General information

Venue
This live educational course takes place at the:
**Barcelo Hamburg**
Ferdinandstrasse, 15
20095 Hamburg, Germany

Clinic visits
The clinic visits take place at the:
**Fertility Center Hamburg**
Hamburg, Germany

Language
The official language of this live educational course is English.

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EXCEMED live educational course:
IVF Preceptorship Hamburg
23-24 January 2015 - Hamburg, Germany

Aim
The role of luteinising hormone (LH) is subject to long ongoing discussions in assisted reproduction (ART). It has an essential and well established role in both ovarian steroid synthesis and ovulation. Theca cells (TC) express LH receptors constitutionally, and LH stimulates androgen production by the TC from fetal life to menopause. While normal ovulation is impossible without LH, the specific role of LH in folliculogenesis and oocyte maturation is less clear.
During the last decade there has been tremendous advancement in implementing quality management (QM) in the fertility clinic and especially in the ART laboratory. Several professional associations and organizations have framed and published standards and guidelines. A range of QM systems are in place, the most popular of them those published by the International Standardization Organization (ISO 9001 Manual Series). The aim of this live educational course is to provide new insights into these two topics. An interactive programme with lectures followed by specific case studies and working groups will provide the attendees with up to date knowledge and the opportunity to share experience among themselves and with the experts.

Learning objectives
At the end of the live educational course, participants will be able to:
• Understand the physiology of LH and its role in ovulation induction
• Identify the group of patients needing LH supplementation during controlled ovarian stimulation.
• Understand the benefits of QMS and gain knowledge in implementing QMS in the ART clinic and laboratory
• Deal with risk management in the ART laboratory

Target audience
This programme is designed for restricted groups of expert physicians working in assisted reproductive medicine, who are currently involved in infertility treatments and who have a particular interest in quality management in ART clinics and in advanced techniques.

Format
This highly interactive course offers full immersion in one of the first IVF centers in the world – and the first in Germany – to introduce certified quality management according to the ISO 9001. Top experts from Europe will lead you through a unique learning experience featuring lectures, lively discussions, clinical cases debated in small working groups and video sessions. On day two, participants will have the opportunity to visit the Fertility Centre of Hamburg, get an overview of its daily work, visit the laboratories and departments, and interact with the local team.
Accreditation

EXCEMED (www.excemed.org) is accredited by the European Accreditation Council for Continuing Medical Education (EACCME®) to provide the following CME activity for medical specialists. The EACCME® is an institution of the European Union of Medical Specialists (UEMS), www.uems.net

The CME course: “IVF Preceptorship Hamburg” to be held on 23-24 January 2015 in Hamburg, Germany, is designated for a maximum of 8 (eight) hour of European external CME credits. Each medical specialist should claim only those hours of credit that he/she actually spent in the educational activity.

Through an agreement between the European Union of Medical Specialists and the American Medical Association, physicians may convert EACCME® credits to an equivalent number of AMA PRA Category 1 Credits™. Information on the process to convert EACCME® credit to AMA credit can be found at www.ama-assn.org/go/internationalcme.

Live educational activities, occurring outside of Canada, recognized by the UEMS-EACCME® for ECMEC credits are deemed to be Accredited Group Learning Activities (Section 1) as defined by the Maintenance of Certification Program of The Royal College of Physicians and Surgeons of Canada.

EXCEMED adheres to the principles of the Good CME Practice Group (gCMEp).
EXCEMED developed this course in partnership with the Fertility Center Hamburg.

**Scientific organiser**

Robert Fischer  
Fertility Center Hamburg  
Hamburg, Germany

**Faculty members**

Carlo Alviggi  
Federico II University  
Naples, Italy

Sandro Esteves  
ANDROFERT - Andrology & Human Reproduction Clinic  
Campinas, Sao Paulo, Brazil

Robert Fischer  
Fertility Center Hamburg  
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Peter Humaidan  
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Thessaloniki, Greece

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Oxford Fertility Unit  
Oxford Business Park North  
Oxford, UK

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We value your opinion!

