Published in final edited form as:

Fertil Steril. 2007 October ; 88(4): 1014–1015.

The role of embryo transfer in fellowship training

Michael D. Wittenberger, M.D.^{a,b}, William H. Catherino, M.D., Ph.D.^{a,b}, and Alicia Y. Armstrong, M.D., MHSCR^{a,b}

aReproductive Biology Medicine Branch, NICHD/NIH, Bethesda, MD

bDepartment of Obstetrics and Gynecology, Uniformed Services University of Health Sciences, Bethesda, MD.

Narrative Abstract

Our objective was to survey training in ET techniques among fellows, its perceived importance, and potential barriers to ET training during fellowship. Although ET training remains an important issue for most fellows and recent graduates, forty-four percent of respondents did not receive this training during their fellowship.

Approximately 12–15% of couples in the U.S. experience infertility, leading many to turn to ART for help in conceiving a desired baby (1). ART relies on the well-coordinated processes of ovarian stimulation, oocyte retrieval, embryo culture, and embryo transfer to achieve a high probability of ongoing pregnancy. While all of these processes are important, proper embryo transfer technique is particularly critical. Multiple studies have evaluated different variables involved in successful embryo transfer (2–5). Some of these factors are related to instrumentation, while others are directly related to the provider technique (6,7). The nature and type of training in embryo transfer techniques appears to influence the success rates of the individuals performing the technique, with a minimum number of transfers required for proficiency (8). Since training in embryo transfer techniques affects ART success rates, it is important to examine where this training occurs and potential barriers to this training. Our objective was to survey reproductive endocrinology fellows and recent graduates about embryo transfer training in fellowship and their perception of the relative importance of this training.

In order to accomplish this undertaking, a cross-sectional survey of all the American Board of Obstetrics and Gynecology (ABOG) approved Reproductive Endocrinology and Infertility fellowships was performed. In 2005, surveys were distributed to all approved Reproductive Endocrinology and Infertility fellowship directors for distribution to current fellows and to recent graduates of their programs. Recent graduates included all fellows graduating within the previous two years. All questionnaires were mailed with a self-addressed return envelope. Careful instructions were given with each survey to maintain the anonymity of both the individuals and the institutions. Evaluation of fellow training in embryo transfer was assessed with questions to determine the participant's year in fellowship training, performance of embryo transfers as a fellow, and potential obstacles the fellow encountered while learning this skill. Likert scales were used to measure the perceived importance of embryo transfer training in fellowship, and the impact of embryo transfer training on their future employment opportunities. Results were listed as frequencies and the chi-square test was used for statistical comparisons.

Corresponding author: Alicia Y. Armstrong, M.D., MHSCR..

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Eighty-one of 209 surveys were returned (39% response rate). Response rates were 51% (62/122) for current fellows and 22% (19/87) for recent graduates. Eighty-nine percent indicated training in embryo transfer techniques was either extremely important or important; whereas, 10% felt it was somewhat important and only 1% felt it was not important at all. Responses were similar between current fellows and recent graduates, particularly in the fraction of respondents who believed embryo transfer training was extremely important (chi-square test, $p = 0.51$) (Figure 1). Fifty-six percent of all fellows received experience in embryo transfer during their fellowship. Most performed embryo transfers in their first (67%) or second (24%) years. Consistent with this, the majority of respondents with embryo transfer experience reported greater than twenty transfers during their fellowship (62%). Among fellows who did not perform transfers, the most commonly cited reasons were only attending physicians may perform transfers (83%), and patients were unwilling to let fellows perform embryo transfers (33%). Of recent graduates who received training in embryo transfer, 38% agreed that this training positively impacted their ability to obtain a post-graduate position. However, of recent graduates who did not receive embryo transfer training in fellowship, 44% did not feel that this deficit negatively impacted their ability to procure a post-graduate position.

Although embryo transfer training remains an important issue for most fellows and recent graduates, forty-four percent of respondents did not perform any embryo transfers during their fellowship training. There are probably multiple reasons for this, but the most common reason cited on this survey was “only attendings may perform transfers”. Historically there is precedent for this practice. While many aspects of the IVF treatment process - patient education, counseling, ultrasound follicle monitoring and early pregnancy verification were eventually relegated to nurses, physicians uniformly retained their roles in performing the “critical” embryo transfer procedure. However, in one study evaluating whether appropriately trained nurses could perform this task, the nurses’ resulting pregnancy rates were the same as those achieved after physician transfer (9). Interestingly, the training of these nurses, aside from their previous experience in intrauterine insemination, consisted only of observing at least five transfers and then performing at least five transfers under direct supervision. Therefore, since other clinicians (and presumably fellows) can easily be trained to perform embryo transfer, perhaps there are other factors governing the decision to allow only the most senior physicians to perform the embryo transfer. Success rates may be one such factor. From the patient’s perspective, it seems reasonable that the most experienced providers should have the highest pregnancy rates. Since patients desire to maximize their chances of having a baby, there may be spoken or unspoken assumptions leading to this practice. However, in studies performed by our group, “trained” fellows had similar pregnancy rates as experienced providers (8) and in some instances had greater pregnancy rates than experienced providers when embryo quality was considered (7).

