

2013

Assisted Reproductive Technology

National Summary Report

National Center for Chronic Disease Prevention and Health Promotion
Division of Reproductive Health



Updates to this report will be posted on the CDC website at the following address:

<http://www.cdc.gov/art/reports/>

For additional information, send an e-mail to artinfo@cdc.gov

Or write to CDC, ATTN: ART Surveillance and Research Team
4770 Buford Highway, N.E.; Mail Stop F-74; Atlanta, GA 30341-3717.

2013

Assisted Reproductive Technology

National Summary Report

October 2015



Acknowledgments

The Centers for Disease Control and Prevention, the Society for Assisted Reproductive Technology, and the American Society for Reproductive Medicine thank RESOLVE: The National Infertility Association and Path2Parenthood (formerly The American Fertility Association) for their commitment to assisted reproductive technology (ART) surveillance. Their assistance in making this report informative and helpful to people considering an ART procedure is

greatly appreciated. Appendix B has current contact information for these national consumer organizations.

This publication was developed and produced by the National Center for Chronic Disease Prevention and Health Promotion of the Centers for Disease Control and Prevention in consultation with the American Society for Reproductive Medicine and the Society for Assisted Reproductive Technology.

Centers for Disease Control and Prevention

National Center for Chronic Disease Prevention
and Health Promotion

Ursula E. Bauer, PhD, MPH, Director

Division of Reproductive Health

CAPT Wanda D. Barfield, MD, MPH, Director
Kelly Brumbaugh, MPH, CHES

Women's Health and Fertility Branch

Denise J. Jamieson, MD, MPH, Chief
Sheree L. Boulet, DrPH
Jeani Chang, MPH
Sara Crawford, PhD
Dmitry M. Kissin, MD, MPH
Aniket D. Kulkarni, MBBS, MPH
Allison S. Mneimneh, MPH, CPM
Mithi Sunderam, PhD
Yujia Zhang, PhD

American Society for Reproductive Medicine

Rebecca Sokol, MD, MPH, President

Society for Assisted Reproductive Technology

James Toner, MD, PhD, President
Kelley Jefferson

Suggested Citation: Centers for Disease Control and Prevention, American Society for Reproductive Medicine, Society for Assisted Reproductive Technology. *2013 Assisted Reproductive Technology National Summary Report*. Atlanta (GA): US Dept of Health and Human Services; 2015.

The data included in this report and publication support were provided by Westat under Contract No. GS-23F-8144H for the National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, US Department of Health and Human Services.

Table of Contents

National Report	1
Introduction to the 2013 National Report	3
2013 National Summary	5
Section 1: Overview	7
Section 2: ART Cycles Using Fresh Nondonor Eggs or Embryos	12
Section 3: ART Cycles Using Frozen Nondonor Embryos	42
Section 4: ART Cycles Using Donor Eggs	45
Section 5: ART Trends, 2004–2013	49
Appendix A: Glossary of Terms	59
Appendix B: National Consumer Organizations	65

2013 National Report



INTRODUCTION TO THE 2013 NATIONAL REPORT

Data provided by United States clinics that use assisted reproductive technology (ART) to treat infertility are a rich source of information about the factors that contribute to a successful ART treatment—the delivery of a healthy live-born infant. Pooling the data from all reporting clinics provides a national picture that could not be obtained by examining data from an individual clinic.

A woman's chances of having a pregnancy and a live birth when using ART are influenced by many factors, some of which are patient-related and outside a clinic's control (for example, the woman's age or the cause of infertility). Because the national data include information on many of these factors, this can give potential ART patients an idea of the average chances of success. Average chances, however, do not necessarily apply to a particular individual or couple. People considering ART should consult their physician to discuss all the factors that apply in their particular case.

The data for this national report come from the 467 fertility clinics in operation in 2013 that provided and verified data on the outcomes of all ART cycles started in their clinics. Of the 190,773 ART cycles performed in 2013 at these reporting clinics, 163,209 cycles (86%) were started with the intent to transfer at least one embryo. These 163,209 cycles resulted in 54,323 live births (deliveries of one or more living infants) and 67,996 infants.

Of the 163,209 ART cycles started in 2013 with the intent to transfer at least one embryo, 2,655 cycles were reported with the intent to thaw a previously frozen egg, fertilize the egg, and then transfer the resulting embryo. However, because this cycle type (a frozen egg cycle) does not contribute to the calculation of any success rates for the 467 clinics included in the *2013 Assisted*

Reproductive Technology Fertility Clinic Success Rates Report (hereafter called the *2013 Fertility Clinic Success Rates Report*), the 2,655 frozen egg cycles are not included in the majority of this national report. The majority of the report includes the remaining 160,554 cycles.

Of the 190,773 ART cycles performed in 2013, 27,564 cycles (14%) were started with the intent of cryopreserving (freezing) and storing all resulting eggs or embryos for potential future use. However, because this cycle type (a banking cycle) cannot result in pregnancy or birth, the 27,564 banking cycles started in 2013 are not included in the majority of this national report.

The 190,773 total ART cycles performed in 2013 excludes 67 cycles started in which a new treatment procedure was being evaluated. The 67 new procedure cycles are not included in the majority of this national report because they do not contribute to the calculation of any success rates for the 467 clinics included in the *2013 Fertility Clinic Success Rates Report*.

The 2013 National Summary table on page 5 combines data from all 190,773 cycles reported by the 467 clinics. For an explanation of how to read this table, see pages 11–20 of the *2013 Fertility Clinic Success Rates Report* available at <http://www.cdc.gov/art/reports/>.

This national report consists of graphs and charts that use 2013 data to answer specific questions related to ART success rates. These figures are organized according to the type of ART procedure used. Some ART procedures use a woman's own eggs (nondonor cycles), and others use donated eggs or embryos (donor cycles). Although sperm used to create an embryo also may be either from a woman's partner or from a sperm donor, ART cycles in this report are classified according to the source of the egg.

In some procedures, the embryos that develop after fertilization are transferred back to the woman without having been frozen (fresh embryo transfer); in others, embryos that previously have been frozen (cryopreserved) for transfer at a later date are thawed and transferred to the woman (frozen embryo transfer).

The national report has five sections:

- Section 1 (Figures 1 through 5) presents overall information about the different types of ART cycles performed in 2013. Figure 2 is the only figure in this report that includes information about ART cycles in which a new treatment procedure was being evaluated (67 cycles that are not counted as part of the 190,773 total ART cycles performed in 2013). Figures 1 through 3 are the only figures in the report to include information about frozen egg cycles (2,655 cycles of the 190,773 total). Figures 1 through 3 (and Figure 44 in Section 5) are the only figures in the report to include information about egg/embryo banking cycles (27,564 cycles of the 190,773 total). Thus, data presented in Figures 4 and 5 in Section 1 and

in other sections of the report are based on the total of 160,554 fresh nondonor, frozen nondonor, fresh donor, and frozen donor ART cycles performed in 2013 with the intent to transfer one or more eggs or embryos.

- Section 2 (Figures 6 through 35) presents information on the ART cycles that used only fresh nondonor eggs or embryos from nondonor eggs or, in a few cases, a mixture of fresh and frozen embryos from nondonor eggs (93,787 cycles resulting in 73,571 transfers).
- Section 3 (Figures 36 through 38) presents information on the ART cycles that used only frozen embryos from nondonor eggs (46,779 cycles resulting in 43,576 transfers).
- Section 4 (Figures 39 through 42) presents information on the ART cycles that used only donated eggs or embryos (19,988 cycles resulting in 18,096 transfers).
- Section 5 (Figures 43 through 52) presents trends in the number of ART procedures and success rates over the past 10 years, from 2004 through 2013.

2013 NATIONAL SUMMARY

For more information on how to interpret the statistics in this table, see pages 11–20 in the 2013 Assisted Reproductive Technology Fertility Clinic Success Rates Report.

2013 ART CYCLE PROFILE

Type of ART and Procedural Factors ^a				Patient Diagnosis ^b				
IVF	>99%	With ICSI	69%	Tubal factor	13%	Uterine factor	5%	<i>Multiple Factors:</i> Female factors only 12% Female & male factors 17%
Unstimulated	1%	Used PGD	6%	Ovulatory dysfunction	14%	Male factor	33%	
Used gestational carrier	<1%			Diminished ovarian reserve	32%	Other factor	15%	
				Endometriosis	9%	Unknown factor	13%	

2013 ART SUCCESS RATES^c

Total number of cycles^d: 190,773 (includes 2,655 cycle[s] using frozen eggs)

Type of Cycle	Age of Woman					
	<35	35–37	38–40	41–42	43–44	>44
Fresh Embryos from Nondonor Eggs						
Number of cycles	40,083	19,853	18,061	9,588	4,823	1,379
Percentage of cancellations (%)	5.6	8.9	12.3	15.6	18.3	23.9
Average number of embryos transferred	1.8	2.0	2.3	2.7	2.9	2.5
Percentage of embryos transferred resulting in implantation (%)	39.9	30.8	20.0	10.7	5.0	2.3
Percentage of elective single embryo transfers (eSET) (%)	21.4	12.6	5.1	1.8	0.6	0.8
Outcomes per Cycle						
Percentage of cycles resulting in term, normal weight & singleton live births ^e (%)	23.8	19.6	13.7	7.8	3.9	1.2
Percentage of cycles resulting in singleton live births (%)	28.2	23.2	16.7	9.6	4.8	1.4
Percentage of cycles resulting in twin live births (%)	11.3	8.0	4.2	1.5	0.4	0.2
Percentage of cycles resulting in live births (%)	39.9	31.6	21.1	11.1	5.2	1.6
Percentage of cycles resulting in pregnancies (%)	45.9	38.0	28.6	18.8	10.2	3.8
Outcomes per Transfer						
Number of transfers	33,750	15,941	13,456	6,588	3,086	750
Percentage of transfers resulting in term, normal weight & singleton live births ^e (%)	28.2	24.4	18.4	11.4	6.0	2.1
Percentage of transfers resulting in singleton live births (%)	33.5	28.9	22.5	14.0	7.6	2.5
Percentage of transfers resulting in twin live births (%)	13.4	10.0	5.6	2.2	0.6	0.4
Percentage of transfers resulting in live births (%)	47.4	39.3	28.4	16.2	8.2	2.9
Percentage of transfers resulting in pregnancies (%)	54.5	47.3	38.3	27.3	15.9	6.9
Frozen Embryos from Nondonor Eggs						
Number of cycles	21,627	11,140	8,354	3,344	1,503	811
Number of transfers	20,423	10,374	7,713	3,005	1,329	732
Estimated average number of transfers per retrieval	1.3	1.1	0.8	0.6	0.4	0.4
Average number of embryos transferred	1.7	1.7	1.7	1.8	2.0	1.9
Percentage of embryos transferred resulting in implantation (%)	39.6	35.6	31.5	25.4	18.6	13.1
Percentage of transfers resulting in term, normal weight & singleton live births ^e (%)	28.6	27.2	24.4	21.2	15.8	8.7
Percentage of transfers resulting in singleton live births (%)	33.9	32.7	29.6	26.0	20.9	11.5
Percentage of transfers resulting in twin live births (%)	9.8	7.1	5.9	4.1	2.5	2.7
Percentage of transfers resulting in live births (%)	44.1	40.1	35.7	30.3	23.5	14.2
Percentage of transfers resulting in pregnancies (%)	54.2	50.0	46.9	42.1	34.2	23.4
Number of Egg/Embryo Banking Cycles						
	7,350	5,437	6,493	3,918	2,578	1,788
Donor Eggs						
	Fresh Embryos^f		Frozen Embryos^f			
Number of cycles	9,718		10,270			
Number of transfers	8,597		9,499			
Average number of embryos transferred	1.7		1.7			
Percentage of embryos transferred resulting in implantation (%)	50.9		34.9			
Percentage of transfers resulting in term, normal weight & singleton live births ^e (%)	29.8		24.2			
Percentage of transfers resulting in singleton live births (%)	37.5		32.0			
Percentage of transfers resulting in twin live births (%)	18.0		7.9			
Percentage of transfers resulting in live births (%)	55.9		40.2			
Percentage of transfers resulting in pregnancies (%)	66.0		50.1			

CURRENT SERVICES & PROFILE

Number of reporting clinics: 467

Percentage of clinics that allow cycles involving:

Donor eggs	92%	Gestational carriers	86%
Donor embryos	69%	Embryo cryopreservation	>99%
Single women	96%		

Clinic profile:

SART member	82%
Verified lab accreditation	
Yes	93%
No	7%
Pending	<1%

^a Reflects features of fresh nondonor cycles. If IVF is <100%, the remaining cycles are GIFT, ZIFT, or a combination of these procedures with IVF.

^b Total patient diagnosis percentages may be greater than 100% because more than one diagnosis can be reported for each ART cycle.

^c Multiple-infant births (e.g., twins) with at least one live infant are counted as one live birth.

^d Total cycle number includes those using frozen eggs. It excludes 67 cycle(s) evaluating new procedures. Both cycle types are excluded from ART success rates.

^e In this report, births are defined as term if at least 37 full weeks gestation and normal birth weight if at least 2,500 grams (approximately 5 pounds, 8 ounces).

^f All ages are reported together because previous data show that patient age does not materially affect success with donor eggs.

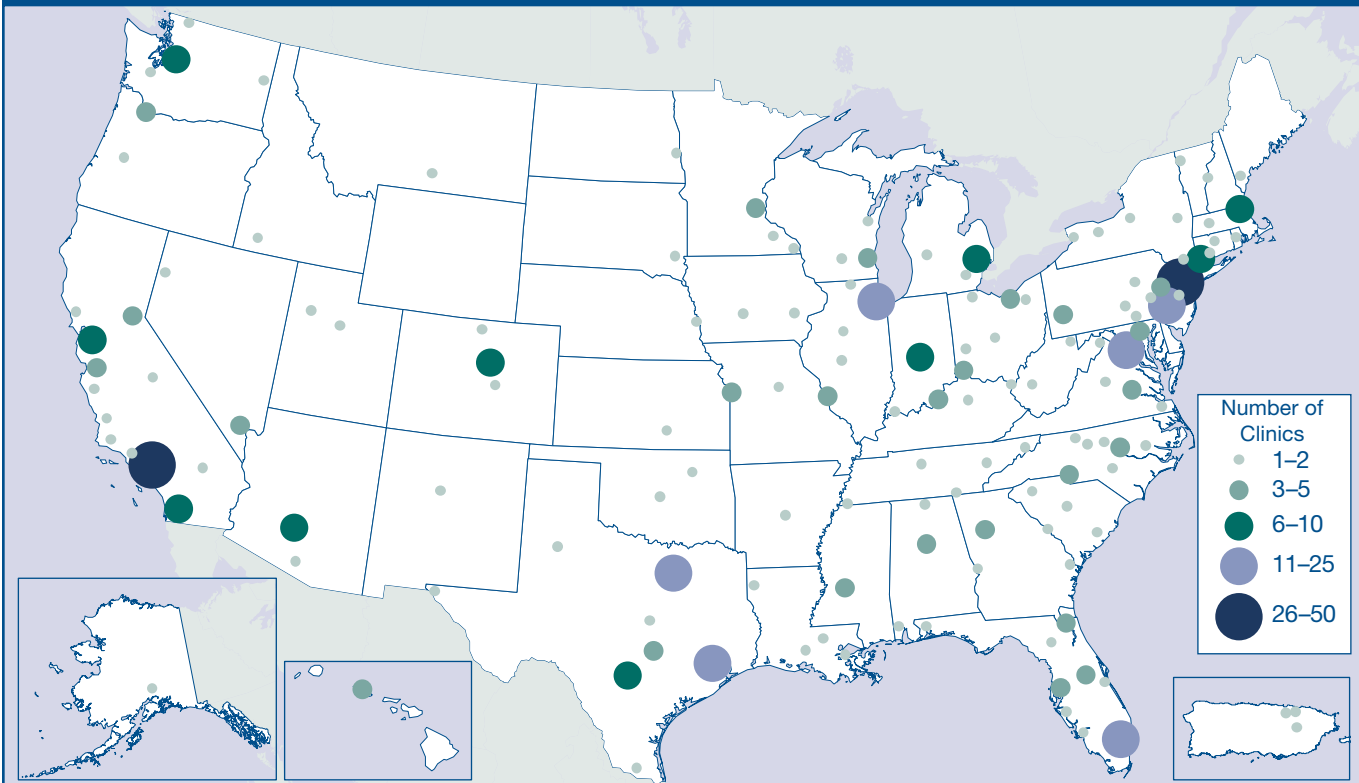
SECTION 1: OVERVIEW

Where are ART clinics located?

