Baystate Reproductive Medicine

Leads the State in Success Rates

By Suzanne Spiry

Nurse Coordinator Dawn Duncan says that patients appreciate being able to stay close to home while receiving the highest quality specialty care at Baystate Reproductive Medicine.

The inaugural issue of *AlphaSights* magazine in the Fall of 1990 heralded the first In Vitro Fertilization (IVF) program in western Massachusetts at Baystate Medical Center. At the time, the expectation was that the program would grow to perform 125-175 cycles annually.

Twenty years later, Baystate's Reproductive Medicine Program has expanded tremendously in terms of its success rates, the types of procedures offered, the number of procedures performed, and the expertise of its physicians, nurses, and reproductive biologists.

In fact, in its most recent report on in vitro fertilization (IVF) success rates (2007), the Society for Assisted Reproductive Technology (SART) identifies Baystate Reproductive Medicine as the program with the highest IVF success rates in the state of Massachusetts in all age categories while adhering to the guidelines for numbers of embryos to transfer.

Success Rates

SART, the primary organization of professionals dedicated to the practice of assisted reproductive technology in the United States, notes that clinics routinely performing IVF procedures totaling 120 IVF cycles or more a year are more proficient and experienced than clinics performing fewer cycles. Baystate Reproductive Medicine performs about 900 IUI cycles and over 450 IVF cycles per year.

The state's top six rankings for women under 35 are provided in the chart on the next page. In this age range, Baystate Reproductive Medicine had 49.3% of transfers resulting in babies born, besting the national average of 43.3%.

Dawn Duncan, RN, BSN, nurse coordinator for Baystate Reproductive Medicine, says the scientific data and ultimate recognition highlights the program's excellence. "Patients come to us from the Springfield area, central Massachusetts, the Berkshires, Franklin County, and beyond. They appreciate being able to stay close to home while receiving the highest quality specialty care," says Ms. Duncan.

State-of-the-Art Treatment

More than 6 million people of childbearing age in the U.S. experience infertility every year, and 1 million seek treatment. Infertility is defined as a couple's inability to become pregnant after 1 year of intercourse without using birth control. According to Daniel Grow, MD, a reproductive endocrinologist who has served as both the program director and medical director of Baystate's program since 1994 and is now chair of Baystate's Department of Obstetrics & Gynecology, infertility problems are diagnosed in one in ten American couples.

Reproductive biologists at Baystate employ S3-Blastocyst Vitrification to freeze blastocysts between five to six days after fertilization.

Baystate Reproductive Medicine is the only full-service assisted reproductive technology program in western Massachusetts and offers state-of-the-art:

- infertility treatment including ovulation induction
- intrauterine insemination (IUI)
- in vitro fertilization (IVF)
- intracytoplasmic sperm injection (ICSI)
- assisted hatching
- Donor Egg Program
- gestational carrier services

Baystate Reproductive Medicine is fully accredited by SART and the College of American Pathologists. Dr. Grow was recently elected clinical director of SART for 2010-2011.

Latest Technology: Vitrification

Under the direction of Margaret Arny, PhD, HCLD, director of the Reproductive Biology Laboratory, the reproductive biologists at Baystate Medical Center previously used the traditional "slow freeze" protocol for frozen embryos.

According to Suzanne LaBrie, lead reproductive biologist, this involved moving the embryos through a series of solutions with increasing amounts of a cryoprotectant. As the embryos were moved through the solutions, water was drawn out of the cells and replaced with the cryoprotectant. This cryoprotectant protected the cells from damage caused by ice crystal formation. After most of the water was removed and replaced by the cryoprotectant, the embryos were loaded into vials and placed in a controlled rate freeze machine that lowered the temperature slowly until the embryos could ultimately be stored in liquid nitrogen.

Recently, however, James Stachecki, PhD, a cryobiologist at Tyho-Galileo Research Laboratories in New Jersey, developed S3-Blastocyst Vitrification to provide a faster and more effective method of freezing. Two reproductive biologists at Baystate Medical Center–Jilliane Luchini and Lisa Hill–trained with Dr. Stachecki to learn this method.

Vitrification is ultra-rapid IVF embryo freezing as compared to the traditional slow freezing process. The advantage of using vitrification is two-fold. One is a time element because it is a much quicker procedure than slow rate freezing. Ms. Luchini says that the new procedure allows them to freeze the blastocysts in about 20 minutes, versus one to two hours with the slow-freeze method, which allows them to process the embryos in a more timely fashion.

Top IVF Clinics in Massachusetts

by Live Birth Rate for Women Under 35

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However, says Ms. LaBrie, the real benefit comes from the lack of damaging ice crystal formation when using this process since it bypasses the state where ice crystals form and moves right into a glass-like state, thereby minimizing cell damage.

She says the procedure has to be done quickly because it involves much higher concentrations of cryoprotectant, which could be toxic if the embryos were exposed for long periods of time before freezing. "Ultimately, this process should lead to better post-thaw survival rates and higher pregnancy and live birth rates from frozen embryo transfer cycles," says Ms. LaBrie.

Embryos can be frozen at the pronuclear stage (one cell), or at any stage after that up to and including the blastocyst stage (five to seven days after fertilization). Currently reproductive biologists at Baystate are performing this procedure only on blastocysts.

Ms. Duncan notes that by freezing at the blastocyst stage, the extended length of culture allows for a "weeding out" of poorer quality embryos. Only the highest quality embryos will advance to the blastocyst stage of development, thereby increasing the quality of embryos that are frozen. The use of the new vitrification technique can further optimize the efficiency of frozen embryo transfer by improving freeze/thaw survival rates.

Rank	Name	City	% of transfers resulting in live births	Number of *cycles for patients under 35	Average # of embryos transferred	Total *cycles for the clinic (>120 is good)
1	**Baystate Reproductive Medicine**	**Springfield**	**49.3**	**158**	**1.7**	**507**
2	Fertility Centers of New England	Reading	48.8	262	2.0	797
3	Brigham & Women's ART Center	Boston	48.6	496	1.9	1721
4	Reproductive Science Center	Lexington	45.9	868	1.8	2518
5	Vincent IVF Unit	Boston	45.7	155	1.7	546
6	Boston IVF	Waltham	35.0	672	2.0	2498

Published by fertilitysuccessrates.com. Baystate Reproductive Medicine was ranked first in each of the four age groups reported: under 35, age 35-37, age 38-40, and age 41-42.

* *A cycle includes the process where eggs are removed from the ovaries, inseminated in the embryology lab of the clinic, placed in an incubator to mature, and then implanted back into the uterus for pregnancy.*