We are continually trying to develop and improve our educational initiative to provide you with cutting-edge learning activities. During this workshop you will be asked to answer a real-time survey and after this educational event you will be receiving an online survey to better tailor future educational initiatives.

Thank you for participating!
Scientific programme
# Scientific programme

**Friday, 23 January 2015**

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<th>Time</th>
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<td><strong>The role of LH in controlled ovarian stimulation (COS)</strong></td>
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| 08.50 | EXCEMED opening and scientific organiser introduction  

  R. Fischer [Germany]

  S. Esteves [Brazil]  

  Real-time session survey                                                                                                                                                                                                                   | Chairs:  

  R. Fischer [Germany] - V. Papanikolaou [Greece]  

  Real-time session survey                                                                                                                                                                                                                 |
| 09.00 | L1: Physiology of gonadotropins secretion and role of polymorphisms of FSH and LH receptor in infertile patients  

  C. Alviggi [Italy]  

  Revisiting real-time session survey                                                                                                                                                                                                     | 13.15 L4: Role of LH in luteal phase  

  P. Humaidan [Denmark]                                                                                                                                                                                                                    |  

  13.45 L5: Individualized Controlled Ovarian Stimulation (iCOS): tools for matching patients and protocols  

  C. Alviggi [Italy]  

  Revisiting real-time session survey                                                                                                                                                                                                     |
| 09.30 | L2: LH-add back in ART  

  P. Humaidan [Denmark]                                                                                                                                                                                                                   | 14.15  

  Question time                                                                                                                                                                                                                           |
| 10.00 | L3: LH or hCG in controlled ovarian stimulation, what is the difference?  

  V. Papanikolaou [Greece]  

  Revisiting real-time session survey                                                                                                                                                                                                     | 14.35 Coffee break  

  The group will be split in two meeting rooms                                                                                                                                                                                              |
| 10.30 |  

  Question time                                                                                                                                                                                                                           | 15.00 WG2: Case studies on L4 and L5  

  P. Humaidan [Denmark]  

  C. Alviggi [Italy]                                                                                                                                                                                                                       |
| 10.50 | Coffee break  

  The group will be split in two meeting rooms                                                                                                                                                                                              | 16.00 End of the first day                                                                                                                                                   |
| 11.10 | WG1: Case studies on L2 and L3  

  P. Humaidan [Denmark]  

  V. Papanikolaou [Greece]                                                                                                                                                                                                                 |                                                                                                                                                       |
| 12.10 | Lunch                                                                                                                                                                                                                                                                                    |                                                                                                                                                       |

**Legend:**  

- **L**: Lecture;  
- **Q**: Question time;  
- **WG**: Working Group;  
- **VS**: Video Session
Saturday, 24 January 2015

**Session III: QMS in the fertility centre**

**Chairs:** R. Fischer (Germany) - P. Humaidan (Denmark)

- **Real-time session survey**
- **9.00 L6:** How to implement QMS in a fertility centre  
  S. Esteves (Brazil)
- **9.30 L7:** How to implement QMS in the ART laboratory  
  K. Turner (UK)
- **10.00 VS:** Video session on laboratory organisation: material and techniques  
  K. Turner (UK)
- **10.20** **Question time**
- **10.40** **Coffee break**
- **11.00 L8:** Risk management in ART laboratory  
  K. Turner (UK)
- **11.30 L9:** What are the benefits of QMS for a fertility centre and how do we measure them  
  S. Esteves (Brazil)
  Revisiting real-time session survey
- **12.00** **Question time**
- **Concluding remarks**
- **12.30** **Lunch**
- **13.30** Visit of Fertility Center Hamburg (FCH)
- **16.00** End of the live educational course
Biosketch
Carlo Alviggi works as a Specialist in Reproductive Medicine at the Fertility Unit of the University of Naples “Federico II”. Since 2006, he has been working in the same unit as Assistant Professor. Dr Alviggi’s current research interests are the role of luteinizing hormone (LH) in folliculogenesis, the use of LH-containing drugs in patients undergoing controlled ovarian stimulation for in vitro fertilization, the pathogenesis of pelvic endometriosis, and the genetics of human reproduction. Dr Alviggi has published extensively and has been invited to lecture at over 40 international meetings dealing with reproductive medicine and gynaecological endocrinology. He has also served as ad hoc reviewer for international journals of these fields and has participated in several national and international (phase II-III) multicentre, prospective randomized trials.

