

Unmet needs of young interventional cardiologists: proceedings from the 2nd Summit of the European Association of Percutaneous Cardiovascular Interventions

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KEYWORDS

- EAPCI
- Education
- NIFYI
- Young interventionalists

Abstract

Every year, the EAPCI Board invites presidents and representatives of the interventional working groups affiliated to EAPCI to discuss issues and strategies surrounding the goals of education and advanced health-care practices in interventional cardiology. In 2013, the 2nd EAPCI Summit, organised by the EAPCI Board in collaboration with the NIFYI committee, was entirely dedicated to discussing the unmet needs of the young generation of interventional cardiologists. In this article, we highlight a selection of the key points and proposed actions highlighted during the summit.

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Introduction

In 2011, the EAPCI executive board appointed a new committee to explore the unmet needs of the young generation of interventional cardiologists and promote tailored solutions accordingly^{1,2}. Since its creation, the committee, named “New Initiatives For Young Interventionalists” (NIFYI), has built several programmes intended to promote education and cultural interchange among interventional cardiologists in training³.

The EAPCI Summit is the annual meeting of the EAPCI held in May at the European Heart House in Sophia-Antipolis (France). Every year, the EAPCI Board invites presidents and representatives of the interventional working groups affiliated to EAPCI to discuss issues and strategies surrounding the goals of education and advanced healthcare practices in interventional cardiology. In 2012 the key objective of the two-day symposium was to illustrate and promote the ESC eLearning (ESCeL), a web-based platform for attainment of cutting-edge education in interventional cardiology⁴. In 2013, the 2nd EAPCI Summit, organised by the EAPCI Board in collaboration with the NIFYI committee, was entirely dedicated to discussing the unmet needs of the young generation of interventional cardiologists.

In a previous article we illustrated the results of a survey conducted among young (<36 years) users of the European Society of Cardiology website expressing their interest in interventional cardiology at the time of subscription⁵. Briefly, the survey was intended to collect insights on the most imperative needs to be taken into

consideration, as observed from a young perspective. These issues were aggregated into macro-topics (Figure 1), which were the object of facilitated discussions by groups of attendees in corresponding workshops at the EAPCI Summit 2013. An extended report of the workshops is given in the Online Appendix. Herein, we summarise the key points and proposed solutions (Table 1).

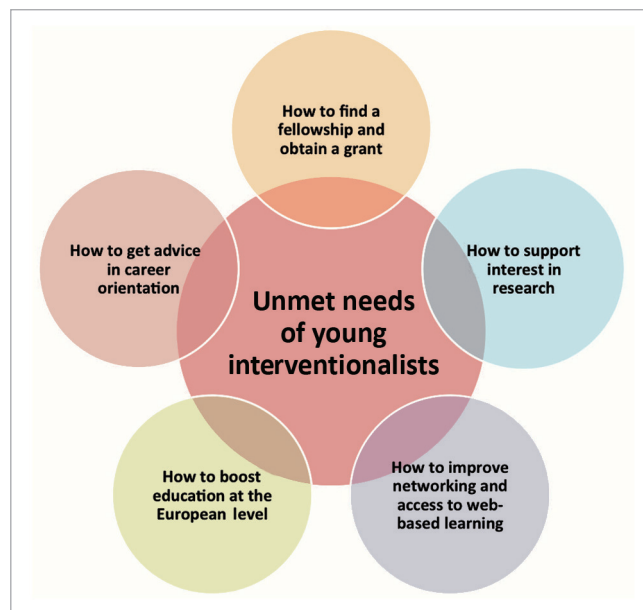


Figure 1. Topics covered by the 2nd EAPCI Summit.

Table 1. Hints and solutions discussed during the summit.

