FACTS, VIEWS & VISION

Issues in Obstetrics, Gynaecology and Reproductive Health

in ObGyn



When training becomes fun for trainers and trainees

Medical education in obstetrics and gynaecology: an update

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Editorial
Training in Obstetrics and Gynaecology

The specialty of obstetrics and gynaecology offers a unique history of education. Gynaecology is a more recent field but obstetrics is as old as mankind. However, in ancient times, obstetrical knowledge was not accumulated or systematically taught.

In the 17th century, the obstetrical forceps were invented by the Chamberlen family which was active in France and England. But the Chamberlen obstetricians deliberately kept their knowledge to themselves for 150 years to maintain their competitive edge. Their invention was not published and their knowledge was not shared for the benefit of a wider population. Fortunately, the attitude towards training has changed completely since the Chamberlen days.

Since then it has been universally accepted that the transfer of knowledge and abilities is a very important element of medicine and education is seen as a key element in the health sector in the same way as patient treatment and research.

Postgraduate medical training used to be very practical and take place in a Master-Apprentice relationship but gradually more and more theoretical knowledge has been incorporated into training and lately education and training are being developed at an unprecedented speed.

EBCOG – the European Board and College of Obstetrics and Gynaecology – has always had education and training as a key element of its activities. EBCOG has developed logbooks for training in general obstetrics and gynaecology and also, in cooperation with the four European subspecialty societies, for the subspecialties of perinatal medicine, gynaecological oncology, reproductive medicine and urogynaecology. Also EBCOG has developed and maintained a visitation and accreditation process for training centres throughout Europe and EBCOG is very active in organising Training the Trainers courses.

Therefore EBCOG is particularly pleased to present this monograph of papers by prominent colleagues from Europe and other parts of the world describing a number of current issues and developments in training within our field.

It is clear to us that training should be put into a wider perspective. Rather than simply being the transfer of knowledge, training should enable the professionals and the health care systems to prepare to cope with the requirements of a changing society. One very evident global change is the increasing focus on patient safety, a focus that must be apparent throughout our training programmes. The individual national authorities regulate the national training programmes but the European Union regulations are of increasing importance to us all, one example being the Directive regarding the mutual recognition of professional qualifications.

Previously the practical part of our training took place at the bedside, in the delivery room or in the operating theatre. This, however, is an unsafe and expensive learning environment and a score of methods for simulation-based learning have been developed throughout obstetrics and gynaecology. Simulation-based training methods also have the advantage of facilitating evaluation and, in some fields, even accreditation and certification.

We hope that in this monograph you will find inspiration for your further work with training in obstetrics and gynaecology and we wish to thank the contributors and the editors Professor Ziva Novak Antolic and Professor Willem Ombelet for their great work.

Chiara Benedetto
President of EBCOG

Peter Hornnes
Past-President of EBCOG

Introduction

Life is good! Isn't it wonderful we can do what we really like to do? Besides that what we do helps other people and we even get paid for that! Knowledge is among us, it is not in us; all together we know everything. It was really nice of ENTOG to remind us we should improve ourselves as trainers and train in a more structured way. Within the EBCOG SCTA (Standing Committee for Training and Assessment) we soon found out that all over Europe we face the same challenges in training.

First of all I would like to thank all authors and referees. Most authors are friends, doctors and professors from many European countries: Rudi Campo, Tahir Mahmood, Juha Makinen, Norbert Pateisky, Karen Rose, Fedde Scheele and Juriy Wladimiroff. I could never thank them enough for their enthusiasm! My special thanks to colleagues I do not know personally, they were asked by my friends to contribute: Antoine Watrelot, Jussi Mertsola and Diogo Ayres de Campos. I never met Sylvia Cruess from Canada. By reading the book *Teaching medical professionalism* which she co-authored, I dreamed how valuable it would be to have her contribution on professionalism in this Monograph. As a real professional, convinced that teaching professionalism is extremely important, she did not hesitate a moment and agreed to write a paper.

All authors are internationally renowned with vast experience in different fields of our profession. Their expertise is visible and palpable in the articles, which are simple and practical in the best sense of the word. Most authors have a longer experience in the field of medical education than I do. I have been teaching students and trainees for more than 35 years but I was never until recently been taught how to teach and train. Adult education, medical education specifically, is a science that develops as well as other sciences do. Future doctors face different circumstances than we did. With all our knowledge, skills, attitude and experience we are obliged to make the best possible future for all of us: trainees, trainers and, most important, patients!

Last and most, I want to thank Willem Ombelet, Editor-in-chief of "*Facts, Views & Vision in ObGyn*". He is not only a perfect editor but a visionary with realistic views which is so much needed in these days! Without his positive encouragement, perfect but simple solutions and support there would be no Monograph at all.

The sooner we realise that trainers learn from trainees as much as trainees learn form trainers, the sooner the training will be fun for all of us.

Živa Novak Antolič

Teaching professionalism – Why, What and How

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Abstract

Due to changes in the delivery of health care and in society, medicine became aware of serious threats to its professionalism. Beginning in the mid-1990s it was agreed that if professionalism was to survive, an important step would be to teach it explicitly to students, residents, and practicing physicians. This has become a requirement for medical schools and training programs in many countries. There are several challenges in teaching professionalism. The first challenge is to agree on the definition to be used in imparting knowledge of the subjects to students and faculty. The second is to develop means of encouraging students to consistently demonstrate the behaviors characteristic of a professional - essentially to develop a professional identity.

Teaching of professionalism must be both explicit and implicit. The cognitive base consisting of definitions and attributes and medicine's social contract with society must be taught and evaluated explicitly. Of even more importance, there must be an emphasis on experiential learning and reflection on personal experience. The general principles, which can be helpful to an institution or program of teaching professionalism, are presented, along with the experience of McGill University, an institution which has established a comprehensive program on the teaching of professionalism.

Key words: **Professionalism, teaching professionalism, professional identity, medical curriculum.**

"Teaching professionalism is not so much a particular segment of the curriculum as a defining dimension of medical education as a whole" (Sullivan WM, 2009, p. xi).

Why teach Professionalism?

The past half century has seen major changes in the practice of medicine. The explosion of science and technology, as well as the development of multiple specialties and sub-specialties, has made the profession both more diverse and disease oriented (Starr, 1984). The increased complexity of care and its cost have brought third party payers, either governments or the corporate sector, into the business of health. Society has also changed. Starting in the 1960s all forms of authority were questioned, including the professions (Krause, 1996; Hafferty & McKinley, 1993). Medicine in particular was seen as self serving rather than promoting the public good and was felt to self-regulate poorly with weak standards applied irregularly. There was a feeling that the professions did not deserve the trust or their privileged position in society. As a result medicine began to examine the threats to its professionalism and, starting in the mid-1990s, realized that if professionalism was to survive, action would be required. It was concluded that one important step would be to teach professionalism explicitly to students, residents, and practicing physicians (Cruess & Cruess, 1997a; Cruess & Cruess, 1997b; Cohen, 2006). In many western countries this has become a requirement for accreditation of medical schools and training programs. There has been an amazing increase in the medical literature on professionalism and medicine's social contract with society, as well as how best to teach and evaluate professionalism (Cruess et al., 2009; Stern, 2005; Hodges et al., 2011).

The Challenges

There are several challenges inherent in teaching professionalism (Cruess et al., 2009; Cruess & Cruess, 2006). The first is to obtain agreement on a

definition. The next is how best to impart knowledge of professionalism to students and faculty. Of great importance is how to encourage those behaviors characteristic of a professional (developing a professional identity). Traditionally professionalism was taught by role-models (Wright et al., 1998; Kenny et al., 2003; Cruess et al., 2008). This is still an essential method but it is no longer sufficient. Both faculty, many of whom are role-models, and students should understand the nature of contemporary professionalism. In the literature there are two approaches to teaching professionalism; to teach it explicitly as a series of traits (Swick, 2000) or as a moral endeavor, stressing reflection and experiential learning (Coulehan, 2005; Huddle, 2005). Neither alone is sufficient. Teaching it by providing a definition and listing a series of traits gives students only a theoretical knowledge of the subject. Relying solely on role modeling and experiential learning is selective, often disorganized, and actually represents what was done in the past. Both approaches must be combined in order that students both understand the nature of professionalism and internalize its values (Ludmerer, 1999).

The first step to be taken in teaching professionalism is to teach its cognitive base explicitly. (Cruess et al., 2009; Cruess & Cruess, 2006) This will allow both faculty and students to have the same understanding of the nature of professionalism and share the same vocabulary as they reflect upon it. A medical institution should therefore select and agree on the definition of a profession and its attributes. There is some confusion in the literature on the exact nature of the words profession and professionalism, with some believing that it is difficult to define professionalism as it is too complex and context driven. There are however several definitions available, and all contain similar content (Stern, 2005; Swick, 2000; Steinert et al., 2007; Sullivan and Arnold, 2009; Todhunter et al., 2011). There are also attributes, drawn from the literature, which outline what is expected of a medical professional and these can form the basis of identifying the behaviors which reflect these attributes (Cruess et al., 2009).

Profession and Professionalism

The literature contains many definitions which can serve as the basis of the teaching of professionalism. While the arrangement of the words may vary, the content of these definitions is remarkably similar. The International Charter on Medical Professionalism (Brennan et al., 2002), the Royal College of Physicians of London (2005), Swick (2000), Stern (2005) and others have published acceptable definitions. We developed and published the following definition of profession which has served us well in our teaching programs (Cruess et al., 2004).

Profession: An occupation whose core element is work based upon the mastery of a complex body of knowledge and skills. It is a vocation in which knowledge of some department of science or learning or the practice of an art founded upon it is used in the service of others. Its members are governed by codes of ethics and profess a commitment to competence, integrity and morality, altruism, and the promotion of the public good within their domain. These commitments form the basis of a social contract between a profession and society, which in return grants the profession a monopoly over the use of its knowledge base, the right to considerable autonomy in practice and the privilege of self-regulation. Professions and their members are accountable to those served, to the profession and to society.

Professionalism as a term is obviously derived from the word profession. The definition provided by the Royal College of Physicians of London is useful for teaching (2005).

Professionalism: A set of values, behaviors, and relationships that underpins the trust that the public has in doctors.

We believe that physicians serve two separate but interlocking roles as they practice medicine, those of the healer and the professional (Figure 1). While they cannot be separated in practice, for teaching purposes it is useful to distinguish them (Cruess et al., 2009). The healer has been present since before recorded history and the characteristics of the healer appear to be universal. In every society those who are ill wish healers to demonstrate competence, caring and compassion, and treat them as individuals. While the word profession has been used since the time of Hippocrates, the modern professions arose in the guilds and universities of medieval England and Europe (Starr, 1984; Hafferty & McKinley, 1993). The medical profession had little impact on society until science provided a base for modern medicine and the Industrial Revolution provided sufficient wealth so that health care could actually be purchased. At this time, society turned to the pre-existing professions and organized the delivery of healthcare around them by granting licensure. This provided a monopoly over practice, considerable autonomy, the privilege of self-regulation, and financial rewards. The attributes of the healer and of the professional are shown in Figure 2. Together, they outline societal expectations of individual physicians and the medical profession under medicine's social contract.

The definitions and list of attributes which serve as the basis of the cognitive base should be taught as early as possible in the curriculum and expanded in

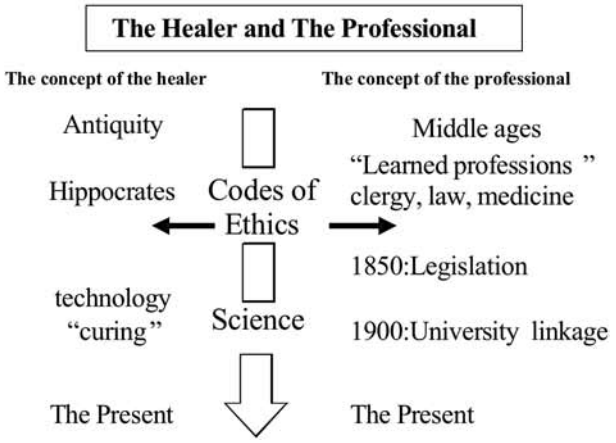

Fig. 1. — The healer and the professional have different origins and have evolved in parallel but separately. As shown on the left, all societies have required the services of healers. The western tradition of healing began in Hellenic Greece and is the part of the self image of the medical profession. Curing came possible only with the advent of scientific medicine. The modern professions arose in the guilds and universities of medieval Europe and England. They acquired their present form in the middle of the nineteenth century when licensing laws gave medicine. Its monopoly in practice.

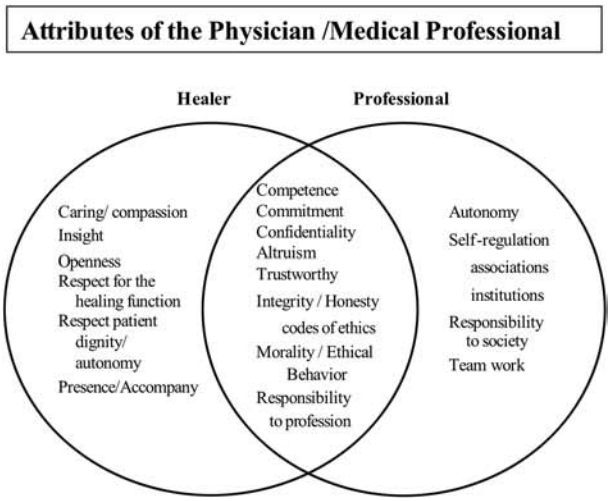

Fig. 2. — Caption for Fig II. The attributes traditionally associated with the healer are shown in the left hand circle and those with the professional on the right. As can be seen, there are attributes unique to each role. Those shared by both are found in the large area of overlap of the circles. This list of attributes is drawn from the literature on healing and professionalism.

later sessions to reinforce the knowledge base and provide experience in using the vocabulary. As students gain experience, the concept of the social contract between society and medicine (Cruess & Cruess, 2008) can be introduced. Sociologists tell us that society uses professions to organize the essential complex services that it requires, including those of the healer. It has been described by Klein (2006) as a "bargain" in which medicine is granted prestige, autonomy, the privilege of self-regulation and rewards on the understanding that physicians will be altruistic, self-regulate well, be trustworthy, and address the concerns of society. Although it is not a written contract with deliverables, there are reciprocal expectations and obligations on both sides. The concept of the social contract assists in introducing the obligations of a physician arising from the contract and provides a justification for their presence. In addition, as medicine and society change, the contract, as well as the professionalism which is linked to it, must evolve.

Developing professional identity

As experience in teaching professionalism has been gained, the realization has grown that the educational objective is to assist students as they develop a professional identity, a process that we are only beginning to understand. Identity can be defined as: "A set of characteristics or a description that distinguishes a person or thing from others" (Oxford Dictionary, 1989). Students enter medicine with an established identity and wish to acquire the identity of a physician. Professional identity formation is an evolving process that involves "a combination of experience and reflection on experience" (Hilton & Slotnick, 2005).

Professional identity develops through socialization which is"the process by which a person learns to function within a particular society or group by internalizing its values and norms" (Oxford Dictionary, 1989). Students must understand the identity they are to acquire and must be exposed to the experiences necessary for the formation of this identity (Hafferty, 2009). Finally, they require time to reflect on these experiences in a safe environment. Fundamental to the process is the presence of role models who demonstrate the behaviors characteristic of the healer and the professional in their daily lives. Finally, the learning environment must be supportive of the development of a professional identity. Teaching institutions are responsible for providing this environment, something that requires them to pay attention to the formal, the informal and the hidden curricula.

General principles

When an institution initiates a program of teaching professionalism, experience has shown that there are some general principles that are useful to follow (Cruess & Cruess, 2006).

Institutional Support

It is difficult to initiate a major teaching program without the support of the Dean's office and of the

Chairs of the major departments. As many bodies accrediting teaching and training programs now require professionalism to be taught and evaluated, administrative and financial support is becoming somewhat easier to obtain. Time must be mobilized in the curriculum, although experience has shown that the amount of additional time required is often not great. Most faculties already have activities taking place whose objective is to develop the professionalism of its students. These can frequently be reorganized into a coherent course to which can be added new learning experiences. In addition some administrative and financial support is almost always required.

Allocation of responsibility for the program

Someone must be responsible for the program and accountable for its performance. Ideally a respected member of the faculty is chosen to lead the design and implementation of the professionalism program and be its champion. In addition the program can benefit from the presence of an advisory committee with broad representation from the faculty. It must be remembered that professionalism crosses departmental lines and ideally exposure to it should come within the context of many departmental activities.

Continuity

The definition, attributes, and behaviors serve as the basis for instruction at all levels – undergraduate, postgraduate, and practicing physician. Ideally they should inform the admission policies of the medical school, be used for teaching students, residents, and faculty, and for continuing professional development. The unifying theme is a common understanding of nature of professionalism. How it is taught and evaluated will vary depending upon the educational level. There is general agreement that "stage appropriate educational activities", including assessment, should be devised and that they should represent an integrated entity throughout the continuum of medical education.

Incremental Approach

A comprehensive program for teaching professionalism is difficult to implement at all levels simultaneously. One should start with those activities devoted to the teaching of professionalism that are already in place. New programs often represent a combination of these activities and new learning experiences developed to complement what was previously taught. Once the objectives for the program on teaching professionalism have been developed, the program can be designed and introduced in incremental fashion.

The Cognitive Base

It is important to outline precisely what is to be taught. Thus, the cognitive base requires special attention. The definitions and attributes of the professional, which are to be the foundation of the teaching program, should be developed within the institution and general agreement on the educational approach to the subject obtained. Both the medical school and its teaching hospitals should participate in this process as all share the responsibility to understand and articulate what is expected of both students and faculty. The cognitive base must be taught explicitly and often, with increasing levels of sophistication appropriate to the student's level of learning.

Experiential learning and Self-Reflection

The introduction of the cognitive base provides learners with both knowledge of the nature of professionalism and its value system. Medicine's values must then be internalized so that they can serve as the foundation of a professional identity (Hafferty, 2009). There is wide consensus that students must experience situations in which these values become relevant or challenged as a necessary first step in the process of internalization. Learners must also have opportunities and time to reflect upon these experiences in a safe environment (Schon, 1987; Epstein, 1999). Teaching programs should ensure that students are exposed to the wide variety of experiences necessary to encompass knowledge of professionalism. The majority of these encounters will be true clinical situations, but in many instances they can be supplemented with reflection on experience from simulated clinical situations, small group discussions, clinical vignettes, role plays, film and video tape reviews, narratives, portfolios, social media, or directed reading (Cruess & Cruess, 2006).

The experiences used in teaching professionalism should be appropriate to the level of the student (Rudy, 2001). Reflection can be during the experience, on the experience, or after it has occurred, considering how action might differ in similar situations in the future.

Role Modeling

Role models must understand what aspects of professionalism they are modeling and be explicit about what they modeling (Cruess & Cruess, 2006; Wright et al., 1998; Kenny et al., 2003). Faculty

development is often required to provide role-models with knowledge of the cognitive base of professionalism (Steinert et al., 2007). The role-modeling of faculty should be assessed and there must be positive or negative consequences to the evaluation (Cruess et al., 2008). Role-models should be supported and good role-models rewarded, poor ones remediated, and those who have demonstrated that they cannot be a good role model removed from teaching.

Evaluation

Both the cognitive base and the behaviors reflective of professional attributes must be evaluated, obviously using different methods. Knowledge can be tested in the traditional ways, including multiple choice questions, essays, short answers etc. It has become clear that professional attitudes and values cannot be reliably evaluated. It is therefore necessary to develop a series of observable behaviors which reflect the attitudes and values of the professional that can be evaluated (Stern, 2005; Hodges et al., 2011). It has also been recognized that only by carrying out multiple observations by multiple observers can reliable and valid results be obtained. Tools have been developed in order to accomplish this, and they should be used to evaluate students, residents, and faculty.

The evaluation of behaviors should be formative as this supports the learning process (Sullivan & Arnold, 2009). Summative evaluation must also be done on students and residents as it is the responsibility of the profession to protect the public from unprofessional practitioners. The professionalism of faculty members must also be assessed (Todhunter et al., 2011). It is a universal complaint of students that they are encouraged to behave professionally but frequently are exposed to unprofessional conduct on the part of their teachers (Brainard & Bilsen, 2007). Assessment of faculty performance offers a possible means of correcting this.

The Environment

The environment in which learning takes place can have a profound positive or negative impact on learning. There are three major components to this environment: the formal, the informal, and the hidden curricula (Hafferty & Franks, 1994; Hafferty, 1998). The formal curriculum consists of the official material contained in the mission statement of an institution and its course objectives. It outlines what the faculty believes they are teaching. The informal curriculum consists of unscripted, unplanned, and highly interpersonal forms of teaching and learning that takes place in classrooms, corridors, elevators - indeed any place where students and faculty have contact. It is here that role models exert their positive or negative influence. Finally, the hidden curriculum functions at the level of the organizational structure and culture of an institution. Allocation of time to certain activities, promotion policies and reward systems, that, for example, rewards research rather than teaching, can have a profound impact on the learning environment. This impact is felt disproportionately in the area of professionalism, which is so heavily dependent upon values. As a part of the establishment of any teaching program on professionalism, all elements of the curriculum must be addressed in order to ensure that they support professional values.

Faculty Development

Faculty development is fundamental to the establishment of a program of teaching professionalism (Steinert et al., 2007). It promotes institutional agreement on definitions and characteristics of professionalism. It allows the faculty to develop methods of teaching and evaluation and, properly used can lead to substantial changes in the curriculum. Most importantly, it helps to ensure the presence of skilled teachers, group leaders, and hopefully role models.

The McGill Experience

In 1997 McGill instituted the teaching of professionalism and over the next six years, in an incremental fashion, developed a four year program on Physicianship (Cruess & Cruess, 2006; Boudreau et al., 2011; Boudreau et al., 2007). The concept includes the separate but overlapping roles of physicians as healers and as professionals. Through a series of faculty development workshops the faculty agreed upon the definitions to be used and the attributes to be taught and evaluated (Steinert et al., 2007). These became the basis for 1. the selection of students 2. the content of teaching and 3. of the evaluation of students, residents, and faculty.

Student selection

McGill changed its student selection process to one utilizing the multiple mini interview process (MMI) (Razack et al., 2009). The mini-interviews take place in a simulation center using actors. There are 10 stations, with each station designed to demonstrate the presence in the applicant of the behaviors found in a model physician. The purpose is to identify those candidates who already demonstrate the attributes of the healer and the professional and, importantly, to publicly indicate the importance of these attributes.

For those students who are granted an interview, the MMI score contributes 70% of the candidate's final ranking on the admission scale. Unpublished data indicates that the MMI scores correlate with clinical performance during medical school.

There are three major aspects to the undergraduate program; whole class activities on both the healer and the professional; unit specific activities in various departments; and a mentorship program. The faculty first identified those components that were already being taught (ethics, professionalism, narrative medicine, end-of-life care) and added the others as they were developed.

Whole class activities

In the undergraduate curriculum, a longitudinal course on Physicianship that the students are required to pass was developed and implemented (Cruess & Cruess, 2006; Boudreau et al., 2007; Boudreau et al., 2011). It contained two separate but overlapping blocks on the healer and the professional.

Whole class activities include lectures on the nature of professionalism. Of symbolic significance, the first lecture on the first day of class is a didactic session on professionalism which presents the definitions and vocabulary which will be used. This is followed by small group sessions with trained faculty that examines vignettes demonstrating good and poor professional behavior. The objective is to identify the attributes present in each, familiarizing students with the vocabulary and the use of the concept. Ethics lectures are given and are always followed by small group discussions. Communication skills are taught using the Calgary-Cambridge format (Kurtz & Silverman, 1996). The subjects covered in the bloc on the Healer are physician wellness, the perspective of both the doctor and patient in the doctor-patient relationship, working with members of the health care team, and analyzing the nature of suffering. Great emphasis is placed upon reviewing narratives of the experiences of both patients and physicians. Other whole class activities include the introduction to the cadaver as the student's first patient as well as a body donor service developed by students to show appreciation for the donors of the bodies. There is a white coat ceremony given prior to entry into the clinical years. Palliative care is felt to emphasize the healer role and there are special reflective experiences in this domain with mentors. In the last year students attend seminars with the goal of uniting the healer and professionalism roles. Students are given a fuller exposure to the concept of medicine's social contract with society and encouraged to reflect on which of the public expectations of the profession they will find difficult to fulfill and how they might overcome these difficulties. These discussions are guided by their mentors (Osler Fellows) who have been with them for all four years.

Unit specific activities

Each department is encouraged to develop unit specific activities on the roles of the healer and the professional. Departmental rounds are devoted to the subject, bedside discussions of conflicts in professionalism take place, and the professionalism of students is assessed on ongoing basis. Of necessity, there is less structure to unit-specific activities than is present in whole class activities, but they are of extreme importance in providing experiences upon which students reflect with their mentors.

Osler Fellows

A mentorship program was established with the mentors being given the title of "Osler Fellows". They were selected from a list of nominations by students and faculty of those recognized as being outstanding teachers, practitioners and role models. Each Osler Fellow mentors six students throughout their medical school career. They are an important part of the teaching of professionalism as they have a series of mandated activities which must be carried out. A portfolio is instituted, with an emphasis on professionalism, and narratives are produced and reviewed. There are of course a host of unscheduled encounters during which the student and mentor establish a relationship. The Osler Fellows have a dedicated faculty development program to familiarize them with their roles (Steinert et al., 2010).

Postgraduate education

During postgraduate training, residents have several half day recall sessions each year (Snell, 2009). At one of these there is a review of the cognitive base of professionalism as many residents are from diverse backgrounds. It is important to provide a common vocabulary for use in training and practice. The review is followed by small group sessions including residents from different specialties who discuss their experiences of professionalism during residency with an emphasis on how they will meet their responsibilities to society. Residents are involved as group leaders for the undergraduate sessions, participate in the assessment of the professionalism of students and faculty, and sessions are held to assist them in understanding their roles as teachers and role-models. The subjects covered in other half-day sessions that relate to professionalism are ethics,

malpractice, risk management, teamwork, communication skills, and their own wellness.

Conclusion

Teaching professionalism requires that each teaching community agree on the cognitive base - a definition of profession, the attributes of the professional, and the relationship of medicine to the society which it serves. These should be taught explicitly. The program should extend throughout the continuum of medical education and passing should be obligatory for progression to the next level. The substance of professionalism must become part of each physician's identity and be reflected in observable behaviors. Professionalism should be taught as "an Ideal to be pursued" rather than as a set of rules and regulations (Cruess et al., 2000).

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Thank them trainees! TTT workshops have positive influence on trainers

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Abstract

European Network of Trainees in Obstetrics and Gynaecology requested of Standing Committee for Training and Assessment at the European Board and College of Obstetrics and Gynaecology that trainers are at least minimally trained. Following this request the Royal College of Obstetricians and Gynaecologists (RCOG) organized Training the trainers (TTT) workshops for European trainers. Two of our senior trainers attended these RCOG workshops and subsequently organized TTT workshops at our institution on a voluntary basis. Till February 2012, 145 participants from more than 20 different medical specialties attended 25 one-day workshops. In basic workshops tools for proper feedback, teaching practical skills, assessment and appraisal were demonstrated. In advanced TTT2 workshops the topics were: difficult appraisal, teaching on models, reminder on professionalism, how to fight burn-out, how to use 6 thinking hats tool etc. Participants were given autonomy, road to mastery, and have seen purpose in TTT. They all acknowledged the need of workshops and expressed wishes to attend TTT workshops at least once every two years. As participants were from different specialties, personal communication among different departments in a big hospital increased. Trainers were enthusiastic because workshops are held in a relaxed but interactive atmosphere. They discovered hidden potentials they themselves had. Problems in training, which they thought were only theirs, were found to be general. With the aid of appropriate thinking tools and by being proactive, ideas for better training are pouring out. TTT also greatly helps self-improvement of trainers.

Key words: **Medical education, feedback, appraisal, proactive attitude, burn-out, six thinking hats.**

Introduction

As the science and technology of medicine are developing, so is the science of adult education. Medical teaching is specific, not ordinary adult teaching (Grant, 1998). Trainers are medical doctors, but most have not had any formal education how to teach. In human affairs generally there is less progress than in technology (de Bono, 2009). Despite this, when first entering medical education field, one finds that a huge amount of literature is available. In the beginning, short tips are very welcome, just to get oriented (Ramani, 2006; Garden, 2009).

