RESULTS: Main baseline characteristics including age, body mass index, number of cycles, number of prior full-term births, profiles of type of infertility, indications for IVF/ICSI and preexisting conditions including previous Fallopian tubal surgery and FET characteristics including profile of type of endometrial preparation, number of embryos transferred, number of good-quality embryos transferred, estradiol and progesterone levels and endometrial thickness on ET day had no statistically significant differences between experimental groups and their respective control groups. As for pregnancy outcome, cleaved embryo transfer group had a statistically significant higher EP rate than its control group (6.3% vs. 3.8%, P=0.017, relative risk increase: 65.8%, 95% confidence interval: 11.9%-119.7%). However, the EP rates of blastocyst transfer group and its control group had no statistically significant difference (2.8% vs. 0%, P=0.123).

CONCLUSIONS: In frozen-thawed blastocyst transfer cycles of IVF/ICSI, recurrence risk of EP is not increased for patients with previous EP compared with those without previous EP.

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LIVE BIRTH RATE FOLLOWING EMBRYO TRANSFER IS SIGNIFICANTLY INFLUENCED BY THE PHYSICIAN PERFORMING THE TRANSFER: DATA FROM 2707 EUPLOID BLASTOCYST TRANSFERS BY 11 PHYSICIANS. S. J. Morin, J. M. Franasiak, C. R. Juneau, R. T. Scott. Reproductive Medicine Associates of New Jersey, Basking Ridge, NJ.

OBJECTIVE: Multiple prior studies have demonstrated variation in IVF success rates according the provider performing the embryo transfer procedure. However, these studies were limited by lack of control for embryonic aneuploidy and evaluation of cleavage stage transfers only. Thus, our objective was to isolate the contribution of physician variability on the chance of embryo transfer (ET) success in contemporary ART by evaluating euploid blastocyst transfers in a single practice setting.

DESIGN: Retrospective cohort.

MATERIALS AND METHODS: All euploid blastocyst transfers from 2011 to 2015 were evaluated. The physician performing the ET, maternal age, blastocyst grade, and information regarding fresh versus frozen transfer were recorded. During the study period, 11 physicians were randomly assigned to be "ET physician of the day" in a rotating fashion. To avoid selection bias, all transfers not performed by the assigned "physician of the day" were excluded to assure that the randomness provided by the rotating schedule remained intact. Analysis was performed using chi-squared tests.

RESULTS: There were 2707 euploid ETs performed that met inclusion criteria. The mean number of transfers per physician was 246. There was no difference in maternal age, blastocyst grade, or proportion of fresh vs. frozen transfers among the physicians. The implantation rate (IR), clinical pregnancy rate (CPR), and live birth rate (LBR) differed significantly between worst performing and best performing physicians. When compared to worst performer, an additional live birth could be expected for every 6 ETs performed by the best performer. There was no association between success rates and number of ETs performed by provider during the study period or number of years elapsed since completion of training.

CONCLUSIONS: When controlling for embryonic factors by utilizing euploid blastocyst transfers, live birth rate is still strongly influenced by the physician performing the transfer procedure. Given that these data only include ETs in which patients were randomly assigned to a given provider, the impact of the physician factor on success rates is truly isolated. These findings highlight the importance of characterizing optimal ET technique and present an opportunity for improving success rates through remediation of experienced providers and formalized instruction of trainees.

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CLINICAL PREGNANCY RATES AFTER ELECTIVE VERSUS NON-ELECTIVE SINGLE EMBRYO TRANSFER IN PGT CYCLES. O. Barash, K. Ivani, S. Willman, L. Weckstein, E. Rosenbluth, D. Wachs, M. Hinckley. Reproductive Science Center of the San Francisco Bay Area, San Ramon, CA.

OBJECTIVE: Single embryo transfer (SET) can dramatically decrease multiple gestation rate in IVF cycles [1, 2]. Recent advances in preimplantation genetic testing (PGT) allow maintain high pregnancy rates while transferring fewer embryos [3, 4]. The ultimate goal is to transfer a single embryo regardless of patient age or number of euploid embryos available in a particular IVF PGT cycle. The objective of this study was to evaluate clinical pregnancy rates after elective versus non-elective single embryo transfer in matched age groups in IVF PGT cycles.

DESIGN: A retrospective study of SNP PGT outcome data from blastocysts biopsied on day 5 or day 6 was conducted to identify differences in clinical pregnancy rates.