ART clinics are located throughout the United States. Figure 1 shows the locations of the 467 reporting clinics. Individual clinic tables with success rates and clinic profiles are published in the *2013 Fertility Clinic Success Rates Report*, arranged in alphabetical order by state, city, and clinic name. The number of clinics, cycles performed, live-birth deliveries, and infants born as a result of ART all have increased steadily

since CDC began collecting this information in 1995 (see Section 5, pages 49–58). Because in some cases more than one infant is born during a live-birth delivery (for example, twins), the total number of infants born is greater than the number of live-birth deliveries. CDC estimates that ART accounts for slightly less than 2% of total US births.

Figure 1
Locations of ART Clinics in the United States and Puerto Rico, 2013



Number of ART clinics in the United States in 2013.....	497
Number of ART clinics that submitted data in 2013.....	467
Total number of ART cycles started in 2013 at clinics reporting data.....	190,773*
Number of live-birth deliveries resulting from ART cycles started in 2013.....	54,323
Number of infants born as a result of ART cycles started in 2013.....	67,996

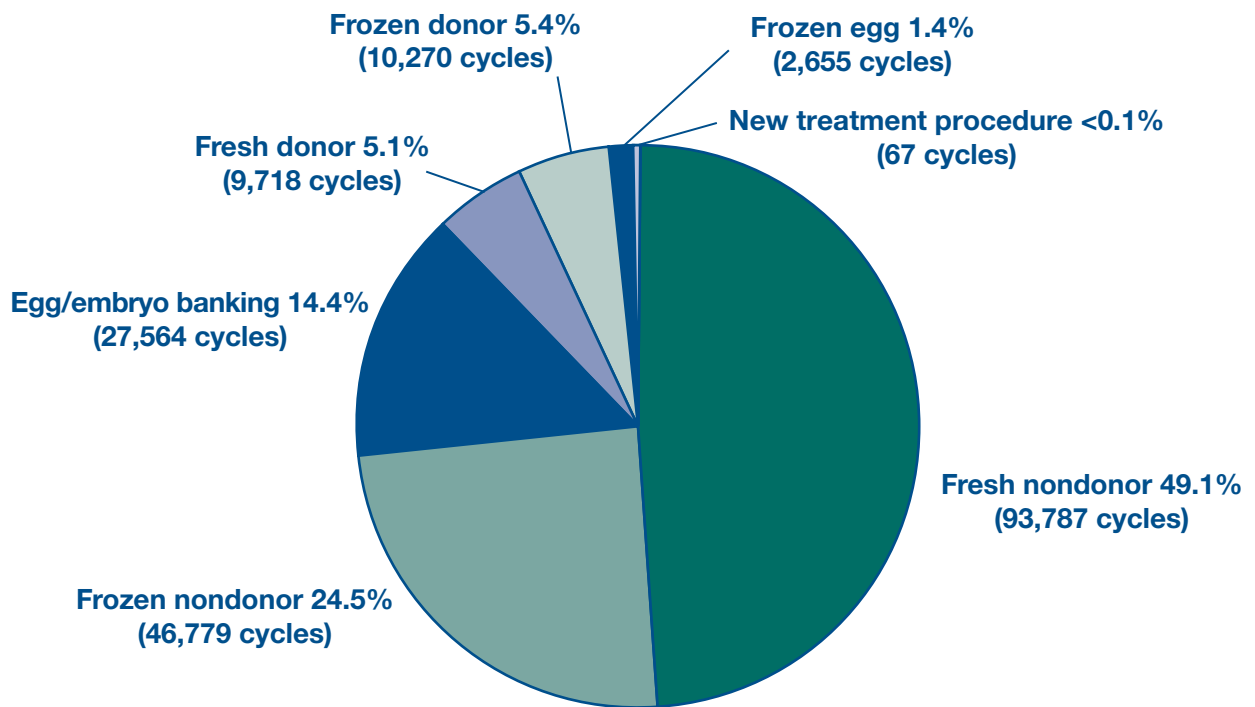
* This number includes 27,564 cycles with the intent to freeze and bank all resulting eggs or embryos. The remaining 163,209 cycles in 2013 were performed with the intent to transfer at least one egg or embryo, and this is the number of cycles from which Figure 1 data for live-birth deliveries and infants born are based. The 190,773 total cycles in 2013 does not include 67 cycles in which a new treatment procedure was being evaluated. See the introduction on pages 3–4 and Figure 2 on page 8 for an overview about the types of ART cycles performed in 2013.

What types of ART cycles were performed?

Figure 2 shows the types of ART cycles performed in the United States in 2013. For about 49% of ART cycles performed, fresh nondonor eggs or embryos were used. ART cycles that used frozen nondonor embryos were the next most common type, accounting for approximately 25% of the total. In almost 11% of cycles, eggs or embryos were donated by another woman or couple. Slightly more than 1% of cycles were performed with the intent to fertilize previously frozen eggs and transfer resulting embryos. More than 14% of cycles were performed with the intent of freezing and storing (banking) all resulting eggs or embryos for potential future use. A very small number of cycles (less than 1%) involved the evaluation of a new treatment procedure. Cycles using a new procedure are included in this figure only.

Cycles using previously frozen eggs are included in this figure, Figures 1 and 3 (see pages 7 and 9), and in the total number of cycles in the National Summary table (see page 5) and clinic tables in the *2013 Fertility Clinic Success Rates Report* only. Cycles with the intent to bank all eggs or embryos are included in this figure, Figures 1, 3, and 44 (see pages 7, 9, and 50), and in a small number of statistics in the National Summary table (see page 5) and clinic tables in the *2013 Fertility Clinic Success Rates Report* only. Thus, data for 2013 presented in other figures in this report are based on the total of 160,554 fresh nondonor, frozen nondonor, fresh donor, and frozen donor ART cycles performed with the intent to transfer one or more eggs or embryos.

Figure 2
Types of ART Cycles—United States,* 2013



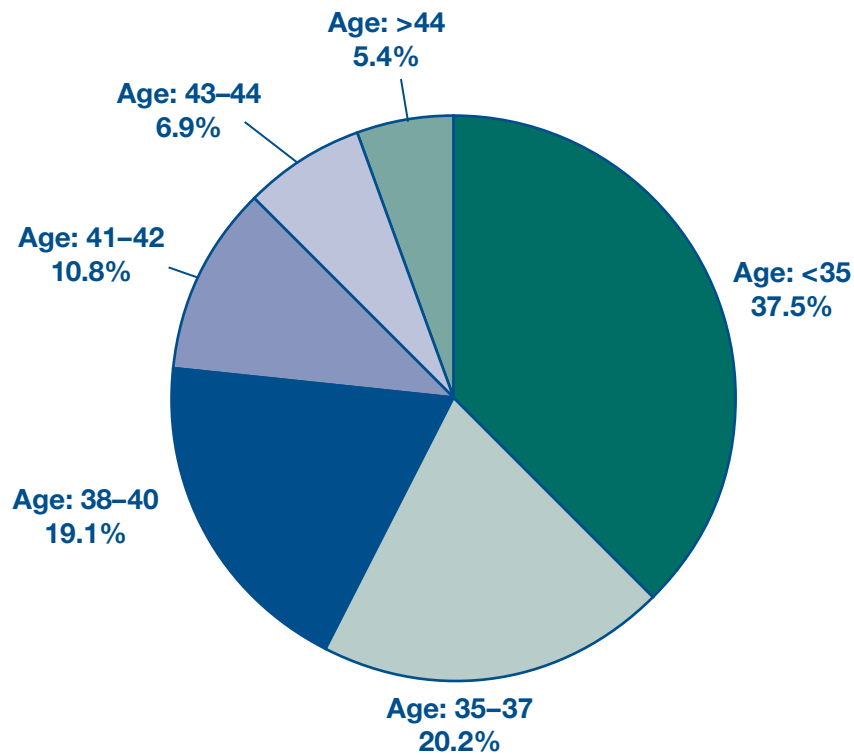
* Total does not equal 100% due to rounding.

How old were women who used ART?

The average age of women using ART services in 2013 was 36. Figure 3 presents ART cycles performed in the United States in 2013 according to the age of the woman who had the procedure. The largest group of women using ART services were women younger than age 35, representing approximately 38% of all ART cycles performed in 2013. About 20% of ART cycles were performed among women aged 35–37, 19% among women aged 38–40, 11% among women aged 41–42, 7% among women aged 43–44, and 5% among women older than age 44.

Cycles using previously frozen eggs and cycles with the intent to bank all eggs or embryos are included in the data for this figure. See the introduction on pages 3–4 and Figure 2 on page 8 for more information about these cycle types. Data for 2013 presented in the majority of other figures in this report are based on the total of 160,554 fresh nondonor, frozen nondonor, fresh donor, and frozen donor ART cycles performed with the intent to transfer one or more eggs or embryos.

Figure 3
ART Use by Age Group—United States,*† 2013



* Based on 190,773 cycles.

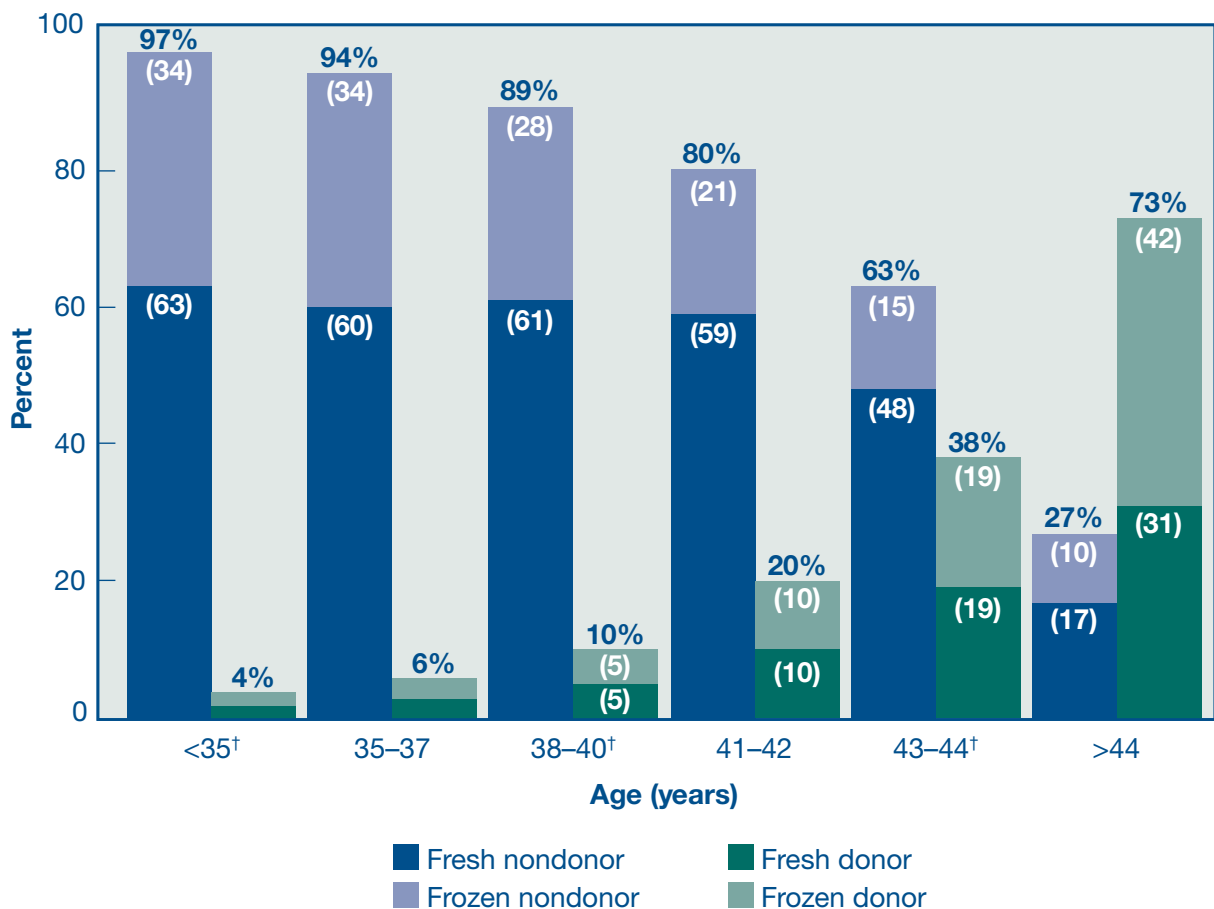
† Total does not equal 100% due to rounding.

How did the types of ART cycles performed differ by a woman's age?

The percentage of ART cycles in which a woman used her own eggs was most common among younger women and declined with age, while the percentage of ART cycles using a donor egg increased with age. Figure 4 shows that, in 2013, the type of ART cycles varied by the woman's age. The vast majority (97%) of women younger than age 35 used their own eggs (nondonor), and

about 4% used donor eggs. In contrast, 38% of women aged 43–44 and 73% of women older than age 44 used donor eggs. Percentages of fresh nondonor cycles performed were greater than frozen nondonor cycles in all age groups. Percentages of fresh or frozen donor cycles were about the same for all age groups except for women older than age 44.

Figure 4
Types of ART Cycles by Age Group—United States,* 2013



* Percentages of ART cycles that used fresh or frozen embryos from nondonor or donor eggs are in parentheses.