	Workshop 1 How to find a fellowship and obtain a grant	Workshop 2 How to support young interventionalists' interest in research	Workshop 3 Solutions for networking and web-based learning	Workshop 4 How to boost the education of young interventionalists at the European level	Workshop 5 Advancement in career orientation
Hints	<ul style="list-style-type: none"> – Ask for the support of a mentor at the mother institution. – Identify personal fields of interest. – Reflect on personal and logistic issues before applying. – Visit the hosting centre in advance. – Apply for as many grants as possible to gain a sufficient economic support. 	<ul style="list-style-type: none"> – Work in a coherent research field. – Cooperate with well-recognised specialists and create a personal research network. – Learn fundamentals of medical statistics and literature interpretation. – Be fluent in at least one foreign language. – Prepare a research plan before applying for a research stay. – Apply to industry, project-related or personal-related grants 	<ul style="list-style-type: none"> – Access to dedicated online tools devoted to education and skills monitoring. – Get a certification to strengthen the curriculum. – Subscribe to professional social networks (e.g., LinkedIn). 	<ul style="list-style-type: none"> – Use online resources to increase your awareness of dedicated educative solutions (e.g., PCR seminars), courses, and fellowship programmes. – Address the requirements of a standardised core curriculum. 	<ul style="list-style-type: none"> – Seek advice from colleagues and experts – Recognise that issues surrounding career orientation are country-specific
Working hypotheses and solutions	<ul style="list-style-type: none"> – EAPCI Training and Research Grant. – Update and further develop the available online tool (CathGo) to filter training centres according to personal needs and expectations. – Hosting centres should cover, at least partially, the costs of the fellows, especially during the second part of a long-term fellowship. 	<ul style="list-style-type: none"> – A platform for research centres willing to serve as a host might represent a good tool for orientation. – Enhance the access to courses and resources on research methodology and grant application. 	<ul style="list-style-type: none"> – ESC e-learning (ESCeL) platform. – Develop a web-based social platform within the ESCeL universe to facilitate networking among peers and between seniors and fellows. 	<ul style="list-style-type: none"> – Harmonise curricula across European countries. – Encourage the use of training logbooks to monitor the progress of education. – Build a European Fellows Course in interventional cardiology. – Enhance the access of young fellows to European educative solutions. – Develop online “educational spaces” and make them usable on mobile devices. 	<ul style="list-style-type: none"> – Create new specialised resources on the ESC and EAPCI websites.

Workshop 1. “How to find a fellowship and obtain a grant”

The aim of the workshop was to discuss how young candidates looking for training facilities could find the proper solution. The attendees agreed that the key to a successful fellowship is the perfect match between the aims of the fellow and the offer of the hosting centre. The remaining question was how this perfect match can be reached, and what a candidate can do for that. It was concluded that there is still a need to improve the “hide-and-seek” between candidates and hosting centres in order to increase the rate of perfect matches. As learnt by participants during the discussion, the CathGo website, an online database of centres offering training opportunities filtered by personal needs and expectations, has already been launched: it offers many features that many fellows were seeking⁶. However, proper funding remains the “missing link” between candidates, hosting centres and a successful fellowship project.

Workshop 2. “How to support young interventionalists’ interest in research”

The aim of this workshop was to find solutions to raise and support the interest of young cardiologists in research. The attendees agreed that in the vast majority of cases the impetus for research is to get clinical training or research as part of the duty. The genuine interest in research and novelty or the motivation to actively shape the future of the specialty is rare but enthusiasm and personal commitment are critical for the sustainability of research and medical progress. The following considerations were highlighted: 1) research and innovation are of pivotal importance in order to contribute to novel evidence and knowledge, and to advance the specialty in competition with other fields in medicine and cardiology; 2) independence of research and funding are an important objective; 3) funding in addition to industry is necessary; 4) scientific integrity and ownership of research is key to safeguarding against abuse and adhering to ethical principles.

Workshop 3. “Solutions for networking and web-based learning”

The aim of this workshop was to discuss the need for an e-learning platform and also how the social networks already on the market could be used among fellows. The main focus of the discussion was the ESCeL platform and how this could improve the education of future operators in interventions⁴. Networking among fellows and also between seniors and fellows was discussed. To comply with this demand, a new platform within the ESCeL universe is in the pipeline. Within this “educational space”, it is envisaged that one can create a personal learning profile and communicate with peers who have the same areas of interest.

Workshop 4. “How to boost the education of young interventionalists at the European level”

The aim of this workshop was to discuss the topic of education at the European level. The education of young interventionalists stands in the spectrum that ranges from practice-oriented training, that lacks a formal and structural approach, to high-quality predefined structured education that includes both formal educational

activities (lectures, exams, fellowship programmes, and certification) and practical experience. These differences could be overcome to a considerable degree by harmonising curricula across European countries. The participants agreed that the development of electronic platforms is not a substitute for more traditional peer-to-peer learning and exchange of young interventionalists between centres, but is rather a novel tool in the educational armamentarium. They also agreed on the need for building an interventional fellows course at the European level.

