

# Frozen embryo transfer cycles may offer advantage in both pregnancy success and reducing the number of patients discontinuing care

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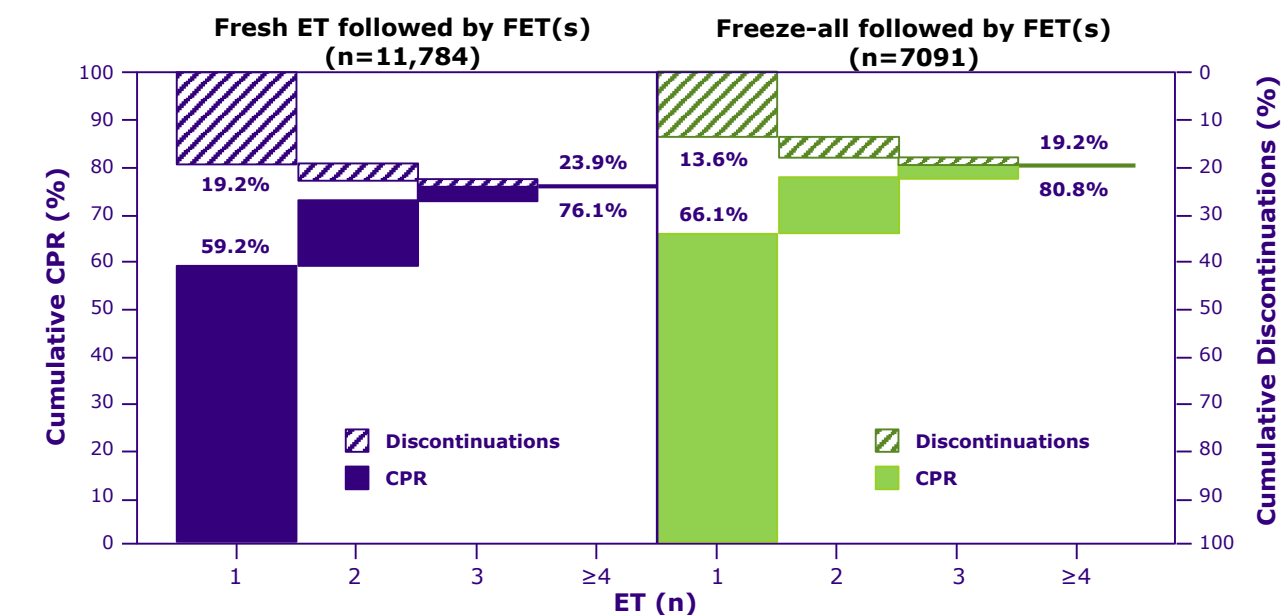
## RESULTS

Table. Patients included in the analysis, n=18,875 with oocyte retrieval and ≥1 ET

	Fresh ET followed by FET(s) n=11,784 (62.4%)			Freeze-all followed by FET(s) n=7091 (37.6%)		
	Mean (SD)	Q1-Q3		Mean (SD)	Q1-Q3	
Age, years	34 (4.4)	31-37		34 (4.2)	31-37	
Antral follicle count	16 (10.1)	10-22		20 (11.4)	12-26	
Day 3 FSH, mIU/mL	7.5 (2.89)	6.0-8.7		7.2 (2.71)	5.7-8.4	
ET attempted, n	Type	n	%	Type	n	%
1	1 Fresh ET	9228	78.3	1 FET	5652	79.7
2	1 Fresh ET + 1 FET	2096	17.8	2 FET	1156	16.3
3	1 Fresh ET + 2 FET	369	3.1	3 FET	231	3.3
≥4	1 Fresh ET + ≥3 FET	91	0.8	≥4 FET	52	0.7

ET, embryo transfer; FET, frozen embryo transfer; FSH, follicle-stimulating hormone; Q, quartile; SD, standard deviation

Figure 1. Cumulative pregnancy and discontinuation rates

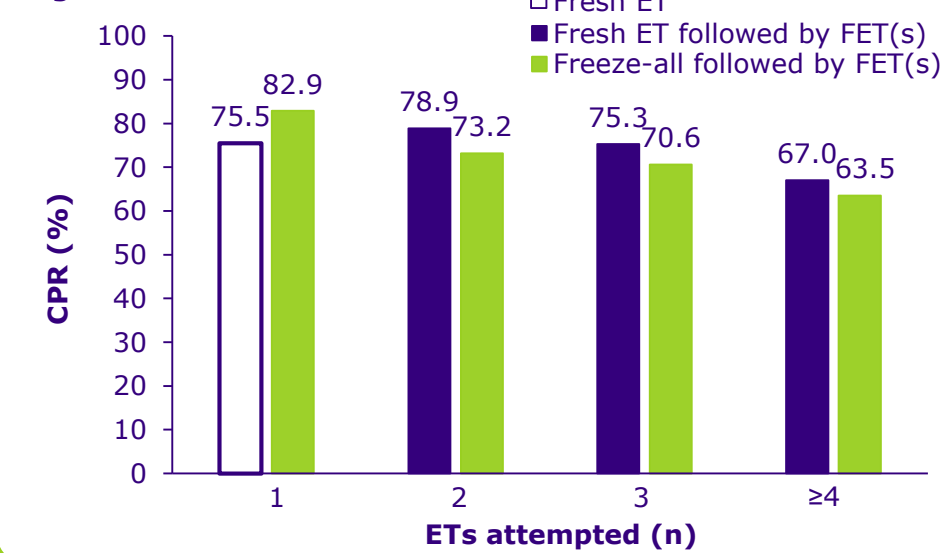


CPR, clinical pregnancy rate; ET, embryo transfer; FET, frozen embryo transfer

- Patients with freeze-all/FET were of similar age to patients with fresh ET, but had a higher antral follicle count and a lower Day 3 FSH (Table)
- With 1 ET, CPR was lower for fresh ET than for FET after freeze-all by 6.9%; after all FETs, cumulative CPR was lower for fresh ET by 4.7% (Figure 1)
- Patient discontinuation rate was higher for patients who had started with a fresh ET (Figure 1)
- Among the 23.9% of patients who initially had a fresh ET and discontinued, most stopped after the fresh ET (19.2%) or 1 FET (3.7%); just 3.9% of patients had ≥2 FETs, even with surplus embryos available (Figure 1)
- CPRs in their last ET were >70% for patients who attempted 1-3 ETs (Figure 2)