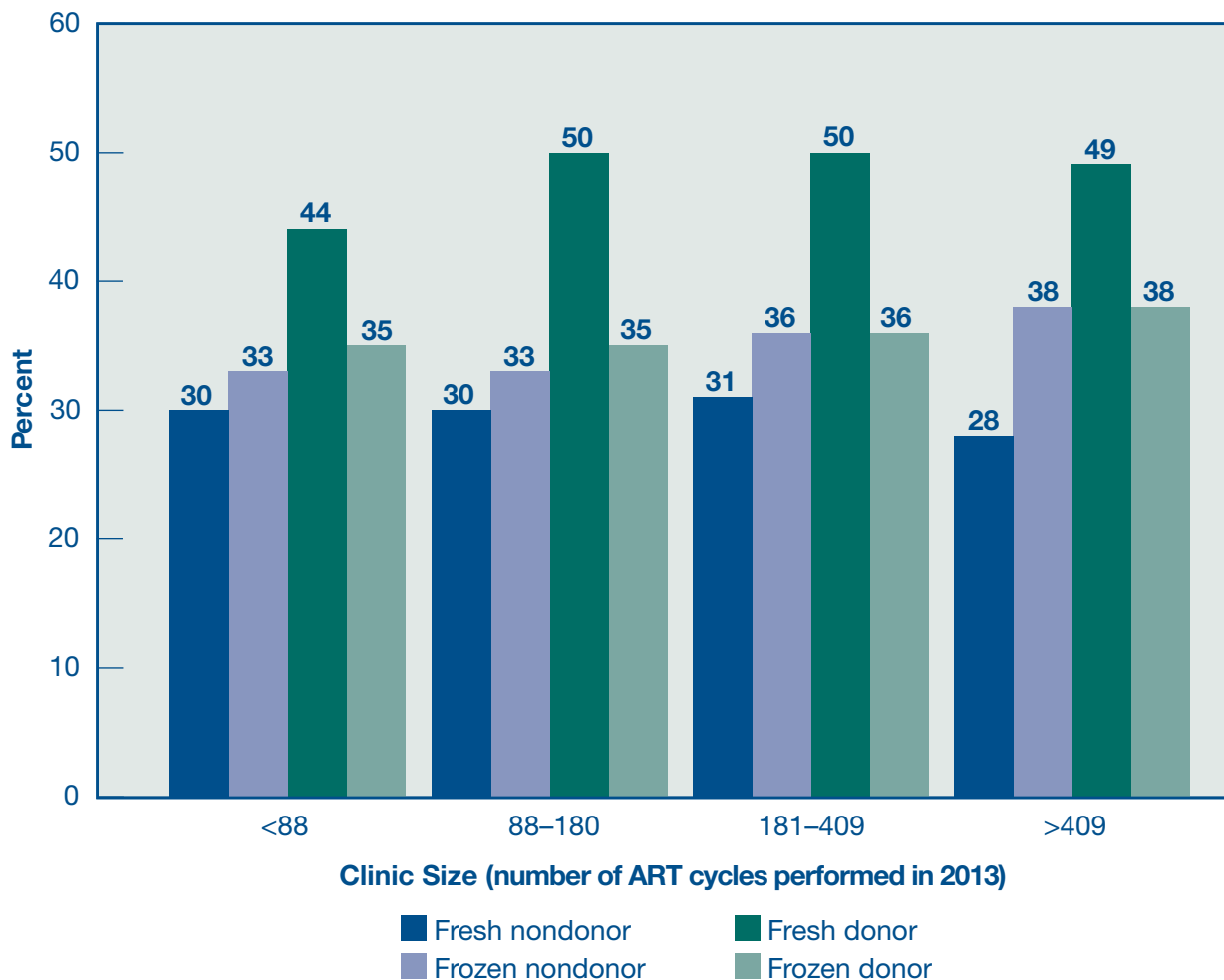
[†] Totals do not equal 100% due to rounding.

What was the relationship between clinic size and live-birth rate?

The number of ART procedures performed varied among fertility clinics in the United States. For Figure 5, clinics were divided equally into four groups from smallest to largest (called quartiles) based on the number of ART cycles they performed in 2013. The percentage for each group by type of ART shows the average percentage of ART cycles that resulted in live births for clinics in that group.

In 2013, percentages of ART cycles that resulted in live births using frozen nondonor or frozen donor eggs or embryos generally increased as the clinic size increased. Less difference was observed in the percentage of cycles resulting in live births by clinic size for fresh nondonor or fresh donor cycles.

Figure 5
Percentages of ART Cycles That Resulted in Live Births, by Type of ART and Clinic Size—United States, 2013



SECTION 2: ART CYCLES USING FRESH NONDONOR EGGS OR EMBRYOS

What are the steps for an ART cycle using fresh nondonor eggs or embryos?

An ART **cycle is started** when a woman begins taking medication to stimulate the ovaries to develop eggs or, if no drugs are given, when the woman begins having her ovaries monitored (using ultrasound or blood tests) for natural egg production.

If eggs are produced, the cycle then progresses to **egg retrieval**, a surgical procedure in which eggs are collected from a woman's ovaries.

Once retrieved, eggs are combined with sperm in the laboratory. If fertilization is successful, one or more of the resulting embryos are selected for **transfer**, most often into a woman's uterus through the cervix (IVF), but sometimes into the fallopian tubes (GIFT or ZIFT).

If one or more of the transferred embryos implant within the woman's uterus, the cycle then may progress to clinical **pregnancy**.

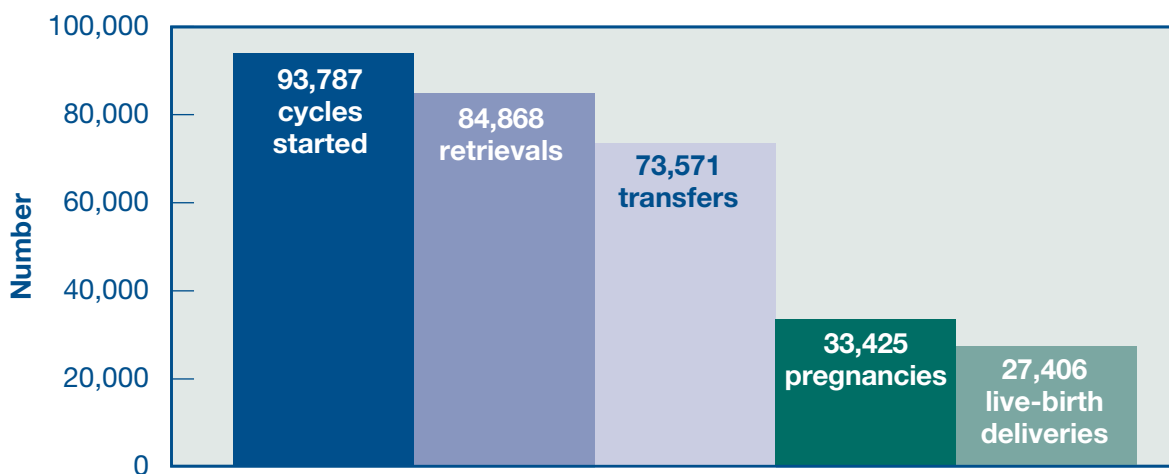
Finally, the pregnancy may progress to a **live birth**, the delivery of one or more live-born infants. (The birth of twins, triplets, or more is counted as one live birth.)

A cycle may be stopped at any step for specific medical reasons (for example, no eggs are produced or the embryo transfer was not successful) or by patient choice.

Figure 6 presents the steps for an ART cycle using fresh nondonor eggs or embryos and shows how ART patients in 2013 progressed through these stages toward pregnancy and live birth.

Figure 6

Outcomes of ART Cycles Using Fresh Nondonor Eggs or Embryos, by Stage, 2013

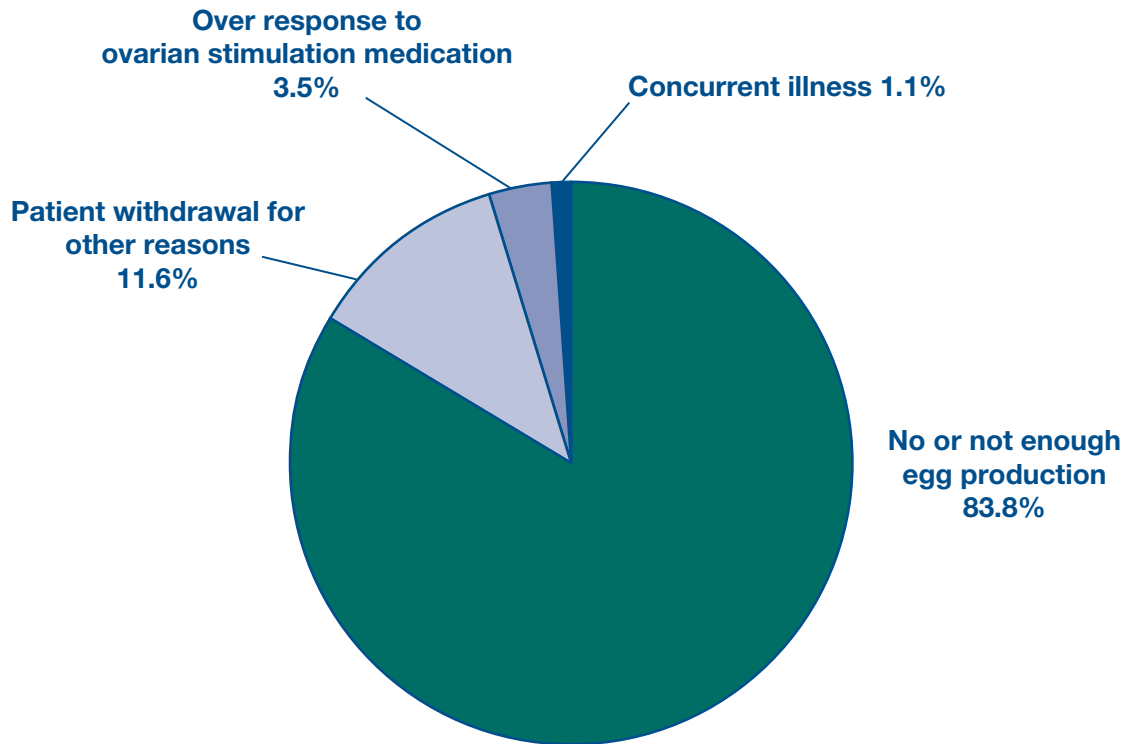


Why were some ART cycles canceled?

In 2013, a total of 8,919 ART cycles (about 10% of all 93,787 cycles using fresh nondonor eggs or embryos) were canceled before the egg retrieval step (see Figure 6, page 12). Figure 7 shows the reasons that the cycles were canceled. For approximately 84% of these cycles, there

was no or not enough egg production. Other reasons included an over response to ovarian stimulation medications (i.e., potential for ovarian hyperstimulation syndrome), simultaneous illness, or patient withdrawal for other reasons.

Figure 7
Reasons ART Cycles Using Fresh Nondonor Eggs or Embryos Were Canceled,* 2013



* Based on 8,919 ART cycles.

How are success rates of ART measured?

Figure 8 shows success rates using six different measures for ART cycles using fresh nondonor eggs or embryos in 2013. Most success measures have increased slightly since CDC began monitoring them in 1995 (see Section 5, pages 49–58).

Percentage of cycles that resulted in a pregnancy. This rate represents the average chance of getting pregnant by using ART, and includes all cycles started, even if they were canceled before retrieval or stopped after retrieval but before transfer. Some cycles are canceled before retrieval for reasons shown in Figure 7 (page 13), or stopped after retrieval but before transfer for reasons such as embryos not surviving or poor quality embryos.

Percentage of transfers that resulted in a pregnancy. This rate is higher than the percentage of cycles that resulted in a pregnancy because cycles that did not move forward to a transfer are excluded.

Percentage of cycles that resulted in a live birth (delivery of one or more live-born infants). This rate represents the average chance

of having one or more live-born infants by using ART, based on all cycles started. This is referred to as the “basic live birth rate” in the Fertility Clinic Success Rate and Certification Act of 1992. This is lower than the percentage of cycles that resulted in a pregnancy, because some pregnancies end in miscarriage, abortion, or stillbirth (see Figure 10, page 16).

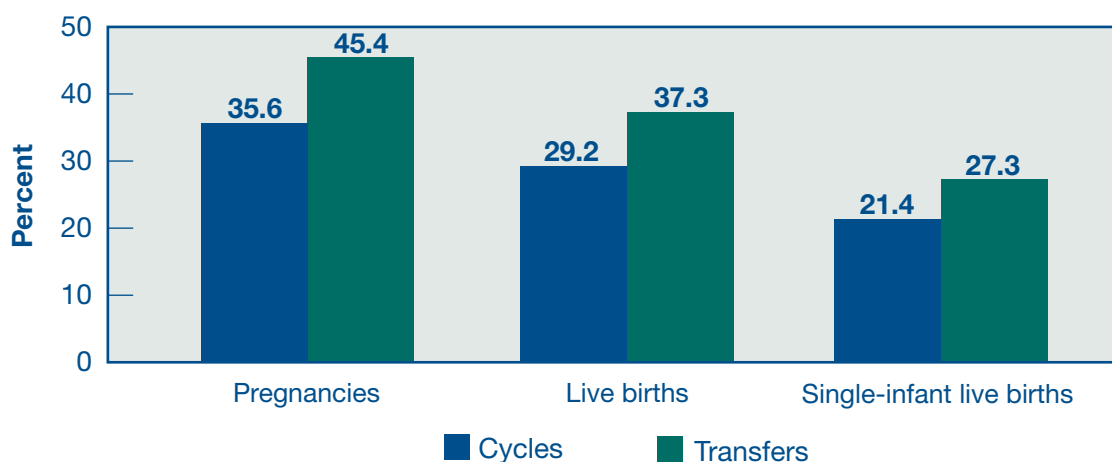
Percentage of transfers that resulted in a live birth. This rate is higher than the percentage of cycles that resulted in a live birth because cycles that did not move forward to a transfer are excluded.

Percentage of cycles that resulted in a single-infant live birth. This rate is important because single infants have a much lower risk than multiple infants of poor health outcomes, including prematurity, low birth weight, disability, and death.

Percentage of transfers that resulted in a single-infant live birth. This rate is higher than the percentage of cycles that resulted in a single-infant live birth because cycles that did not move forward to a transfer are excluded.

Figure 8

Percentages of ART Cycles and Transfers Using Fresh Nondonor Eggs or Embryos That Resulted in Pregnancies, Live Births, and Single-Infant Live Births, 2013

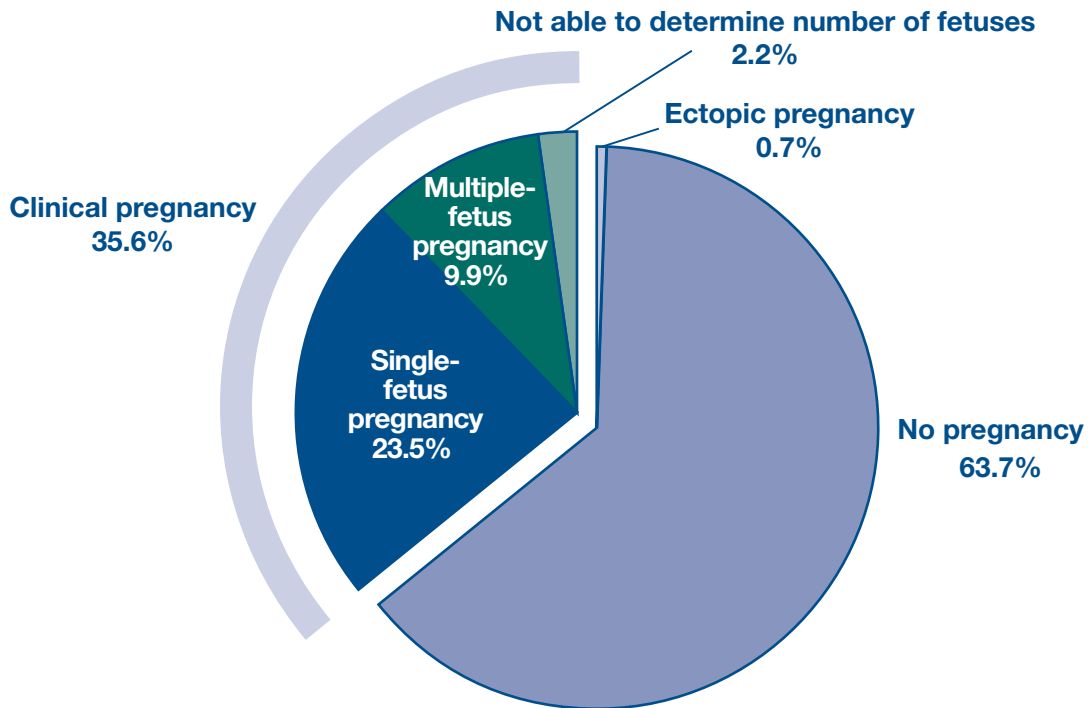


What percentage of ART cycles resulted in pregnancy?

Figure 9 shows the outcomes of ART cycles in 2013 that used fresh nondonor eggs or embryos. In total, about 36% of cycles resulted in clinical pregnancy; about 24% resulted in a single-fetus pregnancy, 10% in a multiple-fetus pregnancy, and 2% in a pregnancy where the number of

fetuses could not be determined. However, most of these cycles (approximately 64%) did not produce a pregnancy while a very small proportion (less than 1%) resulted in an ectopic pregnancy with the embryo implanted outside the uterus.