Workshop 5. “Advancement in career orientation”

The first objective of the workshop was to understand the unique features of different career options available in interventional cardiology and to learn how to find the place that best suits the abilities and plans of young fellows. Secondly, the attendees reflected on the general basics of decision making throughout a career in interventional cardiology. Answers to all of these questions are country-specific. With the existence of international fellows courses, numerous congresses (ESC Congress, EuroPCR, national conferences) and the creation of a tool for searching tailored training opportunities (i.e., CathGo), young interventional cardiologists may more easily find the support and advice to choose the best suitable career orientation.

Conclusions

With the active participation of presidents and representatives of the interventional working groups affiliated to EAPCI, the 2nd EAPCI Summit represented the ideal setting for discussing the unmet needs of the future generation of interventional cardiologists and forecasting dedicated actions to be taken by EAPCI (**Table 1, Online Appendix**). Some of them (i.e., ESCeL, CathGo, EAPCI Grant) are already in place.

Conflict of interest statement

The authors have no conflicts of interest to declare.

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Online data supplement

Appendix. Full report of the workshops.

Online data supplement

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WORKSHOP 1. "HOW TO FIND A FELLOWSHIP AND OBTAIN A GRANT"

The aim of the workshop was to discuss how young candidates looking for training facilities could find the proper solution. Attendees agreed that the key to a successful fellowship is the perfect match between the aims of the fellow and the offer of the hosting centre. The remaining question was how this perfect match can be reached, and what a candidate can do for that.

The candidate needs to know well before applying what are his/her fields of interest (i.e., coronary, structural, etc.) and what are the main goals of the fellowship period (i.e., research, clinical practice, both). Personal aspects (where, for how long, alone or with family) also need to be considered well in advance. For all these aspects, the support of a mentor at the mother institution is practically indispensable. It could also be the duty of a mentor to suggest potential "target centres", to help in creating connections, and even to supervise such apparently trivial things as writing a proper application, including a well-structured curriculum vitae.

How to find the best centre for a fellowship? The internet provides lots of sources to find data about centres all over the world with fellowship programmes, but a centralised website for all this information would be of value. As learnt by participants during the discussion, the CathGo website, an online database of centres offering training opportunities filtered by personal needs and expectations, has already been launched: it offers many features that many fellows were seeking⁶. On the other hand, the hosting centres still lack a tool that allows searching for potential candidates who might not have been selected for other grants or positions. One suggestion was, for the sake of further improvement of the CathGo database, to allow commenting on the fellowship programme of a given centre, mainly by former fellows. This kind of information is sometimes thousands of times more valuable than any kind of "self-advertising". However, posting feedback from former fellows is no guarantee that all sensitive information would be disclosed, while having available the contact e-mail of the former fellows on the website would enable anyone to contact them and have a private conversation.

The participants all agreed that visiting the hosting centre before applying is crucially important. It gives the opportunity to get some information about the life of fellows, tasks of fellows or their satisfaction in that given centre. However, such a visit can also provide the opportunity for the team to interview the candidate before making their decision.

Once the application of a candidate is accepted there are a few steps that need to be taken before his/her arrival. First, learning at least the basics of the local language is something that should be mandatory. This is not only necessary when treating a patient, but also a polite gesture towards the hosting team, including physicians, nurses, etc. Second, preparation of research projects needs to

be started well in advance, otherwise in the end even long-term fellowships may not be long enough. However, this is not only the duty of the fellow, but also the duty of the hosting team. The internet provides all the opportunities to start collaborative work right after the candidate is accepted for the fellowship. Finally, even if a fellowship is always a long-term investment for the fellow, finding sufficient funding is the cornerstone, and as such it is one of the most difficult steps. Here, the following suggestions were defined: 1) all the candidates should apply for as many grants (local, national, international, industrial) as possible in order to have a chance to gain a sufficient amount of support; 2) hosting centres should cover, at least partially, the costs of the fellows, especially during the second part of a long-term fellowship. With all the work a fellow can do, they are valuable members of the team and so they really deserve to be paid somehow.

WORKSHOP 2. "HOW TO SUPPORT YOUNG INTERVENTIONALISTS' INTEREST IN RESEARCH"

The aim of this workshop was to find solutions to raise and support the interest of young cardiologists in research. The attendees agreed that in the vast majority of cases the impetus for research is to get clinical training or research as part of the duty. The genuine interest in research and novelty or the motivation to shape actively the future of a specialty is rare, but enthusiasm and personal commitment are critical for the sustainability of research and medical progress.