Sandro Esteves is Director of Androfert, a private IVF Center dedicated for Male Reproduction, in Brazil. Dr. Esteves has been working in the field of reproductive medicine for the last 20 years. Apart from his clinical activities, Sandro Esteves is academically engaged as well. He is an External Faculty and Research Collaborator of the Cleveland Clinic’s Reproductive Center in the United States. He is also Research Professor at the University of Campinas (UNICAMP), in Brazil. His publication record accounts for more than 100 peer-reviewed scientific papers, over 30 book chapters, and 2 books of his own. He currently serves as Associate Editor for three PubMed-indexed Scientific Journals.

Peter Humaidan is a Specialist in Reproductive Endocrinology, Professor and Clinical Director of The Fertility Clinic at Odense University Hospital, OUH, Denmark. He trained at the Sahlgrenska University Hospital, Gothenburg, Sweden, where he also completed a specialty degree in Obstetrics and Gynaecology. His research interests include: reproductive endocrinology; the function of gonadotrophins; GnRH antagonists and triggering of ovulation with GnRH agonist; sperm chromatin integrity in relation to ART outcomes; and acupuncture related to infertility. He is a former board member of the Danish Fertility Society, and has co-authored some 50 papers in peer-reviewed international journals as well as chapters in textbooks.
Robert Fischer is Founder and Medical Director of the IVF unit at the Hamburg Fertility Center, one of the largest and leading German IVF centres. In July 1998 the Fertility Center of Hamburg was one of the first centres in Germany and worldwide to introduce certified quality management according to the ISO 9001. In 2002 the IVF laboratory was ISO 17025 certified. Prior to this he was Medical Director of the first outpatient IVF unit in Hamburg. Author of numerous publications in national and international scientific journals and books, as well as lectures at conferences worldwide, Dr Fischer is an active member of the American Society of Reproductive Medicine, founding member of the European Society of Human Reproduction and member of its advisory committee as well as founding member of the “AG Gynäkologische Endokrinologie und Fortpflanzungsmedizin” and “Berufsverband Reproduktionsmedizinischer Zentren”, both in Germany.

Vaggelis Papanikolaou obtained his MD degree (1994) and specialisation in Obstetrics and Gynecology (2002) from the Medical School of Ioannina, University of Ioannina, Greece, and was awarded a PhD degree there in 2004 with a thesis entitled ‘Premature ovarian failure and endothelial dysfunction’. The same year he obtained the degree of Master in Medical and Pharmaceutical Research from the Dutch-Speaking Free University of Brussels (VUB) where he has been a research fellow in the Centre of Reproductive Medicine at the University Hospital since 2002. Dr Papanikolaou’s current research interests include ovarian hyperstimulation syndrome, reproductive endocrinology and endometrial receptivity.

