Real life cardio-thoracic surgery training in Europe: facing the facts

Justo Rafael Sádaba, Mahmoud Loubani, Sacha P. Salzberg, Patrick O. Myers, Matthias Siepe, Peyman Sardari Nia, David J. O’Regan

1. Introduction

Cardio-thoracic surgery is a young specialty evolving at a very quick pace. New technologies and procedures are the motor of innovation [1]. The way cardio-thoracic surgery has been traditionally taught might not be adequate anymore, in as much as it may not create the best surgeons for the challenges which lie ahead.

In addition, the full implementation of the European Working Time Directive (EWTD) for doctors in training has significantly reduced the time available to acquire the required knowledge and skills. Therefore, it is necessary to determine the current state of training in cardio-thoracic surgery in Europe in order to identify possible deficiencies and inequalities within the European Union (EU).

In this context, the Surgical Training and Manpower Committee of the European Association for Cardio-Thoracic Surgery (EACTS), decided to undertake a survey on the perception by European trainees of their training programmes and on the impact the introduction of the EWTD has on their training.

Keywords: Cardio-thoracic surgery; Training; Working time directive

2. Material and methods

The survey was internet-based (www.SurveyMonkey.com), and anonymous. An invitation to join the survey was mailed to all 413 EACTS members listed as ‘Resident’ in the Association’s database. A hyperlink would take all those willing to join the survey to the SurveyMonkey website. Questions were grouped in four domains (EWTD, working hours, training programmes and evaluation) as shown in Appendix 1 (available from the authors on request).

Replies were obtained from 116 residents (28%), of which 79 (68%) were complete and from residents training in an EU country. These represent the material of the analysis. Among replies from the EU, 59 provided the name of the training hospital identifying 55 different units.

3. Results

3.1. European Working Time Directive

Four questions were asked on the implementation of the EWTD. The majority of the respondents were aware of the existence of working time limitations although a surprising 30% did not seem to know them (Table 1), demonstrating that the Directive is far for being applied across the


*Corresponding author. Tel.: +34 669 602 855; fax: +34 684 422 303. E-mail address: jr.sadaba.sagredo@navarra.es (J.R. Sádaba). © 2010 Published by European Association for Cardio-Thoracic Surgery
Continental. However, just about half of them were agreeable with the principles of the EWTD. The great majority of those answering, supported the idea of the EACTS influencing the political debate.

3.2. Working hours

Questions were asked on the number of hours actually worked and the ideal number of working hours per week. Interestingly, few trainees were working within the limitations established in the EWTD (Fig. 1). Most replies advocated working above the number of hours set in the Directive (Fig. 2). Remarkably, only a minority of trainees were in favour of a 48-hour working week.

3.3. Training

Issues relating to the quality of training were scrutinized with the questions depicted in Table 2. Most trainees were dissatisfied with the quality of their training and thought that the application of the EWTD would make matters worse. It is worrisome that some programmes have no specified length of training or required number of procedures for certification. The majority of programmes run over a five- or six-year period with the number of procedures required for certification varying widely, from 10 to 200 for coronary artery bypass graft (mean of 92 cases), from five to 150 for aortic valve replacement (mean 46 cases) and from five to 130 in number of lung procedures (mean 32 cases).

3.4. Evaluation

Questions were asked on the evaluation of progress of training, of training centres and trainers (Table 3). Only 56% of trainees take exams at some stage of their training and most are not subjected to regular assessments. Trainers and training centres do not appear to be evaluated in a great proportion of cases and rarely do trainers attend ‘training to train’ courses.

3.5. Comparison among countries

In order to identify differences among countries and between these and a non-EU country, answers to seven of the survey’s questions were compared. Replies from those countries with highest number of respondents were chosen. Surprisingly, answers were widely heterogeneous (Table 4) within EU countries. For instance, whereas in the UK, all trainees and training centres undergo regular evaluations, in other countries this does not appear to be the norm. Similarly, most trainers in the UK attend ‘training the trainers’ course, something which rarely occurs elsewhere.

4. Discussion

The EWTD – Council Directive 93/104/EC of 23 November 1993, amended by Directive 2000/34/EC of 22 June 2000 (http://eur-lex.europa.eu) – was introduced in 1993 and it was based on the powers of the European Community institutions to legislate on issues affecting the health and safety of workers. In May 2000, the European Parliament and the Council of Ministers agreed to include doctors in training within the EWTD. This is enshrined in European law and is not optional. August 2009 was the deadline for an average 48-hour maximum working week. Like all EU Directives, this is an instrument which requires member states to enact its provisions in national legislation.