Figure 9
Outcomes of ART Cycles Using Fresh Nondonor Eggs or Embryos, 2013



What percentage of pregnancies resulting from ART ended in a live birth?

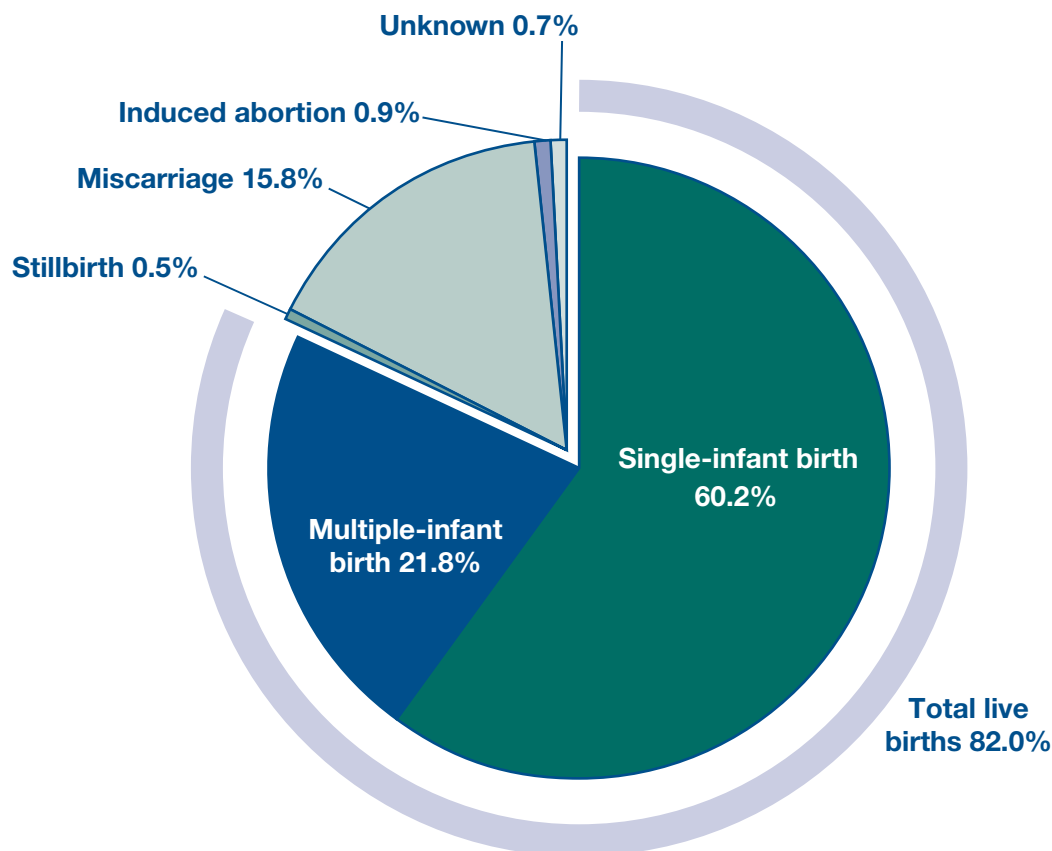
Figure 10 shows the outcomes of pregnancies resulting from ART cycles using fresh nondonor eggs or embryos in 2013. Approximately 82% of the pregnancies resulted in a live birth (about 60% in the birth of a single infant and 22% in the birth of multiple infants). About 17% of pregnancies resulted in miscarriage, stillbirth, abortion, or maternal death prior to birth (maternal

deaths are not shown in Figure 10 due to the small number). For less than 1% of pregnancies, the outcome was unknown.

Multiple-infant births are presented here as a separate category because they often are associated with greater health problems for both mothers and infants.

Figure 10

Outcomes of Pregnancies That Resulted from ART Cycles Using Fresh Nondonor Eggs or Embryos,*† 2013



* Maternal deaths prior to birth are not displayed due to small number (n = 5).

† Total does not equal 100% due to rounding.

What was the risk of a multiple-fetus pregnancy or multiple-infant birth after ART?

Among ART cycles using fresh nondonor embryos, about 28% of resulting pregnancies involved multiple fetuses and about 27% of resulting live births involved multiple births. Multiple-infant births are associated with greater problems for both mothers and infants, including higher rates of caesarean section, prematurity, low birth weight, and infant disability or death. ART pregnancies are more likely to result in multiple-infant births (twins, triplets or more) than pregnancies resulting from natural conception because more than one embryo may be transferred.

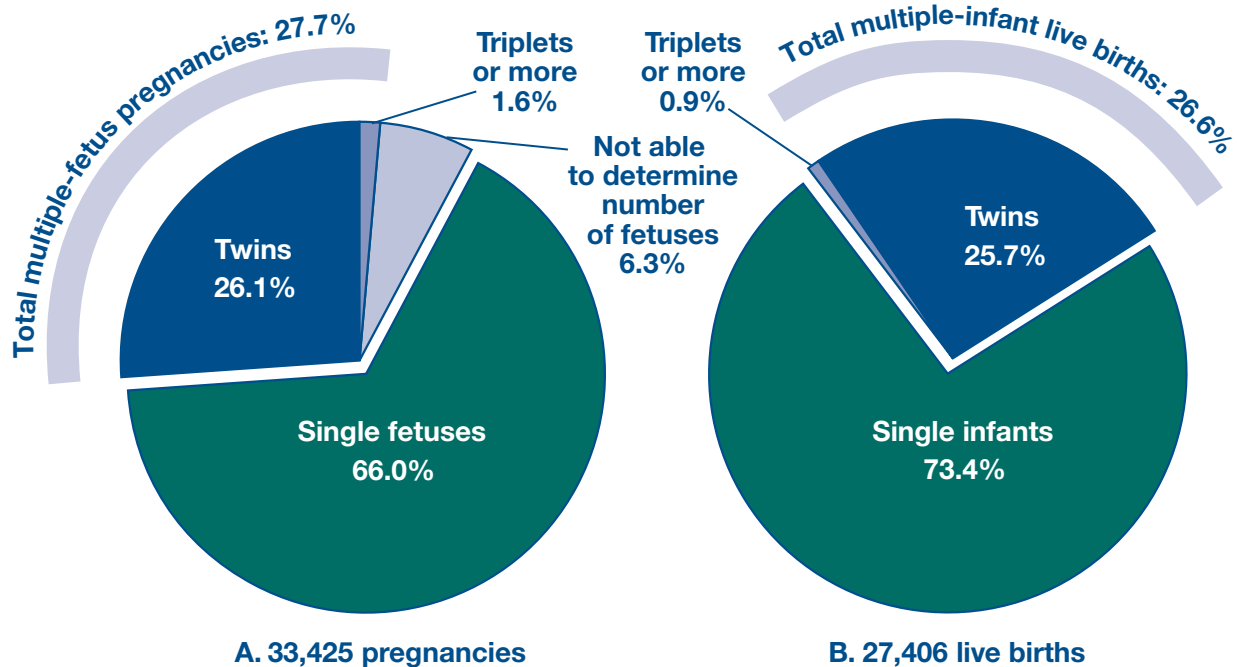
Part A of Figure 11 shows that among the 33,425 pregnancies that resulted from ART cycles

using fresh nondonor eggs or embryos in 2013, approximately 66% were single-fetus pregnancies and 28% were multiple-fetus pregnancies. Approximately 6% of pregnancies ended before the number of fetuses could be accurately determined. This means that the percentage of pregnancies with more than one fetus might have been higher than reported.

Of the 33,425 pregnancies resulting from ART cycles, 27,406 (82%) resulted in live births. Part B of Figure 11 shows that about 27% of these live births resulted in more than one infant (26% twins and 1% triplets or more).

Figure 11

Distribution of Multiple-Fetus Pregnancies and Multiple-Infant Live Births Among ART Cycles Using Fresh Nondonor Eggs or Embryos, 2013



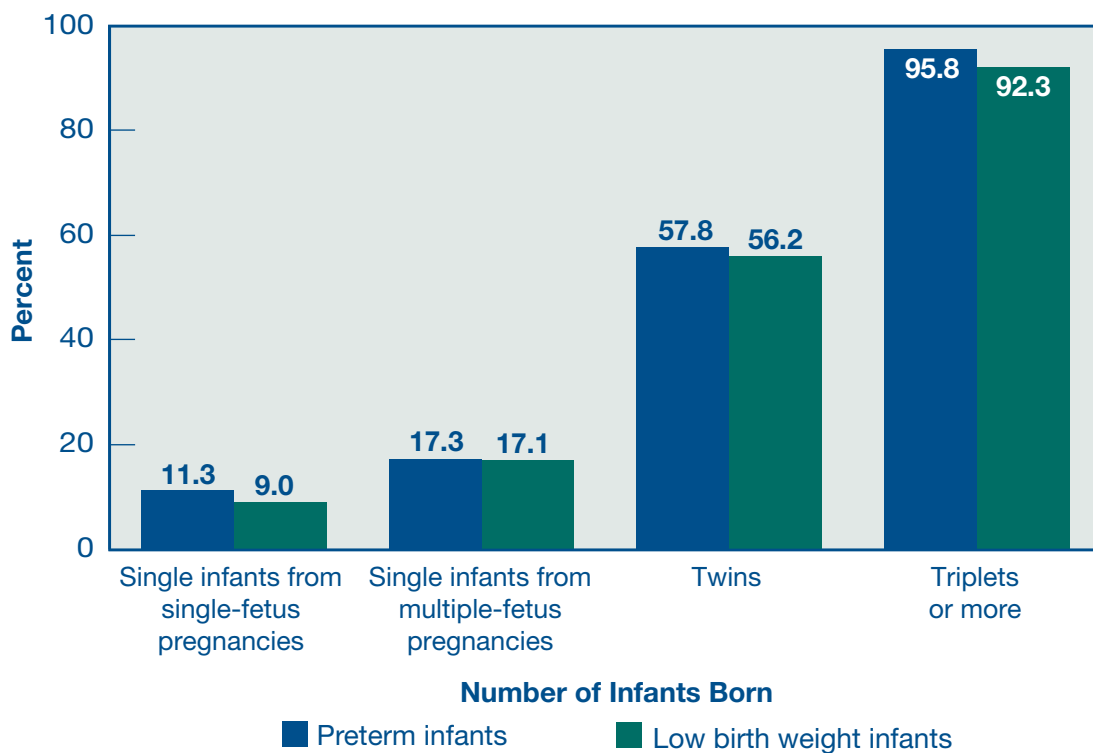
What were the risks of having a preterm or low birth weight infant after ART?

Preterm infants are born to a woman giving birth before 37 full weeks of pregnancy and low birth weight infants are born weighing less than 2,500 grams (about 5 pounds, 8 ounces). Infants born preterm or with low birth weight are at greater risk of death in the first few days of life, as well as other poor health outcomes, including visual and hearing problems, intellectual and learning disabilities, and behavioral and emotional problems throughout life. Preterm and low birth weight infants also can cause considerable emotional and economic burdens for families.

Figure 12 shows percentages of preterm and low birth weight infants resulting from ART cycles that used fresh nondonor eggs or embryos in 2013, by number of infants born. For births resulting

in a single live-born infant, the percentage of preterm and low birth weight infants among infants born from pregnancies that started with one fetus (single-fetus pregnancies) and with more than one fetus (multiple-fetus pregnancies) are shown separately. The percentage of preterm and low birth weight infants increased as the number of infants born increased. Among single live-born infants, the percentage of preterm and low birth weight infants was higher for those from multiple-fetus pregnancies. In the general US population, where the live birth of a single infant is almost always the result of a single-fetus pregnancy, 10% of single live-born infants were preterm and 6% of single infants had low birth weight (data not shown).

Figure 12
Percentages of Preterm Infants or Infants with Low Birth Weight from ART Cycles Using Fresh Nondonor Eggs or Embryos, by Number of Infants Born, 2013



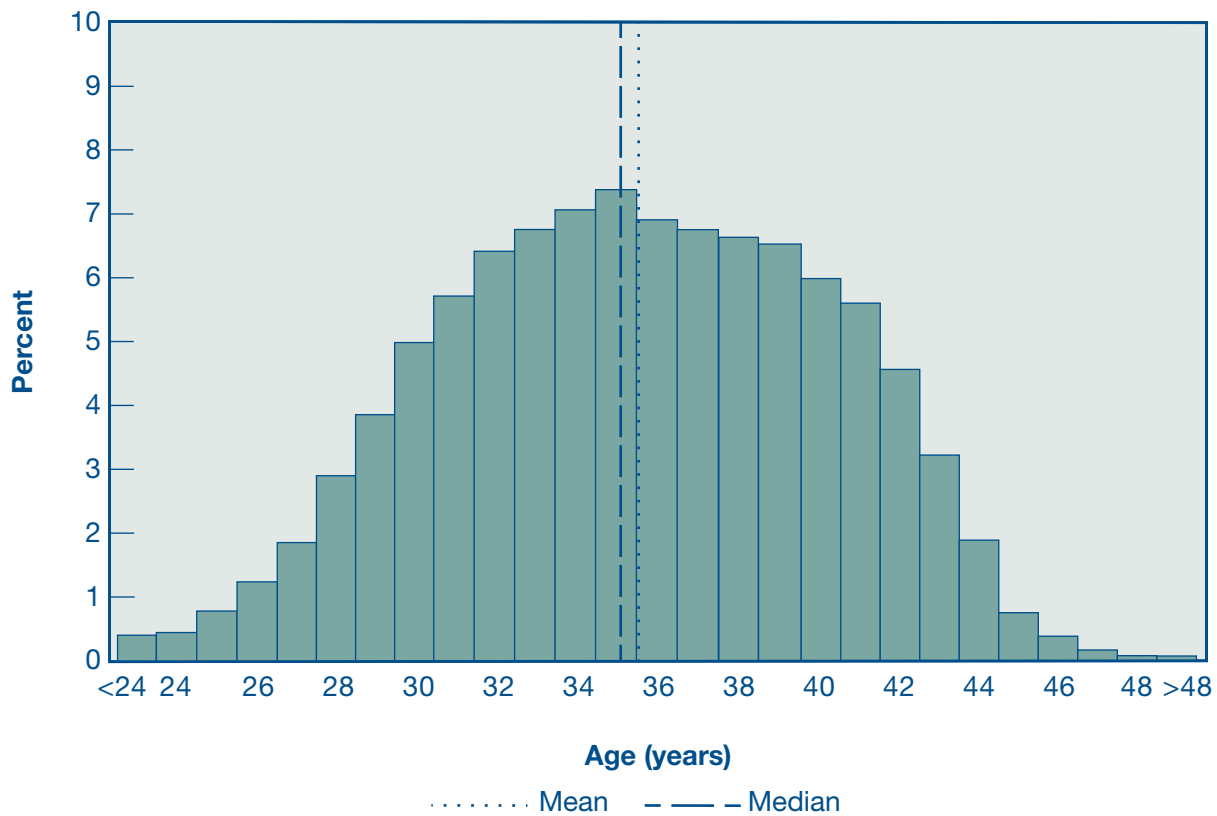
What were the ages of women who use ART?

The average (mean) age of women who had ART cycles using fresh nondonor eggs or embryos was slightly more than 35 and the median age was 35. Figure 13 presents ART cycles using fresh nondonor eggs or embryos in 2013 according to

the age of the woman who had the procedure. About 12% of these cycles were among women younger than age 30, 66% were among women aged 30–39, and almost 23% were among women aged 40 or older.