European Network of Trainees of Obstetrics and Gynaecology (ENTOG) requested of Standing Committee for Training and Assessment (SCTA) at the European Board and College of Obstetrics and Gynaecology (EBCOG) that trainers are at least minimally trained. The goal of Training the trainers (TTT) workshops is giving trainers basic information about tools to make the training more efficient and fun, to appraise, supervise, assess and support trainees.

How to start the TTT process

Royal College of Obstetrics and Gynaecology (RCOG) have been organizing TTT workshops for more than 15 years. In 2007 RCOG organized TTT workshops especially for EBCOG trainers in London and in Turin with Professor Chiara Benedetto. After attending these workshops the principal author and Dr Vasilij Cerar started TTT at the University Medical Centre Ljubljana (UMCL), with the formal support from the Committee for Education of UMCL. Medical Chamber, which in Slovenia is in charge of training, officially recommended TTT to tutors and supervisors and awarded 7 CPD points for

participation. This is one tenth of CPD points needed for one licensing period. TTT workshops were publicized on the intranet, in internal newsletter of UMCL, in official Journal of the Medical Chamber, by letters to chiefs of departments, and key tutors and supervisors from all specialties were personally invited. Participation was on voluntary basis.

Contents

We adapted the standard structure of the RCOG TTT workshop's first day and named it "basic TTT". The main topics of this 7-hour workshop are explained below. All are presented in mini-lectures of about 15 minutes, followed by 1h exercises/training.

Basic adult medical education theory is discussed with participants. Adults take responsibility for learning, they learn from experience and reflection on experience. They are motivated to learn when they have autonomy, can proceed to mastery and see purpose in their work.

Giving proper feedback is a skill and an art a good trainer should know. Feedback should promote self reflection in the trainee about strong points s/he knows and those s/he is not aware of. S/he should reflect on weak points and trainers show how these can be improved. Proper feedback improves training and must not be insulting. The importance of feedback does not end with the end of training. Superior performers intentionally seek feedback continuously (Goleman, 1998).

Practical skill is taught in a four-step cognitive training method (Murphy et al., 2008). In our training we all advance from being unconsciously incompetent, through conscious incompetence and conscious competence, to the final level of unconscious competence. When teaching a practical skill the trainer first performs the task without talking – this is important for motivation; trainee makes a mental pattern of the skill. In the second step trainer talks through and performs the task; trainee learns why and how the skill is performed. By verbalizing the skill trainer moves down to the trainee's level. In the third step the trainee talks and the trainer performs only what is correct; this step is important for safety. In the fourth step trainee talks and performs. In training a practical skill the trainer becomes again consciously competent, even though s/he is already unconsciously competent to perform the skill.

Appraisals are very welcomed by trainees; they show the tutor really cares for their development. In the induction interview (Pendleton & Wakeford, 1988) trainee explains his/hers expectations and the tutor is specific about expectations, goals and time schedules of the institution; a kind of contract is signed. At the TTT workshop this is practiced as a role play. Regular appraisals are meant to guide and support the trainee (not solve personal problems, but acknowledge them), to set goals, to find areas where improvement is needed, and plan how to address this. Logbook and use of logic of plan – do – study - act (PDSA cycle) (Deming, 1982) is helping. Appraisal should be informal.

Assessment is, on the other hand, formal. It is generally done for a licensing body, and compares knowledge, skills, behaviour and attitudes of trainee against agreed standards. Assessment of **theoretical knowledge** goes from recall of data, to comprehension, application, analysis, synthesis and evaluation. Regarding **skills**, structured assessment tools are given to participants. Reliance on expert human judgement in clinical environment is scientifically justified and should be used (van der Vleuten et al., 2010). Objectives and standards must be known before the assessment; assessors should be trained; what passing and failing means should be clear. Assessment should be transparent, feasible, valid, reliable, and training should improve because of assessment. **Behaviour and attitude** are usually not regularly assessed; multi-source feedback is offered to participants - a tool already used in obstetrics and gynaecology training in Slovenia (Novak Antolič & Steblovnik, 2012, in press).

The contents of TTT2, which we named "advanced" workshops (adapted from the second day of RCOG workshop) are: difficult appraisal, teaching on simulators/ models, reminder on professionalism, basics of negotiations, communication of bad news, how to fight burn-out, how to cope with stress, how to use 6 hats parallel thinking tool, basics of mnemotechnics.

There are few trainees who fail to meet reasonable standards. Nevertheless, these trainees require most of trainers, tutors and supervisors educational work. The article in this Monograph ***Managing trainee doctor in difficulty*** discusses this issue at length. At the TTT2 workshop real life scenarios are role played and participants are encouraged to find solutions.

Simulation learning on models and simulators is reality. Trainers should know advantages and limitations of simulation learning, including the emotional feedback of participants and possible oversimplification of a complex reality (Reynolds et al., 2011). Planning the simulation scenarios (Paver Eržen et al., 2012, in press) should include meticulous planning of debriefing sessions (Fanning & Gaba, 2007).

Professionalism can be taught, trained and assessed (Cruess et al., 2009; Cruess et al., 2008).

What we do, in fact, when we see patients or work with colleagues, and also in everyday live in our society, are **negotiations**. Everybody is special and

everybody deserves special approach: but there are some principles of negotiations that are good to know to make our lives easier. Life is not ideal. To live it without too many frustrations, it helps being assertive and master specific social skills. Integrity and mutual understanding make basis of efficient negotiation. There is no place for anger, information hiding, ridicule, threat with ultimatum – as we will have to work on with the same people for a long time.

As doctors we face sad moments; we should not leave our patients alone then. It is valuable to know how **to communicate bad news**, be as direct and realistic as minimally necessary, but at the same time be there for the patients and support them (Buckman, 2001; Hollis et al., 2007).

Seeing how medicine fail to cure everybody, long working hours, years of being most of the time away from the family, all these may lead to **burn-out** in doctors. Those who know **how to cope** with everyday stress – which is the most devastating – will be good trainers, good doctors and good partners.

In medicine, there is much to remember even in the computer era. **Basics of mnemotechnics** are shown for everybody to work on to achieve mastery if they feel like it (Foer, 2011). Dr Edward de Bono invented **6 hats parallel thinking tool** (de Bono, 1985) for shorter and, at the same time, more efficient meetings. It works best in small group. Participants of TTT workshops never fail to marvel how great the potential of many brains together is compared to one!

How to keep TTT going

In Slovenia with 2 million inhabitants UMCL is one of two tertiary centres with 7800 employees. Out of around 1100 physicians more than 300 are trainees of various specialties. All physicians are very busy and at first did not see the use of attending TTT. Making workshop mandatory would just prolong the list of all mandatory things (reports, meetings etc) doctors hate. As TTT was recommended for supervisors and tutors only, trainers thought it was not meant for them (see the definitions at the end of the article). Expressions like supervisor, tutor, mentor and trainer do not have the same meaning in different countries and more confusion is added with translation. To avoid misunderstanding, information on TTT was published (Novak et al., 2010) and explaining was done personally by those who organized TTT workshops, and by those who already participated.

In this way continuous demand of participants was served, from March 2008 until February 2012, with organization of 20 basic TTT workshops, 2 basic TTT on demand, and 3 advanced TTT2 workshops. 145 different participants were from more than 20 medical specialties and also from fields of biochemistry, pharmacy and biology. Criterion for participation in advanced TTT2 was that person already attended the basic TTT; thus 25 participants of the three TTT2 workshops are not counted as additional participants. Two TTT on demand were for two teams of the same specialty, one in UMCL and one in another hospital. Less than 8 percent of participants came to UMCL from other parts of Slovenia.

Organizing TTT also led to disappointments. Workshops work best in groups of 8 to 10, with one facilitator per 4 participants. Doctors are very busy; sometimes even when planning in advance, they were not able to attend. They found out they could not come very late, usually on the very day of the TTT workshop. It was then not possible to call somebody else from the waiting list, because s/he would have already planned commitments for that day. 6 thinking hats tool helped us to solve this problem and this also turned out to be an exercise in accountability. Namely, everybody who registers, must at the same time find his/hers deputy who will come if the registered participant is unable to come.

EBNE: Excellent but not enough

The most important feature of TTT workshops was interactivity and relaxed atmosphere. As for the contents, the important feature was flexibility. In the article ***The art of medical education*** in this Monograph it is stated that we are educating for the near future. That is why trainers should be flexible, given various tools (and they will themselves invent new) adapted for challenges of the future. We can not solve the problems and challenges of future with models and modes that have led to these problems in the first place.

Trainers from different specialties from UMCL added value to TTT. Again, as stressed in ***The art of medical education***, mono-disciplinary solutions are not as good as solutions from different disciplines, in this case, different medical specialties. The same goes for the age of participants: at first mostly supervisors and tutors participated. However, simple mathematics shows that it is much more profitable if already very young trainers learn the basics of how to train. They will be able to use appropriate tools for a very long time in their professional life. Attendance of young doctors adds to better understanding among generations, respect and good learning climate.

A good physician is always on the learning curve, no matter how old s/he is. New methods of treatment are coming, new procedures... Complications are the price for development. Even in the time of simulators and models. But if one only performs what one is very good at, the moment will come when s/he will not be able to provide her/his patients the best possible care.

Very few physicians are geniuses – those very rare who find new, better solutions. The majority of us, however, should be prepared to accept these solutions, when there is enough evidence that they really improve patient's care. We should take novelties with a grain of salt, but being an eternal sceptic will not benefit anyone in the long-run.

The future of TTT

The 2011 TTT workshop, organized in Turin by Professor Chiari Benedetto, was for trainers and trainees in obstetrics and gynaecology from many countries. It was organized as a template for future workshops within EBCOG. Convinced of the benefit of TTT, the president of EBCOG named a group for TTT support. Members of this group are: Prof Chiara Benedetto, Dr Angelique Goverde, Prof Tahir Mahmood, Dr Jacky Nizard, Prof Fedde Scheele and led by the first author. All departments that apply for EBCOG hospital recognition will be asked if they have already had TTT workshops. If the answer is no, they will be offered support in organizing these workshops. TTT is only a part of the process of medical education. It should remain voluntary: commitment to education, organization, hospital, medicine and patients is thus expressed.

Conclusions

Why did we give such name to the monograph: *When training becomes fun for trainers and trainees*? To emphasize that by commitment and flexibility everything is easier for all parties involved. Besides, it was already William Makepeace Thackeray who said: "Good humour is one of the best articles of dress one can wear in society." Everybody can contribute: the sum of contributions is enormous. Those who do nothing because they think their contribution is not big enough make the greatest mistake. Adaptation to new demands in medicine (more patients, better educated and informed patients, tendency towards lawsuits; more trainees, less time spent with trainees, increasing number of different procedures, less invasive procedures, shorter hospital stay; different modes of obtaining information, and the enormous amount of information) is the way forward. Physicians should not complain over enormous amount of work. A lot of work means a lot of success. In addition, complaining can only make one feel worse and does not solve the problem. What separates experts from the rest is that they tend to engage in a very directed, highly focused routine, called deliberate practice (Ericsson et al., 2006). They focus on their technique, stay goal oriented and get immediate and constant feedback on their performance. Surgeons get better with time, because the feedback is immediate. In specialties where feedback is not immediate, this powerful tool is lost. World class status is achieved (regardless of the field: in violin playing, sports or medicine), after 10 000 hours of practice (Ericsson et al., 2006). In medicine, we are lucky. Our success is good for the patients. This, in turn, gives immediate value to our everyday work and sense to all the training needed to achieve this success.

Acknowledgements

Idis redibis non morieris in bello. The sentence in Latin can mean two completely opposite things: You will go, you will not come back, will die in the battle. Or, it can also mean: you will go, you will come back, you will not die in the battle. It depends where you put the comma.

The title of this article also has two meanings. By *Thank, them trainees!* trainers thank trainees for pushing the process of TTT. Trainers appreciate very much that for a change they are the centre and cared for. The first author wants to express gratitude to the ENTOG and trainees in general, for stimulating us seniors to perform better. By *Thank them, trainees!* trainees thank trainers for becoming better teachers and that training is becoming more efficient. We would especially like to thank good trainers in all EBCOG countries for their constant endeavour to become better in training trainees.

TTT workshops under the umbrella of EBCOG were organized for trainers in obstetrics and gynaecology by the first author and Dr Jacky Nizard in Lisbon, Ankara, Athens and Berlin; lectures on TTT were given in Belgrade and Sarajevo; a lot was learned from trainers everywhere.

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Definitions
Trainee: resident, doctor in training
Trainer: specialist, who works with trainee every day; coach
Tutor: senior colleague, who takes care of the trainee during whole training
Supervisor: academic colleague, who supervises the whole process of training

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Assessment of Ob-Gyn trainee's competence

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Abstract

The specialist training system in Obstetrics and Gynaecology is defined by the instructions, rules and recommendations of the European Board and College of Obstetricians and Gynaecologists (EBCOG). This article reviews the basic process and tools in evaluating the competence of the trainees during their training period. It pays special attention to the quality aspects which should be achieved before the trainee's performance is approved at a specialist level.

Key words: **Competence, evaluation, logbook, trainees, training in Obstetrics and Gynaecology.**

Introduction

The specialist training system in Obstetrics and Gynaecology including quality and quantity requirements are defined by EBCOG, the European Board and College of Obstetricians and Gynaecologists (EBCOG, 2012) under the auspices of the Union Européenne des Médecins Spécialistes (UEMS). In Finland also the instructions and rules given by the national authorities like the Ministry of Social and Health affairs and the Ministry of Education as well as national universities with medical faculties are to be followed (Turku University, 2011a).

The postgraduate period of Ob-Gyn training requires the trainees to be actively involved in overall and self-evaluation as well as development of the training program according to the Finnish legislation (FINLEX, 1998). The assessment of the overall competence is mainly based on the EBCOG Log Book, which has been in use in Europe since the 1990ies (EBCOG, 2005). This Log Book is considered an important tool in training and its assessment within the Ob-Gyn speciality. Cumulative numbers of procedures and interventions, other activities performed and proofs obtained during the training are completed in the Log Books and transferred into the Portfolio, which is a folder where all documents are kept until the end of the training (Figure 1). The Portfolio serves as a summative document of the training.

The free movement of professionals in Europe demands uniform quality of the doctors. The national organisations and universities as well as the training hospitals should follow the EBCOG requirements in the evaluation of the individual trainees as well as the total training process. This should be a natural part of daily and weekly activities just as the doctor's other assignments in the hospital. In practice, most of the basic assessment responsibility lies on the supervisors, the mentors and the trainers. They should finally guarantee good professional quality of trainees, in order to provide optimal health care in the speciality, and thus be competent to practice independently, properly and safely without supervision.

In this article we review the EBCOG basic process and tools in evaluating the competence of the trainees during their training period in Obstetrics and Gynaecology, reflecting our own experience of the assessment in Finland.

EBCOG Log Book, Portfolio and Ob-Gyn curriculum

The EBCOG Log Book and Portfolio has been in use in Europe since 1990ies (EBCOG, 2005) and the

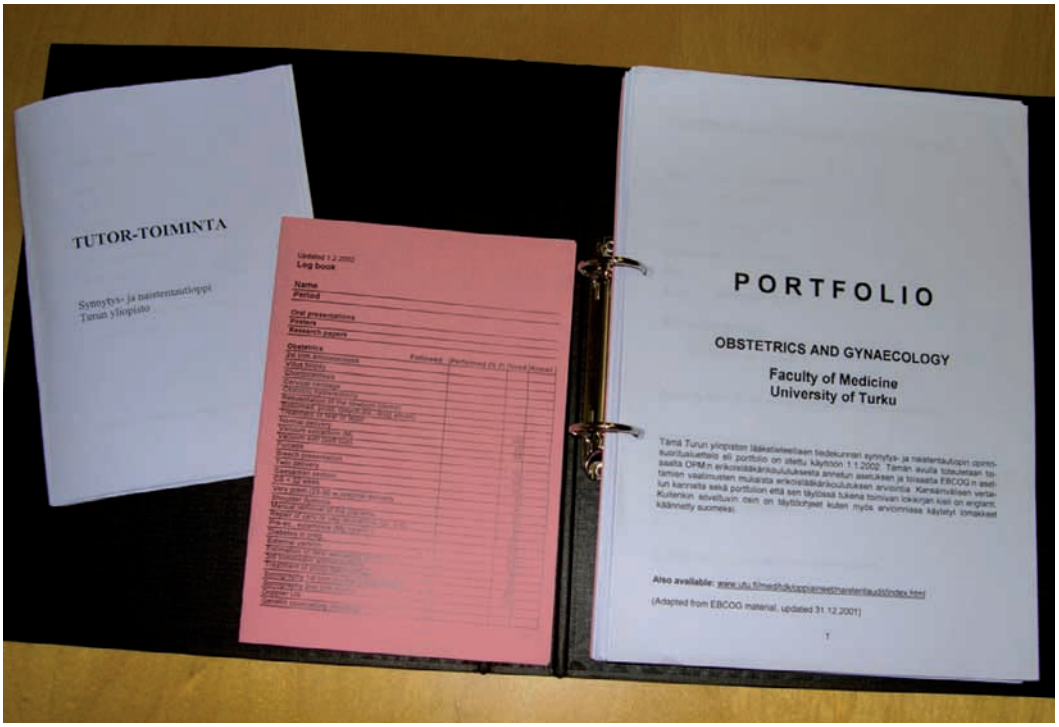


Fig. 1. — EBCOG Log Book (middle), Portfolio (right) and the Finnish guide for tutoring (left) used in training of Obstetrics and Gynaecology in Turku University of Finland (Turku University, 2011b).

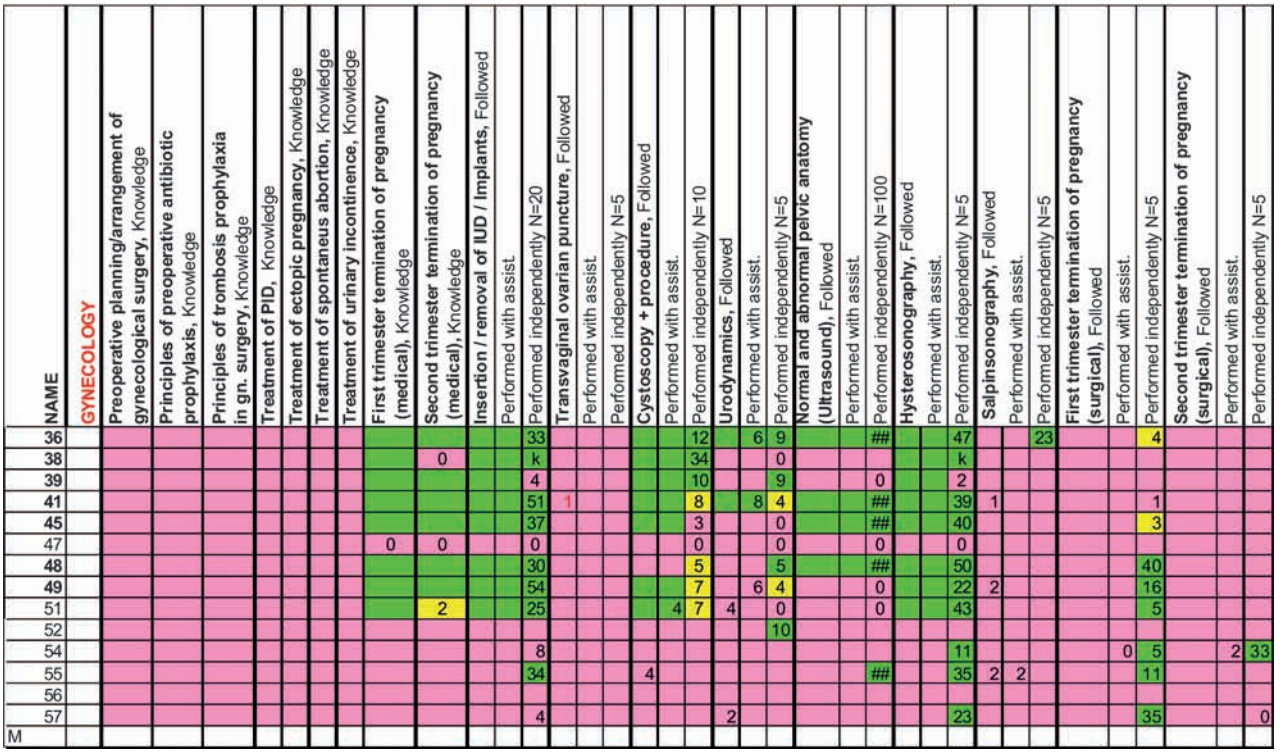
latest updated version is from June 2005. In Finland they have been slightly modified for national purposes, for example, breast diseases are not included in the curriculum (Turku University, 2011b).

The EBCOG Log Book includes all the trainee's potential interventions and procedures, other activities (congresses, lectures, and research), knowledge and adaptation of various patient treatments options, as well as legal and ethical aspects (EBCOG, 2005). These achievements are collected in the trainee's Portfolio. This should take place during the postgraduate period, which in total comprises a minimum of five years' full time training in an approved training programme. At least four years must be spent in an Ob-Gyn department. In the curriculum general Gynaecology and Obstetrics should comprise at least 18 months. Additional experience should be gained in reproductive endocrinology, gynaecological oncology, prenatal medicine, urogynaecology and both gynaecological and obstetrical ultrasound, as set out in the EBCOG recommendations (EBCOG, 2005). A maximum of 1 year in relevant research or in another speciality e.g. abdominal surgery, urology, anaesthesia and neonatal medicine, may be included in the total curriculum. In Finland the total curriculum is defined as 6 years, including 9 months' mandatory service in health-care centres and 6 months in (abdominal) surgery (Turku University, 2011a).

Ob-Gyn training should involve outpatient and inpatient management and emergency Ob-Gyn care in on- call duties. Targets are decided separately for each of the 5 years in a study plan, which the trainee and the tutor/mentor commonly agree upon. The evaluation of clinical and technical skills achieved should be checked at least annually by the tutor or trainer. The targets consist of patient assessment, surgical-, obstetrical- and ultrasound procedures, assessment of knowledge, attitudes and fulfilment of tasks, as well as a cumulative list of scientific meetings, courses attended, papers presented at scientific meetings and scientific publication(s) by the trainee. The latter is not manadatory but highly recommended.

Requirements

The trainees must participate in the care of out- and inpatients hospital activities and on call duties day and night, perform deliveries and gynaecological operations, participate in educational activities and the teaching of other health professionals, as well as participate in audits and in clinical and basic research. The amount of experience required in individual areas of training is indicated by the numerical recommendations which give a guideline for the training (Table I). The list is often modified for national puposes, but has to reach EBCOG minimum (Figure 2).



NAME	GYNECOLOGY	Preoperative planning/arrangement of gynecological surgery, Knowledge	Principles of preoperative antibiotic prophylaxis, Knowledge	Principles of trombosis prophylaxia in gn. surgery, Knowledge	Treatment of PID, Knowledge	Treatment of ectopic pregnancy, Knowledge	Treatment of spontaneus abortion, Knowledge	Treatment of urinary incontinence, Knowledge	First trimester termination of pregnancy (medical), Knowledge	Second trimester termination of pregnancy (medical), Knowledge	Insertion / removal of IUD / Implants, Followed	Performed with assist.	Performed independently N=20	Transvaginal ovarian puncture, Followed	Performed with assist.	Performed independently N=5	Cystoscopy + procedure, Followed	Performed with assist.	Performed independently N= 10	Urodynamics, Followed	Performed with assist.	Performed independently N=5	Normal and abnormal pelvic anatomy (Ultrasound), Followed	Performed with assist.	Performed independently N=100	Hysterosonography, Followed	Performed with assist.	Performed independently N=5	Salpinsonography, Followed	Performed with assist.	Performed independently N=5	First trimester termination of pregnancy (surgical), Followed	Performed with assist.	Performed independently N=5	Second trimester termination of pregnancy (surgical), Followed	Performed with assist.	Performed independently N=5
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Fig. 2. — One extract from pages of Ob-Gyn Log Book used in University of Turku, Finland – in electrical cumulative form the level of collected procedures are described by colours (numbers N behind the procedure are EBCOG minimum requirements; green colour indicates that the minimum level has exceeded) (Turku University, 2011b).

Table I. — Minimum number of technical acts in EBCOG Log Book (EBCOG 2005).

Obstetrics
- antenatal ultrasound examinations: 200
- normal labour and delivery: 100
- assisted vaginal delivery (forceps, vacuum extractions, breech): 40
- caesarean section: 40

Diagnostic procedures
- colposcopy: 50
- hysteroscopy. 25
- gynaecological ultrasound examination: 100

Gynaecological surgery
- diagnostic laparoscopy or sterilisation: 40
- minor laparoscopic surgery (e.g. ectopic pregnancy, ovarian cyst): 20
- hysterectomy: 40 (abdominal:15, laparoscopic: 10, vaginal:15)
- prolapse surgery: 10
- breast surgery including cancer: 20 *

* Only in those countries where this is part of gynaecological practice.

Definitions in training

The terms Log Book, tutoring and Portfolio are mostly uniform in European countries. However, many other definitions are a mixture of clinical traditions or habits used in the different EU/EEA-member countries. There is a risk of confusion until a suitable list can be agreed upon. The terminology should be more descriptive than the one used. For example, the role of the supervisor would be clearer if the title was "Academic Program Director", as currently is in use in the United States. This person is evidently the Educational Chief in University units also in Europe. According to EBCOG's glossary she/he is responsible for the co-ordination, monitoring and evaluation of training programmes for tutors and trainees (EBCOG, 2005). Also the term Syllabus in EBCOG recommendations (EBCOG, 2005) should be clarified as the training programme/ curriculum demands.

Table II. — Definitions used in training in Obstetrics and Gynaecology in Finland 2011.

Trainee = resident, registrar, young doctor in training
Trainer = senior doctor, specialist who works with trainee every day and judges the performance
Tutor = senior colleague taking care of the well being of the trainee during training
Mentor = supervisor i.e. academic person, director of he whole training programm
Log Book = leaflet summarizing all the achievements performed by the trainee
Portfolio = folder collecting all the material (Log Book, meetings, lectures, congresses, research etc.), achieved during training
Skills = ability to perform procedures, interventions, operations etc
Competence = graded quality of performance

The term tutor and mentor seem to be somewhat controversial: the former is used either as the local responsible trainer or the one who takes care of the professional well-being of the trainee, and the latter is evaluating the performance - or even vice versa! It should be decided which expression is sufficiently descriptive for this senior doctor. In Finland the list of definitions in use (Table II) defines the mentor as a supervisor i.e. the Academic Programme Director. The tutor takes care of the overall well- being of the trainee, while the trainer evaluates the performance of the trainee and contributes to the practical, clinical and scientific instructions of trainees. This is in accordance with the EBCOG glossary (EBCOG, 2005).

Competence grading

During training, the trainees should perform the minimum number of diagnostic and therapeutic procedures and technical activities (Table I) under senior supervision, but towards the completion of the training period the focus should be on performing them independently. Formal assessment during training should be done at least once a year and include three types (EBCOG, 2005): 1. Self assessment; where the trainees report their performances in a Log Book, 2. Formative assessment; where the trainers report the trainee's competence in performing clinical tasks and the trainee's interaction with patients and colleagues as well as other health care professionals and 3. Summative assessment; where intermediate evaluation during the training, rather than at the end, should focus on and identify shortcomings and weaknesses that requires improvements and if necessary, to recommend even a change of speciality. During the training, senior doctors are expected to regularly evaluate the number of procedures and interventions of the trainees. If these are below the minimum requirements, for example, if a lack of gynaecological procedures is evident, one should increase the operating days for the trainee. Other methods are to offer the use of simulators models, which are currently very good options to reach basic operating skills (Molinas & Campo, 2010).

Regarding the competence of performed procedures EBCOG Log Book divides them into 5 scores: 1 passive attendance, assistance, 2 needs close supervision, 3 able to carry out procedure under some supervision, 4 able to carry out procedure without supervision and 5 able to supervise and teach the procedure. In practice only the score 4 and 5 performance are approved at a specialist level of quality. In many hospitals these are recognized and accepted by a senior's signature.

