



Utilization of a training portfolio in thoracic and cardiovascular surgery: the example of the French platform-EPIFORM

Alex Fourdrain¹, Charles-Henri David², Lucile Gust³, Gilbert Massard⁴

¹Department of Thoracic Surgery, Amiens University Hospital, University of Picardy, F-80054 Amiens cedex 01, France; ²Department of Thoracic and Cardiovascular Surgery, North Laennec Hospital, Nantes, France; ³Department of Thoracic Surgery, North Hospital-APHM, Aix-Marseille University, F-13915 Marseille cedex 20, France; ⁴Department of Thoracic Surgery, Strasbourg University Hospital, Strasbourg, France

Correspondence to: Alex Fourdrain. Department of Thoracic Surgery, Amiens University Hospital, University of Picardy, F-80054 Amiens cedex 01, France. Email: fourdrain.alex@chu-amiens.fr.

Abstract: Thoracic and cardiovascular surgery requires learning both theoretical knowledge and technical skills. In this surgical field, several disparities exist between the different training programs around the world. This report describes the implementation of a portfolio in the teaching and assessment of French trainees in Thoracic and Cardiovascular surgery, following an electronic logbook model, aiming to improve the training program. The French surgical course is a twelve semesters' curriculum divided in 3 parts, each part containing knowledge, technical skills and behaviors objectives to be validated, defined by the French College of Thoracic and Cardiovascular surgery. The competencies are marked in the logbook, following a declarative model where the surgical trainee fills every surgical procedure attended (all or part) if he/she has observed, partially or fully performed, or supervised another trainee. All the surgical procedures are linked to theoretical e-learning lessons and each e-learning lesson includes a self-evaluation. This constitutes a competency-based assessment model with milestones both for surgeon trainees and their mentors. This portfolio also contains complementary tools such as an automated publication point calculation, a formatted curriculum vitae generator, and several contact tools between trainees. Implementation of a dedicated portfolio following an electronic logbook model appears to be a relevant pedagogic tool and survey element in the thoracic and cardiovascular surgery training program. Its use may lead to potential educational benefits for the trainee, reliable competency assessment for the supervising surgeon and for scientific society or national college.

Keywords: Surgical education; training in thoracic surgery; portfolio; syllabus

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Introduction

As a surgical specialty, thoracic and cardiovascular surgery requires learning theoretical knowledge, technical skills, and professional attitudes. Several disparities exist between the different training programs around the world, regarding the length of training, content of the curriculum, the training method and the required skills, as well as the “learning branch” of the trainee: thoracic, cardiac, cardio-thoracic, or general surgeon with thoracic practice (1-3). At a European scale, task forces of the European Respiratory Society and the European Society of Thoracic Surgery encouraged a harmonization of the learning process, and have been

working on a proposition of curriculum and assessment of learning outcomes (4). They proposed the use of a trainee portfolio, guided by a curriculum (4). At a National scale, a survey was conducted among French trainees, outlining the need for a homogenous learning process and assessment of competencies (5). Among the different training methods, there is indeed an increased use of portfolios, which are described in the American Accreditation Council for Graduate Medical Education Toolbox of Assessment Methods as a “collection of products prepared by the resident that provides evidence of learning and achievement related to a learning plan” (6). Several portfolio models