Karen Turner as an experienced embryologist, joined Oxford Fertility Unit to lead the laboratory team in 2002. The Unit now performs over 2000 cycles per annum. Previously, Karen has lead laboratory teams at both Sheffield Fertility Centre and Burton Centre for Reproductive Medicine. Karen is a State Registered Clinical Scientist. She was Chair of the Association of Clinical Embryologists (ACE), the UK professional body for Embryologists, from 2000 to 2003 and was an External assessor on the Training Committee for a number of years. Karen was the first embryologist to sit on the British Fertility Society committee and has previously been an external advisor for the HFEA. She has recently become the first President of the ACE.
Disclosure of faculty relationships

EXCEMED adheres to guidelines of the European Accreditation Council for Continuing Medical Education (EACCME®) and all other professional organizations, as applicable, which state that programmes awarding continuing education credits must be balanced, independent, objective, and scientifically rigorous. Investigative and other uses for pharmaceutical agents, medical devices, and other products (other than those uses indicated in approved product labeling/package insert for the product) may be presented in the programme (which may reflect clinical experience, the professional literature or other clinical sources known to the presenter). We ask all presenters to provide participants with information about relationships with pharmaceutical or medical equipment companies that may have relevance to their lectures. This policy is not intended to exclude faculty who have relationships with such companies; it is only intended to inform participants of any potential conflicts so that participants may form their own judgements, based on full disclosure of the facts. Further, all opinions and recommendations presented during the programme and all programme-related materials neither imply an endorsement nor a recommendation on the part of EXCEMED. All presentations represent solely the independent views of the presenters/authors.

The following faculty provided information regarding significant commercial relationships and/or discussions of investigational or non-EMEA/FDA approved (off-label) uses of drugs:

- **Carlo Alviggi**  Declared receipt of honoraria or consultation fees from Merck Serono and MSD.
- **Sandro Esteves**  Declared no potential conflict of interest.
- **Peter Humaidan**  Declared receipt of grants and contracts from MSD, Merck Serono, receipts of honoraria or consultation fee from MSD, Merck Serono, Ferring and being a member of a company advisory board, board of director or other similar group in MSD.
- **Robert Fischer**  Declared no potential conflict of interest.
- **Vaggelis Papanikolaou**  Declared receipt of honoraria or consultation fees from MDS, Merck, Actavis and being a member of a company advisory board, board of directors of Merck Serono.
- **Karen Turner**  Declared no potential conflict of interest.
Abstracts
The classical “two cells – two gonadotrophins” model highlighted the role of LH in promoting androgen production and release throughout folliculogenesis [Fevold, 1941; Hillier et al., 1994]. According to this model, LH exerts its activity in theca cells, which express enzymatic pathways of androgen synthesis. Theca involucres surround the granulosa cells, whose activities and proliferation are directly regulated by FSH. This hormone induces the expression of the aromatase enzyme, which in turn converts theca-derived androgens into estradiol (E2). This theory reinforced the notion that granulosa and theca cells are distinct compartments regulated by FSH and LH, respectively. This model has been recently revised. More specifically, it has been found that LH receptors are also detectable on the granulosa compartment at the intermediate follicular phase [Erickson et al., 1979; Shima et al., 1987; Hillier et al., 1994; Filicori et al., 2003]. Therefore, it appears that LH regulates both granulosa and theca cells.

FSH and LH cooperate in inducing the granulosa cell specific production of inhibin-B, and other TGB-β growth factors. In addition insulin growth factors (IGF)-I and II, which are expressed by both granulosa and theca cells throughout folliculogenesis, are important in promoting follicular maturation [Zhou et al., 1993; Huang et al. 1994]. Locally produced peptides, rather than estrogens, are known to be the key factor regulating primate follicle growth and development [Rabinovici et al., 1989; Pellicer et al., 1991; Zelinski-Wooten et al., 1993, 1994; Shetty et al., 1997]. In light of these findings, we can conclude that:

1) both gonadotrophins contribute (via granulosa) to maintain the autocrine-paracrine system governing dominant/s follicle/s growth and

2) LH is crucial in sustaining FSH activity in the granulosa during intermediate-late stages of folliculogenesis.