According to the EBCOG Syllabus (EBCOG, 2005); the knowledge of many Ob-Gyn aspects should be achieved either as basic-, detailed- or comprehensive understanding of topics used in the clinical practice. In basic sciences these include anatomy, physiology and endocrinology, genetics, embryology, pathology, pharmacology, microbiology and immunology as well as statistics and epidemiology. In Gynaecology and Obstetrics aetiology, prevention, diagnostics, staging, indications as well as complications of certain diseases are to be understood. Furthermore, ethics, law and relevant public health issues should be included. Objective- and confidence- based evaluation of these matters are, however, rather difficult, but with growing experience of seniors (tutors, trainers and mentors) it is not impossible.

Quantity versus Quality

The number of procedures achieved (quantity) is relatively easy to follow, but the quality matters in education are more disposed to subjectivity. The competence levels ranges from observation (level 1) to teaching (level 5), but not all skills require higher levels of competence. In gynaecology the so called "musts" in performance, with the ability to even teach them, include curettage, insertion of IUD/implants, operation for Bartholin's cyst and vasectomy (if that is part of gynaecological practice in the country). In obstetrics these include spontaneous

delivery including episiotomy and its repair, vacuum extraction, management of a retained placenta, assessment of the fetus by CTG and 1st and 2nd trimester termination of pregnancy, in ultrasound it includes examinations in early pregnancy for viability as well as for chorionicity. The procedures where attendance as an observer is sufficient in obstetrics are cervical cerlage, amniocentesis, chorionic-villus sampling/ placental biopsy and chordocentesis. In gynaecology the only one is radical hysterectomy. Procedures which one should be able to carry out with some supervision, but not independently in gynaecology (level 3); myomectomy, vaginal hysterectomy and vaginal repairs, in obstetrics; breech delivery and external cephalic version and in ultrasound fetal morphology and Doppler flow measurements. Few others in gynaecology i.e. endometrial ablation or resection and suspension procedures are defined to need at least close supervision (level 2). All other procedures the trainee must learn to carry out independently.

Theory and practice

The EBCOG Log Book is a continuing updating process. The Standing Committee of Training and Assessment (SCTA) will complete the new version most probably in the spring of 2012. Some of the important issues are the terminology itself and also the required minimum numbers. Also, some novel issues are to be added.

It is evident that there are very few reports on how the training is carried out in reality and what its final outcome is. The basic question is: how the requirements are fulfilled. A recent survey in Finland focused on the quantity of gynaecological and obstetrical procedures at the highest competence level which the trainees had performed during their training. It was shown that the minimum level of required interventions and procedures are achieved at a higher grade in obstetrics than in gynaecology (Mäkinen et al., 2012).

The problem of an insufficient number of gynaecological procedures achieved during the training is evidently a reflection of the overall decrease of gynaecological operations in Europe. Especially hysterectomies have been replaced by more conservative approaches, for example in the treatment of menorrhagia. The same is true for many other Ob-Gyn procedures, old therapies are replaced by new ones (e.g. curettage versus diagnostic hysteroscopy or sono-hysterography, laparoscopic versus hysteroscopic sterilisation etc.). In this regard, the new simulators in ultrasound, hysteroscopy and laparoscopy are good options to the "real thing" and offer good training. These equipments help the current lack of traditional routine operations in many teaching hospitals. Also, training with simulator models is mandatory in some European countries before being allowed to do endoscopy on patients. It appears that in the near future EBCOG should also reconsider the minimum numbers required for common procedures, esp. those for hysterectomy types.

Discussion

Regular assessment of training in Europe should be mandatory by the trainees themselves as well as by their trainers. Tools for this purpose e.g. the Log Book and Portfolio have been free for use since the '90ies. In practice their use and methods in training varies remarkably in European countries and thus further and repeated guidance is needed (Meretoja & Kantanen, 2009). No consensus, however, exists on the reliability and validity of the methods used in the quality assessment of the trainees completing their training period. The need for such concrete models is well recognized worldwide in educational institutes (Baker, 2011, Fernandez Galvez, 2011).

The assessment of education and training in Obstetrics and Gynaecology should be directed towards two levels: on the one hand the system itself in teaching hospitals, and on the other hand, to the individuals performing the training. The former happens via the European rules for international or national hospital recognition, the latter mostly by the numbers collected in Log Book and Portfolio. This, unfortunately, evaluates quantity more than quality, although the procedures would be scored at high competence. So it would be useful to follow-up the subjects' performances and/or add information about their outcome i.e. perioperative morbidity and complications of procedures and interventions (Gawande, 2002). Additionally, the evaluation by senior doctors, contemporary colleagues in training, as well as a 360-degrees evaluation and NOTSS (Non-Technical Skills of Surgeon) (Yule et al., 2006) , would be helpful to give an overall impression of the trainees. In addition, clinical skills could also be evaluated by groups of senior teachers like in Sweden (Swedish Society for Doctors, 2011), but this requires extreme efforts and is not the prevailing method in many EU/EEA- countries, at least at the moment. Moreover, interaction in interview and clinical examination of the patients as well as diagnostic set- up, in decision-making, counselling, professionalism and organizing talents as well as the generic competencies like communication, management skills and collaboration, remain difficult to assess. The importance of developing suitable tools to assess these skills has been identified (Van der Lee et al., 2012).

One possibility to improve the assessment could be daily/weekly observation of the trainees by senior doctors (Fernandez Galvez, 2011). Such efforts are, however, very challenging, and this is why we should concentrate on combination of more simple, easily repeatable models (like simple 1-10 scoring), which could be used and compared among trainees and hospitals. The EBCOG Log Book, which now gives us figures for assessment, could be further developed for this purpose. Overall, good training standards are of the uppermost importance, as given also in a new EBCOG textbook of Standards of Care for Obstetrics (Mahmood, 2011). Once assessment becomes a routine practice in teaching hospitals, it is accepted and integrated properly into the other activities e.g. practical patient treatment. Both trainees and trainers are expected to respond with constructive criticism and join recommendations on how to improve the training.

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Are you good enough for your patients? The European certification model in laparoscopic surgery

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Abstract

Quality control, training and education in gynaecological surgery are challenged and urgent measures are emerging. The implementation of a structured and validated program for training and quality control seems the most urgent measurement to be taken. The European Academy of Gynaecological Surgery has made a first attempt to do so. Through a practical and theoretical tests system, the skills of an individual surgeon is measured and the conditions to enter the different level of expertise are clearly defined. This certification system based on the best possible level of scientific evidence provides a first practical tool, universally implementable for a decent quality control and structured training program in Gynaecological laparoscopic surgery.

Key words: **Laparoscopy, training, certification, psychomotor skills, education.**

Introduction

It is unacceptable that the level of care a patient receives would depend on the luck to meet a surgeon with appropriate training in laparoscopic surgery.

Although laparoscopy provides a major improvement of the surgical possibilities and patients comfort, its implementation in gynaecological practice seems to be complex and limited by a variety of factors. Moreover there is vast evidence that the unconditional broad implementation of laparoscopic surgery might be related to an increased patient's morbidity and mortality (van der Wal, 2007). It seems appropriate, although not yet implemented that, in addition to the surgical skills required for open surgery (manual dexterity and the knowledge of anatomy, pathology and surgical techniques) the laparoscopic surgeon/assistant has proficiency in specific practical skills like the ability of depth appreciation on a two-dimensional screen, camera navigation, hand-eye coordination, handling long instruments from a fixed position and the knowledge of an endoscopic operation room (OR) functioning.

The laparoscopic challenges are significant, like the vision which today is still on a 2D screen, displaying only a representation of the reality challenging the decision making process for the surgeon. Although the laparoscope provides the surgeons a fantastic field of vision it makes him/her also vulnerable and dependent of the skills of the camera navigator. Navigating the camera needs training and laparoscopic surgery demands team work.

That is why, besides the mandatory surgical training, laparoscopic surgery imposes a specific training

taking into account that Laparoscopic Psychomotor Skills (LPS) are different from surgical skills.

LPS are skills similar to those required for computer gaming and should be learned and acquired outside the OR on specific and validated training models.

Surgical skills demand a complex educational system with always the need for a one-to-one teaching program in the OR. Surgical skills depend on the theoretical knowledge (anatomy, diseases, etc.) and the practical ability that includes basic sequences like dissection, haemostasis and section, and emergent actions that are realised by the additive synergy of the basic sequences. It is common to say that surgery is 75% cerebral and 25% technical skills, but for laparoscopic surgery this sentence becomes true only after the acquisition of the LPS. The proven improvement of our patient care by using the laparoscope makes it unacceptable that some experienced surgeons without any LPS continue to expose their patient to inadequate laparoscopic surgery as some young laparoscopic surgeons with excellent LPS but limited surgical knowledge and experience are dangerous because they will carry out incomplete surgical actions. This dangerous situation demands an urgent implementation of a structured and validated training and certification program in gynaecological laparoscopic surgery.

Defining the current problem

The efficient implementation of laparoscopy in daily practice is challenged by several critical factors. On one side the exposure to laparoscopic interventions is limited in most teaching hospitals, and on the other side laparoscopy has long learning curves. The classical apprentice-trainer teaching model only seems not very recommendable and teaching hospitals today do not provide the possibility of dry lab training within their facilities. In addition to that, the most important drawback to deal with the problem is the lack of universally accepted and validated system for training and certification.

Excessive long learning curves in the conventional apprentice-tutor model and limited amount of laparoscopic interventions in the teaching hospitals

Historically, the apprentice-trainer model has been used for years as the paradigm for training in surgery. In this model the apprentice first observes, then assists and finally operates under guidance in the OR. Achieving proficiency in both general surgical skills and specific LPS through this model seems ethically unacceptable, because the increased operating time and the higher complication rate. Another drawback of the classical apprentice tutor model is the need of a sufficient number of skilled trainers and the long learning curves reported in laparoscopic surgical training. (large amount of procedures needed to achieve proficiency) (Ascher-Walsh & Capes, 2007; Ghomi et al., 2007).

It is clear that this model only is insufficient and training in laparoscopic surgery needs to be supplemented with a structured pre operation room training program. This issue is especially relevant for gynaecological surgery because the trainees are exposed to fewer and fewer surgical cases in their daily practice. Indeed, in most teaching hospitals it is difficult for a trainee/surgeon to achieve the necessary quantity of laparoscopic procedures (between 40 and 100) to obtain sufficient technical competence (Targarona et al., 2010). This is supported by a literature review that reveals that only 12% of the hysterectomies for benign diseases are performed by laparoscopy (Wu et al., 2007), and by a recent report of the Dutch Ministry of Health that found an unacceptable amount of serious complications in laparoscopic procedures that were damaging patients' health and costing the community a lot of money (van der Wal, 2007).

Absence of dry labs for LPS training and limited accessibility of specific laparoscopic learning programs

A large variety of inanimate models including trainer boxes and virtual reality models have been developed for training in laparoscopic surgery (Katz, 2006; Undre & Darzi, 2007). In contrast to animal models, these inanimate models have the advantage of allowing for longer training periods, which is crucial to ensuring full LPS acquisition and not only exposure to specific laparoscopic tasks. Both trainer boxes and virtual reality models allow for relaxed and controlled training, and learning curves for different laparoscopic tasks have been reported (Fraser et al., 2005; Vossen et al., 1997; Larsen et al., 2006). Trainer boxes are relatively cheap and accessible (Katz, 2006), whereas virtual reality models provide an objective evaluation of the learning process (Gor et al., 2003), with both being equally effective for acquiring laparoscopic skills (Munz et al., 2004). However, most of these models are not validated and are not used in a standardised way. Moreover, they are not universally available in dedicated dry labs.

Absence of a universal accepted validated system of certification

In spite of the promising data available about evaluation and training of laparoscopic skills (Brunner et

al., 2004; Korndorffer et al., 2005), validated and well-structured programs including the pre-clinical training are not universally implemented. Furthermore, due to the variety of strategies and regulations for training in gynaecological laparoscopy there is not a validated system for skills' certification.

A GLOBAL TRAINING AND CERTIFICATION PROGRAM IN GYNAECOLOGICAL LAPAROSCOPIC SURGERY

The European Academy for Gynaecological Surgery (+he Academy) has elaborated in collaboration with L'Institut de Recherechecontre les Cancers de l'Appareil Digestief (IRCAD) a global program of training and certification in gynaecological laparoscopy taking into account the current necessities, the feasibilities and the existing scientific evidence.

This program has the support and recognition of the European Society for Gynaecological Endoscopy (ESGE), its cooperating member societies and the Standing Committee for Training and Assessment of the European Board of Obstetricians and Gynaecologists (SCTA – EBCOG).

Acquiring the theoretical knowledge

The Virtual University of WeBSurg at the IRCAD in Strasbourg, France, provides free access to a broad e-learning platform covering all surgical disciplines with tutorials on techniques, pathology, experts' opinions, debates and over 500 surgical videos (http://www.websurg.com). This program provides a direct solution to all individuals who are seeking for information and surgical training and cannot receive it at their local institutions. For trainees in gynaecology a special program is elaborated for learning and training in gynaecological laparoscopic surgery.

The tutorials are divided in the following three different levels of difficulties:

- **The laparoscopic basic level** provides tutorials to understand the anatomy from a laparoscopic point of view, the ways of entry, technique of exposure, rules of laparoscopic surgery, basic instrumentation and organisation of an endoscopic operation room.
- **The laparoscopic gynaecological surgeon level** tutorials are concentrating specifically on the ESGE level 2 and 3 surgeries like laparoscopic hysterectomy and myomectomy (Molinas et al., 2008).
- **The laparoscopic gynaecological pelvic surgeon level** deals with tutorials focusing not only on gynaecological surgery but also on urological, colorectal and vascular surgical procedures

Acquiring the practical basic and advanced laparoscopic psychomotor skills

There is an urgent need of a universally recognized and structured practical training program in laparoscopic surgery with different levels of difficulties and validated tests to guide the individual from one level of expertise to the second and third. Furthermore, the training modalities should be easily accessible and affordable in such a way that the basic training and progression can be accessed at local institutions and is not depending from skilled or expert laparoscopic surgeons or courses.

+he Academy has recently developed a trainer box called "The Laparoscopic Skills Testing and Training model" (LASTT) aimed to train and measure three specific LPS: laparoscopic camera navigation, hand-eye coordination and bimanual coordination (Figure 1).

This model was proven to be feasible and its face validity (the realism of the model) and construct validity (the capacity of the model to differentiate between surgeons with different levels of experience) were demonstrated (Molinas et al., 2008; Campo et al., 2010) (Figure 2).

Supplementary to this model +he Academy has developed a model to train and test more complex and fine LPS: The Suturing and knot tying Training and Testing model (SUTT) (Figure 3).

The latest development of +he Academy is the E-Knot, a new home trainer to train specifically on the challenging skills of laparoscopic suturing and knot tying. The trainer box is equipped with a video camera which can be connected to a portable computer and with a comprehensive DVD tutorial (Figure 4) so the student can train at home all aspects of laparoscopic suturing and knot tying.

The data gathered so far by the Academy confirm that training improves laparoscopic skills and indicates that many repetitions are required for reaching proficiency. Because prior full acquisition of basic LPS facilitates the acquisition of more advanced skills, the evidence strongly suggest that an individual should start training basic LPS for both the dominant and the non-dominant hand, and only when proficiency is achieved s/he should continue with training for more advanced tasks, such as laparoscopic suturing and knotting (Molinas & Campo, 2010). Investment in training to acquire full proficiency in both basic and advanced LPS certainly is recommended prior to enter the one-to-one training in the OR; moreover because those skills remain for longer periods, as we have observed over a period of



Fig. 1. — Training box for laparoscopic surgery with the LASTT wooden model.



Fig. 3. — The Suturing and knot tying Training and Testing model (SUTT).

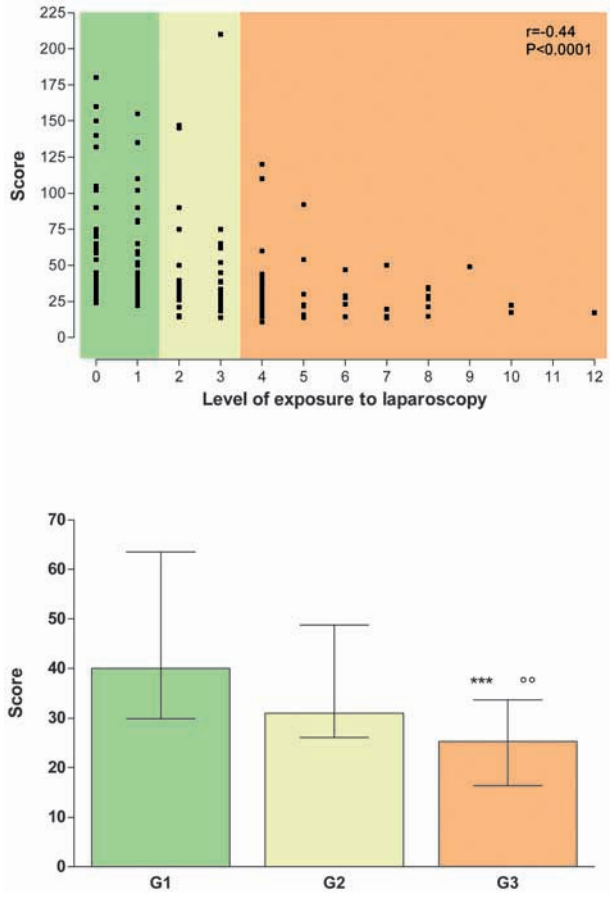

Fig. 2. — Construct validity of Bimanual Coordination in the LASTT model. The ability to grasp six pre-defined objects with the dominant hand and re-grasp and transport them with the non-dominant hand to pre-defined targets in the LASTT model was evaluated. Higher scores represent bad performance. The upper graph shows the scores of the participants in function to their exposure to laparoscopic surgery. The lower graph shows the median (interquartile range) scores of the three groups. Group 1 (G1, green): no or little exposure to laparoscopy. Group 2 (G2, yellow): intermediate exposure to laparoscopy. Group 3 (G3, yellow): important exposure to laparoscopy. ***P < 0.001 (G1 vs. G3); °°P < 0.01 (G2 vs. G3). Reproduced with permission from Gynecol Surg 2008; 5(4):281-290.

18-24 month (unpublished observations). It seems that we are dealing with skills like biking, piano playing or gaming: once you know how to do it, you keep the ability.

Assessing theoretical knowledge and practical skills

For testing practical laparoscopic skills we are currently using the LASTT and the SUTT models. The LAST+T and SUT+T are standardized methods to test basic and advanced LPS, respectively and are trademarks of +he Academy.

The face and construct validity of the SUT+T method are still under evaluation, but today we already have sufficient individuals tested to be able to provide a bench mark data base for individual scoring.

To train and test the theoretical knowledge we are in the process of establishing a website with the tutorials and a theoretical test system that in analogy to the LAST+T and SUT+T will represent a specific method to differentiate the trainees in one of the three levels of expertise. This method will use the trade name TEST+T.

- The LAST+T method uses the LASTT model to measure three basic LPS.
  The first exercise measures the ability of a person to navigate the camera and to handle the 30° optic, 14 targets have to be identified in a precise order. The second exercise measures the hand eye coordination by positioning 6 small rings over a nail and the last exercise measures the bimanual coordination by transporting 6 objects from one hand to the other and then in a corresponding hole. Test proficiency should guarantee the perfect laparoscopic instrument handling capabilities.



Fig. 4. — "E-Knot ". The easy home trainer
a. Student training suturing skills at home.
b. E-Knot with camera connected to notebook.
c. Suturing pad with 8 different stitching directions.

- The SUT+T method uses the SUTT model to test advanced LPS (i.e., laparoscopic stitching and intra-corporeal knot tying). The test consists out of four stitching exercises in which the individual is tested to position the needle correctly through a well-defined location, and one intra corporeal knot in which the individual has to perform a correct flat knot with two locking sequences. Test proficiency should guarantee the sufficient skills for laparoscopic suturing and intra corporeal knotting.
- The TEST+T method uses 50 multiple choice questions to test an individual on his/hers knowledge about laparoscopic anatomy, basic surgical principles, laparoscopic instrumentation, OR organization and functioning, recognition and management of complications. Exam proficiency should guarantee the sufficient theoretical knowledge to enter into the OR to assist or perform laparoscopic surgery.

On line scoring platform

+he Academy has developed an online scoring platform to register participants' data and test results in a central database. For each participant the previous exposure to gynaecological laparoscopy is registered and documented according to the previously published scoring system (Campo et al., 2010). At the time of data analysis, participants are classified either as no or very little exposure to laparoscopy, limited exposure to laparoscopy or important exposure to laparoscopy (final score ≥ 4). The central data base provides an online calculation of the results and an appreciation of the skills of the participant with a colour code system similar to the traffic lights colour code. The green code indicates an excellent level of proficiency, similar to the very experienced laparoscopist. The yellow code indicates fair skills. The red code indicates that there is still a lot of room for improvement.

All tested individuals with an exposure score to laparoscopy equal or higher than 6 are used as reference values to calculate the group allocation. The green code is assigned to results within 2 SD of the reference values, the yellow code is assigned to results between 2 and 4 SD, whereas the red code is assigned to results over 4 SD.

The benchmark data base is continuously supplied with test results of the first test of an individual and saved in relation to its score of exposure to laparoscopy at the time of the test procedure. Follow up or second test do not enter the benchmark data base. As such, this data base is unique, dynamic and cut off values can change over the time.

For the LAST+T this online scoring engine is already in practical use in different teaching centres with a high satisfaction rate. A major advantage is that it provides automatically the mentors and mentees the results and group allocation. Information on the

position of the individual in his/her group of experience is also given. For the SUT+T and TEST+T we follow the same philosophy and the establishment of the reference values is in process.

CERTIFICATION

After performing the practical and theoretical exam the participant will receive an overall score giving the possibility to receive +he Academy Card Certification. The aim is that any institution with training and/or a fellowship program uses the card system as entry criteria to improve the effect of their teaching programs. According to the results obtained on the LAST+T, SUT+T and TEST+T the participant will receive one of the 3 cards seen as a "license for different in OR training programs".

Whereas the score on the different tests performed uses the traffic light codes, we decided for the certification cards to use a neutral and different set of colours mainly because the colour should not reflect any negative allocation to one of the tree certified skill levels.

- **Bronze card**
  - Basic theoretical knowledge and LPS
  - Score: LAST+T and TEST+T at least yellow code, SUT+T indifferent
  - Access to in OR training as an observer or for ESGE class 1 surgeries
- **Silver Card**
  - Excellent theoretical knowledge and basic LPS
  - Score: LAST+T , TEST+T and SUT+T at least yellow code
  - Access to in OR surgical training for ESGE class 1 - 3 surgeries
- **Gold Card**
  - Excellent theoretical knowledge and LPS
  - Score: LAST+T, SUT+T and TEST+T green code
  - Access to in OR training for ESGE class 1-4 surgeries

Discussion

The current education methods for training in gynaecological surgery are being challenged by different forces and influences, such as the boundaries of traditional apprentices-trainer model, the ethical objectives to limit patient morbidity and the error rate during laparoscopic surgical procedures and the continuous pressure on the cost effectiveness of procedures.

The increased incidence of serious (lethal) complications in common laparoscopic procedures within general surgery and gynaecology has given lead to major investigations by the Dutch Ministry of Health.

Training in laparoscopic techniques was found to be variable and inadequately structured. It was expressed as a matter of concern that the standards, which a future laparoscopist must meet in order to operate, either independently or under supervision, have not been adequately established. Seen those challenges, it becomes without saying that a structured training program in gynaecological laparoscopic surgery is necessary and should be established with objective measurable levels of competencies.

+he Academy has defined the skills which can be learned outside the OR and which do not need the presence of an expert laparoscopist for the evaluation. The established test method uses objective parameters, it provides access to an online scoring platform and is affordable, and therefore it can easily be implemented in each teaching institution.

There is scientific evidence that large exposure to laparoscopic surgery correlates with proficiency in instrument handling (Campo et al., 2010). Technical skills, like instrument handling and laparoscopic intra-corporeal suturing, are only acquired by specific training and surgeons who receive psychomotor skill training show significantly greater improvement in performance in the OR (Grantcharov et al., 2004). Currently, in vitro training in a simple pelvic-trainer seems the most appropriate method to acquire the technical skills. The online scoring platform and the simple objective scoring system make this methodology accessible for every institution responsible for training trainees. Furthermore, those laparoscopic technical skills last over long periods and can be compared with skills like piano playing or biking. It seems then logic and obvious, but not yet implemented, that each training centre should put an in vitro training station at the disposal of their trainees and implement a qualification program.

+he Academy certification card system provides and defines the individual capacity to comply with theoretical and practical skills in different levels of expertise and is the prerequisite to enter different levels of training programs.

Especially the introduction of the card system as a license for OR activity could be a major step forward in the quality control of our clinical teaching programs in laparoscopic surgery.

Defining minimal standards with objective testing systems will increase patient safety and increase the quality of a one-to-one clinical training program in laparoscopic procedures.

We are performing a study to evaluate to what extent this is relevant and to assess the predictive

validity of the LASTT and SUTT models for live animal surgery. Preliminary data confirm the predictive validity of the proper training in the LASTT and SUTT models (unpublished observations), because trainees who followed a complete and structured training program for LPS are performing much better than those who did not follow this training. It is still too early to elucidate which specific psychomotor task is more relevant and more important. In addition to answer these questions, the study will also define the relevance of training with or without trainers, which is crucial not only for educational but also for administrative purposes. Furthermore, all these data will allow us to evaluate learning curves in order to define the minimum training recommended to reach the plateau and to be able to organize the duration of training according to the program to be followed. Nevertheless, the predictive validity for real human surgery still has to be evaluated in a proper study.

Conclusions

Training in laparoscopic surgery is a real challenge. The actual pressure surrounding the surgical practice imposes evidently a validated quality control program. This control starts by a standardization of the surgical training. The European Academy succeeded to elaborate a program of training and certification dealing with both the theoretical knowledge on instrumentation, OR organisation, anatomy and complication management, and the practical laparoscopic psychomotor skills, including suturing and knot tying skills.

It remains without doubt that this is only the first but an important step in a professional training program in laparoscopic gynaecological surgery but it certainly helps to answer the question:

"Are you good enough to offer your patient the laparoscopic approach for her surgery?"

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Simulation-based training in Obstetrics and Gynaecology

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Abstract

Medical simulation incorporates mannequins and/or patient actors to allow training of clinical situations in an environment that causes no risks or discomfort to patients. Several aspects of clinical competence can be targeted in simulation sessions, including knowledge, technical skills, attitudes, communication skills, task distribution, and team support.

Technical advances in the last decades of the XXth century led to a new generation of simulators that opened the door to a new era of medical simulation. Many different types of simulators are currently available for post-graduate training in Obstetrics and Gynaecology, allowing residents to achieve a minimum level of skills around the time that they start managing real patients, and allowing healthcare teams to acquire and maintain competence in the resolution of rare and life-threatening situations.

Simulation-based training programmes require a considerable amount of investment in time and equipment, and it appears important for their sustainability to assure a clear institutional-level support, a strong leadership in course organisation, the availability of simulators that are appropriate to the learning objectives, and a non-threatening learning environment.

Simulation is becoming a growing part of routine post-graduate training and is likely to evolve to form part of assessment, continued professional development, certification and revalidation. With the place and benefits of the methodology becoming increasingly clear, the time has come for national and international institutions to get involved in the establishment of objectives and standards, in order to regulate initiatives in this field and to guarantee a high quality of training.

Key words: **Education, educational technology, in service training, mannequins, patient simulation.**

Introduction

Most obstetricians and gynaecologists in practice today acquired their clinical experience over the course of time at the patient's side, but increasing pressures to avoid unnecessary discomfort to patients, to increase the quality of junior medical care, and to limit clinicians' working hours, have put an additional strain on post-graduate training. The situation is particularly challenging in Obstetrics and Gynecology, due to the usually more delicate nature of clinical examinations.

Simulation-based training in Obstetrics and Gynaecology is not a recent phenomenon. More than 250 years ago, the King of France's midwife, Madame du Coudray, developed a real size mannequin to teach the management of childbirth to doctors and midwives across the country (Gelbart, 1998). It was probably already intuitive at the time that the dynamics of the birthing process are more easily explained using a three-dimensional full-scale model. Similar mannequins were used during the XIX and XX centuries throughout Europe (Figure 1). However, in the last two decades of the XX century, advances in mannequin construction and computer performance allowed the development of a new generation of simulators with greater anatomical accuracy and more realistic physiological responses.