Figure 13

Age Distribution of Women Who Had ART Cycles Using Fresh Nondonor Eggs or Embryos, 2013



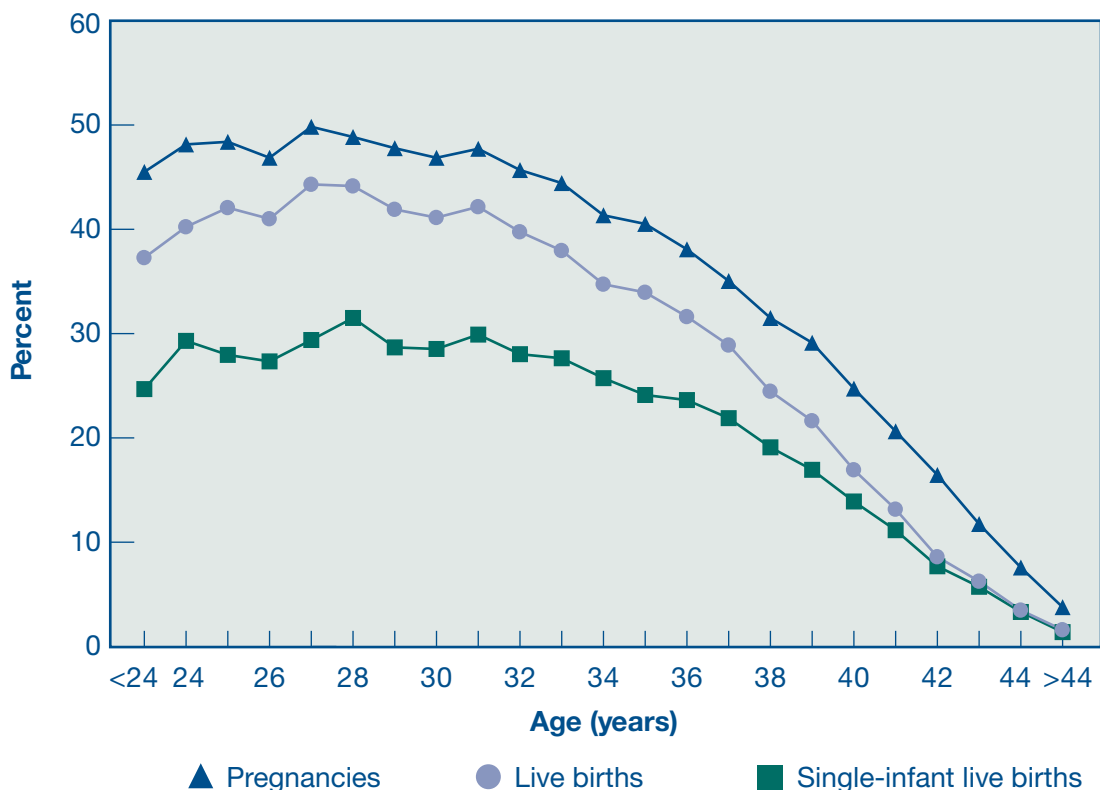
Did percentages of pregnancies, live births, and births of a single live infant differ by a woman's age?

In general, the percentage of ART cycles resulting in pregnancies, live births, and single-infant live births declined as a woman's age increased, but only after a woman entered her 30s. A woman's age is the most important factor affecting the chance of a live birth when her own eggs are used. Figure 14 shows percentages of pregnancies, live births, and births of a single live infant among women of different ages who had ART procedures using fresh nondonor eggs or embryos in 2013. Percentages of ART cycles resulting in total live births and births of a single live infant are different because multiple-

infant deliveries count towards the total live births. The percentage of multiple-infant births is particularly high among women younger than age 35 (see Figure 29, page 35). Among women in their 20s, percentages of ART cycles resulting in pregnancies, live births, and single-infant live births were relatively stable; however, percentages declined steadily among women in their mid-30s onward. For additional detail on percentages of ART cycles that resulted in pregnancies, live births, and single-infant live births among women aged 40 or older, see Figure 15 on page 21.

Figure 14

Percentages of ART Cycles Using Fresh Nondonor Eggs or Embryos That Resulted in Pregnancies, Live Births, and Single-Infant Live Births, by Age of Woman,* 2013



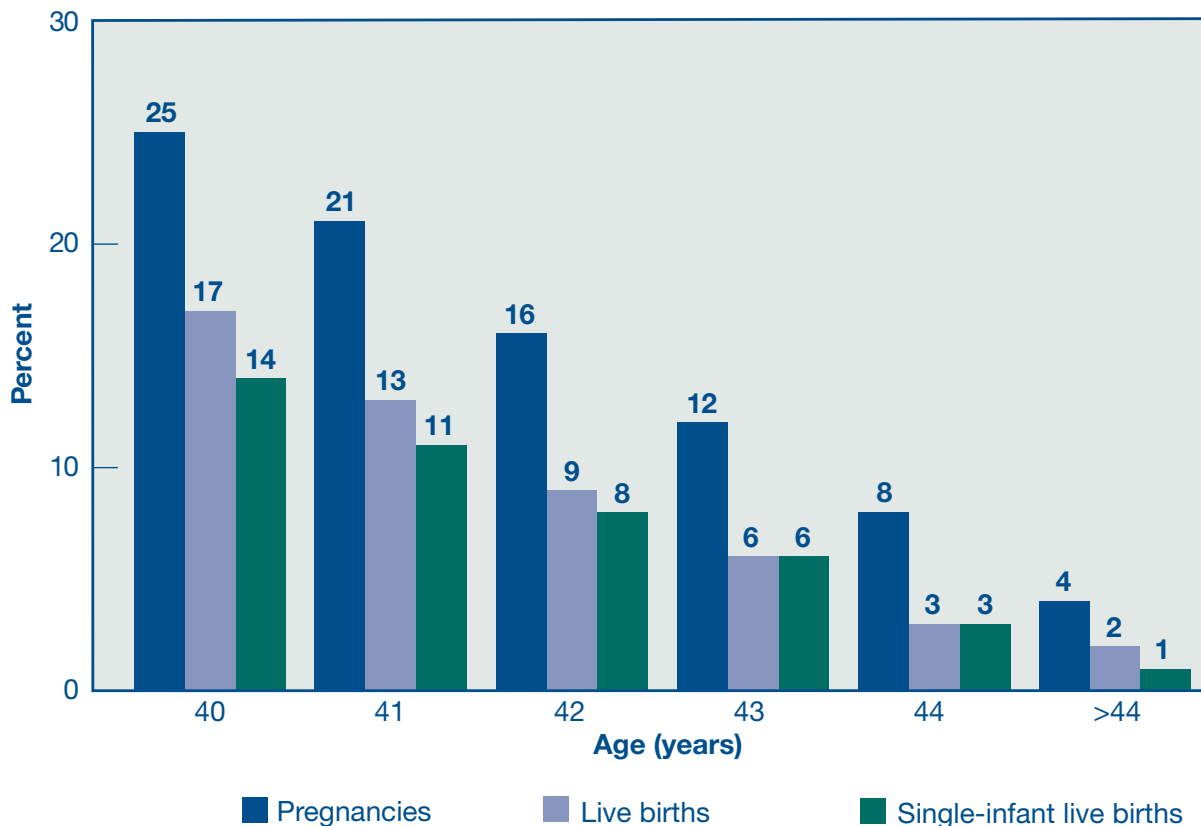
* For consistency, all percentages are based on cycles started.

How did percentages of ART cycles that resulted in pregnancies, live births, and births of single live infants differ among women aged 40 or older?

For women aged 40 or older, the percentage of ART cycles resulting in pregnancies, live births, and single-infant live births declined as a woman's age increased. Figure 15 shows percentages of pregnancies, live births, and births of single live infants among women aged 40 or older who used fresh nondonor eggs or embryos in 2013. The percentage of ART cycles resulting in pregnancy was 25% among women age 40, the percentage of ART cycles resulting in

live births was about 17%, and the percentage of ART cycles resulting in single-infant live births was 14%. The majority of percentages dropped steadily with each 1-year increase in age. Among women older than age 44, percentages of live births and single-infant live births were 2% or less. Women aged 40 or older generally have much higher percentages of live births using donor eggs (see Figure 40, page 46).

Figure 15
Percentages of ART Cycles Using Fresh Nondonor Eggs or Embryos That Resulted in Pregnancies, Live Births, and Single-Infant Live Births Among Women Aged 40 or Older,* 2013



* For consistency, all percentages are based on cycles started.

How did the risk of miscarriage differ by a woman's age?

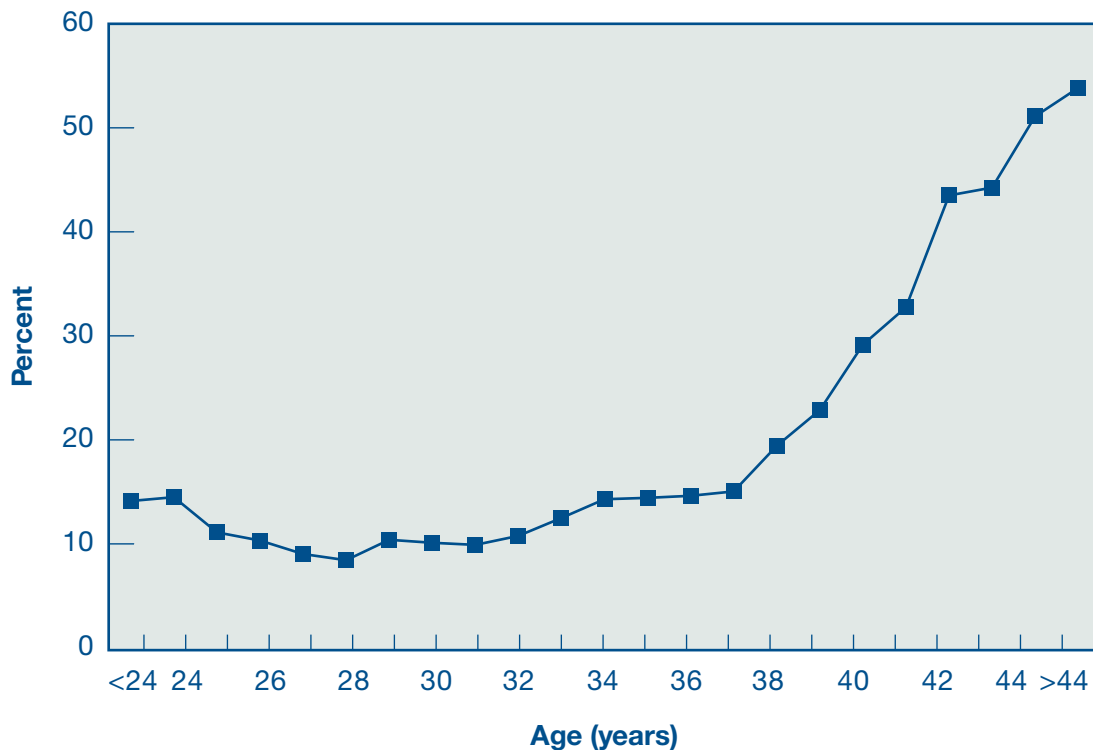
A woman's age not only affects the chance for pregnancy when her own eggs are used, but also her risk of miscarriage. Figure 16 shows percentages of ART cycles using fresh nondonor eggs or embryos in 2013 that resulted in miscarriage for women of different ages. Percentages of ART cycles that resulted in miscarriage were below 15% among women aged 36 or younger. The percentage of ART cycles that resulted in miscarriages began to increase rapidly among women in their late 30s

and continued to increase with age, reaching more than 29% at age 40 and over 50% among women aged 44 or older.

Previous data show that most miscarriages occur before week 14 (i.e., during the first trimester) among women of all ages undergoing ART. The risk of miscarriage among women undergoing ART procedures using fresh nondonor eggs or embryos appears to be similar to those reported in various studies of other pregnant women in the United States.

Figure 16

Percentages of ART Cycles Using Fresh Nondonor Eggs or Embryos That Resulted in Miscarriage, by Age of Woman, 2013



How did a woman’s age affect her chances of progressing through the stages of ART?

As women get older:

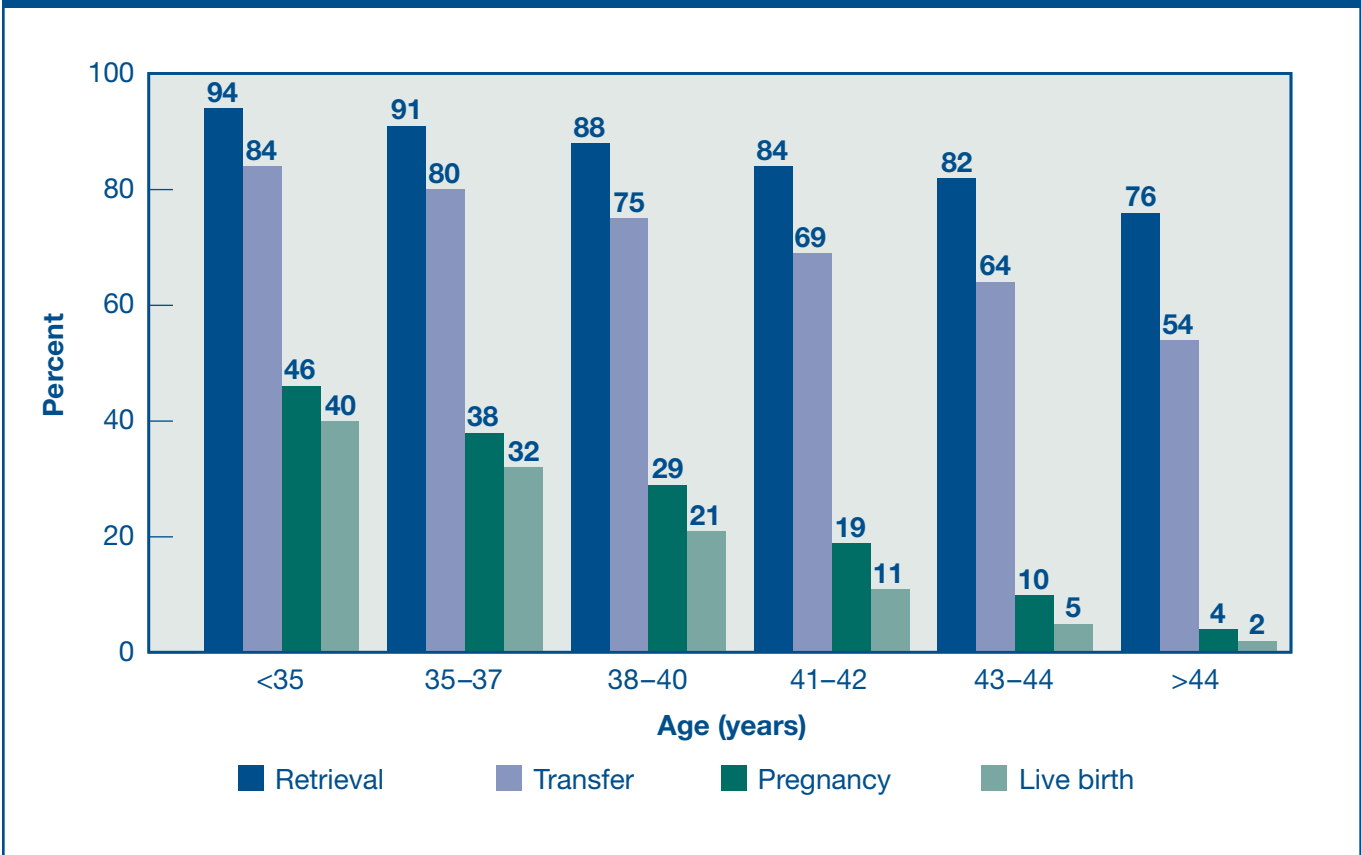
- The likelihood of a successful response to ovarian stimulation and progression to **egg retrieval** decreases.
- Cycles that progress to egg retrieval are less likely to reach **transfer**.
- Cycles that progress to transfer are less likely to reach **pregnancy**.
- Cycles that progress to pregnancy are less likely to result in a **live birth** because the risk of miscarriage is greater (see Figure 16, page 22).

Figure 17 shows that a woman’s chance of progressing from the beginning of ART to pregnancy and live birth (using her own eggs) decreases at every stage of ART as her age increases.

