

# Fellowship training and board certification in reproductive endocrinology and infertility

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Reproductive endocrinology and infertility (REI) is one of the original officially recognized subspecialties in obstetrics and gynecology and among the earlier subspecialties in medicine. Recognized by the American Board of Obstetrics and Gynecology in 1972, fellowship programs are now 3 years in length following an obstetrics and gynecology residency. Originally focused on endocrine problems related to reproductive function, the assisted reproductive technologies (ART) have recently become the larger part of training during REI fellowships. It is likely that the subspecialty of REI strengthens the specialty of obstetrics and gynecology and enhances the educational experience of residents in the field. The value of training and certification in REI is most evident in the remarkable and consistent improvement in the success of ART procedures, particularly in vitro fertilization. The requirement for documented research activity during REI fellowships is likely to stimulate a more rapid adoption (translation) of newer research findings into clinical care after training. Although mandatory reporting of outcomes has been proposed as a reason for this improvement the rapid translation of reproductive research into clinical practice is likely to be a major cause. Looking forward, REI training should emphasize and strengthen education and research into the endocrine, environmental, and genetic aspects of female and male reproduction to improve the reproductive health and fertility of all women. (Fertil Steril® 2015;104:3–7. ©2015 by American Society for Reproductive Medicine.)

**Key Words:** REI, certification, training, subspecialty, infertility, endocrinology

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As of May 2014 there were 1,269 American Board of Obstetrics and Gynecology (ABOG)-certified reproductive endocrinologists in the United States. Over a fairly short time period of about 35 years the clinical subspecialty of reproductive endocrinology and infertility (REI) that was initially formed in the early 1970s has matured and continues to evolve. The process for training and certifying obstetricians and gynecologists in REI is relatively old compared with other certified clinical subspecialties

in medicine, with most subspecialties recognized by the American Board of Medical Specialties in the past 15–20 years. Interest and training activity in the endocrinology of reproduction actually began much earlier, even before the specialty of obstetrics and gynecology was formed.

In 1916 a small group of physicians in the United States met at the American Medical Association annual meeting to formalize an association for endocrinology. The Association for the Study of Internal Secretions was

incorporated in Delaware in January 1918 (1). This group met annually, except for 2 years during World War II, eventually changing their name to The Endocrine Society in 1952. The journal *Endocrinology* was published starting in 1917 and a second journal, *Journal of Clinical Endocrinology*, began in 1941, later adding *Metabolism* to the journal title to become *JCEM*. Research and opinion articles relating to the endocrinology of reproduction have been published in both of those journals over the years.

The subspecialty of reproductive endocrinology in obstetrics and gynecology was fortunate to have had very gifted early leaders such as Howard and Georgeanna Seegar Jones at Johns Hopkins, Leon Speroff and Nathan Kase at Yale, and Samuel Yen and Robert Jaffe at the University of California,

Received March 13, 2015; revised April 6, 2015; accepted April 9, 2015; published online June 3, 2015. J.C.G. has nothing to disclose. J.H.S. is on the American Board of Obstetrics and Gynecology. M.C. has nothing to disclose. W.D.S. has nothing to disclose.

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Fertility and Sterility® Vol. 104, No. 1, July 2015 0015-0282/\$36.00  
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<http://dx.doi.org/10.1016/j.fertnstert.2015.04.039>

who along with others conducted research and began teaching and writing about the physiology and endocrinology of reproduction. The now classic textbooks by Yen and Jaffe as well as Speroff, Kase, and Glass introduced the topics of reproductive endocrinology and infertility into the mainstream of medical practice, including obstetrics and gynecology. These leaders were among the first to establish REI fellowship programs in the United States. An interesting historical note is that because there were initially no board-certified REI subspecialists in obstetrics and gynecology, and an exam was required, early candidates for certification were also examined by internists with special research and scholarly training in the endocrinology of reproduction.

The subspecialty of REI was officially recognized by ABOG in 1972. Fellowship programs in reproductive endocrinology lasted for 2 years and the focus was largely on reproductive disorders that had an endocrine basis for their pathophysiology. These disorders included abnormal pubertal development, recurrent miscarriage, polycystic ovary syndrome (PCOS), menopause, and, in some centers, contraceptive care and research. Laparoscopy and reconstructive surgery were also an important aspect of REI training when formal training programs began.