Medical simulation is an educational method that incorporates mannequins of varying anatomical and



Fig. 1. — A birthing simulator used for teaching at the University of Porto during the XIX Century, including a real neonatal skull inside the fetal mannequin (courtesy of Prof. Amélia Ferreira – Museum of the History of Medicine, University of Porto).

physiological fidelity and/or patient actors, to allow individuals and teams to practice clinical situations in an environment that causes no risks or discomfort to patients, and poses less time restrictions and less constrains for the provision of feedback. Several aspects of competence can be targeted in simulation-based sessions, including knowledge, skills, and attitudes; as well as teamwork skills such as communication, task distributions, and team support. Establishing the educational objectives of the simulation session and the target audience that it is aimed at, are crucial aspects of the process, and ones that are profoundly affected by the availability of adequate simulators.

Many different types of simulators are currently available for undergraduate and post-graduate training in Obstetrics and Gynaecology, and they can be divided into four basic categories. *Part-task trainers*, that usually only represent a part of the human body and are developed for practicing a limited number of technical skills (i.e. pelvic models for training gynaecological examination, for perineal repair etc.). *Screen-based simulators* that use computer software to simulate a clinical environment, with or without a medical trainee interface (i.e. virtual reality laparoscopic trainers). *Full-body high-fidelity simulators* that use a real-size mannequin in combination with computer models, to provide more or less realistic responses (i.e. delivery simulators with maternal vital signs, or with fetal heart rate signals). *Hybrid simulators* that combine some or several of the previously mentioned characteristics, or that use them in association with patient actors.

Medical simulation needs to be looked upon as a learning method that can be integrated with other available solutions, rather than as one that is going to substitute them. At the post-graduate level, clinical experience with real patients is always required to achieve real competence, so simulation sessions are especially useful when held around the time that this begins, to improve technical skills and communication, as well as to increase self-confidence. One important exception to this general rule of post-graduate medical simulation are the clinical situations that, because of their rarity, do not allow the acquisition and maintenance of competence in real patients, and so regular simulation-based training is the best available alternative.

Potentialities of simulation-based training

Post-graduate simulation-based training in Obstetrics and Gynaecology is currently used with one of the two previously-stated general objectives in mind.

1 – To achieve a minimum level of competence for residents, around the time that they start to manage real patients.

2 – To provide training in management of acute clinical situations that, because of their rarity, make it difficult to guarantee acquisition and maintenance of competence, even by experienced staff. The use of simulation to train the resolution of rare but non-acute situations is less adequate, as there are practical limitations to the duration of simulation sessions.

With the first general objective in mind, simulation is used for the acquisition of competency in technical skills, such as the performance of obstetrical and gynaecological ultrasound, surgical techniques in gynaecology, and basic obstetric manoeuvers. Training can also be programmed to include the development of associated communication skills. The modality is usually very appealing to the younger

generations, who are used to more multi-sensorial and interactive learning experiences, providing greater involvement and enjoyment in learning, but it is obviously dependent on the realism of the simulator. It can be used to correct systematic errors, but also needs to be looked upon as a way to increase confidence and motivation. Some simulators provide objective feedback (such as evaluation of the ergonomics of movement in laparoscopy training), which has the advantage of being seen as an unbiased opinion. The faculty frequently refer that it allows the development of both skills and attitudes, and that it is a way of disseminating a clinical culture.

With the second general objective in mind, simulation-based training can be used to achieve and maintain competence in the resolution of obstetrical emergencies and acute surgical complications. Many such situations require rapid intervention by a multiprofessional team (obstetricians, anaesthetists, midwives, nurses), where not only technical skills, but also task distribution, communication, anticipation and planning, and response to stress are key factors. Therefore, the focus is not only on performance of technical skills (application of forceps to the aftercoming head, internal manoeuvers for resolution of shoulder dystocia, etc.) but also on teamwork. These sessions provide a unique opportunity for individuals to undergo self-evaluation and to perfect some of their technical and teamwork skills. It is usually perceived as an intense but positive learning experience, as long as a constructive atmosphere and a non-threatening environment are maintained. The training faculty usually see it is as an opportunity to identify and correct common errors and to disseminate a clinical culture.

While training of healthcare professionals is the most obvious purpose of medical simulation, it can also be used for assessment, certification and revalidation, in all the educational areas that were previously described.

Current use in Obstetrics

Several simulators on the market allow the training of basic obstetrical skills, usually transmitted at the undergraduate level, such as Leopold manoeuvers, evaluation of fundal height, and fetal auscultation. Others can be used for practicing vaginal examination during pregnancy and labour, and for assisting a normal delivery. More complex obstetrical skills such as external cephalic version, instrumental vaginal delivery, and perineal repair can also be practiced in currently existing simulators. More recently, basic aspects of first-trimester ultrasound scanning can be taught using virtual reality simulators or "phantoms", which are plastic mannequins that simulate obstetrical images when scanned using real ultrasound machines. Further advances in the field of virtual reality are expected in the near future, leading to simulators that can be used for training obstetrical ultrasound in all trimesters of pregnancy.

Training of experienced teams requires a much higher level of anatomical and physiological fidelity from mannequins to achieve a "suspense of disbelief". Currently available simulators allow the creation of scenarios to practice the resolution of several obstetrical emergencies such as cord prolapse, breech delivery with retention of the aftercoming head, shoulder dystocia, major post-partum haemorrhage, maternal cardiorespiratory arrest, and eclampsia (Figure 2). Both full-body simulators and hybrid solutions incorporating a patient actor may be used for this purpose, achieving varying degrees of realism for training technical skills and patient communication. Incorporation of mathematical models of human physiology into these simulators allows the generation of automatic and life-like responses, thus reducing the need for instructor input and increasing physiological fidelity.

Current use in Gynaecology

Several part-task trainers are available in the market for training gynaecological and breast examinations, for the introduction of intrauterine devices and for the placement of subcutaneous contraceptive implants. Similarly to first-trimester obstetrical ultrasound, the basic principles of gynaecological ultrasound can be practiced using virtual-reality simulators or "phantoms".

Training of hysteroscopy and laparoscopy techniques can be accomplished using box-trainers with real medical instruments, or using virtual-reality screen-based simulators, or with a more recent form of hybrid simulation, computer-enhanced video box trainers (Burden et al., 2011). All these options can help beginners achieve a minimum level of competence, but the realism provided by virtual reality simulators and computer-enhanced video box trainers may be sufficient to attract experienced clinicians to use them as a form of maintaining their surgical skills, practicing more challenging operations, or managing acute surgical complications.

Major challenges to implementation

Because of its very practical nature, simulation-based training requires a considerable amount of instructor time and feedback, as well as a limited number of participants per session. It can therefore be perceived as a more expensive learning method,



Fig. 2. — The maternal cardiorespiratory arrest scenario at the Obstetric Emergencies Course of the Biomedical Simulation Centre, Medical School – University of Porto, where multiprofessional teams practice the management of six rare and life-threatening situations (acute fetal hypoxia, shoulder dystocia, eclampsia, maternal cardiorespiratory arrest, retention of the aftercoming head, and major postpartum haemorrhage).

when compared to the classical postgraduate alternatives of clinical meetings, courses, and supervised practice. Specific investments are also required to buy the equipment and to maintain it operational, as well as to have appropriate facilities to organise simulation sessions. Some of the benefits of medical simulation appear to be almost intuitive, but to provide unequivocal evidence of them is a difficult task, as study design is hampered by several practical difficulties, including the obligation to provide equal opportunities in training, the large number of confounding factors that affect the learning process, and the scarcity of objective and meaningful outcomes.

Simulation-based programmes that have achieved some degree of sustainability report that it is essential to assure a clear institutional-level commitment to implement and maintain the courses (Ayres-de-Campos et al., 2011). In some cases, there are financial incentives for these programmes, as lower malpractice insurance premiums are offered to clinicians and to units that perform regular training. In countries where this is not available, the wish to promote an in-house "safety culture", with the potential to reduce litigation and adverse outcomes, may constitute the main motive for support, and funding for this can sometimes be found in local, regional or governmental healthcare sources. Institutions that have a major focus on training of junior staff may want to promote these courses to provide a more structured experience at the early stages of professional development.

Setting up postgraduate simulation-based training courses requires familiarity with the principles of adult learning, a good understanding of clinical practice, careful planning of course contents and support information, knowledge of simulators that are relevant to the learning objectives, and an ability to recruit good trainers (Ayres-de-Campos et al., 2011). Regular running of these courses requires a capacity to make adequate scheduling options, to prepare scenarios carefully, to avoid potential conflicts during the course, and to keep staff and participants motivated throughout the sessions. Strong leadership for both the strategic vision and everyday operational matters is an important characteristic of successful training programmes.

Some healthcare professionals dislike the personal exposure that simulation creates, considering it to be both threatening and stressful (Ayres-de-Campos et al., 2011). This may include junior trainees who have difficulties in certain clinical skills, or senior healthcare professionals who are worried about exposing some of their weaknesses. Some participants report the sensation of feeling under evaluation and/or of leaving the course with a reduced self-esteem. Removing the authority gradients within the course, providing non-directive debriefing with an emphasis on what was done well, and promoting self-evaluation rather than external assessment usually reduces many of these discomforts. Care must be taken to maintain a constructive attitude towards the learning process and to focus on letting participants arrive at their own conclusions rather than being told what to do. Attention to these issues is essential to assure increased satisfaction with the learning experience (Ayres-de-Campos et al., 2011).

A vision for the future

The medical simulation industry has been expanding over the last decade and will probably continue to produce increasingly realistic and educationally useful mannequins. On the other hand, it is unlikely that the purposes of avoiding unnecessary discomfort to patients and increasing the quality of care at all levels of training will diminish. Simulation-based training is therefore likely to become a growing part of routine post-graduate training, as a method to help

junior staff achieve a minimum level of competence, and for healthcare teams to practice the management of rare and life-threatening situations. As is the case in other areas of Medicine, such as Anaesthesiology, simulation is also likely to evolve to form part of assessment, both in the selection of candidates for the speciality and in the evaluation of their progress throughout residency. Simulation-based stations have become part of objective structured clinical examinations (OSCE) integrated in the assessment of candidates for the primary fellowship of the Royal College of Anaesthetists examination (http://www.rcoa.ac.uk/index.asp?PageID=1148). The unique potential of simulation to provide an insight into candidates' capacity to execute technical skills, to communicate with patients, and to interact with other healthcare professionals put it into a class of its own in the assessment process. In time, it may evolve to become part of continued professional development, certification and revalidation.

With the place and benefits of simulation-based training in Obstetrics and Gynaecology becoming increasingly clear, the time has come for the involvement of national and international institutions in the establishment of objectives and standards, and in the regulation of available programmes. The universities have a major role to play in the dissemination of the method, because of the financial and organisational advantages of academic simulation centres, where mannequins and facilities can be shared with undergraduate training, and where experienced teaching staff is easier to find. However, national and international institutions in the area of Obstetrics and Gynaecology also need to be involved, in order to guarantee a high quality of training at the postgraduate level.

Disclosure of interests

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The art of medical education

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Abstract

Is the art of medical education just making sure to provide sufficient up to date medical knowledge and a lot of clinical experience? It is much more. The art of medical education is about a teaching program that is designed to serve the community of the near future. The program is the result of a thorough evaluation of societal needs and is capable of influencing the properties of future care. New care professionals who are trained in the program will become instrumental in solving complex problems in health systems. The art of medical education is about the change of traditional ideas of how to cope with these health systems. This change will raise anger and resistance. Effective change management is essential to survive attacks from laggards and to maintain enthusiasm to invest in the health care of the future. Educationalist science provides several important insights that help us find the optimal shape of the program. Good role models and a learning environment that is an example of the intended professional and organisational behaviour, learning by doing, simulation programs, educational tools like e-learning systems, a good assessment and feedback system, and a portfolio to prove and discuss professional progress are all pivotal components of the ideal program. To achieve mastery within the art of medical education, a quality improvement program will be the crown of the process. Medical education is a multifaceted process and so the quality improvement should be. The art of medical education is a great challenge. The health care of your future deserves it.

Key words: **Medical education, strategic planning, change management, learning, role model, hidden curriculum, quality care.**

Introduction

In several countries medical education, especially in the clinical context, has become part of a process of redesign and change (Scheele et al., 2008). The redesign is based on current insights. However, probably a lot of insights still have to become apparent in the future. The process of redesign and change is an excellent opportunity to gain more knowledge and understanding of medical education in the clinical context. Concerning the art of medical education, in this article, an impressionistic picture is created lacking detail and lacking classical prime educational facts. An attempt is made to have a glance at future developments in clinical medical education.

Strategic planning

Medical education is done for a purpose: To serve health systems for the near future. What are the prospects of health systems for the future? What does society expect from medical personnel? Which pitfalls are recognized in daily medical care and which solutions for the future can be proposed? What is the right balance in several scales? For example, do we need generalists or specialized doctors? Do we need a focus on a certain group of patients like the elderly? Do we need a focus on certain technologies like information technology? Do we need very creative professionals that thrive in a world of ambiguity and relative chaos or do we need humble, adaptive and disciplined team members in a world where protocols and checklists bring us to optimal performance? The point made is that medical education should be recognized as an important tool in the governance of health systems (van der Lee et al., 2011). The goals for governance of health systems should be the main driving force for a medical school or a clinical learning environment. These goals may differ between high and low resource

countries, between various cultures and even according to persons within one country (Wallenburg et al 2010). Moreover, these goals will change in time. The discussion about the goals for governance in health systems should be a continuously discussed matter.

Complex problems

The discussion about problems in health systems and the description of goals is a complex matter. The provision of health care can be addressed from several different scientific paradigms. Health care systems are an economic burden in several countries. On the other hand prevention or quick handling of health care problems of labourers is of economic advantage. Medical personnel in health care systems tend to create professional societies that protect autonomy of doctors and other care providers. The professional culture of medicine is one of scientific development and making progress in individual treatment. Could we make professional autonomy supportive for some of the governance goals? Representatives of patients and other potentially important discussants should be included in solving complex problems and describing goals for the future of health systems (Caron-Flinterman et al., 2005).Important discussants may come from various scientific fields like ethics, social sciences, economics, information technology and so on. Mono disciplinary solutions are usually much less effective and durable than trans disciplinary solutions (Rosenfield, 1992). Strategic planning for health systems and defining a tactical approach for complex problems is laborious and expensive, but indispensable for mastery of the art of medical education.

Change management

When the goals for governance of health systems have become explicit, a strategy for the use of medical education is the next step. Having brilliant ideas is possible, but making them come true is almost impossible (Grol & Grimshaw, 2003). The science of making ideas come true is the one of change management. This science will help you to prioritize goals, make visible which players are important to deal with, which societal movements or hypes you could use to smoothen the way and which factors may enhance success or may bring failure of the process. Change management is about tactical timing of steps, the use of planning and control on the process and to keep an eye on budgetary risks (Gale & Grant, 1997). The main mistake in educational reform seems to be the use of inappropriate change management. Content oriented persons often believe that quality will sell itself. Unfortunately, that is not the case. Quality has to be sold by thoroughly planned change management programs. Fortunately, during the process of change management selling of high quality is often easier, than selling mistakes.

When working with clinicians, one of the most important items to take care of during change management processes is the possibility of free enterprise within carefully chosen borders (Maravelias, 2003). Professionals seem to thrive with professional freedom and their initiatives often show of paramount importance for the success of projects. Too much regulation will strangle professional free enterprise and takes out the soul of medical education. Instead of creating dense regulations, change managers should focus on shared visions and stories that tell the ideas of good medical practice. These visions and stories are the skeleton of the change management process and provide global borders for free enterprise.

Learning by doing

Depending on the goals set during your strategic planning, by retrograde planning end terms (knowledge, skills and attitude) essential for your new doctor may be defined. These end terms must find their place in the curriculum of medical education. Medical education is a mixture of theoretical education and practical education. The challenge is to balance a program in such a way that learning by doing is optimally supported by simulation training and theoretical education. Learning by doing is the most powerful learning tool (Teunissen et al., 2007). Blended learning combining e-learning with simulation training and learning by doing should be pursued. Various ways of e-learning like webinars or serious gaming may become very important to enhance learning at the work place (Cook et al., 2010). Simulation training for rare or difficult skills and for team skills is very helpful to support learning on the workplace. Years of merely theoretical training are less effective (but often cheaper) and learning by doing should be regarded of paramount importance. The mastery of the art of medical education is found in medical education management. Good management means looking for the right clinical activities for the needs of the trainee, for the optimal use of simulation trainings and for the optimal support form e-learning in a context of restraints of time and money.

Appropriate clinical exposure in different phases of training

One of the challenges of optimal management of medical education is to provide appropriate clinical

exposure to students and trainees in different phases of their career. Clerks should at least be confronted with patients with clear cases of common diseases. Trainees in obstetrics should start to master the normal delivery before entering more complicated obstetrics. Final year trainees should not spent much time on coaching normal deliveries, but should have abundant exposure of complex operative deliveries and of generic problems like triage during peak exposure of acute patients. Several clinical wards are hard to manage in such a way that teaching will become optimal for the trainee. The art is in exposing the trainee to clinical problems that are ranging from fairly difficult to almost too difficult most of the time. At least every 3 month the trainee and the supervisor should discuss the steepness of the learning curves of the trainee.

Role modelling

Role models have a strong influence on professional development. Role models should continuously get feedback about the messages send by their behaviour (Lombarts et al., 2010). Role models could be excellent preachers of the goals set for the governance of health systems. When role models do share visions and live the stories that describe the goals, medical education is delivering doctors fit for the future. Sometimes goals do not correlate with the professional culture and role models do not send the desired messages. This is a matter of putting these items on the agenda over and over again and having a long breath. Part of faculty development should be raising the awareness of the responsibility of being a good role model and knowing the desirable messages to show during clinical practice.

Designing the hidden curriculum

The structure of the learning environment must be an example for the planned education in which the goals for the future are embodied. This warrants a continuous observation of the hidden messages that are sent by this structure (Hodges & Kuper, 2012). Does the structure enhance effective inter-professional practice? Does the structure facilitate ethical considerations? Does the structure provide feedback on personal performance and team performance? Does the structure bring in patients for shared decision making? Does the structure enhance patient safety? Does the structure make sure that residents do work they are fit for? Does the structure demand adherence to protocol? Do we have a system for quality assurance? We could discuss hundreds of questions here that could concern chosen goals for governance of health systems. Asking these questions about your educational work floor is of the highest importance for optimal medical training. The structure of our learning environment could be the most important educator during learning by doing. Ask the questions concerning your goals continuously and redesign the structure until all questions are met. The educational impact will be enormous and the quality of care should improve (if the goals are well-chosen).

Educational tools

Educational science has brought helpful insights to improve medical training, both by curriculum design based on adult learning principles and on the continuous use of effective education. Educational science has evidence for the prominent place for learning by doing and the combination with simulation and (ict supported) theoretical training. For adequate management of education transparency of the learning process is essential. End terms coming from strategic planning, a curriculum on paper and a carefully designed hidden curriculum are the fundaments to build on. A work place with a good learning climate (Boor et al., 2011) has to be created. Asking help from educationalists in creating a proper curriculum and a good learning climate seems obvious. Moreover these professionals should advice on the use of simulation training and theoretical (e-) learning.

Faculty development is needed to assure the proper attitude of the clinical staff and to distribute knowledge about clinical assessment and feedback (Schofield, 2010). Active learner courses for trainees are helpful. Trainees are instructed to get the most out of their training time and to use the educational structure in a creative and effective way.

An appropriate assessment and feedback system will ensure knowledge about the progress and learning needs of the trainee (van der Vleuten et al., 2010). Statements of awarded responsibility will help to define the level of competence of trainees and enhance patient safety during the development as a trainee. Step by step the trainee will be awarded more clinical responsibility (ten Cate & Scheele, 2007). The transition to the work as a licensed medical specialist will be optimally prepared by a virtually full responsibility already before the moment of licensing.

The use of a portfolio is helpful (Driessen et al., 2007a). It should contain summaries of assessment procedures, proof of simulations and theoretical education, output from scientific work, the attained levels of competence in a time frame and reflections on the learning process. On a regularly basis (e.g. every three months) the program director discusses the portfolio with the trainee. The first result of this

discussion is proof of sufficient progress of competence within the time frame described in the curriculum. The second result is a logical choice of next training goals. The goals are described SMART. The third result is an agreement about how these goals are going to be reached in the next clinical rotation. An electronic portfolio is advisable to make the collection and integration of assessment data easier (Driessen et al., 2007b). An electronic portfolio may enhance the transparency of the training results. These results mirror off the combination of properties of both the trainee and the educational quality of the training site.

Quality care

The quality of medical education is once more a matter of multi-perspectives (Barnett, 1992). The quality could be regarded from the professional point of view on the care provided on the wards where the training is organised. This quality could be assessed by visitation of delegates from the professional society, but also last year trainees often are aware of the professional value of the content offered in different training sites. The quality could also be assessed from the point of view of educationalists. Measurements of educational climate, of educational performances of individual clinical teachers in combination with interviews of trainees at the end of their rotation would give sufficient information for an internal audit and improvement system. For feedback on educational structures an external appraisal like the EBCOG visitation system is suitable. Subjects are regional, hospital based and discipline based supporting structures for education. Examples are the availability of (e-learning) courses, skills laboratories, and a mentoring system and programmed communities of learners. Another point of view for quality assessment comes from society. It questions whether societal problems are addressed sufficiently in the training post. Examples are the care for the fragile elderly patients, training for cost effective care and safe care, dealing with ethical problems and so on. A final option for quality control is the use of patients as partners in training and patient care. A good system for quality control and an effective program for improvement are the crown on the achievement of mastery in the art of medical education.

Conclusion

The art of medical education will become apparent in an environment where teams of clinicians and educationalists try to bring in a multi-perspective on teaching. They should give lots of attention to setting the goals for future health care, to the process of change and to the way educational science is optimally brought in to the learning places. Quality care should bring in the ongoing drive for innovation and continuous improvement of the system.

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Patient safety in training

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Abstract

Patient safety has developed considerably in the past 15 years and must be seen as an own field of knowledge. Despite the evidence of its effectiveness, patient safety skills and techniques are often ignored in medical education and training.
This results in an unnecessary great number of patient harm – also known as "adverse events".
High reliability industries such as civil aviation found out, that the so called "human factor" is the main reason for the most catastrophic accidents. It could also be shown, that these "human factors"– problems, including ineffective communication and teamwork can only be improved by education and training of the so called "non-technical skills". Meanwhile this could also be demonstrated for the patient safety problems in health care. It turned out, that all safety related human problems are the same in every industry, no matter how different they may look from the outside.
Education and training concepts in medicine must therefore be changed and adopted according to the current needs, as also proposed by WHO in their guidelines concerning patient safety.

Key words: **Patient safety, human factors, non-technical skills, adverse events, patient harm.**

Introduction

The topic of patient safety, as we understand it today, was completely ignored by our healthcare systems for a long period of time. Even after Lucian Leape wrote his milestone paper "The Harvard medical practice study" (Brennan et al., 1991) published in the New England Journal of Medicine in 1991, it lasted many years before some pioneers – including Lucian Leape – took the lead in this important field of medicine. Despite the existence of a "patient safety science" and the evidence of its positive effects in clinical medicine, if it is implemented in our daily work, we are far from the desired status in education, training and implementation in our daily routine.

1999 the Institute of Medicine published the book "To err is human" (Kohn et al., 1999) which can be seen as the beginning of a new area in medicine concerning patient safety. Before one can describe the necessities in medical education and training, it is necessary to understand the systemic problem as well as the solutions that are already implemented in other industries.

Because of the little knowledge of patient safety science in medical staff, universities and hospitals, this chapter of the Monograph will outline just the very basics of patient safety and skills that have to be learned to provide the best medical care as safe as possible to our patients.

The problem

All clinical important papers, published in medical top journals up to now indicate that between 10 and 15% of all patients admitted to an acute hospital suffer from some kind of preventable harm. Three out of 1.000 experience severe permanent harm up to patients' death (Kohn et al., 1999). While treating patients with complex diseases in a complex world under time pressure and limited resources will always produce some harm, experts could demonstrate, that at least 50% may be prevented by using simple safety-strategies as they are used in the so

called high reliability industries like aviation, space travel, petro chemistry, mining or in dangerous sports like downhill racing, climbing or Formula 1.

Lessons from Aviation

No question, civil aviation today is among the so called high reliability industries with the best safety records worldwide. Therefore it is worth while to explore the history of safety work in this industry. In summary was shown again and again, that 80% of all causes, that ended up in severe accidents involved not technical, but so called "Human Factor" – problems.

"Everything that is able to disturb human performance" - represents a broad definition of the "Human Factor" (Leonard et al., 2004).

On one hand side there are personal factors like fatigue, anger, hunger or illness, while on the other side there are environmental factors like noise, high workload, stress, time pressure, interruptions and other common things.

Furthermore it was shown again and again, that steep hierarchies, insufficient teamwork and dysfunctional communication are more often than other things at the core of the problem.

Despite improvements in selection, education, training, technique, the introduction of checklists and many other things, errors and accidents happened in an unacceptable high number resulting in thousands of victims.

Soon it turned out that error is inevitable and a result of human physiological and cognitive limitations. In modern safety concepts these facts have to be recognised and respected.

Moreover it turned out, that human error is not a cause, but a symptom of an insufficient system, not able to facilitate working conditions, that would be able to catch human errors, before an accident happened.

Recognizing these facts, Prof. Helmreich, a leading aviation psychologist started to develop special trainings for the aviation industry. The main target of these trainings was to demonstrate to the crews the performance limitations of human beings, and why errors happen so easily, and how crews can deal effectively with the so called "Human Factors". Successful training is able to prevent 80% of these problems (Helmreich, 2000).

The relevance of human factors in improving safety cannot be overstated and this was realized and acted upon in aviation with the introduction of these trainings known today under the name "Crew Resource Management" (CRM) – Trainings.

Such CRM trainings, required by law for all pilots in civil aviation in all western countries, are an essential part of every successful comprehensive safety program in each industry.

Again, knowledge and dealing with the "human factors" using the so called "non-technical skills" (NONTECHS) – which will be explained in detail later in this article – is central to all safety trainings.

Status in Medicine

There is a long-lasting, virtually not ending debate in medicine if healthcare service can be compared with other industries in the context of safety. Despite countless papers in top journals showing the huge effect of implementing safety strategies used by industries like civil aviation or space travel into medicine, a good part of the leaders in healthcare carry on their resistance against an urgent system change to reduce patient harm in medical care.

Two of the most impressive studies, showing the huge effect of teamwork and the professional use of checklists are the WHO paper describing the effect of the "surgical safety checklist" (Haynes et al., 2009) and Peter Pronovosts paper showing the unbelievable effect in his study of patients receiving central line catheters (Pronovost et al., 2006).

In contrast to this evidence, curricula for doctors and medical students have focused on pure clinical skills: diagnosis and treatment of illness and follow-up. However, safe communication techniques, effective teamwork, use of checklists, the devastating effect of steep hierarchies and all the other important aspects of patient safety science have been overlooked. (The expression „steep hierarchies" is often used by experts for a big power distance between different hierarchy levels, for instance doctors and nurses, or chief surgeon and assistant, pilot and co-pilot and so on).

These skills are fundamental to patient safety. Just trying harder will not reduce our problems, neither in education, nor in practice. Major systems changes need to happen to be really successful in the field of patient safety. Medical students, as future clinicians, will need to know how systems impact on quality and safety of health care.

Don Berwick, long time CEO of Institute of the Healthcare Improvement, often cited the QM-Pioneer Edwards Deming aphorism: "Every system is perfectly designed to achieve exactly the results it gets."

Main Topics essential to be trained in patient safety

In 2007, the world alliance for patient safety published the WHO patient safety curriculum guide for medical schools (WHO, 2007). In this guide one

can find a detailed description of the problem, a basic description of the solutions and an instruction how to teach it in medical curricula.

In the following section you will find a proposal what most important topics in the field of patient safety should be implemented first in a trainees teaching program.

Paragraphs in cursive letters indicate the original wording of the WHO curriculum guide.

The precondition: Train the trainers

If we like to train the right stuff we need to have a group of competent, clinical experienced trainers. Therefore you need to establish a train the trainer program including the same topics as the respective trainees-program. Part 2 of the WHO patient safety curriculum guide gives some good examples how teachers should teach their students in patient safety (WHO 2007).

