

Embryo Transfers in Reproductive Endocrinology and Infertility (REI) Training: Outcomes of Live Embryo Transfers Performed by Fellows Compared to Attending Physicians



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INTRODUCTION

Live embryo transfer is arguably one of the most crucial steps of In Vitro Fertilization (IVF). Yet, there is a lack of competency requirements for embryo transfers across REI fellowship programs.^{1,2} Nearly half of 3rd year fellows report performing this skill <10 times prior to graduation.¹ Prior studies suggest no differences in live birth rates between embryo transfers performed by attending physicians versus fellows,^{1,3} but >50% of surveyed attending physicians continue to believe that embryo transfers performed by fellows reduce pregnancy rates.⁴

PURPOSE

There remains a need for additional evidence to support trainee participation in live embryo transfers and influence mandated training requirements. The objective of this study was to evaluate live embryo transfer outcomes to see if a difference exists when performed by REI fellow with supervision compared to attending physician alone.

METHOD

Design and Setting: Retrospective cohort study at a single urban, academic fertility center performing >500 embryo transfers annually
Patients: All embryo transfers performed from 7/2015 – 12/2020
Intervention: Transfers performed by REI fellow under attending supervision using direct technique and ultrasound guidance after completing >50 intrauterine inseminations (IUI), with 10 attending supervised IUIs under ultrasound guidance with a transfer catheter

Outcomes:

- **Primary:** Clinical pregnancy rate per euploid embryo transfer
- **Secondary:** Clinical pregnancy rate for all embryo types, livebirth and spontaneous abortion rates, outcomes by year of fellowship training

Statistical Analysis: Chi-square with $p < 0.05$ considered statistically significant

Figure 1: Embryo Transfer Outcomes for Euploid Embryos

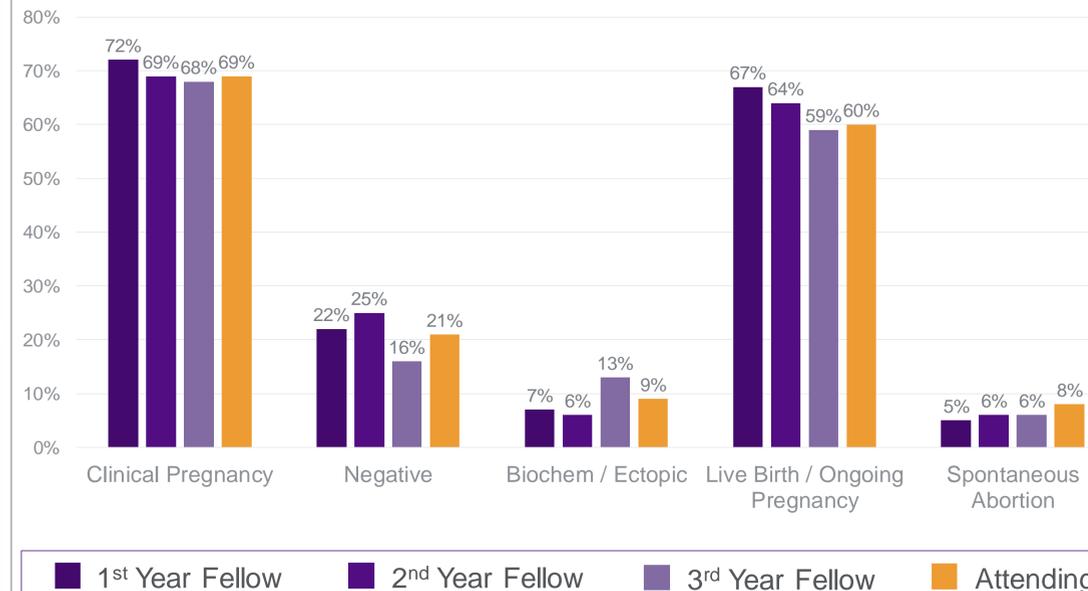
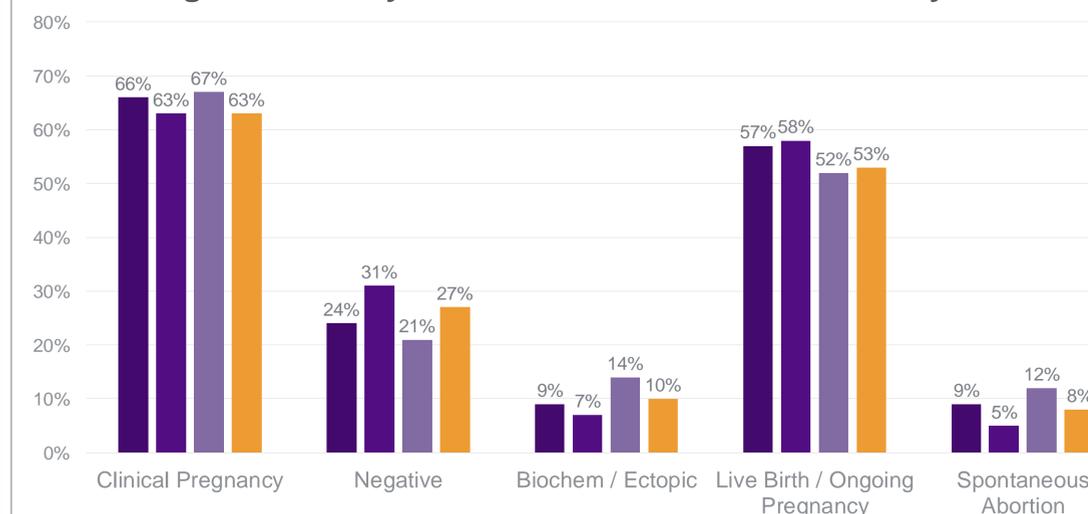


Figure 2: Embryo Transfer Outcomes for All Embryos



RESULTS

- 6414 embryo transfers were eligible for inclusion with 321 (5%) performed by a REI fellow
- Fellows participated in all types of transfers: 15% fresh, 75% frozen, 10% donor; 62% euploid, 3% mosaic, 34% untested
- Transfers were performed by 6 unique clinical fellows across each year of training: 23% 1st year, 37% 2nd year, 40% 3rd year
- For euploid embryo transfers, all outcomes were similar between fellows and attendings, regardless of year of fellowship ($p=0.89-0.98$) (Figure 1)
- Similarly, outcomes were similar when analyzing all embryo types ($p=0.85-0.86$) (Figure 2)
- Evaluation of the first 10 transfers for each fellow produced similar results to those of all embryo transfer outcomes ($p=0.89-0.98$)
- To ensure fellow clinical proficiency, defined as no more than 10% difference in clinical pregnancy outcome from a 65% attending clinical pregnancy rate with 95% confidence, an a priori power analysis approach determined that the minimum number of fellow live embryo transfers needed is 45

CONCLUSIONS

The ACGME deems embryo transfer to be an essential core competency, and as prior studies have demonstrated, no standard training requirement is established. We again demonstrate that embryo transfers performed by REI fellows produce the same clinical pregnancy and livebirth rates as attending physicians, without increased rates of biochemical pregnancies, ectopic pregnancies or miscarriages. This holds true across all years of fellowship training, with improvement seen beyond the first 10 embryo transfers. We suggest a well-defined educational pathway for fellows to gain proficiency with a goal of 45 live embryo transfers during fellowship

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