A solid financial basis is an absolute requirement in research and needs to be independent. Main sources of funding are the industry, project-related or personal-related grants on a national basis, as well as funding from scientific communities or international public authorities. Although industrial funding is easier to achieve, a minimum of competitive funding from either national or international sources is necessary to guarantee independence. Given the limited financial resources, applications of young researchers are very likely to fail. Peers look for credibility reflected by sustained success and coherent research in a distinct field. It is therefore pivotal for young researchers to cooperate with well-recognised specialists to be successful with their applications and achieve a sufficient financial basis for their work.

The attendees discussed some prerequisites for research and basic rules to make the most of a research stay. First, knowing the basics of medical statistics or how to review and analyse the literature are well-recognised requirements. However, instruction in these fields, as well as good clinical practice training, seem to be limited during medical degree courses. Distinct statistical courses and good clinical practice training organised on an institutional or national basis should cover this gap in education. Second, language may be another hurdle to career development. Being fluent in at least one foreign language is an absolute necessity since insufficient language skills limit the opportunities for exchange and for

fellowships. Third, providing a research plan in advance offers the opportunity to start immediately in a structured way, and predefined landmarks help to reflect the progress in research. This is useful in that it shows the motivation of the applicant to be really involved in research, and serves as an initial hint about his/her background/expertise. In addition, preparing a research plan before the application represents a unique opportunity to have the three stakeholders involved working together (mentor of the mother institution, mentor of the hosting institution, and fellow). Fourth, experience and knowledge should be shared with colleagues to extend personal networks and international contacts. Moreover, a minimum duration of at least one year is suggested for a research stay. Fifth, looking for additional modes of funding during the research stay is necessary for a prolonged stay and helpful to continue the research at the home institution, thereby ensuring sustainability in the research goal.

How to support research and fellowship programmes? A platform for research centres willing to serve as a host seems to be most promising. Centres should be asked to post their research interests, outcomes, as well as collaborators and former fellows, on that platform. Moreover, they should post their expectations about fellows (e.g., minimum experience, funding, research plan). Former research fellows should be asked to share their experience using the Young Interventional Cardiologist's platform and to discuss the pros and cons of a research stay in distinct sessions during meetings. Already implemented "how to" sessions should be continued and extended (i.e., how to write a grant application, a research plan) and fellows should have the opportunity of a clinical position after their research fellowship.

To conclude, all efforts should be devoted to carrying out the EAPCI mission statement on research, with the following considerations: 1) research and innovation are of pivotal importance in order to contribute to novel evidence and knowledge, and to advance the specialty in competition with other fields in medicine and cardiology; 2) independence of research and funding is an important objective; 3) funding in addition to industry is necessary; 4) scientific integrity and ownership of research is key to safeguarding against abuse and adhering to ethical principles.

WORKSHOP 3. "SOLUTIONS FOR NETWORKING AND WEB-BASED LEARNING"

The aim of this workshop was to discuss the need for an e-learning platform and also how the social networks already on the market could be used among fellows. The main focus of the discussion was the ESCeL platform and how this could improve the education of future operators in interventions.

The programme consists of three core sections: Knowledge, Practical Skills and Professionalism. The first core gives the trainee a comprehensive review of the literature and finally a test of 450 multiple-choice questions is provided. The structure of this knowledge area is based on the EAPCI core curriculum. The second core enables the trainee to upload a number of cases for the local trainer for evaluation. It also enables the trainee to log the procedures

performed during the two years of training and to monitor patient safety and directly observed practical skills (DOPs). Finally, in the third core the trainee gets the opportunity to undergo 360-degree appraisal and to describe his/her educational profile. The programme is estimated to last for two years and ends with a certificate of excellence in training in interventional cardiology.

The workshop attendees proposed introducing the possibility of getting midway certification in case a fellow wishes to apply for a fellowship at another centre or just to update his/her curriculum vitae. The receiving centre would thus be able to assess the level of knowledge and skills of the trainee. Also, an important topic of discussion was the possibility of adapting the curriculum to the needs and demands of the national societies. No national society should feel that entering the programme would lower the national standard of education. The challenge for now is how to get the national societies to endorse the programme by appointing a national coordinator⁷. It will be the task of this national coordinator to check if the fellow is legally entitled to perform the training and to check if the training hospital and the local trainer have proper conditions to support the training process. Each trainee is meant to have a local trainer to whom the trainee refers. Thus, the principle of apprenticeship will exist, as is known in many countries today. While the annual fee to enrol in the training programme (120 euros) was perceived as reasonably affordable by the workgroup, a call to have the subscription cost covered by third parties (i.e., not the fellow) was mentioned during the discussion.