Whereas one can assume, that most of the topics and skills mentioned in the following paragraphs are not common knowledge in medical schools and hospitals, I will mention the basic topics as well as some details that should be known by teachers and trainees.

Scope of the problem

We have learnt over the last decade that adverse events occur not because bad people intentionally hurt patients but rather that the system of health care today is so complex that the successful treatment and outcome for each patient depends on a range of factors, not just the competence of an individual health care provider (WHO, 2007).

Culture

One of the biggest barriers in the field of patient safety is represented by our shame and blame culture and steep hierarchies (Walton, 2006). As long as young team members are afraid to speak up in the presence of a superior team mate, our culture inhibits safety dramatically. The desired state is the so called "Just culture" (Anon, 2004).

According to James Reason, a famous scientist in the field of human error, just culture should result in an atmosphere of trust in which people are encouraged (even rewarded) instead of punished for providing essential safety related information. Besides that, there must be a clear line between acceptable and unacceptable behaviour.

In summary, a just culture recognizes that competent professionals make mistakes and acknowledges that even the best will develop unhealthy norms (shortcuts, "routine rule violations"), but has zero tolerance for reckless behaviour.

What is patient safety?

Studies show that additional hospitalization, litigation costs, infections acquired in hospitals, lost income, disability and medical expenses have cost some countries between US$ 6 billion and US$ 29 billion a year (Kohn et al., 1999; NHS, 1999). Significant numbers of patients are harmed due to their health care, either resulting in permanent injury, increased length of stay (LOS) in hospitals or even death (WHO, 2007).

Fundamentally, patient safety refers to freedom from accidental or preventable injuries produced by medical care. Thus, practices or interventions that improve patient safety are those that reduce the occurrence of preventable adverse events (AHRQ).

Adverse Events and patient harm

Patient harm is often addressed as "adverse events". One of the best definitions of an adverse event is: "Any injury caused by medical care" - for example a postoperative wound infection.

It is important to note, that identifying something as an adverse event does not imply "error," "negligence," or poor quality care. It simply indicates that an undesirable clinical outcome resulted from some aspect of diagnosis or therapy, not an underlying disease process (AHRQ).

Consider the difference between unintended and preventable harm. The importance of this differentiation lies in the fact that the word "preventable" leads directly into a shame and blame discussions, while the word "unintended" does not.

Furthermore it is essential to know how to classify patient harm. The most accepted scale is given by the NCC MERP -- Medication Error Category Index (NCC MERP), originally used for classification of medication errors.

In relation to the level of harm the categories E – I are used for the **classification of patient harm**:

Category E: temporary harm and required intervention

Category F: temporary harm and required prolonged hospitalization

Category G: permanent patient harm

Category H: Need of an intervention necessary to sustain life

Category I: Patient's death

Using this schematic classification, one can classify patient harm exactly.

Human Factors and Non-Technical Skills (NOTECHS)

As mentioned above, human factor problems stand for 80% of all causes, releasing catastrophic events in every industry as well as in medicine. Therefore trials to solve the safety problems with pure technical solutions had to fail and did so.

Airbags or safety belts in automobiles for example may work well in case of accidents, but cannot prevent them. In most of the accidents adequate safety related behaviours and not technical solutions would have prevented the catastrophe or at least reduced the harm considerably.

The crucial question was, what are the adequate safety related behaviours and how can we implement them in our daily routine.

Due to the results of many accident analyses, the airline industry decided to combat human factors problems by education and training of the so called "Non-Technical Skills" (van Avermaete, 1998), which are an essential part in the so called Crew Resource Management - Trainings.

These NOTECHS should enable airline crews to avoid errors due to miscommunication, steep hierarchies and stressful situations.

The main categories of NOTECHS are:

→ Cooperation
→ Leadership
→ Situational Awareness and
→ Decision Making

Each category is subdivided in elements, which are defined in detail and can be learned and trained in the CRM-Training sessions. Since the early 90th the trainings are mandatory and served as a major contribution to flight safety (Helmreich and Foushee, 1993; Beaty, 1995; Wise et al., 1999).

In medicine, CRM trainings were adapted by some pioneers to the specific needs in hospitals. In the recent literature they are frequently named "Medical Team Trainings".

As in aviation, the major part of the trainings also includes "Human Factor Principals" and "Non-Technical Skills".

A detailed definition and description of the categories and elements, as well as good and poor behaviours is published by the group around Flin for operation room staff (Yule et al., 2006).

The main categories and elements according to Flin are:

Situation Awareness
- Gathering information
- Understanding information
- Projecting and anticipating future state

Decision Making
- Considering options
- Selecting and communicating option
- Implementing and reviewing decisions

Communication and Teamwork
- Exchanging information
- Establishing a shared understanding
- Co-ordinating team activities

Leadership
- Setting and maintaining standards
- Supporting others
- Coping with pressure

Education and Training of Human Factors and NOTECHS must be an essential part in a modern trainees' curriculum due to the WHO-curriculum guide (WHO, 2007).

Communication and Teamwork

While each category of the NOTECHS is of major importance, effective communication and teamwork are probably the most critical topics in medicine and must therefore be noted particularly. As far as it belongs to communication, the most important strategies to learn and train are briefing techniques as well as closed and structured communication (Lingard et al., 2004).

All data available today indicate that there is no chance of a significant improvement in patient safety, without mutual, honest teamwork. We know that teamwork does not just happen, you must go for it.

One of the best examples is sport teams, spending over 90% of their time for team training. They standardize their routines, identify roles and responsibilities, improve the communication processes and team coordination to be successful.

Nobody would deny that training of teams is essential for success.

Effective Teamwork in medicine was up to now assumed, but not assured.

Today, regular team trainings are the very exception in medicine. Despite there is also a WHO document: Patient Safety Curriculum Guide - Multiprofessional edition (WHO, 2011) trainings like this are not performed in the vast majority of the hospitals or in trainee's education.

The most important study showing the enormous effect of teamwork in addition to evidence based standards was done by Pronovost et al. (2006). It was shown, that infections and mortality after Central Line catheters dropped beyond belief after implementing a bundle of procedures and some team training. It is also worth reading his book about all the circumstances around this experience (Pronovost & Vohr, 2010).

Another great example showing the potential of recent patient safety strategies is given by the Veterans Health Administration Hospitals. The implementation of a formalized medical team training program for operating room personnel resulted in an 18% decrease of surgical mortality rate (Pronovost & Freischlag 2010; Neily et al., 2010).

Conclusion

Patient safety knowledge is different from all other medical fields, because it applies to all areas of clinical practice and personnel. Medical students will need to know how and why the systems influence patient safety and what can and must be done to improve the situation.

Educations in all universities and hospitals should be adopted as soon as possible due to the WHO-curriculum guide. The actions described here may be a good start.

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Legal aspects of training

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Abstract

Training is essential to achieve medical education and acquire skill allowing good medical practice. Training involves legal aspects such as liability of the trainer or supervisor, need to obtain a clear consent from the patients involved in teaching activities and measures which have to be taken in order to ensure that confidentiality and medical secret are not submit to any breech. Also there are differences between training of already qualified doctors and training of students; legal aspects are different if the training is given in private practice or in university hospital.
Legislation is evolving and it is probably time to establish clear guidelines useful for every professional involved in teaching /training activities.

Key words: **legal, consent form, legal, liability of trainer, medical education, medical secret, training.**

Training is essential and cannot be made entirely through simulation. Therefore patients are involved in the training process thus leading to potential medico-legal litigations.

First of all it is necessary to distinguish several forms of training:

- training involving medical students often in the context of medical school and where professor act as preceptor/trainer to teach surgical techniques for example,
- training involving already fully qualified doctors who want to acquire a new technique in reference centre,
- on site training where the trainer is the proctor/supervisor ensuring that the doctor starts a new technique under proper guidance, for example to introduce robotic surgery in a new theatre.

These different situations have clearly not the same legal implications.

However, even if the liability of a preceptor or a proctor/supervisor is not the same, in all cases, information, consent from the patients and sharing of confidentiality are the common factors in every situation.

Information and consent

Obtaining consent before engaging patients in teaching activities is essential.

Different situations are possible:

in case of consultation attendance

Presence of medical students is evidently subject to consent from the patients, even if in the past this consent was not required in teaching hospitals.

in case of OR attendance

The presence of medical students as observers in the operating theatre is sometimes overlooked as a form of teaching activity, in which patients could have become unwitting or unwilling participants. In a cross sectional voluntary survey Leung and Patil (2011) have proposed a guided questionnaire on 225 patients in a teaching hospital. More than two thirds of patients would accept student observers and regard a prior consent process as essential.

Interestingly, 10% of patients who were happy to participate in bedside teaching would not accept theatre observers. In the contrary, 25% of patients having not accepted bedside teaching, would accept theatre observers.
Authors conclude that consent process is essential to teaching even when students are simply acting as observers, and that patients who are willing to participate in ward based teaching should not be presumed to accept theatre observers.
In France this consent is rarely asked since general assumption is that patients, who are admitted in teaching (university) hospital, are aware of the presence of students more or less at all the stages of treatment.
However, the recent Kouchner law in France has reinforced the patients' rights and therefore it is very likely that this kind of consent will be required in the very next future.

– in case of practise of examination under anaesthesia by medical student and trainee

Medical students need to undertake supervised pelvic examination to achieve competence for example. This experience is often obtained by conducting pelvic examinations on anaesthetized patients who are going to have gynaecological surgical procedure.
A Canadian survey (Wainberg et al., 2010) studied what procedures might undertake according to the patients and whether patients would give consent for pelvic examination.
72% expected to be asked for consent before medical students undertook examination during anaesthesia. 62% would consent, 5% would consent for female students only, 18% were not sure and 17% would refuse.
So clearly majority of patients wishes to help medical students to learn but expect consent to be sought if medical students are to perform pelvic examination during anaesthesia.
Martyn and O'Connor (2009) also studied the lack of written consent in Ireland and underline that such consent form did not exist at the time of their article and should be quickly promoted as a national guideline.
For Ubel et al. (2003) in USA, consent should also be very explicit.
In France no consents are generally required for examinations during anaesthesia, but once again the general tendency as well as the expectations of patients are that consent is essential.
In our best knowledge, no medical legal actions have been initialized so far on the assumption of unauthorized examination during anaesthesia; nevertheless transparency towards the patients should prevail at least orally if not by a written consent.

in case of realisation of procedures by the trainee

What have been said concerning pelvic examination is also true concerning procedure which might be done by trainee.
Even if it is generally assumed that patients do not agree for students participating to surgery, another Canadian study suggests that a vast majority of patients agree to the participation of students during surgery (Gan et al., 2009). This prospective study has been made on patients waiting for cataract surgery; 95,3% of patients agreed to the participation of students to their surgery.
It seems evident that information is the key. This information has to be delivered in a comprehensive and reassuring manner, and patient's choice should be respected.
Another important parameter is the quality of the trainee: whereas it is quite easy in a teaching hospital to propose surgical operation performed by junior but qualified doctor since patients expect more or less not to be operated by the head of department, it is much more difficult to imagine the same process in private institutions where patients expect to be operated by the surgeons they have chosen.
If the trainee is a fully qualified doctor who wishes to acquire a new technique it seems a little easier to ask for a patient consent, providing that in all cases supervision is assumed by a senior doctor.

Medical secret

sharing of the medical secret with the trainee and access to the patient file

By definition when trainees are involved in the treatment scheme they have to share part of the confidential information with the doctor in charge. It is critical to ensure that there is no breech in this confidentiality. We should recommend a special written agreement signed by the trainee prior to any involvement in teaching activity in which the trainee acknowledges the fact that he must respect strict confidentiality of all medical information he may share during the training of after.

In the same manner patients should be asked to consent that their file may be seen by the trainee under strict conditions.

In France misconduct by any doctor about the medical secrecy is severely sanctioned by the medical council (Conseil de l'Ordre) which frequently forbids the doctor to work for a period varying from 1 month to 6 months and sometimes for ever if the misconduct is repeated and very serious.

Liability

when training in public/ university hospital

Since one of the key missions in these cases is teaching, liability of professor or preceptor is usually very limited, in case of a problem. It is generally the institution which is responsible and it is the insurance of the hospital which will cover damages if medical malpractices have been identified (Zorn et al., 2009).

In a same manner the trainee is very generally exempt of any liability except in case of very serious misconduct considered as totally foreign to the medical care delivered. In France it is the concept of: "faute detachable du service" (mistake without relation to normal care).

These serious misconducts are generally considered as criminal offence and treated by the courts as such.

when training in private practice

More and more in France medical students or trainees are sent to be taught in selected private centres with the evident advantages to allow trainees to see various techniques and approaches in public as well as private practices.

However it recently occurred that the liability of the preceptor could be engaged if the university from which the student/ trainee comes from has no special insurance covering the activities of the trainee in such circumstances.

difference in proctoring/supervising and preceptorship/training

In case of proctorship, the liability of the proctor/supervisor should not be engaged since it is the liability (and the professional insurance) of the proctored which would intervene in case of litigation.

Nevertheless, some in USA for example, recommend to establish a consent form which delineates the proctor's responsibilities during the operation (Livingston and Harwell, 2002).

Conclusion

Medico legal actions are more and more frequent in the world, in case of complications or supposed malpractice. Indeed, when such problems occur during an activity involving training, it is evident that the risks to be sued are even greater.

Prevention is based on information and consent of the patients, and by a clear definition of each responsibility.

The patients now more and more expect information and consent and doctors have to change their behaviour. For instance, attendance of students in the OR should be stated and consent obtained: 10 years ago it was generally admitted that the consent was implicit by the patients and, therefore, never formally required.

Delineation of each responsibility is also critical; three parts may be involved in liability: the institution, the preceptor/proctor and the trainee.

We have seen that most of the time, liability is supported by the institution, but that does not prevent individual involved in teaching activities to ensure that their liability is, or is not engaged according to their implication in the operations. This last point is far from completely clarified: for example if the liability of a proctor acting as a spectator should not be engaged, we still miss bylaws delimitating clearly the responsibilities of preceptors.

In this instance liability carrier such as insurance company should be asked to clarify their coverage of each actor involved in teaching activities.

To conclude, the medico-legal aspects of training are strong advocate to develop virtuality and simulation in training whenever it is possible.

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Medical E-learning: practical experiences in Turku

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Abstract

**In this paper we summarize our experience about medical e-learning in Turku, Finland.
Technical infrastructure and support is important when the faculty organizes medical e-learning.
E-learning and teaching needs new educational skills and attitudes and the problems are often more psychological than technical. We describe our experience how medical e-learning is advantageous in national and international post-graduate training . In creation of European level medical e-learning the possibilities of close collaboration between the universities and the professional societies should be recognized.**

Key words: **e-learning, collaborative learning, web-conference.**

Introduction

During 1990s Internet became in short time an everyday tool. It was natural to implement it also for teaching and learning. The belief in omnipotence of technology in teaching and learning was unshaken. But this boom was following the Gartner Hype Cycle: the peak of inflated expectations was approaching (Clegg et al., 2003). Many teachers asked the question: which is better – contact learning or e-learning (Shacher & Neumann, 2003)? It has been realized slowly that this black and white question is wrong. Both have their advantages and disadvantages (Ruiz et al., 2006).

Finnish experience with medical e-learning

The first e-learning implementations took place in 1997 in the faculty of Medicine in the University of Turku, Finland. After a few experiments and improvements it became clear that implementation of e-learning would require resource allocation. The teachers and also students should be provided by sufficient technical support (Juutinen, 2011) and an infrastructure of e-learning should be created in the faculty. The idea of a unit of medical e-learning was born. At first medical e-learning was launched in support of two projects (MediNet 2003-6 and Telesphoros 2007-9) funded by the national Finnish Virtual University from the Ministry of Education. Since 2010 Finnish Virtual University has not granted special funding to the universities. Now medical e-learning in Turku has been possible with the support of the Finnish Higher Education Evaluation Council. This council designated the faculty of Medicine in Turku as a centre of excellence in Finnish university education in 2010-12 and e-learning activity was acknowledged. Nowadays the importance of e-learning activities has been realized throughout the faculty of medicine and – like it was originally meant to be – it has also turned out to be an established practice. We have one coordinator in medical e-learning and three system specialists in web-conferencing for 1153 graduate students and for 613 postgraduate students in our faculty. Here we summarize shortly our experience in e-learning locally, nationally and internationally.

Medica-portal and medical students

More than 10 years' time all the PowerPoint and other lecture presentations as well as other material in graduate studies have been stored in locally made

internet platform called "Medica". The material was organised in folders according to all departments. Almost all the lectures of the entire curriculum are uploaded on Medica. Every group of students (approximately 120 students) has their own folder on Medica where the materials are uploaded. This system depends on mainly on activity of the students and teaching nurses who take care of uploading all the lectures to Medica. Students do not see e-learning as replacing traditional instructor-led training but as a complement to it (Ruiz et al., 2006). The folders are opened for the students during the different steps of the curriculum. In contrast to the students, the teachers see all the materials, also material from other clinics. Every student group names a student who is in charge of uploading and taking care of materials in Medica. Medical e-learning has sponsored netbooks and flash drives to facilitate the work of those students in charge of Medica. Also other study-related activities and interactions on Medica is allowed and encouraged. There are courses on how to use the university library, small writing courses and also examinations with patient photos in dermatology and ophthalmology. In the beginning there was a fear from the teachers' side that this will decrease the presence of the students in the lectures. This turned out not to be the case, merely on the opposite happened and the activity has increased. Although online materials are found useful through the entire curriculum, their importance turned out to be vital during the period when the students are working in local hospitals outside the university hospital.

Already in the beginning of our work it became very clear that online learning and teaching takes much more than lectures and other materials uploaded in the web. An Internet technique in itself does not bring much extra value – it is the **human interaction** which lights the fire. But this means totally new attitudes among the students and teachers. It is important to give up the attitude that telling about matters and learning that is the same thing. The teacher is no longer the highest source of knowledge. The amount of information is so huge that the teacher is unable to cover everything. An awareness of one's own actions and self in relation to others must be developed both in teachers and students. In this way e-learning also leads away from the authoritarian teaching model. After all, one of the most basic requirements for education in the future is to prepare learners for participation in a networked, information society. Computer-supported collaborative learning (CSCL) refers to instructional methods whereby students are encouraged or required to work together on learning tasks with the help of modern information and communication technology (Lehtinen et al., 1999).

Interactive web-courses

Medica-portal was developed in 2001 and soon after that the interactive web-courses were started. First laborious material was created in the internet for these courses. The students, however, were missing interactions and wanted to have more than just material for reading or clicking with the mouse. They wanted to have answers to their immediate questions. In those days a recipe for successful clinical web course was build. The answer was very simple: a reflective tutor brings a short history of the real clinical case and then challenges the students and asks their opinions. In the beginning the material should be limited. Day after day new information about the case is given. A good tutor inspires the students intellectually, brings fresh perspectives into to the subject being studied and guides the students to solve the real patient case. But it is not only problem solving. A good teacher follows the needs of the students. The case acts more as a source of inspiration and helps the teacher to make the student hungry for knowledge (Clark, 2002). In this way the course is intensive but also demanding. In our experience a good duration of the course is 1-2 weeks. During the course the teacher gives photos, X-rays and other clinical material in a proper time point. Timing is important, there should not be too much study material in the beginning. Links to papers in the e-library are given when the interest of the students has increased and not too early. The use of this technology-supported collaborative learning in dealing with complex authentic problems can make different beliefs visible. Knowledge elaborates gradually. As its most effective level it also highlights the necessity to understand other participants' perspectives and to continuously reflect on one's own previous knowledge and beliefs.

Training of teachers

A good teacher has to be an expert on the clinical field. The teachers should, however, realize that teaching with internet is different than contact teaching in small groups or lecturing. All the teachers have to have training for the methodology before they start on-line work. According to our experience the e-learning psychology is often more difficult than the technical questions. Before the web-course it is crucial to inform the students about learning objects and the style of the course. Timing is important and the teacher has to make a plan of his/her own activities during the course. The teacher should think what kind of material will be used. Usually there are plenty of sources available and one of the best is university e-library. Pub Med and Google Scholar are

commonly used. The new material will be offered during the course when the need comes evident during the interactive discussions. Usually the best starting material is a simple short and solid case history. The case "grows" day after day when the tutor gives more clinical information, photos and others. The teacher should not be too active because this usually decreases the student to student interaction. It is very important that the teacher "show up" online everyday so that the students notice that their comments will be followed. Some teachers make conclusions of the discussions after each day. In some courses the students are asked to make their own summary of the case, what they learned and what was missing. It is important that at least in the end of the course the teacher makes concluding remarks and gives additional reading (like links to journal papers) for the students.

Time and resources

All this means that web-courses take time and resources. The course teachers should realize to make space in their calendar for the whole time of the course. Usually the students work also in the evenings and the tutor might think to do so as well. Real time on-line e-learning is demanding and usually the internet courses are time independent. However, it is important that the students know about the time-schedules and the expectations. After every web-course students are able to give anonymous feedback via Webropol survey software which was implemented in the University of Turku in 2006. All the teachers should learn about the feedback and this should be discussed after each course.

Web courses for national purposes during specializations

We started to use Interactive web-courses also in training of different trainees in the whole Finland. Courses have been in pediatrics, obstetrics and gynecology, anesthesiology, otology, pulmonary diseases, radiology, surgery, internal medicine, neurology and others. These courses usually follow the same model as described above with the medical students. Each course usually includes 2-3 parallel real cases which will be discussed with the interactive problem-solving method in Medica- or Moodle-portal. Usually the number of trainees is 10-20 and the internet course takes 1-2 weeks. There are 2-3 tutors from the same or different cities. The teachers should agree about their work style and objectives of the course beforehand to avoid the teacher to teacher interaction in the course area. Instead they should encourage the learners to ask questions and give comments (Lehtinen, 2010). The purpose is that the trainees also answer themselves. With this the teacher will realize the level of knowledge inside the student group. The teachers introduce links after carefully watching the needs of the students. This interactive method is very much based on the need of the trainees and the role of the teacher is more to act as a guide to the knowledge. Several times the case inspires the trainees to read journal papers and books outside the course material. The University of Turku gives diploma after each course to the active participants. Activity means at least one comment in three days during the week. A week of active online work is considered to be equal as one contact teaching day.

Here we give two examples of the national course activities. We have organized five national web-courses in gynecology. Most courses are case-based as described earlier. One course was about colposcopy with photos and pictures of different lesions. This course was done together with the Finnish Medical Society Duodecim. The Society has developed 28 web-courses about different topics in Medicine. There are 2 topics about gynecology: gynecologic laparoscopy and the other is prevention of gynecological cancer. These courses have modules of teaching materials including videos and the students go through the course material and also answer to the offered questions by clicking the right answers. There is no human interaction in these web-courses. With the collaborative effort we brought human interaction by organizing a new type of course for ten trainees in gynecology from different parts of the country. In this new type of course web-teachers helped the trainees go through the previously prepared colposcopy course material.

PediNet courses are national web courses for all the pediatric trainees in Finland, about 180 totally. The e-learning unit in the University of Turku organizes and co-ordinate the 1-2 week course twice a year. The starting date is informed to all the trainees and the courses are free of charge. Every department of Pediatrics in the five university hospital in Finland has its turn to provide tutors for these PediNet courses. The tutors do their teaching as a part of their work as university teachers. Usually 20-30 trainees participate. The courses are case-based problem-solving type and the course diploma will be given to the active participants, as described before.

Several courses have been organized in collaboration with different medical Societies in Finland and also in collaboration with the pharmaceutical industry. In the courses supported by the pharmaceutical industry no advertisements are allowed and the courses are strictly done by the medical professionals, not the industry.

International web-courses

Since 2003 we have organized international pediatric infectious disease teaching "ESPID Case Rounds" together with European Society for Paediatric Infectious Diseases (ESPID, www.espid.org). All this started with the close collaboration between the Educational Committee of ESPID and the Department of Pediatrics in Turku University. A pattern is similar as described with the case-based courses. First we used Medica and now Moodle as a platform. A coordinator of medical e-learning in Turku takes care of technical details, uploads materials online and gives guidance how to log into course area in Moodle. ESPID has nominated a clinical co-coordinator who organizes the tutors and makes annual list of cases and timing. Once a month, excluding 2 months in summer, there is a one week Case Round in Moodle. Tutors come all over the world. ESPID supports to cover the costs of the tutors and also Turku University for technical work. The Case Rounds are free of charge for the members of ESPID. At present there are more than 400 registered participants from 62 countries. A list of the Case Rounds in 2011 is shown in Table I. The Rounds are not anymore European but a global online discussion forum.

Case Rounds are based on real patient cases and under tutor's guidance participants (trainees, pediatricians, pediatric infectious disease specialists) discuss about the case during 5 working days.

The case starts with a short history and then the story goes on day after day with new information.

The participants are active in giving additional study material, usually links to papers. During the end of the week the tutor will give "the right answer" and makes the concluding remarks.

Tr@inforPedHIV is an international course of paediatric HIV with e-learning and residential elements. It was created as a collaboration of Padova and Turku Universities, ESPID and PENTA in 2005. Penta is a pediatric HIV foundation (www.pentatrials.org). The course is designed for all healthcare professionals caring for children living with HIV, including training doctors, nurses, counsellors and psychologists (Fig. 1). Tr@inforPedHIV consists of a series of basic online modules about paediatric HIV. The modules have been created by the European paediatric HIV experts in PENTA. The initial part is a web based work in spring. The second part is activated after the summer when the course participants discuss online about 2-4 clinical cases, as described before. The tutors of these cases are mainly from UK and Spain. Turku takes care of the technical part. The third element of the course took place in the beginning in London but during the last years it has been in Rome, usually in October. In this interactive residential symposium the students have brought their own cases and also hear lectures about the main topics in paediatric HIV. The faculty of this Tr@inforPedHIV is international and the economical support of ESPID made the whole idea to become a great European success. Along with the African colleagues, the faculty has developed an African specific Tr@inforPedHIV training course. This course was launched in 2007 in Cameroon, where the course was translated into French to reach a wider audience. Since, a course has been in Uganda and more recently in Harare, Zimbabwe and Lusaka, Zambia. In 2008, the course was translated into Spanish for a residential course in San Salvador and in January 2012 was held in Mexico City. Because of the limited resources the web-based courses have not been possible outside Europe but will happen in future.

In 2008 a new Postgraduate Diploma in Paediatric Infectious Diseases was started in Oxford University with the collaboration of ESPID and PENTA. The ESPID Case Rounds and the Tr@inforPedHIV became an important part of this diploma (www.conted.ox.ac.uk/pid). This is a part-time two year program which has on-line and residential elements. The students have on-line material including a textbook "Principles and Practice of Pediatric Infectious Diseases, (Long et al., 2008) and the online course runs for two terms each year covering the full syllabus with online tutor support of different topics and student discussion forums. The syllabus consists; infectious syndromes, therapeutics and infection control, epidemiology, immunity and immunization, bacterial Infections, important viral infections and prions, imported and tropical diseases and mycobacterial infection, congenital and neonatal infections, sexually transmitted diseases, parasitic diseases, the immuno-compromised host and fungal infection. The tutors are 29 experts of PID from several European countries. The students have to attend at least seven Case Rounds in a year and pass the Tr@inforPedHIV course. The residential part includes two Infection and Immunity in Children courses which run each summer in Oxford and the residential part of the Tr@inforPedHIV in Rome. The students also have to do summative elements like an audit or a case study with literature review, a dissertation of a specific area of PID and there is also an examination. The course fee is about 8000 pounds.

Web-conferencing

In Finland the number of medical students has increased in recent years and there is a need for

Table I. — ESPID Case Rounds in 2011.