The clinical involvement of reproductive endocrinologists in advanced assisted reproductive technologies (ART) came soon after the report of the first successful in vitro fertilization (IVF) birth in 1978 in the United Kingdom (U.K.) by Robert G. Edwards and Patrick C. Steptoe. Research that led up to this achievement included successful IVF in the rabbit by Chang (2) in 1959 and in the human in 1965 by Edwards and Jones. The work done at Johns Hopkins in 1965 by Edwards and Jones was initially reported to be unsuccessful, but a later review of photographs revealed that human fertilization in the laboratory had actually been achieved that year (3).

In the United States, translating these successes in the laboratory into clinical practice was complicated and delayed by political debate about the appropriateness of government funding for this type of research. After the first live birth from IVF in 1978 in the U.K., however, couples in the United States with infertility resistant to traditional treatments applied political pressure and helped to propel the science and clinical activity of IVF into the mainstream. In 2010 the Nobel Prize for Medicine was awarded to Robert G. Edwards for his seminal work in IVF. (According to Nobel Committee rules, a Nobel prize can not be awarded posthumously, thus eliminating Patrick Steptoe from consideration. Dr. Steptoe died in 1988.) The development and expansion of IVF capabilities has had a profound effect on human reproduction, with more than 5 million births worldwide, as well as a big impact on the field of REI.

### **CURRENT REGULATION OF FELLOWSHIP TRAINING AND THE CERTIFICATION PROCESS FOR REI**

There are currently 43 ABOG-certified REI training programs in the United States, and each year ~45 candidates are certified. Today, fellowship programs have increased

to 3 years in duration and the curriculum for fellowship training consists of surgical skills, ART, clinical training, and didactic education, including biostatistics and epidemiology. In addition, fellows in the subspecialty were always required to pursue a structured research project as a requisite for certification. Currently the requirements and criteria for training in the subspecialty are determined by the Division of Reproductive Endocrinology and Infertility at ABOG. After satisfactory completion of an accredited fellowship, graduates may sit for the written exam in the subspecialty. Candidates who pass the written exam and certification in obstetrics and gynecology (basic specialty boards) are eligible to apply for the oral subspecialty exam. ABOG has now adopted a continuous certification process. That is, REI-certified physicians must annually complete several maintenance of certification (MOC) assignments to maintain their certified status.

Training in REI in the United States is rigorous, and high standards are required for acceptance into certified programs and for eventual subspecialty board certification by ABOG. Fellows must master a broad range of information and may choose to become proficient in advanced surgical procedures such as minimally invasive surgery, microscopic tubal anastomosis, and reconstructive surgery. This training is in addition to ART-related skills which consume most of the clinical time in many programs. Recently some REI fellowships have incorporated simulation into fellowship training, becoming one of the first to do so in the obstetrical subspecialties. This aspect of fellowship training, which involves the use of nonhuman models to teach and practice clinical skills, is beneficial and is expected to increase in the future. Whether simulation will substitute for diminished operative experience in fellowships is unclear.

The American College of Obstetricians and Gynecologists (ACOG) supports, first and foremost, the concept of one unified medical specialty for the health care of women, particularly for their reproductive needs. The specialty training and ongoing medical education materials and programs provided by ACOG make obstetricians and gynecologists uniquely qualified to provide this care. The role of advanced fellowship training and certification in one of the subspecialties, such as REI, is seen as enhancing this overall concept as long as it does not detract from the clinical experience of residents in the basic specialty or inappropriately limit the scope of practice for those who are certified only in obstetrics and gynecology.

Members of all of the subspecialty groups in obstetrics and gynecology can remain active fellows of the College and participate in ongoing education programs as well as the formulation of ACOG practice and policy statements. This is viewed as strengthening and unifying the overall specialty of obstetrics and gynecology rather than fragmenting or dividing it. When clinical outcomes are improved by advanced training and certification in women's health care, our patients benefit. Currently in obstetrics and gynecology there are three "boarded" subspecialties in addition to REI, i.e., maternal-fetal medicine, gynecologic oncology, and female pelvic medicine and reconstructive surgery.

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