MATERIALS AND METHODS: 385 cycles of IVF treatment with PGT between January 2013 and March 2016 followed by 446 SETs were included in the study (315 patients, average maternal age - 35.97±3.8). All embryos were vitrified after biopsy, and selected embryos were subsequently thawed for a hormone replacement frozen embryo transfer cycle. 348 SETs were elective (two or more euploid embryos were available) with maternal age-35.43±4.3 and the average number of embryos for biopsy per cycle-6.7±3.5. 98 SETs were non-elective (only one euploid embryo was available) with maternal age - 39.46±2.7 and the average number of embryos for biopsy per cycle - 3.08±1.8. Clinical pregnancy rate was defined by the presence of a fetal heartbeat at 6-7 weeks of pregnancy.

RESULTS: The proportion of patients that had non-elective SETs increased significantly with advancing maternal age from 4.55% (6/132) in a group of patients <35 y.o. to 50.0% (36/72) in a group of patients >40 y.o., χ^2= 58.8745, p<0.05. Our data demonstrated no statistically significant difference in clinical outcomes between the study groups: the ongoing clinical pregnancy rate after an elective SET was 56.61% (197/348) and 59.19% (58/98) after a non-elective SET, χ^2= 0.2097, p=0.6491. Moreover, clinical pregnancy rates were not statistically different even between different age groups and varied in a narrow range from 50.0% to 62.07%. An increase in the total number of available euploid embryos from 2 to 5 embryos did not affect clinical pregnancy rates after SET: 53.26% (49/92), 60.71% (51/84), 51.67% (31/60) and 58.93% (66/112), respectively, χ^2= 0.9942, p=0.3187.

CONCLUSIONS: Analysis of the data proved the effectiveness of single embryo transfers in IVF PGT cycles regardless of maternal age or total number of euploid embryos available for transfer. In order to maintain high clinical pregnancy rates and reduce multiple gestation rates, single embryo transfer should be imperative in PGT cycles.

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Transfer outcomes separated by entire study population, best performer, and worst performer

	Total	Worst Performer	Best Performer	p-value
IR	67.8% (2303/3394)	61.7% (113/183)	73.3% (209/285)	0.018
CPR	71.1% (1926/2707)	64.2% (61/95)	75.5% (176/233)	0.049
LBR (through 2014 ETs)	60.5% (990/1637)	50.6% (45/89)	66.4% (73/110)	0.028

Differences in Outcomes between Day 5 Embryo Transfer Clinics and Algorithm-Based Clinics

Fresh Cycles	Day 5 Transfer Clinics; Fresh	Algorithm-based Clinics; Fresh	P-Value; Fresh	Frozen Clinics	Day 5 Transfer Clinics; Frozen	Algorithm-Based Clinics; Frozen	P-Value
Age (years) at cycle start, mean (N)	35.44 (23689)	36.13 (529546)	<0.0001		35.11 (9394)	35.31 (141283)	<0.0001
BMI (kg/m^2), mean (N cycles)	25.60 (17294)	25.57 (337281)	0.8436		25.41 (7066)	25.38 (89849)	0.8058
Overall Pregnancy Rate (OPR) Per Cycle	38.14 (9035/23689)	40.97 (216943/529546)	<0.0001		61.05 (5735/9394)	48.31 (68250/141283)	<0.0001
Miscarriage Rate, % (N)	11.47 (1036/9035)	14.68 (31841/216943)	<0.0001		16.36 (938/5737)	16.39 (11185/68250)	0.95
MultipleGestation Rate, % (N)	35.87 (2753/7674)	31.04 (56769/18268)	<0.0001		23.15 (1079/4661)	22.54 (12270/54443)	0.34
Monozygotic Twinning Rate, % (N)	2.07 (159/7674)	1.55 (2833/56801)	0.0003		1.24 (58/4661)	1.04 (565/54443)	0.19
Livebirth Rate, % (N)	27.74 (6572/23689)	28.15 (149082/529546)	0.1698		39.29 (3691/9394)	30.26 (42749/141283)	<0.0001
Length of gestation (days), mean (N)	230.63 (7635)	225.24 (181580)	<0.0001		219.41 (4652)	219.46 (1702)	0.9704
Live birth Weight (grams), mean (N) Singletons	3238 (4308)	3226 (103363)	0.2454		3383 (2823)	3371 (32934)	0.3399
Gender per birth, % (N)	49.68 (2151/4330)	49.63 (51427/103625)	0.95		48.48 (1376/2838)	48.42 (15975/32990)	0.95
FemaleMale	50.32 (2179/4330)	50.37 (52198/103625)			51.52 (1462/2838)	51.58 (17015/32990)	
Neonatal Death per live birth, % (N)	0.82 (53/6470)	0.89 (1326/148196)	0.53		0.52 (19/3640)	0.78 (331/42474)	0.09

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STRATEGIC IMPLEMENTATION OF EXTENDED CULTURE RESULTS IN DIFFERENT CLINICAL OUTCOMES COMPARED TO ROUTINE BLASTOCYST CULTURE. V. Libby,[a] B. G. Reed,[a] S. Babayev,[a] K. Doody.[b] [a]UT Southwestern Medical Center, Dallas, TX; [b]Center for Assisted Reproduction, Bedford, TX.