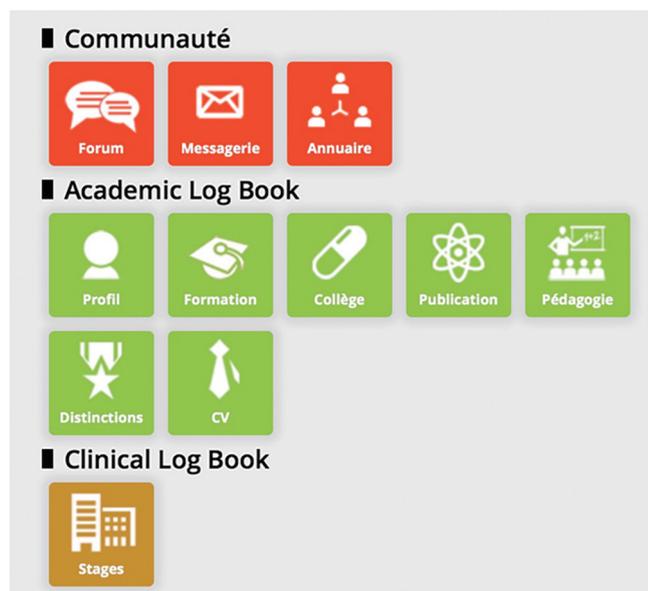


Figure 1 First webpage of the portfolio showing all the features.

have been described in learning and assessing practical skills and knowledge in the field of surgery, including monthly case-report and half-yearly evaluation (7), and dedicated electronic log-book with daily reports under a teacher supervision (8). These studies showed a positive impact of the use of a portfolio in surgical training, providing feedback to the students over their progression, and stimulating them to achieve target competencies (7,8). To date, there is no description of a portfolio in the field of Thoracic and Cardiovascular surgery. This report describes the implementation of a portfolio in the learning and assessment of competencies of French trainees in thoracic and cardiovascular surgery, following an electronic logbook model, with the aim to improve the quality of our training program.

Description

The French surgical course is a twelve semesters' curriculum divided in three parts. Each part contains knowledge, technical skills and behaviors objectives to be validated, defined by the French College of Thoracic and Cardiovascular surgery and registered in the law. In addition to the specialty syllabus, there is a common syllabus for professional skills and behavior, defined by the French National College of Medical Student, which includes competencies such as communication, collaboration, management, and research. This training portfolio named

Epiform was implemented in 2012, and became mandatory in 2016 to graduate in the specialty. Currently, nearly 140 trainees across the country are using the platform.

This portfolio constitutes more than a logbook, as it contains evidence of every aspect of good surgical care. The electronic portfolio developed by the Association of the Young Thoracic and Cardiovascular surgeons [Association des Jeunes Chirurgiens Thoraciques et Cardio-Vasculaires (AJCTCV)] with the support of the French Society of Thoracic and Cardiovascular surgery [Société Française de Chirurgie Thoracique et Cardio-vasculaire (SFCTCV)] is made of different features allowing to cover all aspects of a surgeon's training, clinical practice, and ongoing career development (Figure 1). It gives the ability to the individual surgeon trainee to reflect on his/her working experience and practice. It also gives a competency-based assessment model with milestones both for surgeon trainees and their mentors.

The competencies for the specialty and the logbook are based on a declarative model where the surgical trainee fills in all the surgical procedures attended (all or part) that he/she has observed, partially or fully performed or supervised another trainee (Figure 2).

All the surgical procedures are linked to theoretical e-learning lessons, and each e-learning lesson includes a self-evaluation (multiple choice questions, script concordance test...). A mentor is chosen by the trainee every semester, amongst all the surgeon of the institution, which is not necessarily a Professor. This should create a close relationship between the mentor and the trainee, promoting precious feedback between them. At the end, the mentor has to validate the competencies according to the achievement of a certain amount of surgical procedures, e-learning lessons, self-evaluation and behavior in their hospital course (Figure 3).

Several complementary tools were added, such as an automated publication point calculation. It allows for surgical trainee and mentors to have a quick view on the amount and impact factors of his/her publications. The trainee has the ability to generate a formatted curriculum vitae which provides a short summary of all the data compiled in the portfolio: qualifications, professional history, personal details with evidence of the competency achievements, knowledge and personal and professional skills. In order to help communication among trainees there are also contact tools such as a "repertoire", "forum" and mailing.