415 registered participants from 67 countries	Total	Active	No. of comments
January; A 10 year old boy with fever and reduced exercise tolerance and weight loss Tutor: Dr. David Pace, Malta Final dg: Invasive pulmonary Aspergillosis	**48**	**28**	**76**
February; Wheezy coughing infant - its bronchiolitis of course! Tutor: Dr. Hermione Lyall, UK Final dg: Severe pertussis	**58**	**26**	**57**
March; An eleven year old boy with pharyngitis and cough Tutor: Dr. Fernanda Rodrigues, Portugal Final dg: Lemierre's syndrome	**58**	**31**	**58**
April; Chronic skin lesion Tutor: Dr. Gilat Livni, Israel Final dg: Cutaneous Leishmaniasis	**58**	**38**	**94**
May; Unusual rash in a young child Tutor: Prof. Vytautas Usonis, Lithuania Final dg: Kawasaki disease	**60**	**32**	**79**
September; Young boy with pneumonia Tutor: Prof. Jussi Mertsola, Finland Final dg: Listeria pneumonia and meningitis	**66**	**34**	**104**
October; A girl with back pain Tutor: Prof. Shai Ashkenazi, Israel Final dg: Vertebral osteomyelitis	**64**	**30**	**111**
November; A case of otitis media Tutor: Prof. Adam Finn, UK Final dg: Osteomyelitis of the petrous bone and meningitis	**73**	**37**	**85**
December; A girl with pneumonia Tutor: Prof. Chen-Hsun Chiu, Taiwan Final dg: Severe adenovirus pneumonia	**59**	**33**	**61**

Total = all the delegates who logged in during the case
Active = all the delegates who posted comments during the case.

expanding medical education in general hospitals outside the university hospital. The clinical education of medicine in the University of Turku has been decentralized mainly in two other cities, Pori and Vaasa. In this situation the students have to have a possibility to follow regular lectures even on distance. The University has, in close co-operation with the Hospital District of Southwest Finland, created a functional videoconferencing system. We have 45 equipments and Polycom and Codian web casting bridges. In 2011 we had 3400 multiple point conferences through the multipoint control unit which enables simultaneous videoconferencing among three or more remote points and there were even more point to point connections. The costs of investments have been remarkable, but the benefits of videoconferencing are undisputable. The videoconferencing system is used not only in medical graduate studies but also widely in postgraduate and continuing education. The web conferencing between different cities is used also in direct patient meetings especially in cardiology and cardiac surgery. Video connections between surgical operation rooms and lecture halls have also been created.

After the initiation of Turku e-learning the medical faculties in the five universities in Finland have organized two national courses of Tropical Medicine with the web conferencing. The courses have been 2-3 hours in one day a week during the whole spring seasons in 2010-11. About 500 graduate and postgraduate students have participated in each course.

A few years ago Adobe Connect web conferencing software (AC) was introduced in the University of Turku. Since then it has been utilized as a conferencing tool for small meeting groups as well as a tool for webinars. AC is regularly in service in postgraduate training in occupational health care and in paediatrics. These departments use AC as a conference solution for regular seminars and meetings. In this way trainees from other hospitals do not necessary



Fig. 1. — Tr@inforPedHIV is an international course of paediatric HIV with 2 courses of e-learning and residential course in Rome.

need to travel but they are able to view and comment lectures online from their own computers. Turku Centre for Biotechnology has taken a jump further: their lectures are not only one-way direction and in real time but lectures are also recorded and participants can watch recordings on their own computer at the time best suitable for them. In general there are different opinions about the recordings of the lectures. Some teachers do not accept the recordings. Some have doubts about copyrights which is an important question in the whole e-learning.

Summary

Technical infrastructure and support is important when the faculty organizes medical e-learning.

The demands most likely decrease with the arrival of new generations with better IT-skills. E-learning and teaching needs new educational skills and attitudes and the problems are often more psychological than technical. Medical e-learning is especially advantageous in national and international training efforts. Close collaboration and networking between the universities and the professional societies help in creation of new European training methods.

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Is 48 hours enough for Obstetrics and Gynaecology training in Europe?

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Abstract

The European Working Time Directive, implemented by the European Union (EU) in 1993, was adopted in the medical profession to improve patient safety as well as the working lives of doctors. The Directive reduced the average amount of hours trainee doctors worked to 48 hours per week. However, its adoption has varied throughout the EU. Its potential effect on both the quality and total amount of hours of training has caused concern. This monograph presents data on Obstetrics and Gynaecology training in Europe obtained from several of the European Network of Trainees in Obstetrics & Gynaecology's (ENTOG) surveys. The monograph demonstrates large variations in training and explains the difficulties in ascertaining whether 48 hours of training a week is sufficient to become an Obstetrics and Gynaecology specialist in Europe.

Key words: **Training, obstetrics, gynaecology, European Working Time Directive, ENTOG.**

Introduction

Trainee doctors have traditionally provided healthcare around the clock, frequently far exceeding working hours that were deemed safe for both patient and doctor. Excessive working time has been found to be a major cause of stress, depression and illness in doctors and their sleep deprivation has been linked a decline in performance (Pilcher & Huffcutt, 1996; Alhola and Polo-Kantola 2007; Sharpe, Koval et al. 2010).

In order to improve the safety and health of employees, the European Union implemented the European Working Time Directive (EWTD) in November 1993 (Council Directive 93/104/EC). The Directive ensured the employee's right to a minimum period of rest, paid breaks and annual leave in addition to an average weekly working time of a maximum 48 hours over a four-month period. Interpretation of the Directive with regards to the working hours of trainee doctors was further clarified by the SiMAP (European Court of Justice, 1998) and Jaeger judgements of the European Court of Justice (2003).

The Directive stipulated that trainee doctors were no longer allowed to work a 24-hour period without a rest period of 11 consecutive hours and rest breaks had to be ensured when working more than six hours. In addition to 11 hours of rest a day, a minimum rest period of 24 consecutive hours had to be provided in every fortnight.

The Directive was officially implemented in 1998, however, its adoption varied largely throughout the various professions and European countries. The medical profession requested a phased introduction and many European countries requested an extension for full implementation. The Directive was received with mixed opinions and although largely campaigned for by several national associations for trainee doctors, the reduction in working hours left many concerned regarding the quality of training.

In many of the specialties concerns were raised regarding the reduction in training time and opportunities (Moss et al., 2011; West et al., 2007; Bowhay, 2008; Fernandez & Williams, 2009). Surgical specialties reported a reduction in surgical training experience and competence since implementing the EWTD. In order to remain compliant, rotas that required day and night trainee doctor cover were found to have a reduction in their day time working hours which consequently resulted in a reduction in theatre attendance.

A joint report published in 2009 by the Royal College of Obstetricians and Gynaecologist (RCOG) and the Royal College of Paediatrics and Child Health (RCPCH)highlighted that in order for units to become compliant, many UK hospitals had needed to apply more staff either at trainee or specialist level had redesigned their rotas or had restructured their services.

An independent government review published in 2010 (The Temple Report, 2010) assessed the impact of the EWTD on the quality of training in the UK. The report concluded that high quality training could be delivered in 48 hours in a consultant-delivered service with reduced trainee service delivery and increased supervision and training opportunities. Similar conclusions were drawn in studies from other European countries such as Germany (Friedrich et al., 2011) and the Netherlands (Sprangers, 2002).

As of August 2009 all European trainee doctor rotas should have been compliant, yet many countries have yet to adopt the EWTD within the medical profession.

In order to answer the question "Is 48 hours enough for Obstetrics and Gynaecology training in Europe?" the current compliance and training structures in each of the European countries needed to be assessed. On reviewing the literature, very little has been published comparing the training programmes in Obstetrics and Gynaecology throughout Europe.

ENTOG Surveys

The European Network of Trainees in Obstetrics and Gynaecology (ENTOG) performed several surveys over the last decade to collect data regarding postgraduate Obstetrics and Gynaecology training in its member countries (Axelsen et al., 1999; Rodriguez et al., 2009; Pargmae et al., 2011). ENTOG currently consists of 29 European member countries including Austria (AT), Belgium (BE), Bulgaria (BG), Cyprus (CY), Czech Republic (CZ), Denmark (DK), Estonia (EE), Finland (FI), France (FR), Germany (DE), Greece (GR), Hungary (HU), Iceland (IS), Ireland (IE), Italy (IT), Latvia (LV), Lithuania (LT), Malta (MT), The Netherlands (NL), Norway (NO), Poland (PL), Portugal (PT), Romania (RO), Slovak Republic (SK), Slovenia (SL), Spain (ES), Sweden (SE), Turkey (TR), United Kingdom (UK). Each member country has an established national trainee network and an appointed ENTOG representative.

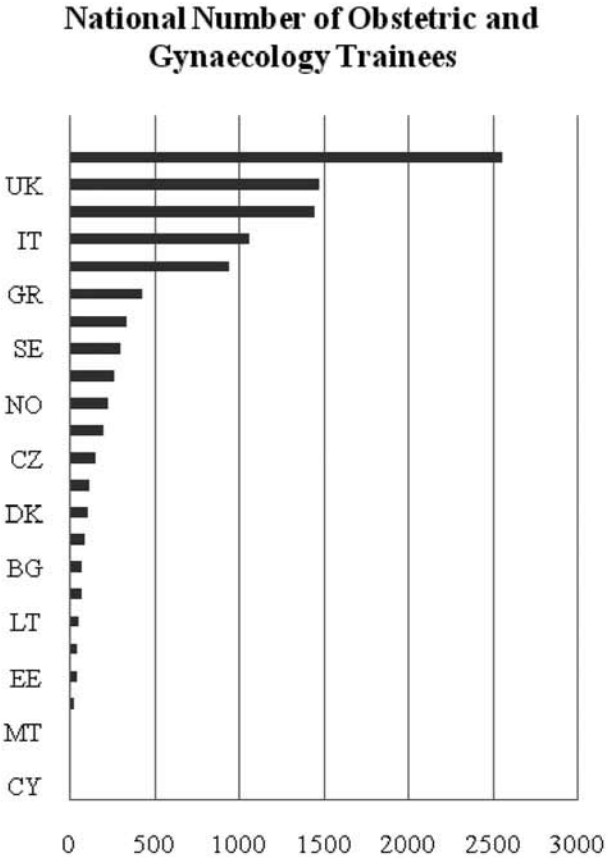

Fig. 1. — Number of trainees per country

ENTOG's latest surveys performed in 2011 were designed by the ENTOG Executive and consisted of a combination of multiple choice and open-ended questions. One of the surveys was electronically sent to each of the 29 ENTOG country representatives of which 24 responded. The other survey was distributed to the trainees that were selected by their national networks to attend the annual ENTOG exchange held in the UK in May 2011. Twenty four of the 29 countries were involved in the exchange and each provided responses to the survey.

The results of the surveys demonstrated a large variation in national trainee numbers ranging from nine trainees in Cyprus to 2560 trainees in Germany (Fig. 1). In the majority of the countries trainees were appointed by their government or national training programmes. However, several countries did not have fixed national training posts and appointed trainees according to the requirements of the individual department.

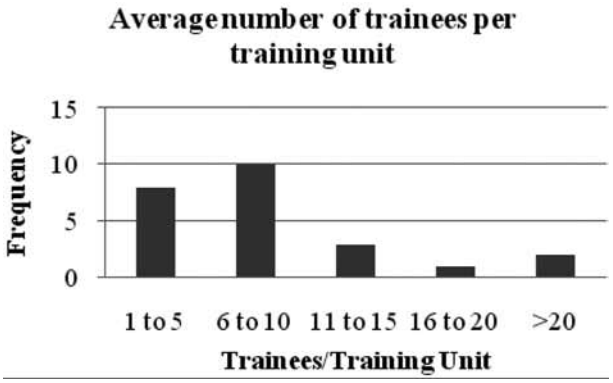

Fig. 2. — Average number of trainees per training unit

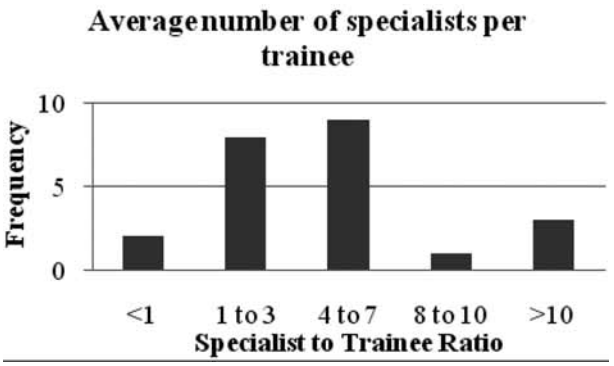

Fig. 3. — Average number of specialists per trainee

The survey demonstrated large disparities amongst the 24 countries in the average number of trainees per training unit (Fig. 2) as well as the specialist to trainee ratio (Fig. 3). Countries such as Belgium, Bulgaria, Cyprus, Denmark, Germany, Ireland, Slovak Republic and Slovenia were found to have on average between one and five trainees per training unit in comparison to Italy and Lithuania that reported an average of more than 20 trainees per training unit. Bulgaria, Estonia, Latvia, and Lithuania reported the highest specialist to trainee ratio (>8:1) whilst countries such as Italy and Malta were found to have more trainees than specialists. The variations in these ratios highlighted the contrasting degrees of service commitments incorporated into the trainee's clinical training programmes.

Half of the trainee representatives reported receiving a great deal of one-to-one supervision throughout their training. Four country representatives (17%) reported their trainees receiving supervision 'as required' whilst eight countries reported rare or no one-to-one supervision (33%).

The European Board and College of Obstetrics and Gynaecology (EBCOG) recommend that basic training should consist of a five-year training programme. The ENTOG survey revealed large variations in the duration of training throughout Europe ranging from three years in Romania to seven years in the United Kingdom and Ireland. Nineteen of the 24 countries (79%) were either compliant or had longer training programmes than recommended.

An ENTOG survey performed in 1997 demonstrated that only seven of the then 13 member countries used logbooks to record progress in training, list procedures performed and document participation in teaching programmes in accordance with recommendations from their national societies (Axelsen et al., 1999). Since that survey, EBCOG developed and accredited a postgraduate core training programme and logbook which was designed to be a platform on which individual European countries could develop national training programmes that would meet the EBCOG training standards. In ENTOG's latest 2011 survey, all of the 24 countries reported having a national logbook and only one reported not having a national curriculum.

Despite the marked progress towards standardisation of training, the 2011 ENTOG survey demonstrated continuing large variations amongst the methods and timing of trainee assessments. The majority of the training programmes included examinations (87%) although these varied largely in timing and style. The survey revealed a mixture of annual, modular and exit examinations some of which were set by an individual department and others by national societies. The examinations themselves were either practical (involving live operating) or theoretical with either written and or oral components. Continuous assessment was demonstrated in 71% of the national training programmes although the type of assessment varied from the traditional numbers based (42%) to competency based (25%) or a combination of both (33%).

EWTD Survey

In the run up to the August 2009 deadline for EWTD compliance amongst trainee doctors, ENTOG designed a survey based on the 2008 joint survey by the RCOG and RCPCH to assess compliance of various teaching hospitals across Europe (Pargmae et al., 2011). The survey predominantly consisted of multiple choice questions with some open questions and evaluated domains such as compliance to the EWTD as well as effects on training and work/life balance. The survey was sent out in early 2009 to all ENTOG member networks who then distributed it nationally. Responses were requested from university hospitals as well as from large and small district general teaching hospitals. Fifty-two responses were

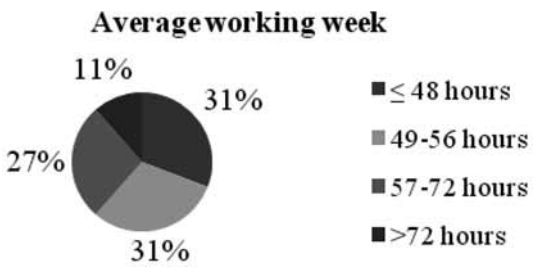

Fig. 4. — Average working week

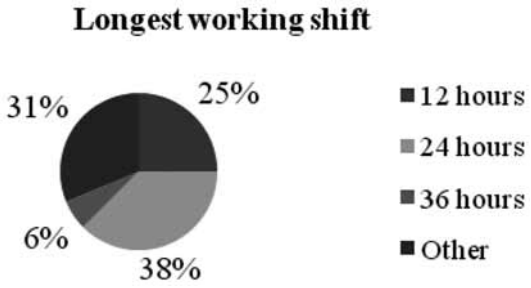

Fig. 5. — Longest working shift

received from 22 countries (75% response rate). The results demonstrated that 43% of the countries were not compliant and had not planned changes leading to compliance in the run up to the August deadline. Only 33% were found to be nationally compliant, some of which had been so for some time due to their stricter national legislations.

In keeping with the findings of the 2008 joint RCOG/RCPCH survey, the ENTOG EWTD survey found that the predominant changes made within units to become EWTD compliant included re-designing of the rota, employment of more medical staff as well as redistribution of the trainee doctor's role.

Interestingly, trainees working within EWTD compliant hospitals felt that their training would be optimised by the introduction of dedicated training sessions including labour-ward drills and dry laboratory operative skills training. A reduction in administrative tasks as well as general service provision was also suggested. However, only 7% of the EWTD compliant hospitals suggested a prolongation of training to improve the quantity of training following the reduction of weekly training hours.

National EWTD compliance was reassessed in ENTOGs 2011 survey. Each of the 29 ENTOG country representatives was asked to comment on the average number of hours worked by the trainees throughout their country. Only 31% of the 24 country responses were found to be compliant with the EWTD and unfortunately 11% reported regularly working more than 72-hour weeks (Fig. 4). Although a third of the countries were compliant to the 48-hour working week, only a quarter of the 24 countries adhered to working no longer than 12-hour shifts (Fig. 5).

Discussion

The question of whether a 48-hour working week is enough for trainees to be trained to become specialists in Obstetrics and Gynaecology is a long-standing question that has sparked a great deal of worldwide debate. Although studies suggest that the reduction in working hours for doctors in training does not compromise patient safety or training (Cappuccio et al., 2009; Moonesinghe et al., 2011) many still feel that the new generation of trainees are missing out on essential clinical exposure.

Standardising doctors training in Europe has been a longstanding quest and the Mutual Recognition Directive in the 1975 EC Treaty insisted on the recognition of European medical diplomas in each of the member states (Council Directives 75/362/EEC). Despite an update on the Council Directive in 1993 (Council Directive 93/16/EEC), the original Co-ordination Directive which advocated the need for minimum education and training required for the award of a mutually recognised diploma has yet to be fully implemented.

The ENTOG surveys have highlighted that in addition to the large variation in compliance amongst European trainee's rotas, other and potentially more important training discrepancies remain. Large inconsistencies remain in styles and duration of training programmes as well as amount of service commitments run by trainees. Considerable variations remain in the degree of supervision offered as well as the style and number of assessments delivered throughout the training. The effect of the various national health care infrastructures on training has not been assessed nor has the degree of training received from other multidisciplinary health care professionals such as midwives and nurses.

Another challenge in assessing whether 48 hours is enough for training Obstetrics and Gynaecology trainees throughout Europe is the difference in requirements from trainees at the end of their training in each individual country. Countries such as the United Kingdom and the Netherlands expect their newly appointed specialists to be independent practitioners within their unit, whereas graduating trainees in Poland and Hungary are appointed as junior specialists into units with a great deal of support and supervision from their senior specialists. This significant discrepancy highlights the current difficulties in recognising all European medical diplomas as equal and in allowing the free movement of newly

appointed specialists throughout the European member states without the need for further educational requirements.

Despite several European countries having been EWTD compliant for numerous years, there is not enough published data available to confirm whether or not the 48-hour working week is enough for training Obstetrics and Gynaecology trainees throughout Europe. Unfortunately, at this stage it is difficult to predict the more subtle changes in the new training programmes throughout Europe and only time will tell whether the new generation of doctors will become confident, competent specialists using the skills and experiences they have acquired in their EWTD compliant training.

This monograph highlights that the quality of training cannot be measured by the quantity of working hours alone. In order to evaluate the quality of Obstetrics and Gynaecology training programmes in Europe, one must appreciate their individual objectives as well as their methods of delivering and assessing the training. Future surveys are required to understand the requirements of newly appointed specialists in each of the European countries in addition to re-audits of their current training programmes.

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Hospital Visiting: contributing to professional competence

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Abstract

EBCOG's ambition is not only to improve structure and process of training, but also to harmonise/standardise specialist training across the EU.
The EBCOG Hospital Visiting programme has so far been based on voluntary applications. More than 140 Hospital Visits for basic and subspecialty training have been conducted in 19 EU countries to date. Moreover, it has resulted in a number of EU countries setting up their own Auditing and Accreditation (A & A) authority. However, to accelerate this development, a more structured approach is required. EBCOG would like to see national Ob/Gyn societies becoming more closely involved in the EBCOG Hospital Visiting programme. EBCOG and national societies may jointly pave the way towards the introduction of more nationally-based A & A programmes in the near future. It should be emphasised that the possibility of voluntary applications for EBCOG auditing and accreditation of local training programmes will remain to exist.

Key words: **EBCOG, Hospital Visiting, Audit, Accreditation, general Ob/Gyn training; subspecialty Ob/Gyn training.**

Introduction

The provision of high quality specialist training in Obstetrics & Gynaecology has been one of EBCOG's main ambitions from the very beginning of its existence. Both content of training and auditing of local training programmes have been a focus of attention resulting in a blueprint for a specialist curriculum and Hospital Visiting (Auditing) system for the assessment of quality of specialist training.

The principle of EBCOG Hospital Visiting has been the subject of a number of publications (Creatsas & Vrachnis, 2006); Wladimiroff, 2003,2005; Wladimiroff & Hornnes, 2010) The actual EBCOG Visiting process has been presented in an earlier issue of this Journal (Wladimiroff & Hornnes, 2010). In this paper, a more in-depth description of underlying thoughts, ideas and future plans with respect to Hospital Visiting, will be given.

1) *Why Hospital Visiting?*

Training solely based on the "master-apprentice" principle is considered outdated. Health care provision has become more demanding due to both professional advancement and social changes. Nowadays, a specialist training curriculum is expected to be competence-based. This does not only constitute the teaching of clinical/operative skills, but also includes effective team work, safe medical practice and ultimately patient satisfaction.

Therefore, there has to be a form of structured assessment of educational progression.

Countries such as The United Kingdom, Ireland, The Netherlands, Denmark and Sweden have a long history of auditing quality of local specialist training programmes and have developed feasible assessment methodologies. These are all nationally-based.

EBCOG operates at European level with its cultural differences in medical practice, differences

in organisational structures and resources, and in perceptions of quality of training.

EBCOG's ambition, therefore, is not only to improve structure and process of training, but also to harmonise/standardise specialist training across the EU. The latter will be one of the aims of the EBCOG Standards Committee chaired by the EBCOG President Elect Dr Tahir Mahmood.

EBCOG Hospital Visiting/Auditing has lead to some countries adopting their own Hospital Auditing & Accreditation system following a series of EBCOG Visits (Norway, Finland, Portugal and France).

2) *What are the principal aspects of the Hospital Visit?*

The EBCOG Visiting team consists of two senior Gynaecologists appointed by the Chair of the Committee and one trainee appointed by the European Network of Trainees in Obstetrics & Gynaecology (ENTOG). The main focus of the one day visit to a training centre is its training programme ensuring the presence of a dedicated teaching staff, a competence-based curriculum, adequate clinical experience and a robust system for assessing a trainee's progress.

Tutoring has become more complex. EBCOG has successfully addressed this by running "Training the Trainers" courses to provide specialists with skills to train, supervise and support trainees. Those involved in tutoring should have an acceptable level of competence regarding appraisal, supervision and assessment.

Patient referral patterns should ensure adequate training opportunities covering every aspect of the profession. There is an increasing role for simulators where the number of invasive procedures needed for reaching proficiency is high. Pelvitrainers providing learning curves for stitching, knot-tying, cutting and dissection are increasingly being used. Skills labs such as for laparoscopy have shown their impact on teaching invasive procedures in a non-patient environment. The Laparoscopic Skills Testing and Training method (LASTT) developed by the European Academy (Campo, Leuven) may serve as an example.

Theoretical training activities will complement the development of clinical skills. These may include case presentations, presentations on specific diseases by the trainee, and attendance of dedicated courses (ultrasound, fetal monitoring, etc).

Specialists responsible for training need to be able to develop a reliable view of a trainee's aptitude, competence and performance based on valid assessment tools. Signing off numbers after each rotation does not suffice. Only a form of continual assessment of the trainee's progress will allow timely identification of the stronger and weaker points with the possibility of remedying the latter. Here, the trainee's logbook becomes a pivotal part of the assessment process. It allows the trainee not only to reflect on their clinical practice, but also on attitudes towards colleagues, auxillary staff and patients.

EBCOG considers research involvement a valuable adjunct to the overall performance of a doctor when having completed specialist training. This should include the teaching of research methodology and basic statistics, the critical appraisal of published material in the setting of a Journal Club and involvement in some clinical research resulting in the publication of a paper in a peer-reviewed journal.

Much has been written about the impact of the European Working Time Directive (EWTD) on specialist training. Can adequate training be provided in a 48-hour working week setting? This topic is discussed elsewhere in this monograph. There is diversity in the adherence to the EWTD and what is considered sufficient training opportunities across the EU.

The above aspects of training are evaluated by the Visitors in separate meetings with teaching staff and trainees. The training curriculum includes clinical activities jointly with Neonatology and Anaesthesiology. The Visitors, therefore, hold a separate meeting with representatives from these specialties with focus on attendance of lectures and courses which should benefit Ob/Gyn trainees.

This touches upon the issue of out-of-specialty training. Examples are: rotations in abdominal surgery, urology, pathology and clinical genetics. EBCOG considers the provision of out-of-training opportunities to Ob/Gyn trainees a logical consequence of the wide range of clinical activities covered by our profession.

3) *Should training-related auditing include practice-related auditing?*

Organisational aspects of specialist training will have considerable implications for the work force and planning of clinical services. The way senior staff functions as a group in the daily provision of care, the assurance of appropriate patient referral patterns and adequate medical equipment all play a role in creating optimal training conditions. Departments providing specialist training need to have a structure in place which allows those staff members involved in training, to have this activity written into their employment contract.

4) *The Visiting Report: a balanced judgement of quality of training*

The Visiting Report starts off with a short description of the local organisation, in particular whether it fulfils general and special requirements for training. This includes appropriate facilities, volume of clinical workload, quality and volume of scientific activities and audit. This is followed by the assessment of the training programme and tutorship.

A central aspect of the Audit is the feedback from the trainees and this should come out in the Report.

A short description of a meeting with the Dean of the Medical Faculty, Medical Chamber or Hospital Director and representatives of Neonatology and Anaesthesiology will conclude the information gathering part of the Report.

Conclusions and recommendations need to be well-balanced. The Report should cover areas of training which require improvement as well as areas of training in which the centre shows a strong performance. It needs to be a fair reflection of how local training is organised and administered. The Report is checked for possible inaccuracies by the Head of Department. The Chair of the EBCOG Standing Committee for Training Recognition (SCTR) subsequently presents the Report to the EBCOG Executive Board which decides on whether accreditation should be granted, and if so, whether this will be for one, two or five years depending on the extent of the recommendations. There is a need for a more transparent accreditation system. Those responsible for training should be able to understand how a set of recommendations is translated into a certain accreditation period.

Occasionally local centres will not be in a position to deal with certain recommendations. Instead, it may require action at regional or even national level. An example is when parts of the training curriculum cannot be guaranteed any more due to workforce constraints.

5) *How to move forward in the EBCOG Hospital Visiting Programme?*

Up until now, Hospital Visiting is based on voluntary applications. This has worked well, as it has allowed Ob/Gyn training centres to familiarise themselves with the EBCOG Auditing System.

Whereas this has resulted in over 100 Hospital Visits for general Ob/gyn training programmes in 19 countries to date, it has only lead to the adoption of a national A&A Authority in Norway, Finland, Portugal and France. Flemish Belgium is about to join. Together with the UK, Ireland, Denmark, Sweden and The Netherlands, approximately a third of the EU now has a national A&A system for quality assessment of Ob/Gyn training through Hospital Visiting in place.

There is concern about the sustainability of the EBCOG Hospital Visiting system programme in its present form. It is based on voluntary applications from individual training centres across the EU. EBCOG believes a more structured approach is required to convince remaining European countries of the essence of Hospital Visiting as a tool of assessing quality of their Ob/Gyn training programmes.

A way forward would be for the national Ob/Gyn society in these countries to become a more active partner in the execution of Hospital Visiting. EBCOG and National Societies should share responsibility allowing a more concerted approach, for instance jointly roll out a Hospital Visiting programme which would lead to all Ob/Gyn training centres in a particular country or region to be audited and accredited. Obviously, this will be a step by step process. Ultimately, the aim is for national bodies responsible for specialist training to establish their own obligatory A&A system with EBCOG taking up an advisory role, if required.