On this basis it is possible to argue that lack of each gonadotrophin can be counteracted by higher levels of the other. This hypothesis is consistent with the observation that FSH activity can be totally substituted by LH once granulosa cells express adequate amounts of LH receptors [Zeleznik et al., 1984; Filicori et al., 2003]. Conversely, higher exogenous FSH doses during OS are able to compensate GnRH-a related reduction of LH. It could be argued that if LH concentration and/or activity falls below an hypothetical threshold, an impairment in granulosa paracrine activities occurs, which in turn can lead to higher requirement of FSH. During the mid-cycle surge of gonadotropins levels of LH or LH-like activity is usually considered mandatory, however, a large bolus of FSH can substitute for the LH-activity and induce ovulation [Hodgen G., 1984].

Finally, presence of less effective FSH and/or LH receptors can also lead to an impairment in gonadotrophins dependent mechanism and explain ovarian resistance to FSH in stimulated cycles.
L2. LH-add back in ART

Peter Humaidan
The Fertility Clinic, Skive Regional Hospital, Skive, Denmark
Faculty of Health, Aarhus University, Aarhus, Denmark

Introduction
With the recent development of recombinant gonadotropins (FSH and LH), it has become possible to further adjust the stimulation protocol according to the expected needs of the patient. This means that the possible beneficial role of exogenous LH activity supplementation for stimulated ART cycles has received increasing attention.

According to the two-cell, two-gonadotropin theory (Fevold, 1941), both FSH and LH are required for normal folliculogenesis in humans. LH stimulates the production of androgens in the theca cells, which in turn are aromatised to estradiol by the granulosa cells under the action of FSH. However, at a follicle size of 8-10 mm in normogonadotropic women, the granulosa cell also acquires LH receptors in addition to the FSH receptors, already present. Once LH receptors are expressed in the granulosa cell, LH is able to regulate both steroidogenesis and growth of the follicle; thus, from this moment on FSH function can largely be replaced by LH activity.

Methods
In recent years an increasing body of scientific evidence has raised the question whether the endogenous LH level achieved after down-regulation with either GnRHa or GnRH antagonist is really optimal for all patients, or whether sub-groups of patients exist who might benefit from exogenous LH supplementation.

Several studies have until now addressed the effect of LH activity supplementation. The results of these studies indicate that two subgroups of normogonadotropic patients: patients > 35 years of age (Marrs et al. 2004, Humaidan et al., 2004; Matorras et al., 2009; Bosch et al., 2011) and patients with an initial sub-optimal response to FSH only preparations (Barrenatexea et al., 2000; De Placido et al., 2004; Ferraretti et al., 2004; Ruvolo et al., 2007) benefit from modifications of the stimulation protocol in terms of exogenous LH activity supplementation.

Possible biological reasons for the beneficial effect of LH activity supplementation in these sub-groups will be discussed as well as molecular, structural and functional differences between LH and hCG.

Conclusions
Age and LH gene polymorphisms are two factors known until now to influence the ovarian response after COS.

LH supplementation in these sub-groups improves the ovarian response and the reproductive outcome. Ovarian response to stimulation with FSH is a polygenic trait and the future scenario of ART will include pharmacogenetics in order to define the specific needs of gonadotropins to secure the most optimal ovarian response.
Ovarian stimulation apart from aiming in a reasonable amount of oocytes, should also target into retrieving good quality oocytes.

The hypogonadotropic hypogonadism paradigm confirms the necessity of LH use. However, recombinant FSH is mainly used as a driving force for recruiting and enlarging follicles, and only in some patients we add LH activity either in the form of rec-LH or as u-hCG.

There are certain differences, nevertheless, when someone compares the two molecules, either regarding pathways of action or regarding endocrine responses. For example, they have different source of origin, molecular weight, number of aminoacids in beta chain, number of glycosilation sites, half-life, and different effect on gene expression. They also induce markedly different transcription profiles (Riproduzione e Ricerca, file 2011). Cesarini et al., have shown that the human granulose cells respond differently [PLOS One, 2012].

In terms of pharmaceutical compounds, compared to urinary derived hCG products, recombinant LH have three major differences; higher purity and specific activity, as well as higher dose precision.

