Dear Friends and Colleagues,

Although it's only February, this year is already starting to look very promising in Oncofertility with new events, scholarship, and research underway. As the Oncofertility community goes global, we anticipate that this burgeoning field will only continue to advance, both clinically and scientifically, through collaborative science and a shared vision.

In this issue, we will begin by reminding you about an upcoming Virtual Grand Rounds with Gregory Dolin, MD, JD, airing this week. Next, we'll focus on Oncofertility Consortium member, Claus Yding Andersen, DMSc, a professor in human reproductive physiology at the University of Copenhagen Faculty of Health Sciences, and head of the Laboratory of Reproductive Biology at the University Hospital of Copenhagen, Denmark.

Sincerely,

The Oncofertility Consortium

This Week!

Virtual Grand Rounds with Gregory Dolin, MD, JD,
February 21st at 10 AM Central Time

Be sure to join this week's Virtual Grand Rounds session on Thursday, February 21st, at 10 AM CST. Gregory Dolin, MD, JD, leading a discussion entitled, "Speaking of Science: Legal Updates in Oncofertility."
Participate and receive free CME credits when you join us online. To receive credits, watch a LIVE broadcast of the session or a recording of the broadcast after we have uploaded and archived the presentation onto our website. Take a look at our previous and upcoming Virtual Grand Rounds for more details!

**Spotlight on Claus Yding Andersen, DMSc**

Claus Yding Anderson, DMSc, was a member of the scientific team that introduced IVF to Denmark in the mid 1980s, and since that time, he has worked at the Laboratory of Reproductive Biology at University Hospital of Copenhagen. Over the last ten years, Dr. Andersen has been heading a nationally renowned program for the cryopreservation of human ovarian tissue. Impressed with his breadth of work and eager to pick his brain, we asked him to answer a few questions for us.

**Q: Tell us a little bit about the program you lead at your institution in Denmark.**

A: In Denmark, cryopreservation of ovarian tissue has been organized with one central laboratory as a national center that freezes all tissue in close collaboration with three fertility clinics around the country. The ovarian tissue is excised at the local hospital, and transported on ice to our laboratory, where it is cryopreserved and stored. In the case of transplantation, the tissue is transported in liquid nitrogen to the local hospital where it is thawed and transplantation is performed. This means that the patient doesn't move, but her tissue does. Often the patient is sick and does not want to travel; therefore, both the patients and the doctors appreciate this system. At each local hospital, there is one consultant who specializes in fertility preservation and takes care of these patients.

More than 600 girls and women have had ovarian tissue cryopreserved in Denmark. The youngest girl was 6 months old, and the oldest was 38 years old. We have currently cryopreserved ovarian tissue from around 100 girls younger than 16 years of age. The transport model has been validated and has now been used for more than 350 cases.
In Denmark, a total of 25 women have undergone transplantation of frozen/thawed ovarian tissue a total of 35 times (10 women having tissue transplanted twice). All women regained ovarian function and none experienced relapse as a consequence of the transplantation. Over a period of 20 - 25 weeks, levels of FSH gradually return to pre-menopausal levels and menstrual cycles are regained. The longevity of the tissue depends on the age of the woman at tissue retrieval and the amount of tissue transplanted. However, the period of ovarian activity after transplantation is surprisingly long and most women experience return of ovarian function for some years with just a fraction of tissue from one ovary being replaced. Our best case is a woman who had one ovary removed. She received two transplantations and had regular menstrual cycles for nine years. She is now 40 years old and is returning for her last transplantation, which we anticipate will work at least until her mid-forties. Recently, one child has had ovarian tissue transplanted for natural induction of puberty.

In Denmark, we have a public healthcare system that is free to anyone and paid through our (high) taxes. This means that any woman in need of this procedure is offered it for free, including; the operation to take out the tissue, the freezing, the storage, the transplantation, and possible ART in order to become pregnant after transplantation.

**Q: What is new on the horizon of ovarian and gonadal tissue cryopreservation?**

A: The fertility potential of the transplanted tissue should be improved, and there are a lot of research questions that need to be addressed in this context, such as, improving follicle survival in connection with the transplantation procedure.

The longevity of the transplanted tissue is a lot longer than we anticipated and it is capable of sustaining one pre-ovulatory follicle providing endogenous hormones, often for several years. The fact that we cryopreserved the functional unit of the ovary, follicle, and thereby also the steroid producing capacity and in essence the organ function obviously opens up new possibilities outside the scope of just providing fertility. I think that in the coming years, we will witness the use of ovarian tissue for purposes other than fertility, such as, avoiding premature ovarian insufficiency, delaying
menopause, preventing osteoporosis in individuals with a high risk, etc.

**Q: Where do you see the field of oncofertility in the next 25 years?**

A: The desire from cancer patients to preserve their fertility comes right after surviving the disease, so the patient wants this big time. I imagine that in 25 years time we will experience fertility preservation as an integrated part of cancer treatment. In addition, sparing your own ovarian tissue will have applications in a number of other fields as described above, and I think that these will also be viable options.

**Q: How do you see oncofertility collaboration globally - where is it now and what can we do to improve upon it?**

A: Many clinical activities nowadays are driven from a business perspective, and few centers worldwide actually undertake the research necessary to move this field forward. Furthermore, it is often difficult for each individual center to have their research funded. In my perspective, to move forward we can engage four to six centers worldwide on an institutional level (i.e. university level); organize a formal collaboration in which scientists freely circulate between centers and where students can get education at participating centers; perhaps put together new educational activities; and put in place a legal framework for collaboration. This will enable the Consortium and individual centers to support bigger tasks, apply for more support, and be the forerunner for new developments in this field that may have far reaching perspectives for treatment and patients in the years to come.

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**Oncofertility Online Accreditation Statement**

Accreditation Statement: The Northwestern University Feinberg School of Medicine is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

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participation in the activity.

The American Nurses Credentialing Center, American Academy of Nurse Practitioners and American Academy of Physicians Assistants accepts *AMA PRA Category 1 Credit(s)*™ from organizations accredited by the ACCME.

The presenters have no relevant financial relationships with commercial interests that will bias the content of the program.

### Audience and Learning Objectives

The Oncofertility Online brings together researchers and health care providers, and administrators to discuss current updates in fertility preservation and how to incorporate these advances into clinical practice. At the end of the sessions, attendees will be able to:

- Discuss the multiple patient factors that health care providers should understand when treating young fertility preservation patients, including age, legal, ethical, and financial considerations.
- Identify key research goals for established and experimental fertility preservation techniques including embryo, oocyte, and ovarian tissue cryopreservation.
- Gain an understanding of how select fertility preservation programs ensure a continuum of care between the patient's disease and fertility preservation treatment.
- Identify advances in emerging fertility preservation techniques over the past five years and discuss the significance and barriers to implementation in a clinical setting.
- Discuss the endocrine, gynecological, psychological, and sexual health considerations for female cancer survivors.

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Thank you for reading our latest newsletter! Please contact Program Manager, Angie Krausfeldt, at a-krausfeldt@northwestern.edu with any suggestions, comments or if you are interested in contributing to our
blog.