It has been claimed that under this directive, cardiothoracic surgical trainees will have only a fraction of the time allowed to their predecessors to become competent surgeons [2]. This is indeed worrisome, even more so in an era of increasing demands for surgeons. Nevertheless, others have shown that the exposure to operative cardiac surgical training can be preserved even in a 56-hour week environment [3]. Whether this would still be possible with further reduction to the current 48 hours is questionable.

So, what to do? What is the current state of affairs with regard to training in Europe? Will the current training programmes be able to adapt to the new circumstances?
Table 2. Answers to questions on quality of training

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes (%)</th>
<th>No (%)</th>
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</thead>
<tbody>
<tr>
<td>Are you satisfied with the quality and quantity of your training so far?</td>
<td>39.5</td>
<td>60.5</td>
</tr>
<tr>
<td>Do you think that the implementation of the EWTD will affect the quality of your training?</td>
<td>58.7</td>
<td>41.3</td>
</tr>
<tr>
<td>If so, would it be positively?</td>
<td>34.8</td>
<td>65.2</td>
</tr>
<tr>
<td>Do you currently have protected time for study and research?</td>
<td>9.3</td>
<td>90.7</td>
</tr>
<tr>
<td>Is there a defined length of your training programme?</td>
<td>68.4</td>
<td>31.6</td>
</tr>
<tr>
<td>Is there a defined number of surgical procedures needed for certification?</td>
<td>53.3</td>
<td>46.7</td>
</tr>
</tbody>
</table>

EWTD, European Working Time Directive.

Table 3. Answers to questions on evaluation of progress of training, of training centres and trainers

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes (%)</th>
<th>No (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is there a regular evaluation of the trainee’s skills?</td>
<td>37.8</td>
<td>62.2</td>
</tr>
<tr>
<td>Do you have to sit exams?</td>
<td>56.3</td>
<td>43.7</td>
</tr>
<tr>
<td>Is there a regular evaluation of the trainers skills?</td>
<td>15.1</td>
<td>84.9</td>
</tr>
<tr>
<td>Do trainers attend courses, such as training the trainers?</td>
<td>23.3</td>
<td>76.7</td>
</tr>
<tr>
<td>Is there a regular evaluation of training centres?</td>
<td>27.4</td>
<td>72.6</td>
</tr>
</tbody>
</table>

A large proportion of the trainees claim to work more than 48 hours per week and many spend more than 60 hours a week at the hospital. According to the replies received, although a majority of residents agree with the principles of the Directive, most believe that the maximum number of working hours per week should be well over the 48 established in it. However, considering the degree of satisfaction with their current training, these facts should be considered with care. Most trainees are dissatisfied with their training as it is, and understandably, they believe that a restriction in the amount of time spent at the hospital would have a negative effect.

A glimpse at the structure of the current training programmes shows that in some countries, there is no established length of time of the learning period or required competencies to achieve certification. Yet, other member states have developed structured programmes with defined stages of training [4].

Worryingly, only a small proportion of programmes offer protected time for research and study. There appears to be an imbalance between learning and provision of service in favour of the later.

Assessment of progress is fundamental in any teaching programme in order to optimise the capabilities of all learners and practitioners, by providing motivation and direction for future learning, to protect the public by identifying incompetent physicians, and to provide a basis to determine whether the trainee is at all fit to pursue a specific career [5]. Surprisingly, just about one in three of the European trainees are regularly assessed during their residency and only over half of them are evaluated at the end of their training to test the acquired knowledge.

Trainers and training centres should also be evaluated in order to improve the quality and effectiveness of teaching [6]. A surgeon is not per se an appropriate teacher [7]. There is a science of teaching [8] and it should be mastered by those providing surgical training. It is alarming that the largest part of training centres and trainers do not go through regular quality assurance evaluation processes and less than one in four of the trainers attend training courses.

Views from the EU as a whole can be deceiving. Therefore, we looked for disparities among member states and compared these with a non-EU country. Differences are in some cases to a degree of 100% and worrisome in many instances. Although the pooled answers obtained from EU countries reveal a suboptimal state of affairs with regards to cardiothoracic surgical training, data for some member states is distressing.