Buehler et al., (RBM 2012), compared in a registry of 4719 women under long protocol, the outcome of three different groups; recFSH+recLH, vs. hMG alone, vs. recFSH+hMG and found higher implantation rate in the rec-LH group as compared to the others (19%, vs. 13.9%, vs. 13.8%).
The luteal phase of all stimulated IVF/ICSI cycles is abnormal. The reason for the luteal phase defect (LPD) in stimulated IVF cycles is the multi-follicular development achieved during ovarian stimulation. Thus, the supra-physiological level of steroids secreted by a high number of corpora lutea during the early luteal phase, directly inhibits the release of LH from the pituitary via feedback actions at the hypothalamic-pituitary axis level. The reduced secretion of LH from the pituitary has a detrimental effect on the luteal phase as LH plays a crucial role during the luteal phase, being totally responsible for the steroidogenic activity of the corpus luteum [Casper and Yen, 1979]. Thus, luteal phase support remains mandatory after stimulation for IVF/ICSI.

This lecture will compare the luteal phase of the natural cycle to the luteal phases of the hCG and GnRHa triggered cycle. The focus will be on circulating LH and progesterone. Old hypotheses regarding the most optimal progesterone level during the time of implantation will be discussed in the light of most recent data.
Despite the introduction of new drugs enabling the development of a variety of stimulation protocols, many patients worldwide currently receive identical treatment. Predictive biomarkers could be used to facilitate treatment decisions and tailor therapy to increase the chances of achieving pregnancy, while reducing stimulation burden and cancellation rates as well as treatment related complications, such as multiple pregnancies and ovarian hyperstimulation syndrome (OHSS). A number of predictive variables for ovarian response have been identified, including hormonal, functional and genetic biomarkers.

Among the hormonal biomarkers, anti-Müllerian hormone (AMH) has been shown to have the highest predictive value. AMH is produced by the granulosa cells of early developing follicles and plays a crucial role in regulating the progression of smaller pre-antral follicles. It also modulates the activity of follicle-stimulating hormone (FSH) in antral follicles during the FSH-dependent growth stage.

Antral follicle count (AFC) is a well known functional biomarker that is used to predict ovarian response to stimulation. It is also an important factor in determining the optimal starting FSH dose for ART. However, use of AFC could be limited by the variability in technical methods used to count and measure antral follicles.

Although hormonal and functional biomarkers are useful tools for predicting ovarian response, genetic factors also need to be taken into consideration. For example, a subgroup of patients with a hypo-response to recombinant FSH (r-hFSH) has recently been identified, comprising young, normogonadotrophic women with normal AFC and good prognosis. Such patients have an apparent hypo-sensitivity to FSH, resulting in a need for longer stimulation periods and higher total doses of FSH and leading to poor treatment response and low pregnancy rates. The pathogenesis of this phenomenon is still unknown. Preliminary data has shown that women with ovarian hypo-sensitivity to exogenous FSH may benefit from an LH supplementation. In addition, it has been found that hypo-response to FSH is associated with an increased frequency of a common and less bioactive LH polymorphism [v-LH (Trp8Arg/Ile15/Thr)].

A polymorphic variant of the FSH receptor (FSH-R) in which aminoacid asparagine (Asn) at position 680 is replaced by Serine (Ser) has been associated with higher FSH basal levels and increased number of antral follicles during the early follicular phase. Recent studies has also proven that this common polymorphism is associated with a higher consumption of exogenous FSH during ovarian stimulation for IVF/ICSI cycles.

These lines of research reinforce the hypothesis that ovarian resistance (hypo-response) to exogenous FSH can be related to specific gene polymorphisms. In addition, this data supports the idea of a tailored gonadotrophins administration based on a pharmacogenomic approach.

