training on the basis of the recommendations of the Accreditation Council for Graduate Medical Education (ACGME).^{7,8} In January 2017, a document on Interventional Pulmonology Fellowship Accreditation Standards was published by the Multisociety Interventional Pulmonology Fellowship Accreditation Committee to ensure that all IP fellowship training programs are provided with the minimum resources, expertise, facilities, curriculum, and caseload for adequate training.⁹ The European Respiratory Society (ERS) also established a program in 2016 offering professional certification of competence in endobronchial ultrasound (EBUS). This 3-part training

From the *Department of Experimental and Clinical Medicine, University of Florence; and †Division on Interventional Pulmonology, University Hospital of Careggi, Florence, Italy.

Disclosure: There is no conflict of interest or other disclosures.

Reprints: Lorenzo Corbetta, MD, Viale Pieraccini 6, 50139 Florence, Italy (e-mail: lorenzo.corbetta@unifi.it).

Copyright © 2017 The Author(s). Published by Wolters Kluwer Health, Inc. This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-No Derivatives License 4.0 (CCBY-NC-ND), where it is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal.

DOI: 10.1097/LBR.0000000000000447

program ensures that participants possess all the necessary knowledge and skills required to obtain ERS certification in EBUS competence.¹⁰

In 2010, we recognized that, in Italy too, there is a gap between the fellowship programs in pulmonology and the real world, and therefore began to organize an academic postspecialty 1-year course (fellowship) on IP, involving leading experts in the field. As the number of procedures required to achieve competence is beyond the capacity of a single center, an integration and cooperation was established among several hospitals allowed to train professional interventional pulmonologists in a structured, standardized, and effective manner. These participating sites have the recognized knowledge base, skill, attitudes, cases, and series of patients. Over the years, we felt the need to standardize our training program to be adopted not only during the Master class but also as a part of lifelong training, so as to gradually achieve full competence in the majority of IP skills. A Consensus Conference on the professional training and competence standards in IP was organized to come to an agreement on a core curriculum. The objective was to describe the professional profile of an interventional pulmonologist and the training process needed to achieve a level of competence that enables participants to perform and manage, both independently and as a team member, all the essential knowledge and procedures in IP. The curriculum and the recommendations for the training program were developed by a group of specialized pulmonologists with proven clinical and teaching experience, involved in the Italian Master of the University of Florence, a dedicated fellowship in IP, and also with the support and teaching of international experts. During a meeting of the entire panel, we decided on the division of responsibilities and tasks, the format of the document, and grouping of knowledge and procedures. We decided that each information box should include prior experience requirements, knowledge, core basic skills, a check list for procedural steps for practical training, resources for hands-on practical training and tools for quantitative, qualitative, and outcomes assessment, and a bibliography. In a subsequent meeting, the working group presented their findings, and the contents of the statement were developed following formal vote; all statements reflected unanimous opinion. A writing group circulated drafts of a document to all panel members for peer review and final approval.

The final aim of this document was to standardize the training program among the faculty and the participating centers, in order to guide and support physicians wishing to undertake a gradual and voluntary improvement of their own competencies, and assist those planning and organizing training programs in IP. The document includes a general part on core curriculum contents, innovative training methods and simulation, and a syllabus describing the basic issues and skills for each knowledge base and procedure of IP. There are 2 sections of syllabus descriptions: the first is on the clinical knowledge that the interventional Pulmonologist must possess, and the second is on the skills that the interventional pulmonologist must master to perform the different procedures. The syllabus provides a detailed description of the knowledge, skills, and attitudes required for each specific competency, as well as the teaching methods to be adopted, useful information sources, and the most appropriate qualitative and quantitative methods for the assessment of competence in each procedure. It comprises 6 in-depth information boxes for the essential knowledge of lung cancer and solitary pulmonary nodule, malignant and nonmalignant central airway disorders, interstitial lung diseases and granulomatosis, pulmonary infections, chronic obstructive pulmonary disease (COPD) and asthma, and pleural diseases. Eleven boxes are also included for the procedural skills: flexible bronchoscopy and basic sampling techniques, interventional endosonography (EBUS, endoscopic ultrasound, endoscopic ultrasound using the EBUS scope), bronchoscopic navigation and EBUS-radial probe, transbronchial cryobiopsy, transthoracic pulmonary biopsy, rigid bronchoscopy and related procedures, sedation in IP, pleural procedures, pediatric bronchoscopy, bronchoscopy in anesthesiology and ICU, bronchoscopy in thoracic surgery, and emergencies in IP.