Overall, 40% of cycles started in 2013 among women younger than age 35 resulted in live births. This percentage decreased to 32% among women aged 35–37, 21% among women aged 38–40, 11% among women aged 41–42, 5% among women aged 43–44, and 2% among women older than age 44.

Figure 17

Outcomes of ART Cycles Using Fresh Nondonor Eggs or Embryos, by Stage and Age Group, 2013



What were the causes of infertility among ART patients?

Causes of infertility among ART patients include:

Tubal factor. Fallopian tubes are blocked or damaged, making it difficult for the egg to be fertilized or for an embryo to travel to the uterus.

Ovulatory dysfunction. Ovaries are not producing eggs normally. Reasons include polycystic ovary syndrome and multiple ovarian cysts.

Diminished ovarian reserve. The ability of the ovary to produce eggs is reduced. Reasons include congenital, medical, or surgical causes or advanced age.

Endometriosis. The presence of tissue similar to the uterine lining in abnormal locations. This condition can affect both fertilization of the egg and embryo implantation.

Uterine factor. A structural or functional disorder of the uterus that results in reduced fertility.

Male factor. A low sperm count or problems with sperm function that make it difficult for a sperm to fertilize an egg under normal conditions.

Other factor. Includes immunological problems, chromosomal abnormalities, chemotherapy, and serious illnesses.

Unknown factor. No clear cause of infertility is found in either partner.

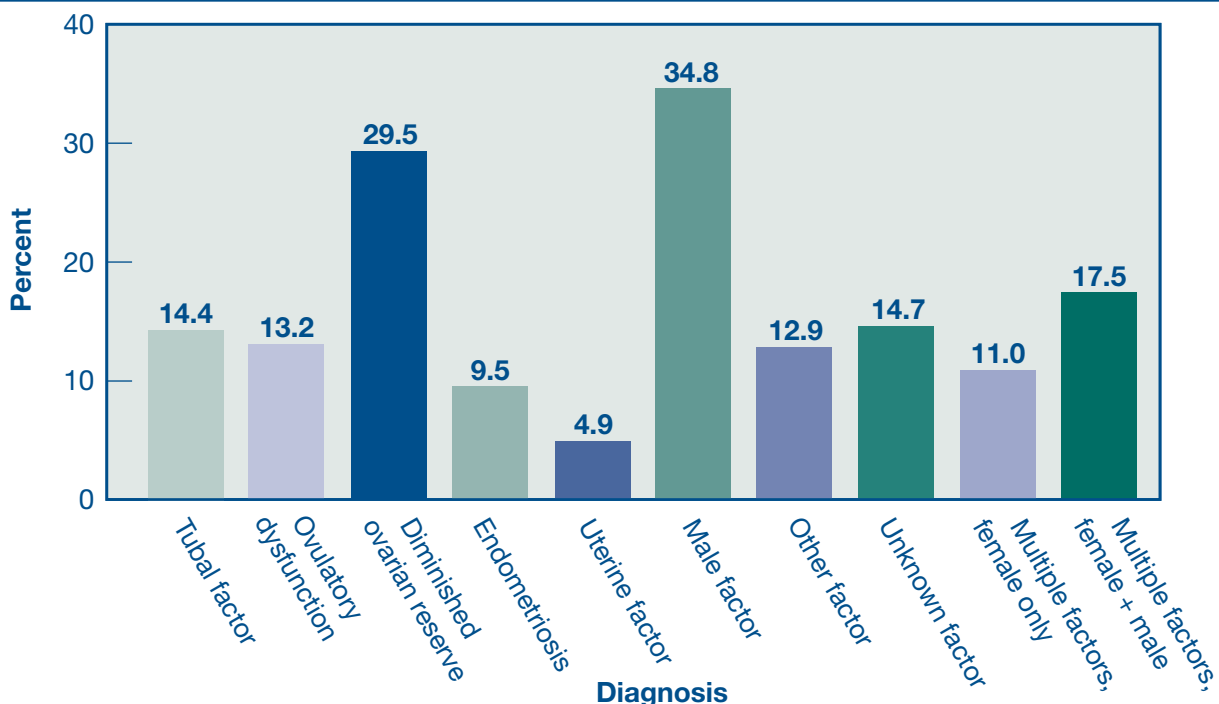
Multiple factors, female only. More than one female cause of infertility, and no male factor infertility.

Multiple factors, female and male. One or more female causes in addition to male factor infertility.

Figure 18 shows infertility diagnoses reported for each ART cycle using fresh nondonor eggs or embryos performed in 2013. Diagnoses ranged from one infertility factor in the patient or partner to multiple infertility factors in either one or both. However, diagnostic procedures may vary among clinics, so the categorizations also may vary.

Figure 18

Percentages of ART Cycles Using Fresh Nondonor Eggs or Embryos, by Infertility Diagnosis,* 2013



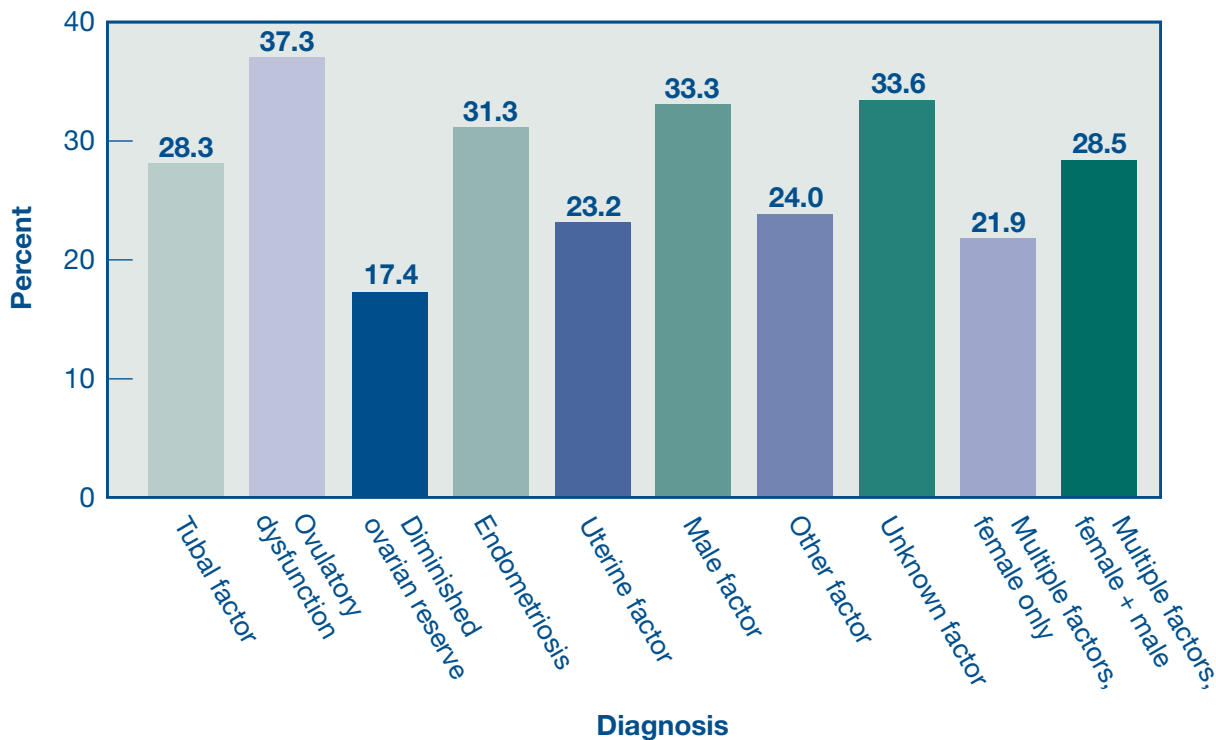
* Total percentages are greater than 100% because more than one diagnosis can be reported for each cycle.

How did infertility diagnosis affect the percentage of ART cycles resulting in live birth?

The percentage of fresh nondonor ART cycles resulting in live births was 29% nationally in 2013 (see Figure 8, page 14). However, this percentage varied depending on the patient’s diagnosis. Figure 19 shows percentages of ART cycles using fresh nondonor eggs or embryos that resulted in live births, according to cause of infertility (see Figure 18, page 24). In 2013, the percentage of

ART cycles resulting in live births was *higher* than the national percentage for patients with ovulatory dysfunction, endometriosis, male factor, or unknown factor infertility; it was *lower* for patients with tubal factor, diminished ovarian reserve, uterine factor, “other” factor, or multiple infertility factors.

Figure 19
Percentages of ART Cycles Using Fresh Nondonor Eggs or Embryos That Resulted in Live Births, by Infertility Diagnosis, 2013



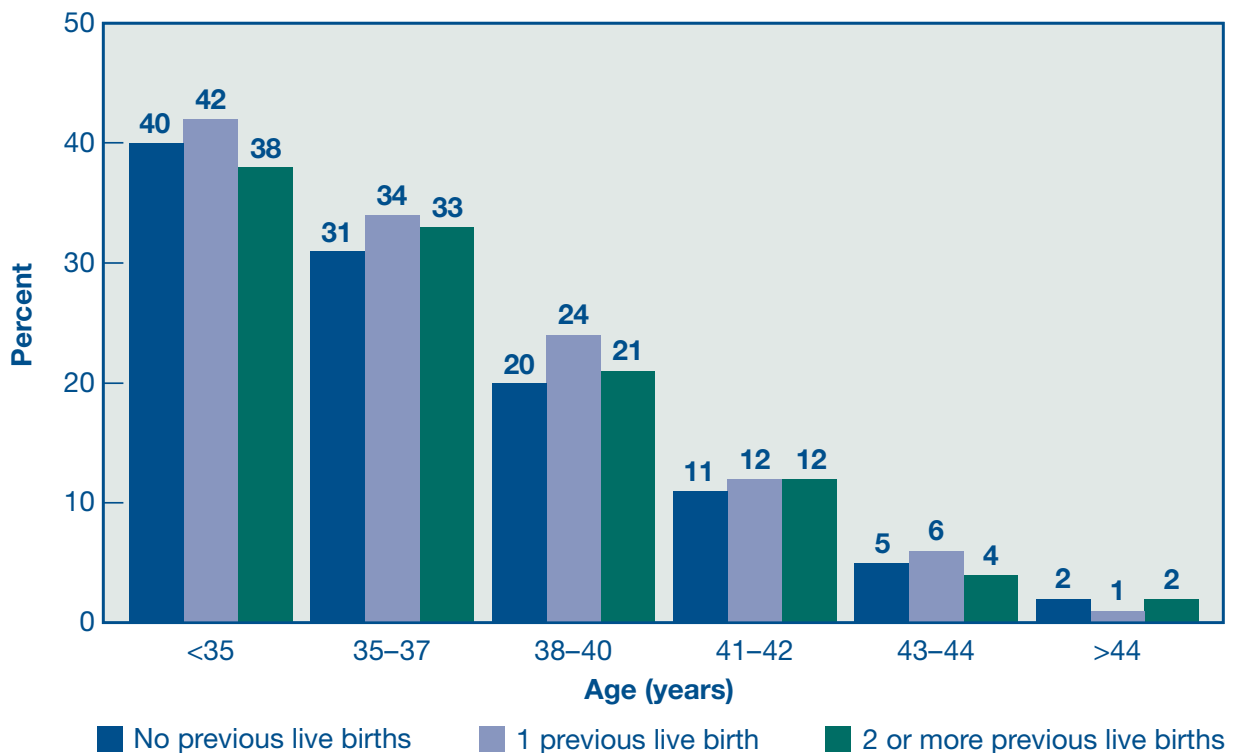
How did previous birth impact live-birth outcomes resulting from ART?

In general, previous births did not impact live-birth outcomes of ART cycles. Most ART procedures performed in 2013 using fresh nondonor eggs or embryos (72%) were among women who had no previous live births, although they may have had a pregnancy that resulted in miscarriage or an induced abortion. Figure 20 shows the relationship between the success of ART cycles performed in 2013 using fresh nondonor eggs or embryos and history of

previous births. Previous live-born infants could have been conceived naturally or through ART. Overall, percentages of ART cycles that resulted in live births decreased with age, regardless of number of previous live births. In all age groups, percentages of ART cycles that resulted in live births were similar among women who had one or more previous live births and women who had no previous live births.

Figure 20

Percentages of ART Cycles Using Fresh Nondonor Eggs or Embryos That Resulted in Live Births, by Age Group and Number of Previous Live Births, 2013



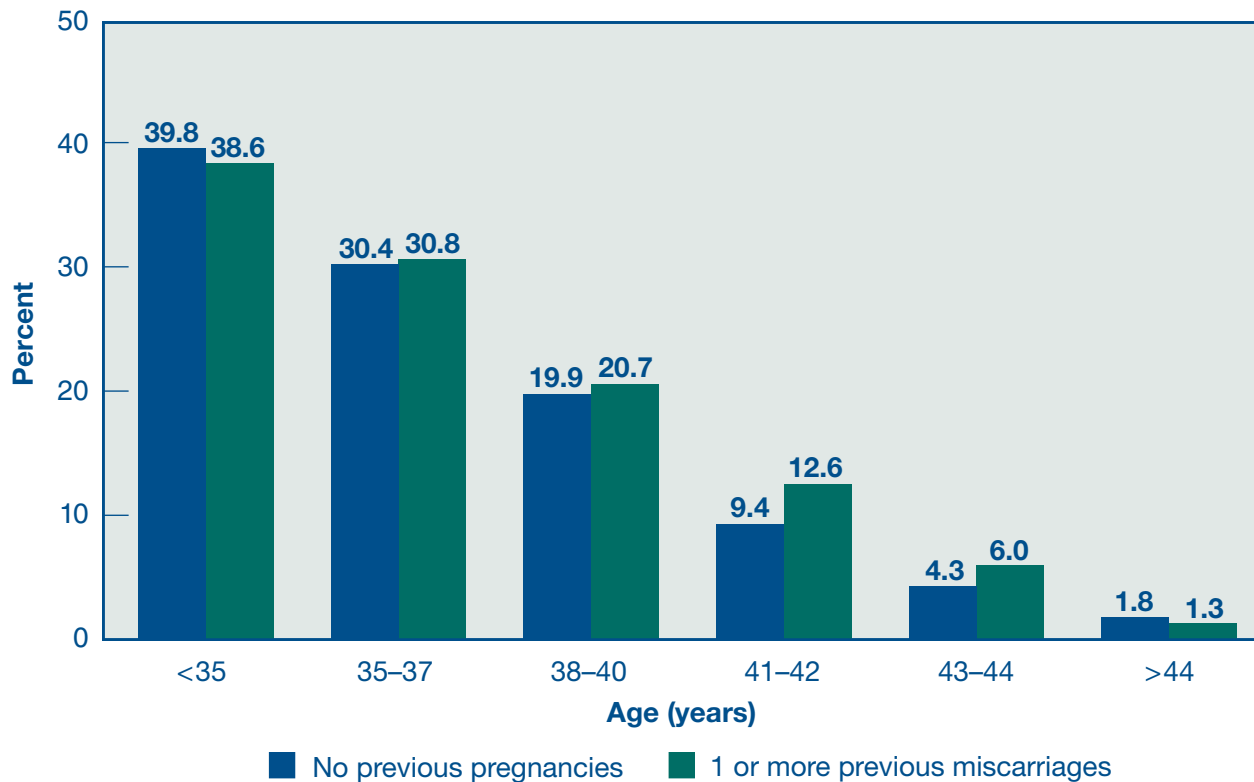
Did previous miscarriage impact live-birth outcomes resulting from ART among women with no previous births?

Figure 21 shows the relationship between the success of an ART cycle in 2013 and history of previous miscarriage. In all age groups, percentages of cycles that resulted in live births were similar among women who had one or more previous miscarriages and women who never were pregnant. Thus, a history of unsuccessful pregnancy does not appear to be associated with lower chances for success using ART.