Networking among fellows and also between seniors and fellows was also discussed. The platforms already in use, such as Facebook, Twitter and Research gate, were in general regarded as too unfocused for this purpose. To comply with this demand, a new platform within the ESCeL universe is in the pipeline. Within this "Educational Space", it is envisaged that one can create a personal learning profile and communicate with peers who have the same areas of interest.

WORKSHOP 4. "HOW TO BOOST THE EDUCATION OF YOUNG INTERVENTIONALISTS AT THE EUROPEAN LEVEL"

The aim of this workshop was to discuss the topic of education at the European level. The education of young interventionalists stands in the spectrum that ranges from practice-oriented training, that lacks a formal and structural approach, to high-quality predefined structured education that includes both formal educational activities (lectures, exams, fellowship programmes, and certification) and practical experience. These differences could be overcome to a considerable degree by harmonising curricula across European countries. Important steps in this process regarding practical training could include some of the following: defining the number of PCIs that young interventionalists should perform independently, number and types of specific procedures (i.e., bifurcations, chronic total occlusions, acute coronary syndromes, etc.) that doctors should perform, encouraging the use of training logbooks (private or public) whereby the progress of education could be assessed. Since the education of doctors is a very long and complex

process, every effort should be made to reduce the overlap that may exist with curricula of the previous educational steps.

There are many existing educational programmes and platforms that may be used to improve the global level of education and to enhance the access of young fellows to European educative solutions (fellows courses, PCR seminars, and other meetings dedicated to special topics), but the awareness of their availability among young interventionalists is limited. Industry-supported educational programmes may sometimes be attractive, but in order to be used as official educational tools, their quality should be checked and certified by EAPCI or other regulatory bodies. Furthermore, the awareness of existing fellowship programmes is also low amongst doctors in training. Improved communication and sharing could help us improve the visibility of various educational opportunities. This may be accomplished by collecting comprehensive information in one place, which could be a section of the EAPCI website or emerging ESCeL platform. This information should not be presented in a classic web-page format, but preferably in the framework of a social network where information and experience could easily be communicated and shared among young interventionalists. Furthermore, the availability of the whole or parts of this platform on mobile devices (e.g., Android, iOS) could potentially improve the visibility and ease of access to this information. Importantly, the development of electronic platforms is not a substitute for more traditional peer-to-peer learning and exchange of young interventionalists between centres, but rather a novel tool in the educational armamentarium.

WORKSHOP 5. "ADVANCEMENT IN CAREER ORIENTATION"

The first objective of the workshop was to understand the unique features of different career options available in interventional cardiology and to learn how to find the place that best suits the abilities and plans of young fellows. Secondly, the attendees reflected on the general basics of decision making throughout a career in interventional cardiology.

What are the options? It can be an academic career coupling activity in intervention and also research; working in a highly specialised centre (public or private) in coronary artery disease, structural heart disease or peripheral disease; it can be a broader commitment in clinical cardiology and intervention; finally, one may also choose an orientation in industry. Many resources exist for making choices and helping in the decision. Useful information can be obtained from the ESC and EAPCI websites. It seems necessary to create a new specialised resource on the current website to provide specific information for career orientation. Another great resource is to meet colleagues and experts in congresses such as EuroPCR or ESC and discuss opportunities for fellows in Europe.

Young interventional cardiologists may ask themselves a lot of important questions. How to choose the type of centre in which to practise? What are the requirements of specific diplomas to validate the fellowship? How or if to start research? How or if to become a fellow at home or abroad? How or if to find a job abroad and how to come back later to their own country? How to get connected with peers and industry? Is a career in industry an alternative option? Answers to all of these questions are, of course, country-specific. There are many centres in Europe potentially offering great interventional and research opportunities and willing to attract young fellows from abroad. This is going to be facilitated by the CathGo platform. The ultimate goal would be to create a kind of dedicated search engine to help fellows in their career opportunities. With all this web-based information, the existence of international fellows courses, numerous congresses (ESC Congress, EuroPCR, national conferences) and the creation of a tool for searching tailored training opportunities, young interventional cardiologists will more easily find the support and advice to choose the best suitable career orientation.

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