It should be emphasized that the current system of voluntary applications for EBCOG auditing and accreditation of local Ob/Gyn training programme will remain to exist.

6) *How to train the Visitors?*

If this effort is to succeed, there has to be an adequate pool of Visitors to fall back upon. It is, therefore, that EBCOG will run a "Training the Visitors" course at the next European Congress in Tallinn, 9th May 2012. During this course the focus will be on the principle and methodology of EBCOG Hospital Visiting; gaining skills to conduct hospital visits by collecting relevant information to support doctors in training; learning skills to interview senior and junior colleagues and providing feedback; and learning how to write focused hospital visiting reports. This course welcomes senior doctors, programme directors, head of departments and clinical teachers in post graduate training, but also experienced hospital visitors as well as doctors in training who are the future of our specialty. If successful this course will be repeated.

7) *EBCOG Hospital Visiting and subspecialty Ob/Gyn training*

For the practical aspects of quality assessment of subspecialty training programmes, the reader is again referred to an earlier publication in this Journal (Wladimiroff & Hornnes, 2010). Subspecialty auditing and accreditation is a joint activity between

EBCOG and the four European scientific Ob/Gyn subspecialty organisations (ESGO, ESHRE, EAPM and EUGA).

Each audit is conducted by one EBCOG and one subspecialty representative. However, with increasing experience, subspeciality audits may be conducted by two representatives from the relevant subspecialty organisation without participation from EBCOG. This is the case for ESGO which by now has carried-out more than 25 hospital visits. Accreditation is granted by the EBCOG Executive Board having heard the opinion of the subspeciality representative on the Board and the Chair of the SCTR based on the Visiting report.

It should be emphasized that application for a subspecialty audit can only be made following accreditation of the general Ob/Gyn training programme either by EBCOG or the national A&A

authority within the last five years. However, subspecialty training provided in so-called Stand Alone centres like gynaecological oncology training in Cancer centres, can request subspeciality accreditation. This has happened for a number of Stand Alone Cancer centres across the EU.

The same applies to independent units which participate in subspecialty training as an integrated part of a subspecialty training programme run by a training centre accredited for their general Ob/Gyn training programme either by EBCOG or the national A&A authority. Subspecialty accreditation will then include both the independent unit and the centre responsible for the subspecialty training programme.

Several countries have developed their own national Auditing and Accreditation (A&A) system for one or more of their Ob/Gyn subspecialty training programmes. Training centres in these countries may apply for additional EBCOG accreditation of their subspecialty training programme providing the national A&A authority is in agreement.

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Conclusions

Quality assessment of specialist training programmes through Hospital Visiting is a valuable tool for improving the structure and process of training. Moreover, it may contribute to harmonisation/standardization of patient care across the EU.

The EBCOG Hospital Visiting programme has so far been based on voluntary applications. This has resulted in a number of EU countries initiating their own Auditing & Accreditation (A&A) system. However, to accelerate this development, a more focused approach is required. EBCOG would like to see national Ob/Gyn societies becoming more closely involved in the EBCOG Hospital Visiting programme. EBCOG and national societies may jointly pave the way towards the introduction of more nationally-based A& A authorities in the near future. EBCOG may subsequently adopt a more advisory role, if required. It should be emphasized that the current system of voluntary applying for EBCOG auditing and accreditation of local Ob/Gyn training programmes will remain to exist.

EBCOG will start "Training the Visitors" courses to meet the increasing demand for hospital visitors.

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Dealing With Trainees in Difficulty

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Abstract

Doctors are highly valued in every society as they are expected to serve humanity with dedication, commitment and motivation within professional boundaries. Those working within acute specialities are increasingly coming under public microscope. As the public expectations of a quality assured high quality services delivered by the doctors is increasing, so does the pressure on doctors to deliver these services. Our doctors in training are on the front line to deal with the initial assessment of acutely sick women and therefore may be exposed to stressful situations with little support. All doctors in training require support from their trainers and clinical supervisors but more support is needed for trainees who are struggling to cope with the pressure and are in difficulty. This paper examines underlying factors which need to be clearly understood before planning a remedial strategy for this group of doctors. They should be handled sensitively but pro actively.

Key words: **Burn out, competence, misconduct, performance, substance abuse, training.**

Introduction

Most doctors work very hard in order to achieve high standards to ensure that the patients should receive excellent clinical services.

The practice of doctors irrespective of their grades and seniority should be guided by six core principles of professionalism (NCAS, 2009).

1. Competency
2. Inter-personal relationships
3. Managing professional boundaries
4. Consistency and reliability of practice
5. Reflection and learning
6. Commitment to service

Competency encompasses knowledge, skills and ethics, and their appropriate application in practice. However it is important that each doctor is competent against his own level of responsibilities and area of clinical practice. This demarcation is important especially when assessing doctors in training in order to identify support they would require from their trainers to meet their targets in the post graduate curriculum.

Interpersonal relationships and emotional function relates to failure to communicate properly with other colleagues in a team and deal with the clinical workload, and recognise the ability and contribution of others especially nurses and midwives. It can also manifest when an individual acts just being awkward within a team working environment.

Managing professional boundaries is important in order to deliver a responsive high quality care. However with the agreement of colleagues and supervisors, and with appropriate safeguards in place, boundaries for responsibilities can be crossed to achieve specific goals. However it is the deliberate inadvertent crossing of boundaries through poor awareness which quite often can cause problems. This is illustrated by the facts when doctors in training sometimes undertake procedures where their competencies to carry out these surgical procedures have not been assessed for independent practice.

Consistency and reliability of practice is important. All health professionals make mistakes. It is important that during the formative years, doctors in training are focused towards attaining targets against their post graduate curriculum. Their practice should

reflect a sound evidence base and be delivered following the local guidelines. Any mishap/error should be considered as part of reflective learning. However repeated occurrence of errors and the forseeability of potential harm to women should not be ignored and addressed through appropriate mechanism within the unit.

Reflection and learning, in all areas of practice are important. A doctor labelled as being a problem may not know how to perform a task as expected. Doctors in training especially should not attempt to undertake a task which they cannot complete to the required standard, neither should supervisors delegate tasks to them without knowing that they have the requisite knowledge and skills to do it and deal with any complications. It is important to learn by reflection about different clinical scenarios especially where adverse outcomes have been reported.

The final domain of professionalism is commitment to service. Professionalism does extend in some respects to an individual's private behaviour; obvious examples here are drug taking and violent behaviour. There are some grey areas and that includes personal beliefs. It is important that personal and religious beliefs should not compromise individual patient care.

Why some doctors perform poorly?

It has been recognised that up to 5% of doctors fail to meet reasonable standards (Paice, 2006) and that begs the question why does this happen? Why should someone who has had the ability and commitment to enter medical school and to qualify as a doctor start underperforming in their clinical practice? The reasons are complex. The issues may not be related to lack of clinical knowledge and skills because performance is affected by a complex interplay of personal and situational factors such as workload, sleep loss and shift patterns, physical environment, team work and leadership. It has been recognised that workload affects physical and mental ability in the form of decision making, attention span, fine motor control and level of motivation. This is further complicated by sleep loss which increases the risk of human error and shift work can cause biological disruption which may lead to impaired health, effect on work life balance and psychological wellbeing, including adoption of risky behaviours such as alcohol or drug misuse (Firth-Cozens and Cording, 2004) .

If there are concerns about a doctor's performance then we must consider the following questions.

1. Is there a difficulty with clinical knowledge and skills?
2. Do they have a physical illness which was previously unknown or a previously known chronic illness has worsened? Furthermore could their performance be affected by medication they are taking?
3. Is the individual depressed or suffering other mental illness which may or may not be linked to life events but could seriously affect decision making and memory, thus making an individual lose confidence and become irritable?
4. Is there a cognitive problem which may be caused by alcohol abuse?
5. Has there been a recent life event such as separation, family illness, financial worries and even the birth of a child can affect both psychological and physical health? Try to identify work life balance issues as well.
6. Has there been a change in work pattern which means they are losing sleep or working longer hours or with less support? It is equally possible that they are deficient in education; require more intense supervision or indeed workload is excessive. It is equally relevant to explore whether a change in team structure in their new rotation has created interpersonal problems with other team members?
7. Could there be issues relating to equality and diversity as it may disadvantage an individual from a minority group?

Effect of various Confounding factors on performance

Workload, Sleep Loss and Shift Work

Medicine is a 24 hour discipline and work has become more intense, particularly in our speciality. Working time arrangements and their effects on sleep can exacerbate other stressors and have an indirect effect on care, since higher stress levels may adversely affect quality of care.

Workload is not only a matter of long hours, but a combination of the demands of the task, and efforts that need to be made to deliver these tasks. Increased hours of clinical responsibility are related to greater fatigue, which in turn aggravates the effects of other stressors more severely.

The problem of sleep comes with shift work, typically associated with shorter sleep duration and from the exhaustion of higher workload which can cause changed sleep patterns. There are wide individual reactions to sleep deprivation, and although many doctors respond well in crisis situations, sleep loss has been found to cause lower mood and psychological wellbeing as well as poorer attitudes to work performance and safety.

Work life balance issues have led to working in shifts. The goals of duty hour's restrictions are to improve trainees' well being and patient safety (Blanchard, 2012). However, it has also been reported that, shift work is associated with physiological disruption, including sleep cycle, impairment of physical health and wellbeing, lowering of alertness, more sickness/absence and turnover, and interference with social and domestic life. This may even lead to engaging in more risky coping behaviours such as increased smoking, alcohol or other drug abuse, and impaired eating habits, though there are always individual differences in response (Bennet & Donovan, 2001).

Physical Health and Disability

Although doctors suffer from all the illnesses that affect others, the principle studies on their health primarily concern depression, burn out and substance abuse. Studies show excessive mortality for doctors from overdose of prescribed drugs (males), suicide (females) and cirrhosis of the liver (Carpenter et al., 1997). It is well known that doctors appear reluctant to admit to illness and colleagues unknowingly may be playing a part in this. There is evidence of considerable self prescribing and informal referrals to consultants. Treating doctors can be difficult because they are constrained by their knowledge of disease and by their previous professional experience. It is important for the educational supervisors and trainers to know that their trainee may suffer from chronic illnesses (i.e. diabetes, ulcerative colitis, arthritis, etc). A majority can fulfil professional responsibilities; however there is always a potential for problems to occur if the workplace is not suitably adapted to take care of their requirements at work (BMA, 1997).

Mental Health and Performance

Levels of stress in health service professionals, especially in doctors and nurses, are high with around 28% showing above threshold symptoms at any one time compared with 18% of British workers as a whole (Birch et al., 1998). In addition, depression, alcoholism and drug dependency are particular problems for doctors, not only in the UK but also in North America, Europe and Australia. Between 10-20% of UK doctors become depressed at some point and the suicide rate is also raised, particularly for women. Alcoholism affects a higher proportion of doctors compared with other professional groups and is a largely hidden problem that often goes unacknowledged for many years (Alklint, 2004). Stress and depression produce a number of symptoms and signs which affect clinical judgement. The most important of these are problems with concentration, attention, memory and decision making and a rise in irritability. There is evidence that errors arise when there are high stress levels in a number of settings, including healthcare (Davidson & Schattner, 2003).

Organisational Culture

Research shows that quite often poor support from supervisors, poor teamwork, a lack of control over how the tasks are performed and supervised; overload and a lack of resources could increase stress. In addition within medicine a major increase in stress includes the fear of making mistakes and of litigation and complaints. An organisational culture which is open and fair and where trust is high is likely to reduce this stress somewhat (Firth-Cozens & Mowbray, 2001). Of late it has been recognised that institutional racism (which may be defined as the collective failure of an organisation to provide appropriate and professional services to people because of their colour, culture or ethnic origin), is an important source of stress for those affected by it and can impact on health and performance (Baldwin et al., 1997).

Cognition and Performance

A doctor's memory, reasoning, learning, attention, understanding, communication, empathy, decision making and emotional control all involve cognitive functions. It is important to recognise that some medical conditions such as severe depression or some medications such as anticholinergic agents or steroids can affect cognition. This is especially important if a doctor's poor performance represents a change from how he or she was in the past (Dorafshar et al., 2002; Hall et al., 2003).

Personal Characteristics, Behaviour and Performance

It is important to understand that individuals behave in different ways in different circumstances. Personality can have significant effects on the behaviour of individuals. It may not be possible to change underlying personality; however attitudes and behaviours can be adopted. Attitudes have a strong effect on behaviour and have also been shown to affect safety performance, probably via behaviour. For example, the macho style of individuals: as they do not recognise their limitations during stress or emergencies, do not interact with team members well, and are less sensitive to others problems (Baldwin et al., 1997).

What are the Early Signs of Doctors in Difficulty?

There are some signs that may raise concerns that a doctor is getting into difficulty. The signs would suggest the need for an approach to the trainee by a skilled senior doctor or their training supervisor, to identify any underlying factors and to set clear goals for improvement (Paice, 2006).

1. **The disappearing act** – not answering bleeps; disappearing between clinic and ward; lateness; frequent sick leave
2. **Low work rate** – slowness in doing procedures, clerking patients, dictating letters, making decisions; arriving early, leaving late and unable to finish all the tasks.
3. **Ward rage** – burst of temper, shouting matches with other members of team (nurses, midwives, secretaries etc)
4. **Rigidity** – poor tolerance to healthy criticism, inability to compromise, difficulty prioritising, inappropriate whistle blowing.
5. **Bypass syndrome** – junior colleagues and nurses find ways to avoid seeking the doctor's opinion or help.
6. **Career problems** - difficulty with exams, uncertainty about career choice, disillusionment with medicine
7. **Insight failure** – rejection of constructive criticism, defensiveness, counter challenge.

What are the markers of Doctors in Difficulty?

Table I describes a list of pointers at work place which should raise a suspicion that a given doctor is struggling and his/her cry for help needs to be responded to (Paice, 2006).

Guiding Principles for Dealing with Doctors in Difficulty

Doctors in difficulty should be supported and managed pro-actively to ensure that patient safety is not compromised and the said doctors are not left in a limbo. The concerns reported about the doctor in training should be guided by the following principles (NPSA, 2006):

1. **Ensure patient safety** – if there is a risk to patient safety, alert the Clinical Lead and Director of Education so appropriate arrangements are in place to supervise and support the doctor concerned.
2. **Address problems** when they occur and do not wait until the end of current appointment
3. **Classify problems** in order to develop a focused strategy to address the issues identified

Performance issues can be categorised in three areas:

1. Personal misconduct
2. Professional misconduct
3. Professional competence/educational progression

Personal Misconduct

This may be in the form of bullying, harassment, dishonesty, working under the influence of alcohol or drugs or criminal behaviour. Incidences of personal misconduct should normally be managed in line with the employers' policies and procedures, therefore advice should be sought from the Clinical Lead and from the Human Resources Department of the hospital.

Table I. — List of markers of doctors in difficulty.

Category	Markers of Difficulty
Work based	Absence from duty, persistent lateness, poor time management, backlog of work, failure to learn and change
Clinical performance	Over and/or under investigating, poor decision making, poor record keeping, complaints, failure to follow guidelines, missed diagnosis
Psychological/ personality	Irritability, unpredictability, forgetfulness, high self criticism/ perfectionism, arrogance, lack of insight/ denial, risky/ impulsive
Social	Isolation, withdrawal, poor personal interactions
Cognitive	Memory problems, poor problem solving/ reasoning, decision making difficulties, poor concentration/ attention, learning problems
Language/culture	Poor verbal fluency, poor understanding

Professional Misconduct

This comprises of the following:

- Neglect or disregard of duty of care to patients
- Any abuse of position or trust
- Unacceptable attitude or behaviour towards patients, relatives or colleagues
- Inappropriate attitude to work

Incidences of professional misconduct depending on the nature/context should be managed at local level and, may be managed in line with the employers' policies and procedures.

Professional Competence/Educational Progression

Trainees' competence should be measured through clinical, professional and educational performance. The majority of trainees who are failing to meet the required standard can be supported in the workplace by their Clinical and/or Educational Supervisor. If local mechanisms put in place are not sufficient to improve performance and achieve the agreed targets, guidance should be sought from the Programme Director. Such problems might include:

- failure to develop skills and knowledge required,
- failure to work effectively within the healthcare team,
- recognise own limitations,
- consult senior colleagues appropriately
- communicate effectively with patients and relatives.

Collecting Evidence

Gather information regarding concerns raised by using multiple sources to establish facts. Draw on sources of information such as multisource feedback, training portfolio and previous educational supervisors' reports (Paice et al., 1999).

It is important to speak to the trainee as well – remember there are two sides to every story.

Consider whether there is an underlying health problem or any mitigating circumstances influencing the trainee's performance.

Setting up a meeting to meet the doctor in difficulty

Confidentiality should be respected and maintained in line with good medical practice when meeting with the trainee when concerns have been identified:

- All relevant information should have been collected beforehand and all the facts have been reconfirmed with appropriate supporting documents.
- choose a suitable time and place to meet the trainee free from disturbance
- make the meeting as close as possible to the event or complaints that prompted the concern
- invite rather than summon the trainee to a meeting, indicating that you have an area of concern that you would like to discuss
- suggest that the trainee may bring a friend or someone to support them
- be aware that the trainee may be fearful and may not respond in character due to the stress of the situation
- avoid meeting a female trainee alone with two male trainers

Conduct of the meeting

The meeting should be conducted in the following way:

- Ensure the trainee is aware of the purpose and boundaries of this meeting, for example the meeting may or may not be confidential and this needs to be clarified.
- state that the aims of the discussion are to help and support the trainee by establishing whether or not there is an issue
- tell the trainee that notes of the meeting will be kept and shared with them
- emphasise that you wish to hear the trainee's perspective on the situation
- describe the concern in neutral language and outline the evidence you have collected
- be prepared for a negative or defensive response
- if a trainee does not accept the concerns and needs more time to respond , do not attempt to close the issue at this meeting but document next steps and arrange a follow up meeting
- if the trainee is willing to engage listen to their account with an open mind
- establish the core problems to be addressed
- if there is lack of clarity at this point agree how further evidence could be sought
- when it is necessary to speak to other parties this should be done with the full knowledge of the trainee
- if there is agreement about concerns explore the possible causes
- identify any additional support which may be needed
- agree actions to address concerns which might include further referrals, ie to occupational health service
- check actions agreed are smart, specific, measureable, attainable, relevant and time bound
- document arrangements for monitoring and review

- seek help/guidance if unsure how to proceed
- document everything in writing and this should be signed, dated and preferably shared with the trainee
- the remedial action plan may include individualised targeted work place based training and assessment and organising specialist training courses as appropriate.

Remedial Action Plan and Follow up

As suggested earlier on, agreed remedial actions should be fully supported by the programme director and it should also be ensured that the doctor in difficulty will be supported by one named senior colleague.

The Clinical supervisor would ensure that trainees' progress is continuously assessed against the miles stones agreed at the previous meetings.

If there are lingering concerns despite all the support provided by the local team, then it would be prudent to review the strategy with the help of Programme Director/ Head of Department.

Conclusion

Over the past twenty years we have learnt a lot about supporting doctors in training and how sensitively they should be managed. A majority of these doctors eventually pass through their training programme with the support and guidance of their educational supervisors. However there will be a small hard core group who may require individual career guidance at any stage of their career. There should be mechanism in place to provide or arrange guidance for change of career path for this cohort of trainees either within Medicine or a career outside Medicine. I firmly believe that termination of training should only be based on substantial evidence that despite all the remedial actions put in place, patients are at substantial risk.

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The Walking Egg Project: an example of medical education and training

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Introduction

Infertility is a universal health issue and it has been estimated that 8 to 12% of the couples worldwide are infertile. The large majority of childless couples are residents of developing countries. WHO estimates that childlessness affects around 186 million married couples in the developing world alone (excluding China). However, in some parts of the world, the burden of childlessness can be so severe that 1 in 4 couples are affected (Rutstein & Iqbal, 2004; Boivin et al., 2007).

Consequences of involuntary childlessness are usually much more dramatic in developing countries, particularly for women. Negative psychosocial consequences are often severe and childless women are frequently stigmatised, isolated, ostracized, disinherited and neglected by the entire family and even the local community. This may result in physical and psychological violence, polygamy, even suicide (Papreen et al., 2000; Van Balen & Gerrits, 2001; Daar & Merali, 2002; Dyer et al., 2004, 2005; Van Balen & Bos, 2009; Gerrits & Shaw, 2010). Because many families in developing countries completely depend on children for economic survival, childlessness has to be regarded as a social and public health issue, and not only as an individual medical problem (Ombelet et al., 2008; Dhont, 2011b; Ombelet, 2011).

The most important reason for childlessness in developing countries is the high incidence of sexually transmitted diseases (STDs), pregnancy-related infections due to unsafe abortions and home deliveries in unhygienic circumstances, mainly in rural areas. The high prevalence of genital infections in developing countries is commonly compounded by a complete lack of diagnosis together with incomplete, inappropriate or no intervention at all. Severe male infertility due to STDs and female infertility due to tubal block can only be treated by "expensive" assisted reproductive technologies (ART) which are either not available or only within reach of those (the happy few) who can afford it, mostly in a private setting (Ombelet et al., 2008).

Despite its relatively high prevalence and the cultural values associated with childbearing, infertility care remains a low priority area for local health care providers and community leaders. A surprisingly low interest is shown on the issue of infertility and childlessness in developing countries, not only on a national, but also on an international level (Fathalla et al., 2006, Ombelet, 2011).

The Walking Egg non-profit organization was founded in 2010 by scientists and an artist to realize the idea of implementing accessible infertility programmes in resource-poor countries (Dhont, 2011c). Right from the start The Walking Egg has opted for a multidisciplinary and global approach

towards the problem of infertility. In cooperation with the Special Task Force (STF) on "Developing countries and infertility" of the European Society of Human reproduction and Embryology (ESHRE) and the WHO, The Walking Egg npo gathers medical, social and economical experts to discuss and work together towards its goal (Dhont, 2011). **The Walking Egg Project** aims to raise global awareness surrounding childlessness, and to make infertility care in all its aspects, including assisted reproductive technologies, available and accessible for a much larger part of the population in resource-poor countries. It is obvious that implementation of ART will depend on our ability to optimise these techniques in terms of availability, affordability and effectiveness (Ombelet & Campo, 2007). Our ***first objective*** is the establishment of a low-cost "one-stop clinic" for the diagnosis of infertility. Simplification of the IVF procedures without loss of quality is our ***second objective***. Our ***final goal*** is the implementation of "accessible" infertility services integrated within health care facilities, providing quality family planning, reproductive health education, maternity- and child care. Urbanization is rapid, particularly in low-income countries and emerging economies, which allows for centralization of reproductive health services.

Methods to organize **medical education and training for the one-day diagnostic phase** of the Walking Egg Project are described in the current paper. **These methods** will be used for pilot-centres who want to be part of The Walking Egg Project.

The one-day diagnostic phase

Standardized investigation of the couple at minimal costs will enhance the likelihood that infertile couples, both men and woman, will come to the centre. The best option would be to develop **specialized primary health care facilities,** where infertile couples can obtain sexual and reproductive health care and education (prevention of cancer, STDs, diagnostic procedures for infertility, family-planning, etc.).

Existing reproductive health care centres are mostly located in big hospitals with long waiting lists and far away from villages. The advantage of a "specialized primary health care facility" is that it can become a place for both medical and educational activities, as well as a place where women can discuss their problems.

Since tubal obstruction associated with previous pelvic infections is the most important reason for infertility in some developing regions, hysterosalpingography and/or hystero-salpingo-contrast-sonography are simple and accessible techniques to detect this problem without major costs. Combining these techniques with an accurate anamnesis will identify the majority of women's infertility causes, such as ovulatory disorders and tubal infertility. Male factor infertility can easily be evaluated by a simple semen analysis. Semen analyses can also be performed by well-trained paramedicals, another important advantage for developing countries.

Office mini-hysteroscopy to investigate intrauterine abnormalities has been simplified in its instrumentation and technique, so that it can become a non-expensive diagnostic technique accessible for every gynaecologist, provided there has been appropriate training (Ombelet & Campo, 2007).

Moreover, all of these procedures can be performed by a small team of health care providers within a short period of time in an inexpensive setting (Ombelet and Campo, 2007).

Our objective is to organize a one week course for all members of the team who are involved in the set-up of a pilot-centre, part of the Walking Egg Project. This training will need the support of experts in the field, who are capable to tutor the training courses at the highest level in a very short time, taking into account the experience of the trainees and the quality of facilities that can be expected in the new pilot-centres.

The main topics to be included in the training courses are described in Table I.

1. *Reproductive health care education basic course*

Local midwifes and nurses have to be trained in the basic knowledge of human fertility from menarche to menopause, with special attention to menstrual cycle physiology and reproductive endocrinology. Trainers have to be experienced in fertility-awareness methods not only to increase the knowledge of having intercourse during the most appropriate period, but also to inform couples how to prevent pregnancy if needed as a natural method of family planning. The trainees will be counseled about the methods and interpretation of basal body temperature and cervical mucus recordings.

Awareness and prevention of sexual transmitted infections and HIV are also part of this course.

2. *A general and medical history of both partners and basic clinical examination*

A questionnaire will be provided for both partners. This questionnaire can be adapted to the local situation in the specific locations and countries. A protocol of how to perform a basic clinical examination of both partners will be discussed. Case discussions can be used to teach the relevant elements of an infertility work-up.

Table I. — Key categories of the training courses.

- Reproductive health care education basic course
  → Target group: **nurses, midwifes**
- A general and medical anamnesis of both partners and basic clinical examination
  → **clinician (medical)**
- Screening for infections and STDs
  → **clinician (medical, paramedical)**
- How to perform and evaluate a hysterosalpingography and/or hystero-salpingo-contrast-sonography
  → **clinician (medical, paramedical)**
- Standard Operational Procedures for the gynaecological and fertility ultrasound scan
  → **clinician (medical, paramedical)**
- Basic semenology training course according to WHO 2010 manual
  → **laboratory staff, (paramedical)**
- Sperm washing procedures
  → **laboratory staff, (paramedical)**
- Mini-hysteroscopy
  → **clinician (medical)**
- Documentation and registration
  → **administrative staff (clerical)**

3. *Screening for infections and STDs*

A short list of affordable screening tests (with costs) is listed in Table II. Training the laboratory staff to perform these tests and interpret the results will be offered to all team members. The prevention of the transmission of infections, as a result of assisted reproduction, is the cornerstone of this part of the course.

4. *How to perform and interpret a hysterosalpingography and/or hystero-salpingo-contrast-sonography*

How to perform a hysterosalpingograph and evaluate the results can be learned by showing a large number of different pictures associated with different pathologies. The impact of the different uterine and tubal abnormalities will be discussed by experts in the field.

Patency of the tubes can also be investigated by hystero-salpingo-contrast sonography. Fluid filled dilatation of the fallopian tubes (i.e. hydrosalpinges) can be identified by the demonstration of elongated fluid filled swellings with incomplete septae on one or both sides of the uterus. The identification of hydrosalpinges by ultrasound is important, as studies have shown that if they are not surgically removed or clipped, they are associated with reduced pregnancy rates following IVF.

5. *Standard Operational Procedures for the gynaecological and fertility ultrasound scan*

Table III gives an overview of the different aspects considering training in gynaecological and fertility ultrasound scanning. With the help of experienced experts, this training course can easily be organized during a two-day course. After the course, a CD-ROM can be given to the trainees to ensure prolonged training and quality control.

6. *Basic semenology training course according to WHO 2010 manual*

Semen analysis remains a cornerstone in the evaluation of the male's fertility potential on condition that it is performed by trained technologists. During the suggested training sessions, the main goal is to enhance the technical skills of the trainees as far as the following aspects are concerned; (i) staining techniques (ii) sperm morphology (iii) sperm concentration (iv) cellular elements and (v) sperm motility and vitality (Björndahl et al., 2010; WHO, 2010).

The format of this training course will consist of **3 sessions**:

1. Pre-training evaluation

During this session each trainee will receive a fresh semen sample to record the sperm concentration, motility and vitality, cellular elements and percentage normal sperm on pre-stained slides.

2. Training session

Following the pre-training session, the proper evaluation technique of each sperm parameter will be discussed and explained in detail. This training will include PowerPoint presentations of motility, vitality and morphology, video clips and by using pre-stained slides.

Table II. — Description and cost summary of selected rapid tests for infectious screening in ART laboratories (estimated prices, Huyser C, 2012).