In 2013, a total of 67,667 ART cycles using fresh nondonor eggs or embryos were performed among women who had not previously given birth. However, about 25% of those cycles were reported by women with one or more previous pregnancies that had ended in miscarriage. CDC does not have information on whether the pregnancies ending in miscarriage were the result of ART, or were conceived naturally.

Figure 21

Percentages of ART Cycles Using Fresh Nondonor Eggs or Embryos That Resulted in Live Births, by Age Group and History of Miscarriage, Among Women with No Previous Births,* 2013



* Women reporting only previous ectopic pregnancies or pregnancies that ended in induced abortion are not included.

Did previous unsuccessful ART use impact live-birth outcomes among women with no previous births?

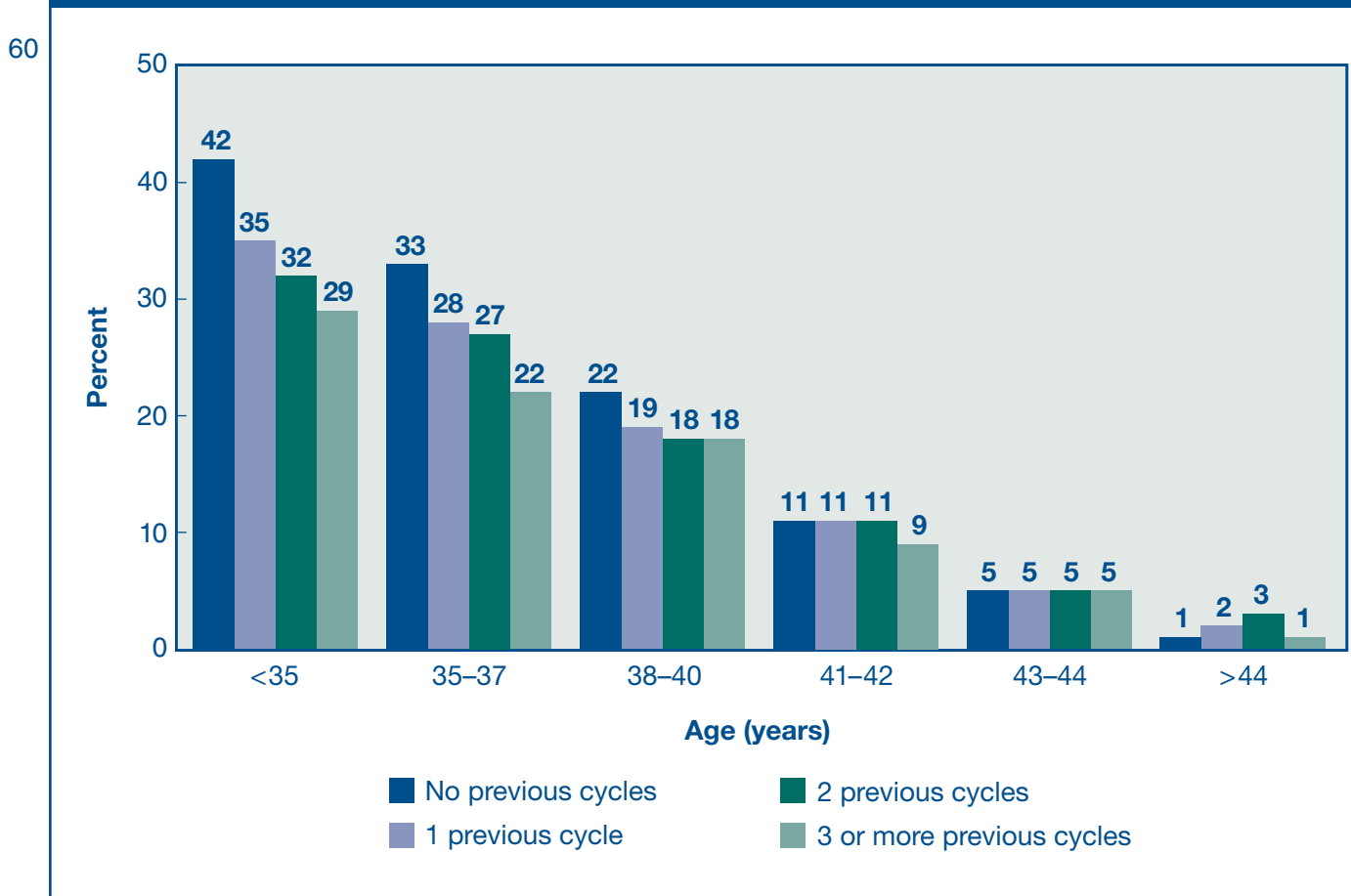
In all age groups, percentages of ART cycles that resulted in live births among women who previously had one or more unsuccessful ART cycles were lower or similar to those among women who had no previous ART cycles and no previous births.

Figure 22 shows the relationship between the success of ART cycles performed in 2013 using fresh nondonor eggs or embryos and a

history of previous ART cycles among women with no previous births. For about 43% of fresh nondonor ART procedures performed in 2013, one or more previous ART cycles were reported (this percentage includes previous cycles using either fresh or frozen embryos). For women in their 30s, percentages of ART cycles resulting in live birth decreased as the number of previous unsuccessful ART cycles increased. For women in their 40s, percentages were similar.

Figure 22

Percentages of ART Cycles Using Fresh Nondonor Eggs or Embryos That Resulted in Live Births, by Age Group and Number of Previous ART Cycles, Among Women with No Previous Live Births, 2013

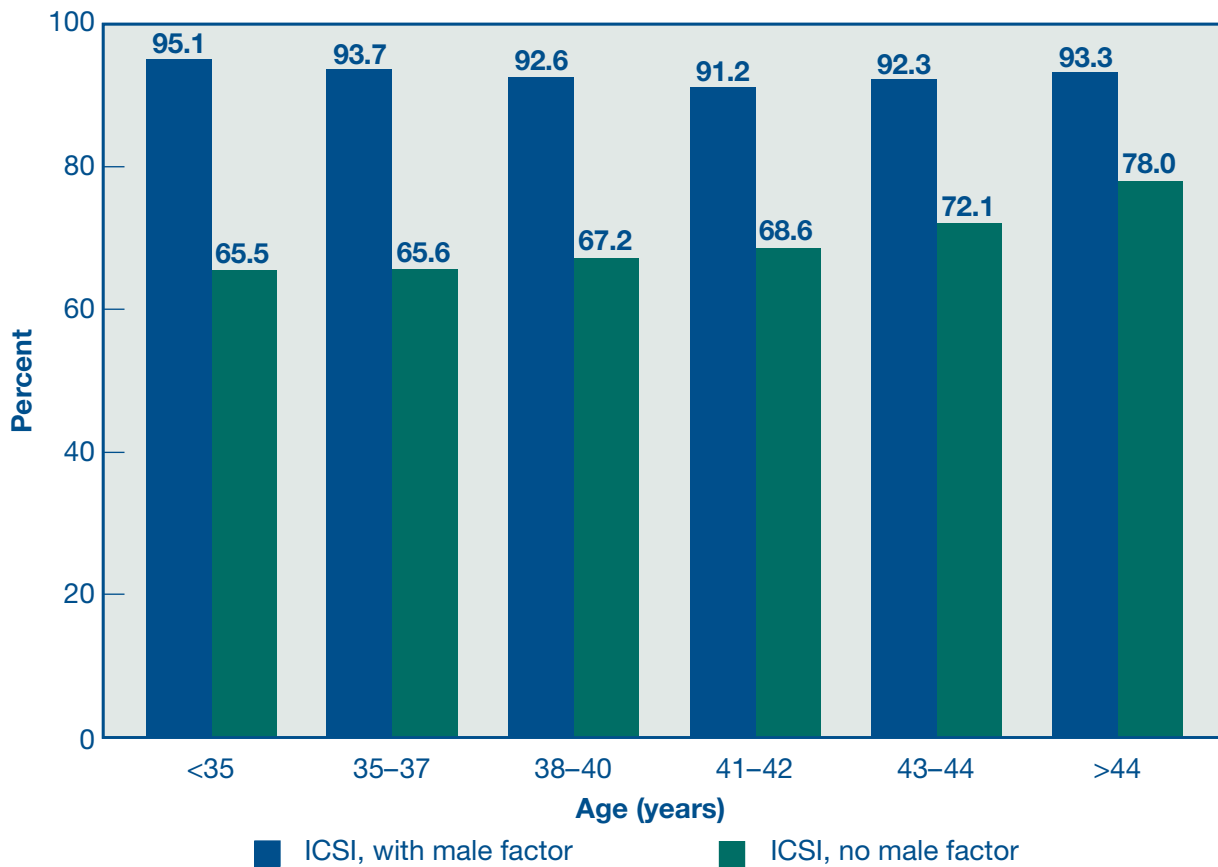


Did the use of ICSI differ by age group or by male factor infertility diagnosis?

The use of intracytoplasmic sperm injection (ICSI) was more common among patients with male factor infertility. ICSI was developed to overcome problems with fertilization that sometimes occur with a diagnosis of male factor infertility. Figure 23 shows the percentage of all fresh retrievals of a patient’s own eggs that used ICSI, by age of the female patient. The use of ICSI among patients with a diagnosis of male factor infertility was high among all age groups, ranging from 91% in

patients aged 41–42 to 95% in patients younger than age 35. In all age groups, the percentage of fresh nondonor retrievals that used ICSI was lower for patients with no diagnosis of male factor infertility than among patients with a male factor diagnosis. The percentage of retrievals using ICSI in the group without male factor infertility ranged from 65% among patients younger than age 35 to 78% among those older than age 44.

Figure 23
Percentages of Retrievals Using Fresh Nondonor Eggs or Embryos That Used ICSI, 2013



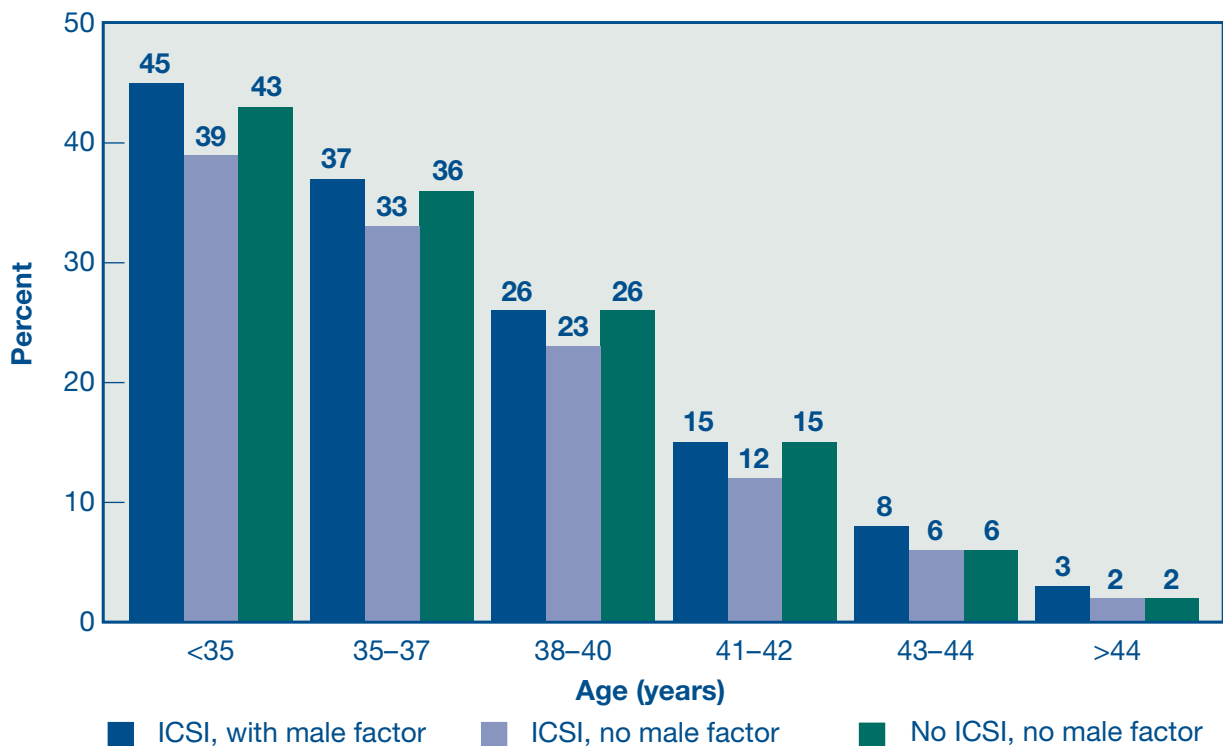
How did ICSI use and male factor infertility impact live-birth rates per retrieval?

In 2013, 86% of cycles with a diagnosis of male factor infertility used IVF with ICSI, but slightly more than half (56%) of all ICSI procedures were performed in cycles without a diagnosis of male factor infertility. Figure 24 presents percentages of retrievals that resulted in live births using ICSI with or without a diagnosis of male factor infertility, compared with not using ICSI and no diagnosis of male factor infertility. When ICSI was used for patients with male factor infertility, percentages of retrievals that resulted in live births were similar to those without ICSI and no diagnosis of male factor infertility for patients

younger than age 43. In all age groups, if ICSI was used, percentages of retrievals resulting in live births were lower if there was no diagnosis of male factor infertility. Please note that the definitions of infertility diagnoses may vary among clinics, and no information was available to determine whether this finding was a direct effect of the ICSI procedure or whether the patients' characteristics were different among those who used ICSI compared with those who used IVF without ICSI. Therefore, differences in success rates should be interpreted with caution.

Figure 24

Percentages of Fresh Nondonor Retrievals That Resulted in Live Births Among Patients with or Without Diagnosed Male Factor Infertility, by Age Group and Use of ICSI,* 2013



* Cycles using donor sperm and cycles using GIFT or ZIFT are excluded.

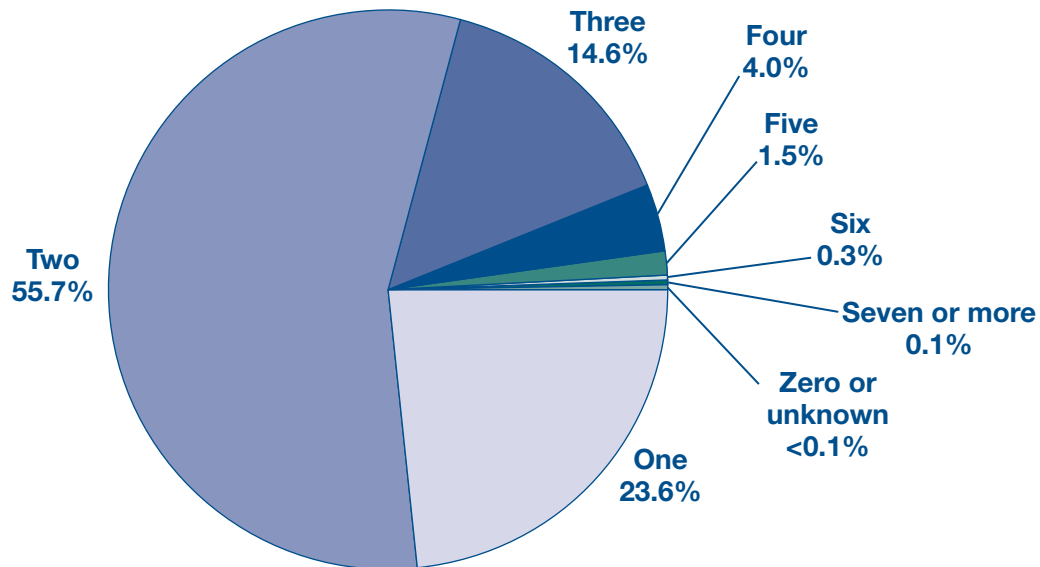
How many embryos were typically transferred in an ART procedure?