OBJECTIVE: This study aims to compare laboratory and clinical outcomes in non-donor cycles between clinics that use an algorithm to determine whether cleavage embryos versus blastocyst stage embryos will be used versus clinics that do all blastocyst transfers.

DESIGN: Retrospective cohort study.

MATERIALS AND METHODS: All fresh and frozen non-donor embryo transfers in the SART database from 2004 to 2013 were reviewed. Years were separately analyzed for each clinic. Clinics were grouped according to the percentage of blastocyst transfers with greater than or equal to 95% termed "Day 5" clinics and those with less than 95% as algorithm-based clinics. 392,080 patients from 444 clinics in 3230 distinct clinic-years were reviewed. Of Day 5 clinics, 15,946 patients underwent fresh and 6,980 underwent frozen non-donor embryo transfers from 386 distinct clinic-years. Among algorithm-based clinics, 326,714 patients underwent fresh and 97,817 underwent frozen embryo transfers from 5,929 clinic-years. Patient and cycle characteristics and birth outcomes were included in the analysis. The main outcome measures were pregnancy, live birth, multiple gestation, birth weight, neonatal death, and gender rates.

RESULTS: Patients in algorithm-based clinics were older and weighed less, but there was no difference in BMI. Algorithm-based clinics had higher pregnancy and miscarriage rates with fresh cycles with no difference in live birth rates. Day 5 clinics had higher pregnancy and live birth rates with frozen cycles. Monozygotic twinning and multiple gestation rates in fresh cycles were higher in Day 5 clinics while there were no differences between clinics using frozen cycles. The length of gestation in fresh cycles was longer in Day 5 clinics while there was no difference in length of gestation in frozen cycles. There were no differences in the birth weight or gender proportions for singletons or multiples in any of the groups.

CONCLUSIONS: While algorithm clinics have higher pregnancy rates in fresh cycles, frozen cycles have improved pregnancy rates with blastocyst transfers. Livebirth rates were not significantly different between clinic types in fresh cycles but did show higher rates among frozen cycles using Day 5 clinics.

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COMPARISON OF ANEUPLOID RATES AMONG DAY 5, 6, AND 7 BIOPSIED BLASTOCYSTS. J. Shah,[a] C. Vanijgul,[b] S. Chauhan,[c] R. D. Dunn,[d] W. A. Wun.[e] [a]UT-Houston/Memorial Hermann Hospital, Houston, TX; [b]Houston Fertility Specialists, Houston, TX; [c]Houston Fertility Specialist, Sugarland, TX; [d]Houston Fertility Speicialists, Houston, TX; [e]IVF lab, SART, Houston, TX.

OBJECTIVE: To transfer euploid embryos is a continuing actively pursuing goal in the IVF field. Currently, the embryo morphology and developmental speed are the parameters to select. The correlation of developmental speed with euploid rate is unclear. Capalbo et al (2014) reported no significant correlation while Taylor et al (2014) reported a significant higher euploid rate for a fast growing blastocyst. This study intends to utilize big data to examine any significant correlation of embryo growing speed with the euploid rate.

DESIGN: All trophectoderm biopsy cases with comprehensive chromosome screening (CCS) during January 2014 - February 2016 were included. In total, there are 863 cases with 2781 biopsied blastocysts. There were 287 blastocysts with no results or without complete information. 2494 blastocysts with clear information were included in the analysis.

MATERIALS AND METHODS: The trophectoderm biopsy is done when the blastocyst is at full expansion or a more advanced stage. The mean age is 35.3 with a range 25-45. Depending on the blastocyst stage, the biopsy is done at day 5, day 6, or day 7. The CCS is done by the Genesis Genetics lab. Logistic analyses were used for statistical analysis. The significance level is defined at $P < 0.05$.

Table 1: Comparison of blastocyst euploidy rate in patients who had trophectoderm biopsies on day 5, 6 and 7

	Day 5	Day 6	Day 7
Number of Embryos	795	1604	95
Number of Euploid	472	774	46
Euploid rate	59.30%	48.20%	48.40%
Statistical Analysis			
Day 5 v 6 v 7	Day 5 vs Day 6	Day 5 vs Day 7	Day 6 vs Day 7
$P < 0.0001$	$P < 0.0001$	$P < 0.05$	$P > 0.05$

RESULTS:

CONCLUSIONS: The results agrees with the Taylor et al (2014) report that fast growing blastocysts (day 5) have significant better chance to be euploid than the slow growing blastocysts (day 6 or day 7). Selecting a quality embryo to transfer is especially important in elective single embryo transfer cases. The results support the use of embryo growing speed as a selection criterion for a quality embryo.

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