Since embryo transfer by fellows does not adversely affect the program’s pregnancy rate, the question of what constitutes appropriate training remains unanswered. Outside of actual embryo transfer, other forms of training such as intrauterine inseminations (IUI) or mock embryo transfers are commonly utilized. However, the ability of these measures to impart this essential skill needs to be validated. Our program has previously developed a model for training fellows in embryo transfer that demonstrated efficacy in pregnancy outcomes consistent with that of more experienced providers (8). Prior to participating in embryo transfer, fellows are required to document at least 30 mock embryo transfer or IUI procedures with the Wallace catheter to assure familiarity with the mechanisms of this device. They are also required to view actual embryo transfers. Only then are they allowed to participate in embryo transfer under an attendings’ supervision. Frequent evaluation of the trainees transfer technique and pregnancy outcomes occurs. The first assessment occurs after three transfer attempts. If the presence of blood on the catheter tip is present, possibly indicating a traumatic procedure, the fellow is required to perform additional mock transfer or IUI procedures carefully documenting

the presence or absence of blood. The fellow then performs ten day 3 transfers in patients with high grade embryos. If the pregnancy rate is less than 30%, 30 additional mock transfers are performed prior to resuming embryo transfers. To further standardize embryo transfer between providers the “embryo afterloading” technique is taught as previously described (10). This technique in conjunction with embryo injection by the embryologist is most likely to simulate the “mock” transfers practiced in the pre-embryo transfer stage of training.

Lastly, while many fellows who performed embryo transfers felt this enhanced their postgraduate job opportunities, the exact impact of this training on employment remains unclear. Indeed, many who did not receive this training did not report a negative effect on their employment opportunities. Whether a graduates’ decision to go into academic versus private practice factored into this perception is unknown. Conceivably, private practices may have more incentive than academic practices to recruit fellows with experience in embryo transfer. Regardless of its impact on post-graduate employment, if one of the goals of fellowship training is to produce physicians that are fully trained in clinical ART services, then hands-on training in embryo transfer should be included in reproductive endocrinology and infertility fellowship training.

Acknowledgements

The research was supported, in part, by the intramural research program of the Reproductive Biology and Medicine Branch of NICHD, NIH.

References

1. Chandra A, Martinez GM, Mosher WD, Abma JC, Jones J. Fertility, family planning, and reproductive health of U.S. women: data from the 2002 National Survey of Family Growth. *Vital Health Stat* 2005;23:1–160.
2. Visser DS, Fourie FL, Kruger HF. Multiple attempts at embryo transfer: effect on pregnancy outcome in an in vitro fertilization and embryo transfer program. *J Assist Reprod Genet* 1993;10:37–43. [PubMed: 8499677]
3. Abou-Setta AM, Al-Inany HG, Mansour RT, Serour GI, Aboulghar MA. Soft versus firm embryo transfer catheters for assisted reproduction: a systematic review and meta-analysis. *Hum Reprod* 2005;20:3114–3121. [PubMed: 16040620]
4. Alvero R, Hearn-Stokes RM, Catherino WH, Leondires MP, Segars JH. The presence of blood in the transfer catheter negatively influences outcome at embryo transfer. *Hum Reprod* 2003;18:1848–1852. [PubMed: 12923137]
5. Mansour R, Aboulghar M, Serour G. Dummy embryo transfer: a technique that minimizes the problems of embryo transfer and improves the pregnancy rate in human in vitro fertilization. *Fertil Steril* 1990;54:678–681. [PubMed: 2209889]
6. Karande VC, Morris R, Chapman C, Rinehart J, Gleicher N. Impact of the “physician factor” on pregnancy rates in a large assisted reproductive technology program: do too many cooks spoil the broth? *Fertil Steril* 1999;71:1001–1009. [PubMed: 10360901]
7. Hearn-Stokes RM, Miller BT, Scott L, Creuss D, Chakraborty PK, Segars JH. Pregnancy rates after embryo transfer depend on the provider at embryo transfer. *Fertil Steril* 2000;74:80–86. [PubMed: 10899501]
8. Papageorgiou TC, Hearn-Stokes RM, Leondires MP, Miller BT, Chakraborty P, Cruess D, et al. Training of providers in embryo transfer: what is the minimum number of transfers required for proficiency? *Hum Reprod* 2001;16:1415–1419. [PubMed: 11425822]
9. Sinclair L, Morgan C, Lashan H, Afnan M, Sharif K. Nurses performing embryo transfer: the development and results of the Birmingham experience. *Hum Reprod* 1998;13:699–702. [PubMed: 9572437]
10. Neithardt AB, Segars JH, Hennessy S, James AN, McKeeby JL. Embryo afterloading: a refinement in embryo transfer technique that may increase clinical pregnancy. *Fertil Steril* 2005;83:710–714. [PubMed: 15749502]