The conclusions drawn from the answers obtained in this survey can be summarised as follows:

1. The EWTD has not been applied across the EU.
2. Most European trainees are dissatisfied with their training.
3. Under the current training conditions, most trainees believe that the 48-hour working week is insufficient to achieve an adequate level of surgical competence.
4. Most European surgeons do not go through a structured and organized training programme during their training.
5. Most European surgeons can achieve certification without being independently evaluated during the residency or without an exit exam.
6. Most European surgeons get trained by unqualified trainers in centres not independently and regularly assessed for training capability.

Table 4. Comparison of answer among countries

<table>
<thead>
<tr>
<th></th>
<th>Spain (n=6) (%)</th>
<th>UK (n=8) (%)</th>
<th>Germ (n=9) (%)</th>
<th>Italy (n=8) (%)</th>
<th>Turkey (n=8) (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree with principles of EWTD</td>
<td>83</td>
<td>37</td>
<td>75</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>Agree EACTS to influence</td>
<td>83</td>
<td>100</td>
<td>67</td>
<td>100</td>
<td>88</td>
</tr>
<tr>
<td>Satisfied with training programme</td>
<td>66</td>
<td>38</td>
<td>11</td>
<td>0</td>
<td>63</td>
</tr>
<tr>
<td>Regular evaluation of trainee’s skills</td>
<td>16</td>
<td>100</td>
<td>22</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>Regular evaluation of training centres</td>
<td>20</td>
<td>75</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Trainers attend ‘Training the trainers courses’</td>
<td>17</td>
<td>100</td>
<td>11</td>
<td>0</td>
<td>38</td>
</tr>
<tr>
<td>There is exit exam</td>
<td>16</td>
<td>100</td>
<td>33</td>
<td>75</td>
<td>50</td>
</tr>
</tbody>
</table>

EWTD, European Working Time Directive; EACTS, European Association for Cardio-Thoracic Surgery.
7. There are significant disparities in the quality of cardiothoracic surgical training among member states of the EU.

In the US, the Accreditation Council for Graduate Medical Education (ACGME) imposed a national limit of 80 hours weekly for all medical trainees in 2003 [9]. Yet, cardiothoracic surgical training in the US is overseen by a number of bodies. The American Association for Thoracic Surgery and the Society of Thoracic Surgeons, as well as the Southern and Western Thoracic Surgical Associations have been mainstays of postgraduate thoracic surgical education. Resident training and educational content have been guided by the Thoracic Surgery Directors Association with program evaluation and certification done by the Thoracic Surgery Residency Review Committee of the ACGME. The American Board of Thoracic Surgery has been responsible for primary certification as well as maintenance of certification for surgeons who have completed approved training programmes. In 1996 these organizations formed the Joint Council for Thoracic Surgery Education to cross-pollinate and coordinate thoracic surgery education [10].

The striking differences in the working hours and training administration of North American and European trainees should be given some thought at this side of the Atlantic. This has been further reinforced by recent evidence from Schijven et al. who compared 21 practice-ready candidate surgeons from Canada and Holland with the main difference being length of hours spent during training. They noted 'no significant differences were found in performance on the integrative and cognitive examination or the technical skills test.' However, a significant difference in outcome was observed on the Patient Assessment and Management Examination, which focuses on skills needed to manage patients with complex problems [11].

The current state of cardio-thoracic surgical training in the EU as a whole appears to be precarious and imbalanced. The application of the EWTD is likely to make matters worse unless swift and specific action is taken in order to ensure basic standards of training across the Union [12, 13]. This is mandatory in an environment of mutual recognition of medical specialties degrees.

A limitation of this study is the relatively low response rate to the questionnaire, similar to that of other surveys among trainees [14, 15]. The reasons for this are likely to be multifactorial and to include survey fatigue, lack of spare time and perception of surveys as a nuisance. The target population of the present survey is composed by surgeons in training from EU countries, who can perceive supranational associations, such as EACTS powerless to induce real political change.

Nevertheless, the results correspond to data from at least 55 training centres in the EU, which represents a significant sample population. Whatever the case, there is little doubt that an agreement must be reached among those responsible for ensuring high quality surgical practice in order to establish targets of knowledge and technical proficiency for all practicing surgeons. This involves the design of adequate training structures with selection and assessment processes, granting means of transfer of knowledge, provided by tutors trained in the science of teaching. There is no need to reinvent the wheel. There are EU countries with well-established, solid and comprehensive curricula (e.g. http://www.iscp.ac.uk/), which could be adapted for the whole of the EU. For those who believe in the importance of training, there is no time to waste. Let’s face the facts, let’s take action.

References