The future will potentially hold a combination of hormonal, functional and genetic biomarkers that will be utilised to define ovarian reserve and individual customized controlled ovarian stimulation protocols that will provide the right treatment for the right patient, with the highest safety and efficacy outcomes.
At the completion of this presentation, participants should be able to:

i. Understand what QMS stands for;

ii. Understand the basic concepts of ISO 9001 as a model for QMS in fertility centres;

iii. Learn how we implemented ISO 9001:2008 at Androfert and how to adapt what we did to the participants’ own centres.

Quality is a subjective concept that varies among people, cultures and even countries. Despite being a relative concept, quality cannot be established in a vacuum. In IVF centres, quality should be measured by how well they comply with pre-defined requirements, and by how quality policies are implemented and quality objectives achieved. In essence, these form the pillars that define a QMS.

Having a QMS is a mandatory requirement for IVF centres established in most countries with regulatory guidelines. Nevertheless, none of the regulatory directives specify what a QMS must have in details or how it should be implemented and/or maintained.

ISO 9001 is perhaps the most important and widespread international requirement for quality management. Setting a QMS according to the ISO 9001 standards is good because it is generic and applicable to all organizations in any economic sector, including IVF centres. Briefly, ISO 9001 in its 2008 version helps an IVF centre to define its structure, policies, procedures, processes and resources needed to implement quality management. One of the main pillars of a QMS as per ISO 9001 is the quality management focus. It will determine the quality orientation of the IVF centre, and what quality objectives and indicators will be used to guarantee that a high-quality service is provided. Hence, it is of utmost importance to define not only the quality policies and quality objectives, but also the indicators to measure them, thus ensuring that the pre-determined goals are being achieved and excelled.

Once measuring progress is part of the daily routine of an IVF centre, quantifying and evaluating the organisation’s success and how much improvement has been made is an inevitable consequence of a well-established QMS. Creating an internal environment with unity of purpose and direction is the key to achieving the organisation’s goals.
The introduction of the EU Directive on human tissues and cells in 2006 had a major impact on the functioning of IVF laboratories in the UK as this specifies that a Quality Management System should be in place in all centres offering IVF. The world's largest developer of standards is ISO (International Organisation for Standardisation). Oxford Fertility Unit first obtained its ISO Quality Management certification (ISO 9001:2008) in 2004 and we have been running the Quality Management System ever since with annual ISO inspections.

A Quality Management System aims to ensure that an organisation can consistently deliver a product that meets the customer’s requirements and enhances their satisfaction. In the case of an IVF Unit this will not only be the care and treatment outcome that patients receive but the service provided to referring GPs and to its own staff. Quality Management covers everything that an organisation does from its management structure, training and Standard Operating Procedures (SOPs) to its reference manuals, reporting forms and the measurement and monitoring of equipment and performance by audit.

This talk will give our experience in implementing and running the ISO Quality Management System and the impact it has had on our working practice. It will also explain how we have addressed the specific ISO standards and how we have maintained them. The quality management system has enabled us to introduce equipment in a standardized manner. Initially equipment is validated ie checked to ensure that the equipment does what is expected of it and what it is supposed to do. It is only after validation that it is introduced into clinical practice. Following its use in clinical practice, it may need regular calibration and this should be done in a specific way and the results from the equipment monitored on a regular basis through audit so that we can respond to sub-optimal outcomes in our key performance areas, if necessary.

Quality Management is a relatively new concept in IVF but it can be an extremely effective tool in helping to run and improve an organisation. By its very nature, it involves and affects all staff at all levels and therefore understanding Quality Management is relevant to everyone working within an IVF Unit.
The planning process of a new laboratory within an IVF unit is crucial to the subsequent successful running and organisation of not just the laboratory but the IVF unit itself due to its central role within the clinical process of IVF. It must meet with local planning and government licensing regulations and must conform to IVF specific certification/accreditation and health and safety requirements. In addition to this, the work flow and personnel flow within the laboratory must be considered so that sub-optimal conditions for gametes and embryos (eg temperature, pH changes etc) are kept to a minimum. This session will consist of a series of photographs to support this.