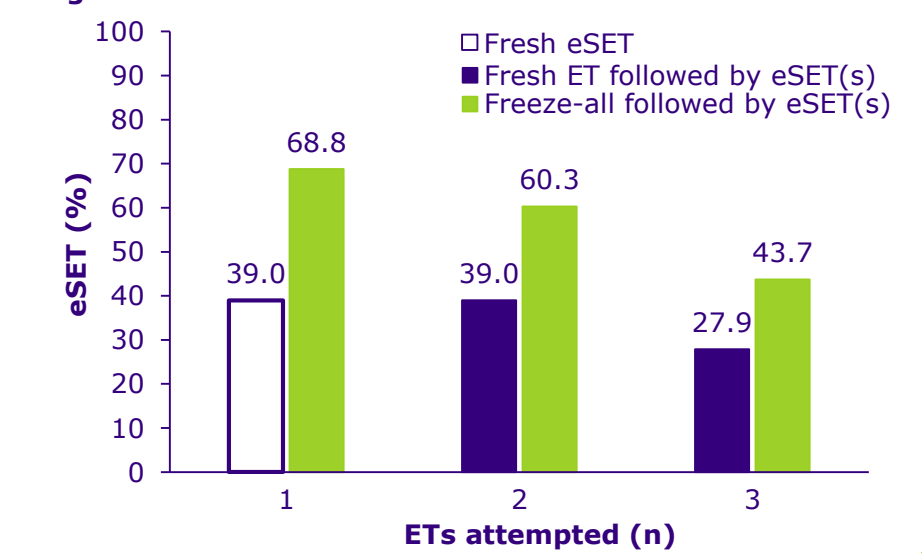
- The overall proportion of cycles that underwent preimplantation genetic testing for aneuploidy was 1.9% for patients with a fresh ET and any subsequent FET(s) versus 22.4% for patients with freeze-all and subsequent FET(s)
- For patients whose first ET was a fresh ET (Figure 3), the eSET rate was lower than for patients whose first ET was FET after freeze-all
- Patients who had a fresh ET and did not achieve a pregnancy had fewer mean (SD) surplus embryos (0.75 [1.99]) after the first ET than patients who had their first FET after a freeze-all cycle (3.20 [3.73])

Figure 2. CPR after last ET



CPR, clinical pregnancy rate; ET, embryo transfer; FET, frozen embryo transfer

Figure 3. eSET rate on last ET



eSET, elective single embryo transfer; ET, embryo transfer; FET, frozen embryo transfer



## CONCLUSION



Cryopreservation of embryos followed by frozen embryo transfer (FET) resulted in higher cumulative clinical pregnancy rates (CPRs) and patient retention rates compared with fresh embryo transfer (ET) followed by FET cycles



Rates of elective single ET (eSET) were higher with a freeze-all approach, which minimizes the incidence of multiple pregnancies and associated risks, and reserves surplus embryos for later use without the need for additional retrievals



Despite having supernumerary vitrified embryos, many patients opted to discontinue care before achieving a live birth. Further analyses will be conducted to account for differences in ovarian reserve for patients choosing fresh ET vs freeze-all before their first transfer



## INTRODUCTION

- Freezing all embryos and performing FET has been proposed as a way to enhance the efficacy of *in vitro* fertilization<sup>1</sup>
- The additional time between ovarian stimulation and ET with FET may allow the uterus to attain a more receptive state before implantation<sup>1</sup>
- FET has therefore been assessed as a means of improving clinical pregnancy and live birth rates<sup>2-3</sup>
- eSET is favored in order to reduce the potential complications of multiple pregnancy<sup>4</sup>



## OBJECTIVES

To describe rates of pregnancy, discontinuation, and eSET for patients whose first ET is a FET and for patients starting with fresh ET



## METHODS

- Retrospective cohort study of electronic medical records of patients from a large US database of fertility clinics (IntegraMed America, Inc.)
- Patients included had a first treatment cycle in 2015-2017, with a single oocyte retrieval followed by fresh ET (and subsequent FET, if one or more frozen embryos were available) or freeze-all cycle with subsequent FET(s)
- CPR was defined as clinical intrauterine gestation or later evidence of pregnancy
- Patient discontinuation rate was determined by evaluating the proportion of patients with no further cycles after the last ET without a pregnancy

## References

1. Maheshwari A et al. *Reprod Health* 2019;16:81; 2. Boynukalin FK et al. *PLoS One* 2020;15:e0234481; 3. Acharya KS et al. *Fertil Steril* 2018;110:880-7; 4. European IVF-monitoring Consortium (EIM) for the European Society of Human Reproduction and Embryology (ESHRE) et al. *Hum Reprod Open* 2020;2020:hoaa032

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## Disclosures

GDB, SB, and GLM have consulted for EMD Serono, Inc.,\* Rockland, MA, USA. BH, MCM, and ABC are employees of EMD Serono, Inc.,\* Rockland, MA, USA.

\*An affiliate of Merck KGaA, Darmstadt, Germany