Description	Quantity per pack	Cost per pack (€)	Cost per item / test (€)
Determine Rapid HIV 1 & 2 Combo (with accessories)*	100	150.16	1.50
Determine Rapid HBsAg (with accessories)*	100	112.36	1.12
HBsAg Dipstick (serum/plasma)	30	11.43	0.38
HBsAg Cassette (serum/plasma)	30	33.74	1.12
HCV Cassette (serum/plasma)	30	48.10	1.60
Rapid Chlamydia Cassette (swab/urine)	20	64.25	3.21
Determine Rapid Syphilis (with accessories)*	100	109.80	1.10
Syphilis Cassette*	30	35.83	1.19
Gonorrhoea Rapid Cassette (swab)	25	94.00	3.76

*serum/plasma/whole blood.

2.1. Sperm concentration

The counting procedure will be explained using PowerPoint projections of the Neubauer counting chamber containing sperm images (Figure 1a). Estimation of the sperm concentration using a standardized wet preparation (10 µL semen drop covered with 22 × 22 mm cover slip) will be performed on a Neubauer counting chamber by each trainee.

2.2. Motility

High quality video clips will be projected containing a low number of sperm exhibiting motility values according to the categories; progressive motile, non progressive and immotile. Using increasing sperm numbers on consecutive video clips, the trainees will be requested to record the 3 motile categories.

2.3. Vitality

Pre-stained eosin/nigrosin slides will be evaluated and discussed.

2.4. Morphology

The morphology training session initiates with a detailed explaining of the configuration of a

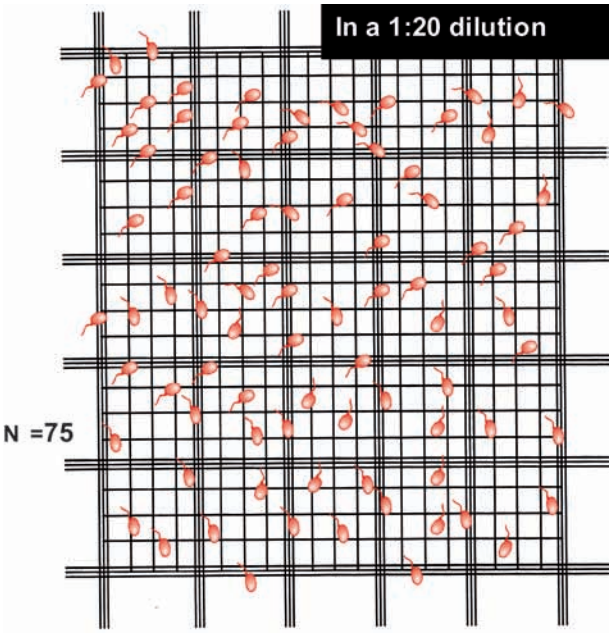


Fig. 1a. — Neubauer counting chamber containing sperm

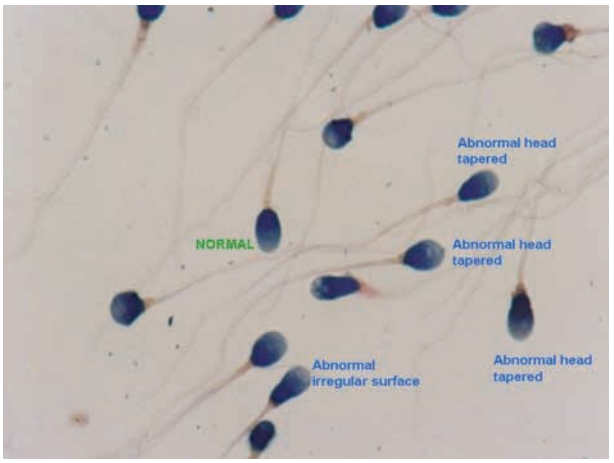


Fig. 1b. — The morphology training session with detailed explanation of staining methods and the configuration of normal / abnormal spermatozoa according to the WHO (2010).

Table III. — An overview of the different aspects considering the basic aspects of training in gynaecological and fertility ultrasound scanning.

Prior to scan

- An empty bladder is needed for intravaginal ultrasound.
- Check the regularity and usual length of the menstrual cycle and the particular day of the cycle.
- Prepare the patient on the scan couch in the lithotomy position, explain the procedure and check the volunteer does not have a Latex allergy. Clean and prepare the transducer with a condom.

Scanning technique

- A systematic approach to scanning is important.
- The probe should be introduced gently. The bladder is a key indicator of the orientation of the scan.

The uterus

- Note whether the uterus is anteverted or retroverted.
- The full length of the uterus should be measured sagittally from the external os of the cervix to the fundus and also transversely (antero-posterior (A-P) and transverse diameters).
- The endometrial thickness should be measured as the maximal thickness in the longitudinal uterine axis. Polyps should be measured separate from the endometrium in two dimensions at 90 degrees in the sagittal plane. The morphology of the endometrium ("triple layer" or "secretory").
- Previous Caesarean section scars can be identified as an echogenic line in the myometrium just above the cervix. If the scar is full thickness the length should be measured.
- The probe is then moved laterally to each side to examine the myometrium for fibroids or areas of adenomyosis (diffusely thickened uterus with areas of heterogeneous ultrasound signals).

The ovaries

- Measure the longitudinal, A-P and transverse diameters in mm. The ovarian volume (in ml) should then be calculated (in cm) using the formula for the volume of an ellipsoid i.e. the 3 diameters (in cm) × 0.5233. This will give the ovarian volume in ml. This is a valuable measurement when assessing ovarian reserve and polycystic ovaries (PCO).
- Assessment of the morphology of the ovary taking into account the time of the cycle. If the mean diameter of the dominant follicle is greater than 25 mm mid-cycle, it should be regarded as an ovarian cyst. Complex cysts are measured in 3 dimensions. The wall thickness, septal thickness, loculations and solid elements should be noted and papillations should be measured. The internal wall of the cyst should be described as being „smooth" or „irregular".
- A common cyst found in women of reproductive age is the endometriotic cyst. Typically these have relatively thick walls with contents of uniform echogenicity (frequently called "ground glass").
- To assess ovarian reserve, we measure the Antral Follicle Count (AFC). The small growing follicles (2-6 mm in diameter) are an accurate reflection of the ovarian reserve and correlate with the response to stimulation, the count is the sum from both ovaries. A count less than 5 indicates a low ovarian reserve. A high AFC may be an indication of PCO and an increased response to stimulation.
- After day 7, a dominant follicle can be identified and it is then customary to take the mean of 3 diameters as the follicle is rarely symmetrical. Serial monitoring of follicular growth will predict an expected time for ovulation which is when the mean diameter is approximately between 18-22mm.
- Following ovulation a corpus luteum can easily be identified. It is thick walled, usually cystic and very vascular. Small solid corpora lutea are associated with low progesterone levels and poor implantation.

normal/abnormal spermatozoon according the WHO 2010. Following this session, high quality micrographs containing numbered spermatozoa will be discussed and illustrations of the normal sperm cell will be emphasized. The trainees will then be requested to partake in an initial pre-training session using projected images of numbered sperm (Figure 1b).

Following this group session pre-stained slides will be supplied to each trainee for evaluation to ensure, once again, prolonged training and quality control.

7. *Sperm washing procedures*

In developing countries, the selection of a sperm preparation technique is dictated by the blood-borne virus status (HIV) of the male patient and the nature of the semen sample (Huyser et al., 2008; Huyser & Fourie, 2010).

- The *HIV-seropositive* status of a patient, as well as the initial microscopic observation of a high number of "round cells" (leukocytes/inflammatory and germ cells) in the semen sample necessitates

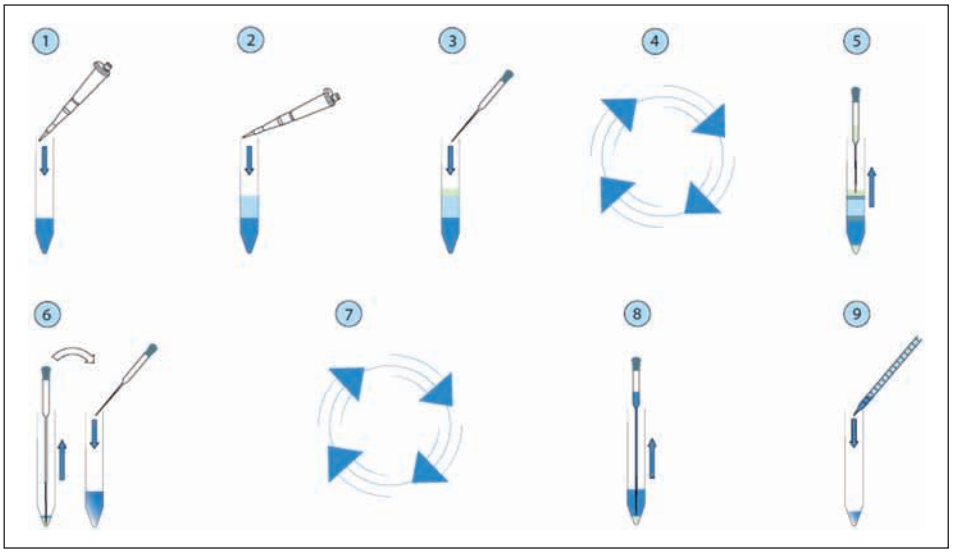
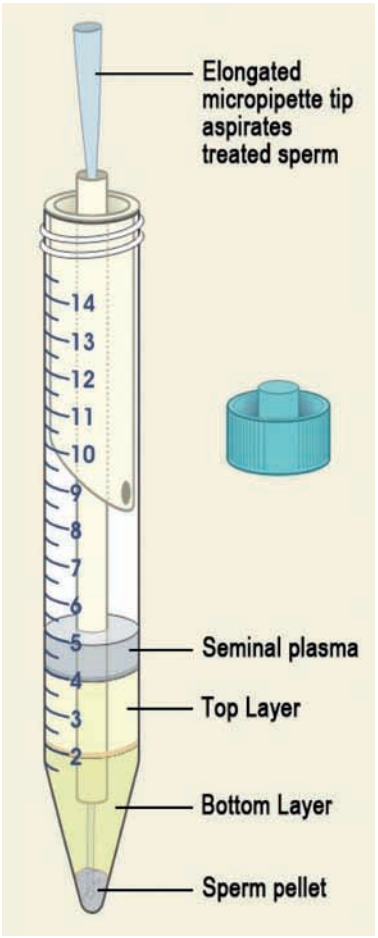


Fig. 2a. — Stepwise illustration of sperm processing: Density gradient centrifugation (obtained with permission Nidacon International AB).



Procedure:

1) A polypropylene insert (ProInsert™) is placed in a 15ml sterile conical centrifugation tube, the 80% and 40% (bottom and top). PureSperm® gradients together with the liquefied semen (≤ 1.5 ml semen per 2 ml of each gradient) are layered sequential and aseptically through the insert.

2) A clear interface should be noticeable between the layers. Individually wrapped sterile plastic Pasteur pipettes are used to layer each gradient and semen. A bench top centrifuge with a swing out rotor is used to centrifuge the sample at 300 *g* for 20 minutes.

3) An elongated micropipette is used to aspirate the sperm pellet (0.2 mL) from the bottom of the tube. The design of the insert facilitates precise layering of density gradients and semen, allowing access to the treated sperm pellet post-centrifugation directly, without exposure to the upper gradient layers with possible pathogens and cell debris.

4) The sperm pellet is transferred aseptically to a new conical tube containing 5 ml of PureSperm® Wash/embryo culture media and centrifuged at 500 *g* for 10 minutes. The supernatant is aspirated with a new plastic Pasteur pipette using circular movements, till the beginning of the tapered section of the tube. Using a digital pipette with sterile micro-tip, 0.2 ml of the purified sperm fraction is pipetted from the bottom of the tube.

5) Resuspend the sperm sample in a suitable volume of media for insemination (calculate IMC).

Fig. 2b. — Schematic illustration of sperm processing: Density gradient centrifugation

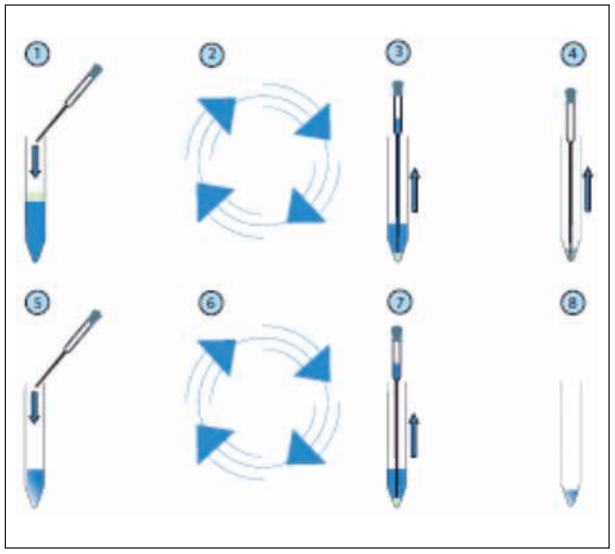


Fig. 3. — Stepwise illustration of sperm processing: Uni-layer density gradient centrifugation (obtained with permission from Nidacon International AB).

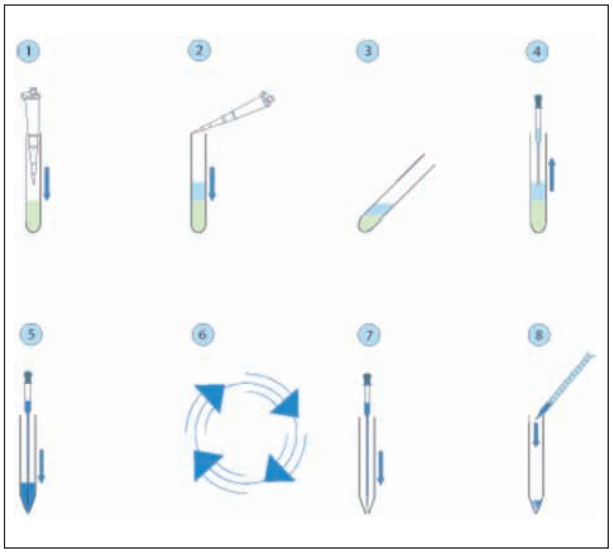


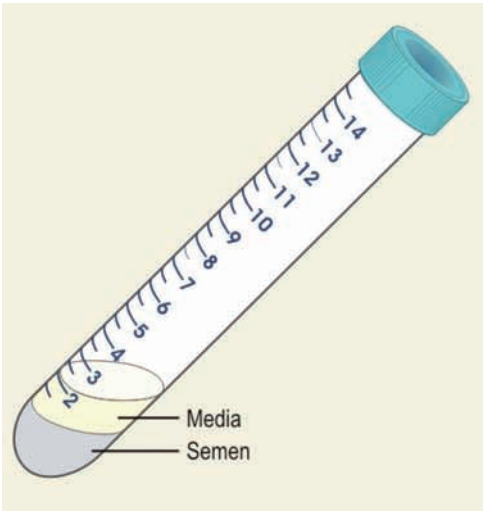
Fig. 4a. — Stepwise illustration of sperm swim-up and wash procedure (obtained with permission from Nidacon International AB).

the use of discontinuous density gradient centrifugation with subsequent washing.

- *HIV-seronegative* patients can be processed using a
  - uni-layer gradient (80% density gradient) when oligozoopermia, and/or teratozoospermia or asthenozoospermia or leukospermia are observed; or a
  - direct swim-up method if a sample is considered largely normal.

7.1. Density gradient centrifugation: Two-step (patients with blood-borne viruses)

HEPES buffered two step PureSperm® gradients, sperm preparation products and an insert (ProInsert™ from Nidacon Int. AB), will be used to process semen samples for insemination and assisted reproductive technologies. All solutions for sperm processing should be brought to room temperature before use. Opened bottles should be stored at 2-8°C



Procedure:

1) Pipette 1 ml liquefied semen into a sterile round bottomed tube. Layer 1.5 mL embryo culture media (supplemented with 100 U/mL Penicillin) or PureSperm Wash®, aseptically over the semen.

2) The round bottomed tube is then carefully placed at a 45° angle at 37°C. After 60 minutes, remove tube and position the tube upright in a test-tube rack. Using a new sterile (unused) pipette, carefully remove 0.5-1.0 ml of media containing the motile sperm fraction. Pipette the fluid then into a sterile conical centrifuge tube containing 5ml embryo culture media or PureSperm Wash®.

3) The conical tube is centrifuged at 500 *g* for 10 minutes. Continue according to steps 4 and 5 as describe previously for the density gradient procedure.

Fig. 4b. — Schematic illustration of sperm swim-up and wash procedure

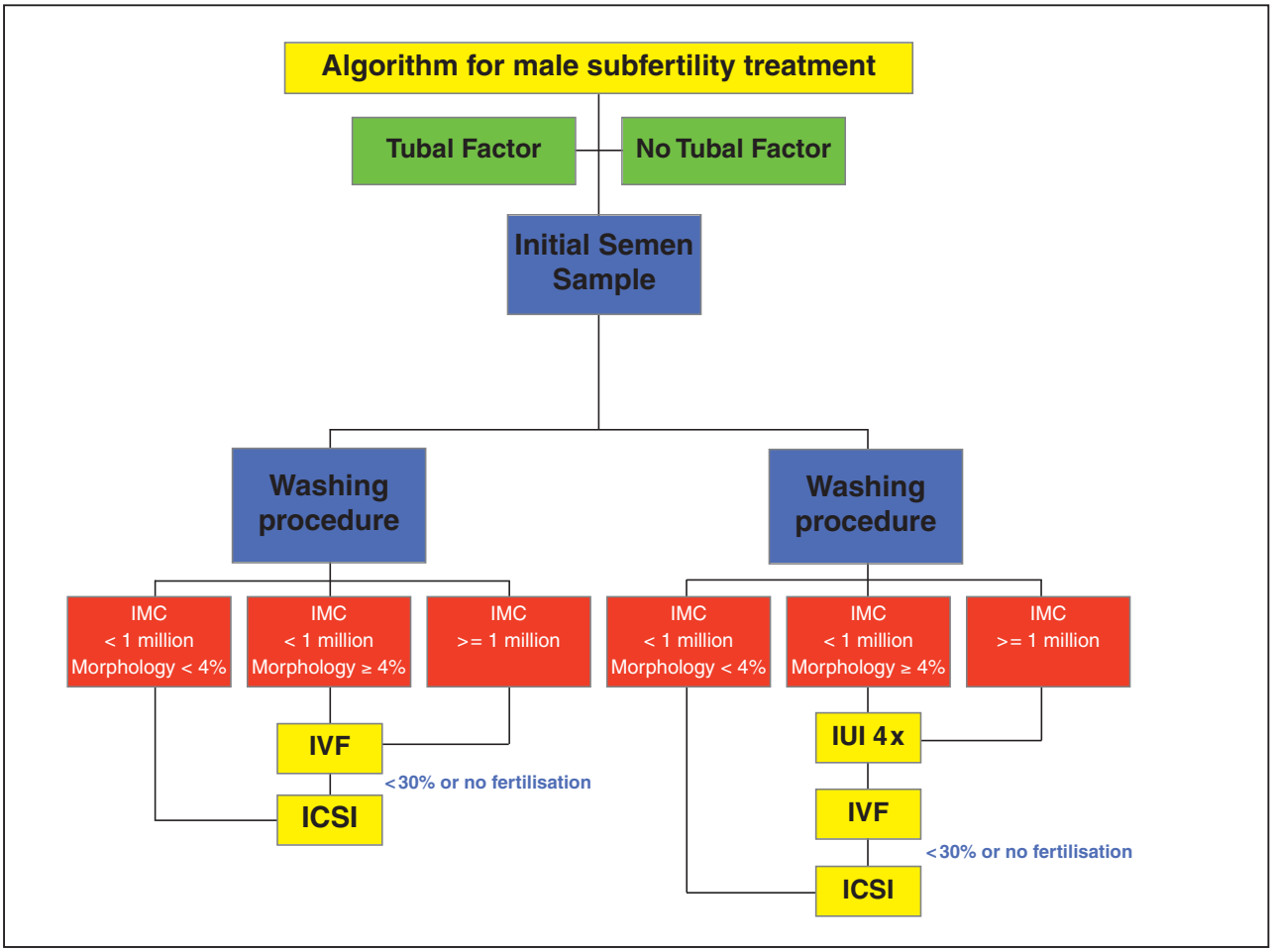


Fig. 5. — Proposed algorithm of male subfertility treatment (IMC = inseminating motile count or the number of motile spermatozoa after washing procedure, IUI = intra-uterine insemination, IVF = in-vitro fertilization, ICSI = Intra-Cytoplasmic Sperm Injection).

after re-sealing, opening and resealing always under sterile conditions. All items and solutions needed for the procedure are listed below.

The step-wise sperm processing using 40% and 80% ready-to-use gradient solutions is illustrated in Figures 2a and 2b.

7.2. Uni-layer density gradient

The step-wise sperm processing using an 80% ready-to-use gradient solution is illustrated in Figure 3. The method is similar to the previously described procedure, albeit without the 40% gradient and ProInsert™.

7.3. Swim-up and wash procedure

The step-wise sperm washing using media overlay with centrifugation is illustrated in Figure 5. The method is simplistic and schematically depicted in Figure 4a and 4b.

7.4. Semen quality after wash procedure

Whatever method has been used, it is very important to calculate the IMC (inseminating motile count). The IMC is the total number of motile spermatozoa after sperm wash procedure. The IMC is very important in selecting patients for either IUI (intrauterine inseminations), IVF (in-vitro fertilization) or ICSI (Intra-Cytoplasmic Sperm Injection). IUI seems to be the first line treatment providing at least one tube is patent and the IMC is more than 1 million (Ombelet et al., 1997). Furthermore, in cases with less than 1 million motile spermatozoa, IUI remains successful provided the sperm morphology score is 4 % or more (Figure 5).

8. *Mini-hysteroscopy*

The hysteroscopic evaluation of the female reproductive tract has also been simplified in its instrumentation and technique so that it can be offered in a one stop ambulatory approach, even in developing countries (Campo, 1999).

Office mini-hysteroscopy has become a non-expensive diagnostic technique accessible for every gynaecologist when using a small diameter optic, saline as distension medium and an atraumatic insertion technique (Campo et al., 2005). The

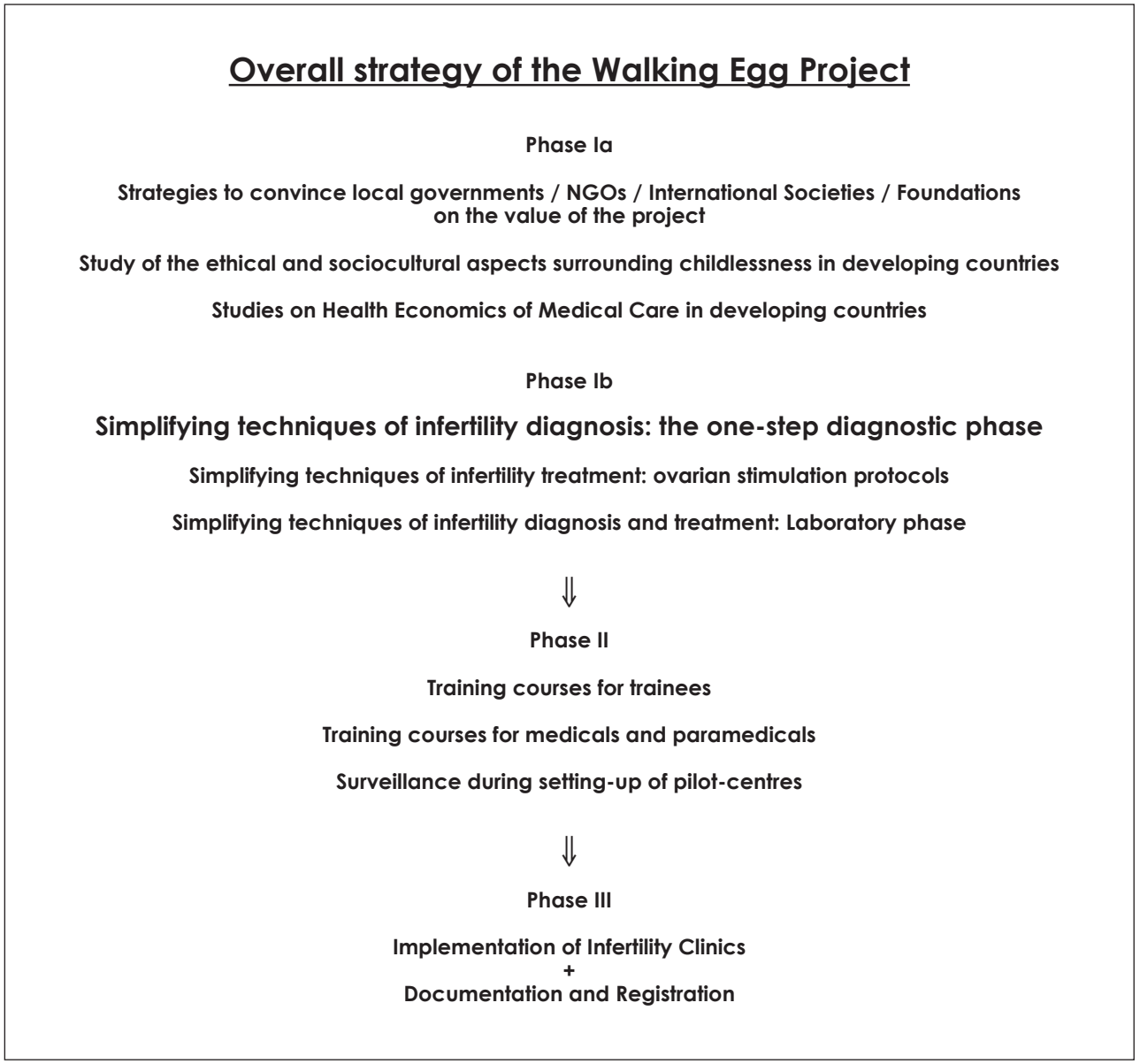


Fig. 6. — Overall strategy of the Walking Egg Project

European Academy of Gynecological Surgery is currently in the final phase of validating a structured programme for training and certification of hysteroscopic diagnostic and surgical procedures. The methodology followed to measure and validate the different hysteroscopic skills and knowledge of an individual is similar as described for laparoscopy in a paper of Campo et al. in this Monograph.

Because the methodology used is accessible, affordable and followed by a subsequent scientific validation, we believe that – in the near future – training, certification and clinical implementation of hysteroscopic procedures will be performed in a much larger number of infertility centres worldwide.

9. *Documentation and registration*

We believe that within each pilot-centre on-line data registration of all ART activities is mandatory. Administrative staff and (para) medicals have to be aware of the importance of correct and trustable data registration. The ultimate goal is to offer all pilot-centres a similar registration programme, which should be customer-friendly with a limited but sufficient number of items (increased personnel compliancy). Continuous monitoring of service activities will be centralized, and provide feed-back to clinics for clinical and laboratory policy adjustments, information to couples on clinic performance,

and information to society. Confidence can then be built and maintained.

Conclusion

Simplifying the diagnostic work-up in an infertility care programme allows accessibility for a much larger part of the population in developing countries.. Taking a history through questionnaires is easy to perform. A clinical examination and infectious screening of both partners can be performed at a reasonable price. Office mini-hysteroscopy, hystero-salpingography and/or hystero-salpingo-contrast-sonography are simple and accessible techniques to detect tube abnormalities and uterine malformations without major costs. Combining these techniques with an accurate anamnesis will identify the majority of women's infertility causes such as ovulatory disorders and tubal infertility. A basic semen analysis, before and after semen preparation, can provide information about the diagnosis and expected treatment procedure to follow. Semen analyses can also be performed by well-trained paramedicals, another important advantage for developing countries.

The organization of training courses for trainees, medicals and paramedicals will be extremely important and these courses have to be goal-oriented, with minimal theoretical and maximum practical guidance.

To conclude, infertility will likely become one of the more predominant components of future reproductive health care practice. Taking advantage of information and communication technologies will increase the effectiveness and accessibility of health care services, as well as change patient behaviors to seek timely treatment. As evidence-based, affordable solutions begin to drive global guidance within both public and private health care system solutions, access to care for the infertile couple will become one of the largest emerging fields in global medicine.

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