Staffing levels and skill mix within the laboratory need to be appropriate for the volume and the type of work performed. On a basic level the laboratory may perform IVF procedures from egg collection through to embryo transfer and perhaps freezing. At a more advanced level, laboratories may perform more complex procedures like embryo biopsy, IVM, IMSI etc. Equipment therefore needs to be fit for purpose eg microscope magnification, type etc and take account of the need to work within a contamination free environment. The equipment within the laboratory will depend on the techniques and procedures performed and it should be appropriately sited within.

The materials and equipment used both in the design of the laboratory and the IVF process itself can have a major influence on the subsequent performance of the laboratory. Since the primary objective of an embryologist is to provide a controlled, stress-free environment for gametes and embryos, these factors need to be taken into consideration. These factors may be environmental eg air quality and temperature; physical eg type of incubator or chemical eg culture media. The materials used, both in design and in the IVF process itself will be shown so that participants can appreciate the importance of the quality of the materials used in order to try to achieve the best results for their patients.
Safety and the minimisation of risk are of central importance in the IVF laboratory. As those working in the laboratory will know, there is no such thing as a small mistake in IVF. The consequences of that mistake, if it affects eggs, sperm or embryos, are likely to have a major impact on a couple going through treatment and could affect their chances of achieving a healthy successful live birth. There has been high profile media coverage of a number of mistakes at IVF clinics and as a result regulatory scrutiny is escalating as well as there being an increasing requirement for professional accreditation.

As humans, we can never completely avoid the risk of a mistake being made. Quality Management and accreditation can help towards minimising those mistakes, as can ensuring the right equipment and staff mix to workload within the laboratories. Appropriate staffing levels for workload will be examined as well as some of the equipment available to help minimise the risk of errors being made. Whilst troubleshooting and learning from errors made in the laboratory is important, the focus of IVF laboratories should be on a ‘prevention rather than cure’ approach.
At the completion of this presentation, participants should be able to:

i. Understand how an organization could benefit from an effective QMS;
ii. Learn how to measure quality as per QMS perspective;
iii. Learn what we achieved at Androfert after having implemented ISO 9001:2008

Establishing a quality management system (QMS) in a fertility centre is much more than a trend or simply the need to comply with regulatory directives. In reality, it is a strategic decision to address specific quality concerns, such as effectiveness and efficiency of the services provided, safety, and also customer requirements and satisfaction.

Apart from the requirement of a formal QMS as mandatory by regulatory directives in several countries, if fertility centres really want to achieve higher standards and improve results, establishing a QMS is their best option.

The main benefit of QMS for a fertility centre is to improve the quality of services provided, for the main objective of every QMS is to satisfy customers. In a fertility centre, satisfying customers basically means guaranteeing “patient-centredness”, safety assurance and effectiveness, essential quality aspects that can be easily addressed and managed with a QMS.

A QMS also addresses internal needs, such as the efficient use of resources (materials, human, technology and information), which is directly related to profitability. Such systems also guarantee the involvement of all staff in the process. As a result, improved communication and motivation to excel as a team is ensured.

The benefits of QMS can only be achieved if evidence is provided. For that, we need to get information by means of internal and external audits, records of registered quality actions, satisfaction surveys and questionnaires, and data collection. Then, we have to measure and analyse results using quality tools and methods. While Pareto diagrams, diagrams of cause and effect, control charts, histograms and flowcharts are examples of quality tools, PDCA (plan-do-act-check), balanced scorecards and six sigma are the most used quality methods in QM.

At Androfert, we have chosen ISO 9001:2008 as our QMS. Since we started eight years ago, we have complied with regulatory requirements and improved the quality of services provided. The image and reputation of our centre benefited from QMS, and we increased our market share. Also, we increased profitability by improving not only processes control and wastage reduction, but also employee satisfaction. This ultimately results in low turnover and minimal absenteeism.
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