This document and the syllabus reflect the opinion of the Authors of the Consensus Conference and is separate from the editorial. It should be considered a starting point that will evolve over time and result in better training for practitioners and better care for our patients. The task of establishing a trainee's competence to practice independently as an interventional pulmonologist remains the responsibility of the IP fellowship program director and faculty, who validate logbooks and assess competence for each procedure. These standards need to be reviewed and approved by national and international

scientific societies and health care institutions with the aim to improve, disseminate, and incorporate them in health care programs. The whole document is published in full on the European Association for Bronchology and Interventional Pulmonology (EABIP) website <http://www.eabip.org/>. This article serves as an Executive Summary.

ACKNOWLEDGMENTS

The authors acknowledge the Consensus Committee: Luigi Arru (Nuoro), Emanuela Barisione (Genova), Michela Bezzi (Firenze), Giancarlo Bosio (Cremona), Stefano Calabro (Bassano del Grappa), Piero Candoli (Pesaro), Paolo Carlucci (Milano), Andrea Comel (Peschiera), Bruno Del Prato (Napoli), Umberto Fantoni (Padova), Alessandro Fois (Sassari), Katia Ferrari (Firenze), Pierfranco Foccoli (Brescia), Giovanni Galluccio (Roma), Riccardo Inchingolo (Roma), Luigi Lazzari Agli (Rimini), Gabriella Manca (Cagliari), Giampietro Marchetti (Brescia), Carlo Mereu (Savona), Lucio Michieletto (Mestre), Valeria Pasini (Firenze), Micaela Romagnoli (Bologna), Francesca Savoia (Treviso), Mario Salio (Genova), Paola Serio (Firenze), Simone Scarlata (Roma), Claudio Simonassi (Genova), Paolo Solidoro (Torino), Marco Trigiani (Firenze), Rocco Trisolini (Bologna), and Alessandro Zanforlin (Rovigo).

REFERENCES

1. Yarmus L, Feller-Kopman D, Imad M, et al. Procedural volume and structure of interventional pulmonary fellowships: a survey of fellows and fellowship program directors. *Chest*. 2013;144:935–939.
2. Konge L, Larsen KR, Clementsen P, et al. Reliable and valid assessment of clinical bronchoscopy performance. *Respiration*. 2012;83:53–60.
3. Ernst A, Wahidi MM, Read CA, et al. Adult bronchoscopy training: current state and suggestions for the future: CHEST expert panel report. *Chest*. 2015;148:321–332.
4. Fielding D, Maldonado F, Murgu S. Achieving competency in bronchoscopy: challenges and opportunities. *Respirology*. 2014;19:472–482.
5. Colt HG, Crawford SW, Galbraith O III. Virtual reality bronchoscopy simulation: a revolution in procedural training. *Chest*. 2001;120:1333–1339.
6. Lamb CR, Feller-Kopman D, Ernst A. An approach to interventional pulmonary fellowship training. *Chest*. 2010;137:195–199.
7. Lee HJ, Mullon JJ. Accredited interventional pulmonary fellowship: the time is here. *J Bronchol Intervent Pulmonol*. 2015;22:189–190.
8. Association of Interventional Pulmonology Program Directors (AIPPD). Available at: www.aippd.org. Accessed August 30, 2017.
9. Mullon JJ, Burkart KM, Silvestri G, et al. Interventional pulmonology fellowship accreditation standards: executive summary of the multi-society interventional pulmonology fellowship accreditation committee. *Chest*. 2017;151:1114–1121.
10. Farr A, Clementsen P, Herth F, et al. Endobronchial ultrasound: launch of an ERS structured training programme. *Breathe (Sheff)*. 2016;12:217–220.