Discussion

As our medical environment and surgical practice are

DOMAINE : A0 - VOIE D'ABORD				
	Observation	Partiellement réalisé	Complètement réalisé	Encadrement d'un junior
01 STERNOTOMIE	0	0	0	0
01 ABORD SOUS-CLAVIER	0	0	0	0
01 THORACOTOMIE ANTERIEURE	2	0	5	0
01 THORACOTOMIE LATERALE	5	0	6	0
01 THORACOTOMIE POSTEROLATERALE	10	0	20	0

Figure 2 Operative log book regarding surgical approach in thoracic surgery including the 4 progressive steps. Observation: observed; partiellement réalisé: partially performed; entièrement réalisé: fully performed; encadrement d'un junior: supervision of another trainee.

Liste des stagiaires							
	Stagiaire	Libellé du service concerné	Nom du tuteur concerné	Votre rôle	Nombre de stages associés	Validation	
						Tuteur	Chef de service
1	GERAD Junior	Service de Chirurgie Cardiaque Adulte	Vous-même	Chef de Service	2	✓	✓
2	WEBMASTER	Service de Chirurgie Cardiaque Adulte	TETE trtr	Chef de Service	1		
3	Junior	fsdfsdf	Vous-même	Tuteur	1	✓	

Liste des demandes de tutorat		
Stagiaire	Intitulé du stage	Statut
GERAD Junior	Essai pour juniorGerard	Acceptée
GERAD Junior	Essais Validation prise 2	Refusée
Junior	Période	Acceptée
GERAD Junior	Second pour essai validation ctcv.damo	Acceptée

Figure 3 Mentor survey screen with trainee(s) under his/her responsibility. Each trainee has validated course (green) or not yet (orange). Liste des stagiaires: list of trainees; liste des demandes de tutorat: list of tutorship request.

changing with the onset of evolving new technologies, it seems relevant to include new pedagogic tools and survey elements into the thoracic and cardiovascular surgery training program. Besides, incoming new technology and innovative treatment strategies need to be added. Implementation of a portfolio has showed great results regarding the learning process in several surgical fields (7,8), and this is the first report of a portfolio dedicated to thoracic and cardiovascular surgery. For a trainee, this electronic logbook presents several advantages: (I) the setting of qualitative and quantitative objectives and practical targets at the different steps of the training program; (II) assessing the evolution of competencies and compare them to a national database. In-training monitoring and self-assessment may reveal insufficient exposure to particular disease areas or surgical techniques in the home institution and motivate in-training mobility towards highly specialized

units. For the trainee's referent teacher, this model is useful for: (I) rapid and concise assessment of a trainee's level and prior achievements; (II) advising and helping in the setting of clinical and surgical objectives; (III) a close follow-up with monitoring and "real-time" evaluation of every young surgeon's training objectives. Once again, obviating uncovered topics may help the mentor to advise in-training mobility. For the Scientific Society or Thoracic and Cardiovascular National College, advantages are: (I) setting of a clear training program with defined objectives and their timelines, which appears as harmonized at the national level and guarantees equal quality of training to all trainees; (II) evaluation of training outcomes at a national level, which is an important feed-back for further revision and implementation of the training curriculum; (III) use of this clinical and practice logbook as a validation tool for board examinations. Furthermore, the use of a harmonized

model within European or International Thoracic and Cardiovascular societies may also lead to an easier evaluation of a young surgeon advancement in the training program, allowing facilitated procedures in applying for scholarships, or exchange programs at an international scale.

Further studies should be performed to confirm the usefulness of this pedagogic tool in Thoracic and Cardiovascular surgery field in the current era. To this end, European trainees and supervising surgeons are looking forward to the report of the task forces of the European Respiratory Society and the European Society of Thoracic Surgery, expected to describe a well-defined curriculum, and to validate a model for assessment of acquired competencies and technical skills, which may most likely be suitable for a portfolio model (4).

In conclusion, the implementation of a dedicated Portfolio following an electronic logbook model appears to be a relevant pedagogic tool and survey element in the thoracic and cardiovascular surgery training program. Its use may lead to potential educational benefits for the trainee, and reliable competency assessment for the supervising surgeon. At the national or supra-national scale, this tool offers control of equity of training, quality of content, and measurement of learning outcomes at a globalized level.

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