Figure 25 shows that in 2013, the majority (79%) of ART cycles that used fresh nondonor eggs or embryos and progressed to the embryo transfer stage involved the transfer of one or two

embryos. Almost 21% of transfers involved three or more embryos, about 6% of transfers involved four or more embryos, and approximately 2% of transfers involved five or more embryos.

Figure 25

Numbers of Embryos Transferred Among All Transfers Using Fresh Nondonor Eggs or Embryos,* 2013



* Total does not equal 100% due to rounding.

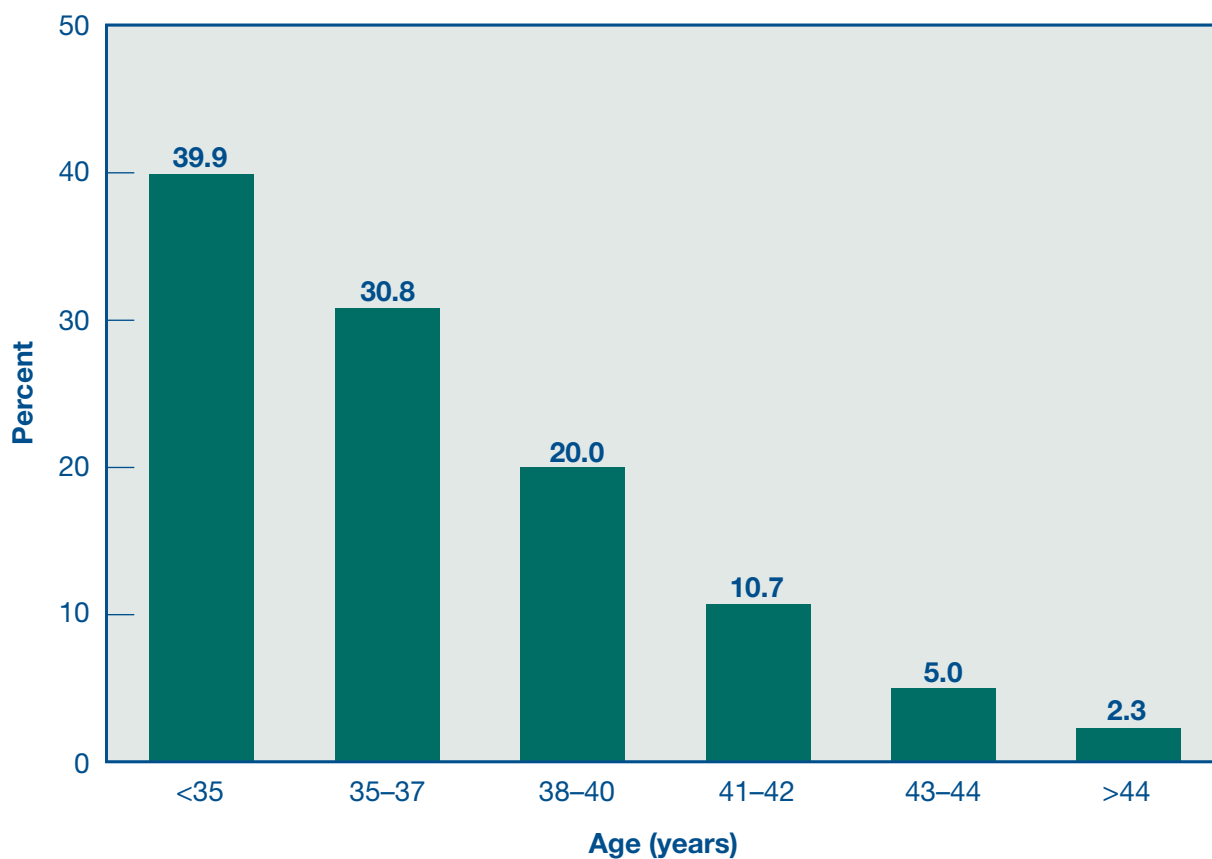
Did implantation rates differ by a woman's age?

The implantation percentage decreased steadily as the age of the woman increased. Figure 26 presents the relationship between the implantation percentage for fresh nondonor embryos transferred and a woman's age. In 2013, the percentage of embryos transferred that resulted in implantation was highest

(approximately 40%) among women younger than age 35. Declining with age, the implantation percentage was lowest (about 2%) among women older than age 44 compared with the implantation percentage among women in each of the other age groups.

Figure 26

Percentages of Embryos Transferred That Implanted Using Fresh Nondonor Eggs or Embryos, by Age Group, 2013



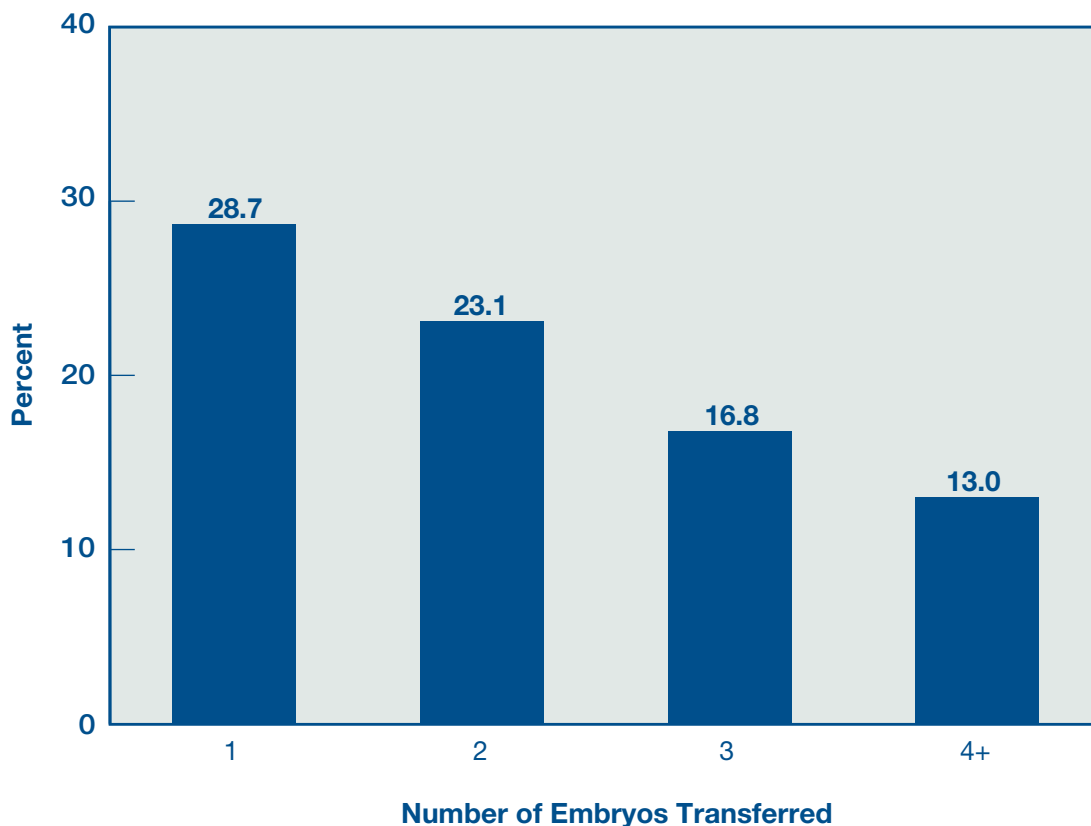
Did the number of embryos transferred impact the percentage of single, term, and normal birth weight infants born?

The percentage of transfers resulting in the live birth of a single, term, and normal birth weight infant decreased as the number of embryos transferred increased. An infant is defined as term if born at 37 or more full weeks of pregnancy and as normal birth weight if at least 2,500 grams (about 5 pounds, 8 ounces). Figure 27 shows the relationship between the number of fresh eggs or embryos transferred and the live birth of a single, term, and normal birth weight infant for ART cycles performed among women who used their own eggs or embryos in 2013. The

percentage of transfers resulting in the live birth of a single, term, and normal birth weight infant decreased from approximately 29% among cycles that involved the transfer of one embryo to 13% among cycles that involved the transfer of four or more embryos. Transferring more embryos increases the chance for a multiple-fetus pregnancy. Multiple-fetus pregnancies are associated with increased risk of poor outcomes for mothers and infants, including higher rates of prematurity, low birth weight, and pregnancy complications.

Figure 27

Percentages of Transfers Using Fresh Nondonor Eggs or Embryos That Resulted in the Live Birth of a Single, Term, and Normal Birth Weight Infant, by Number of Embryos Transferred, 2013



Were multiple infants more likely to be born if more embryos were transferred?

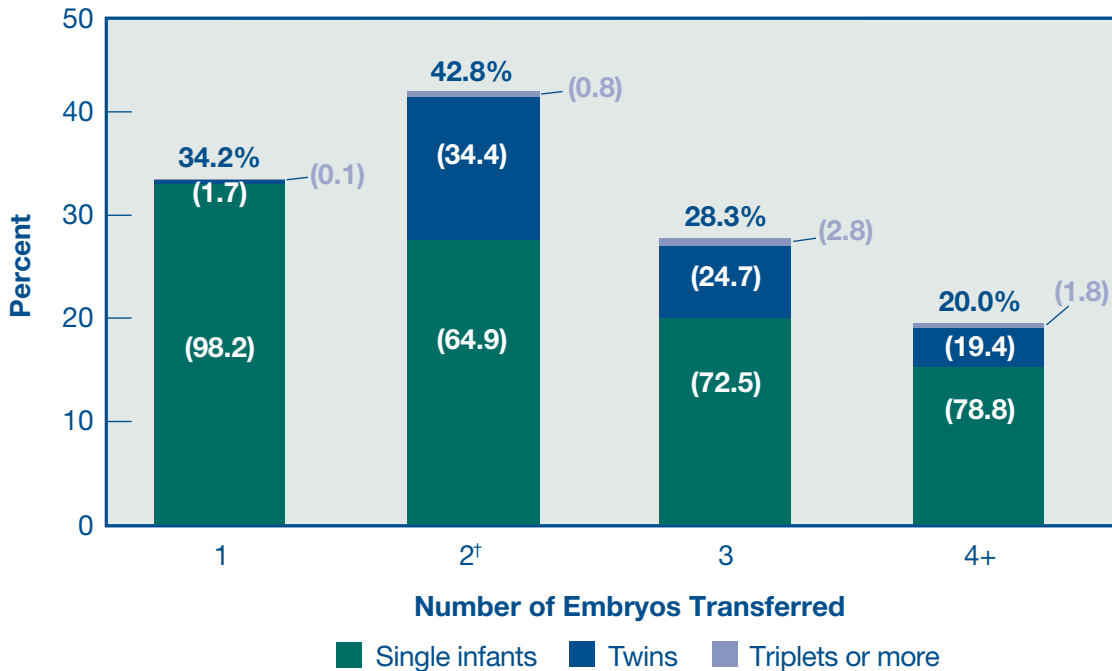
The percentage of multiple-infant births was lowest if one embryo was transferred, highest if two embryos were transferred, and otherwise decreased as more embryos were transferred. Figure 28 shows the relationship between the number of fresh eggs or embryos transferred, the percentage of transfers resulting in live births, and the percentage of multiple-infant live births for cycles performed among women who used their own eggs. In 2013, the percentage of transfers that resulted in live births increased when two embryos were transferred; however, the percentage of multiple-infant births also increased. Multiple-infant births cause concern because of the additional health risks they create for both mothers and

infants. Note that in rare cases a single embryo may divide and thus produce multiple-infant births. For this reason, small percentages of twins and triplets or more resulted from a single embryo transfer, and a small percentage of triplets or more resulted when two embryos were transferred.

The relationship between the number of embryos transferred, the percentage of transfers resulting in live births, and the percentage of multiple-infant births is influenced by several factors, such as the woman's age and embryo quality. See Figures 29 and 33 (pages 35 and 39) for more details on women using fresh nondonor eggs or embryos who are most at risk of multiple-infant births.

Figure 28

Percentages of Transfers Using Fresh Nondonor Eggs or Embryos That Resulted in Live Births and Distribution of Number of Infants Born, by Number of Embryos Transferred,* 2013



* Percentages of transfers resulting in live births are shown on top of each bar graph. Percentages of live births that were single infants, twins, and triplets or more are in parentheses.

† Total does not equal 100% due to rounding.

Were live births more likely if more embryos were transferred for good-prognosis women?

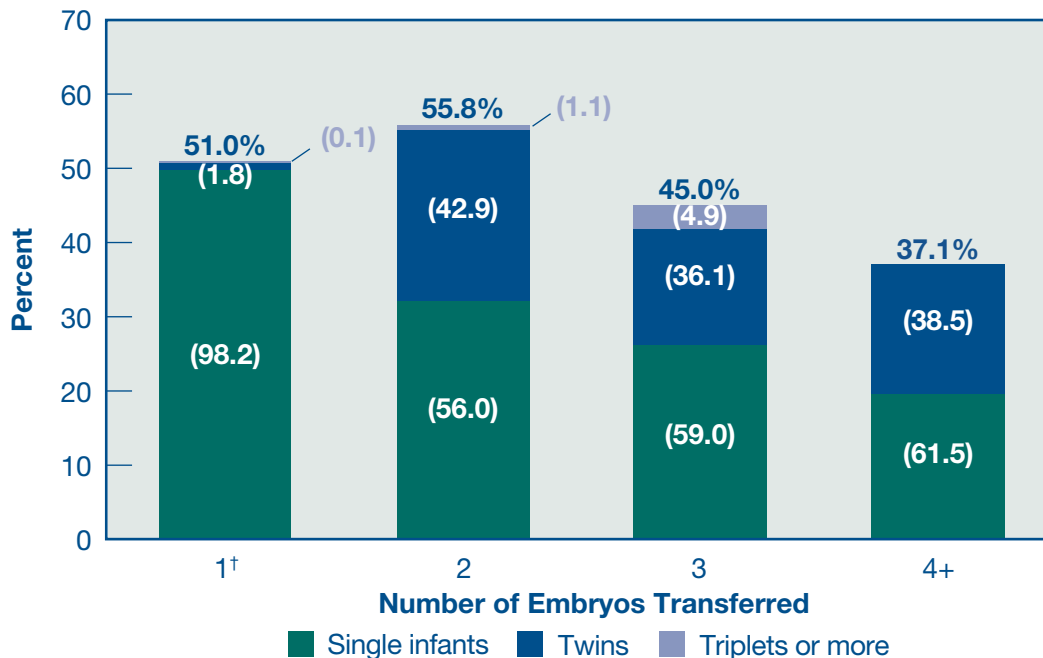
The percentage of transfers resulting in live births was highest for the transfer of 1 or 2 embryos, and otherwise decreased as the number of embryos increased. Figure 29 shows the relationship between the number of fresh eggs or embryos transferred, the percentage of transfers resulting in live births, and the percentage of multiple-infant births for ART procedures in good-prognosis women who use their own eggs or embryos. Good-prognosis women are defined here as younger than age 35 with extra embryos available to set aside by choice for future cycles.

In 2013, among good-prognosis women, the percentage of transfers that resulted in live

births was the highest (56%) when two embryos were transferred; however, among transfers that resulted in a live birth, the percentage of single-infant live births was highest with the transfer of one embryo (almost 100%). Multiple-infant births cause concern because of the additional health risks they create for both mothers and infants. Note that in rare cases a single embryo may divide and thus produce multiple-infant births. For this reason, small percentages of twins and triplets or more resulted from a single embryo transfer, and a small percentage of triplets or more resulted when two embryos were transferred.

Figure 29

Percentages of Transfers Using Fresh Nondonor Eggs or Embryos That Resulted in Live Births and Distribution of Number of Infants Born Among Good-Prognosis Women, by Number of Embryos Transferred,* 2013



* Percentages of transfers resulting in live births are shown on top of each bar graph. Percentages of live births that were single infants, twins, and triplets or more are in parentheses.

† Total does not equal 100% due to rounding.

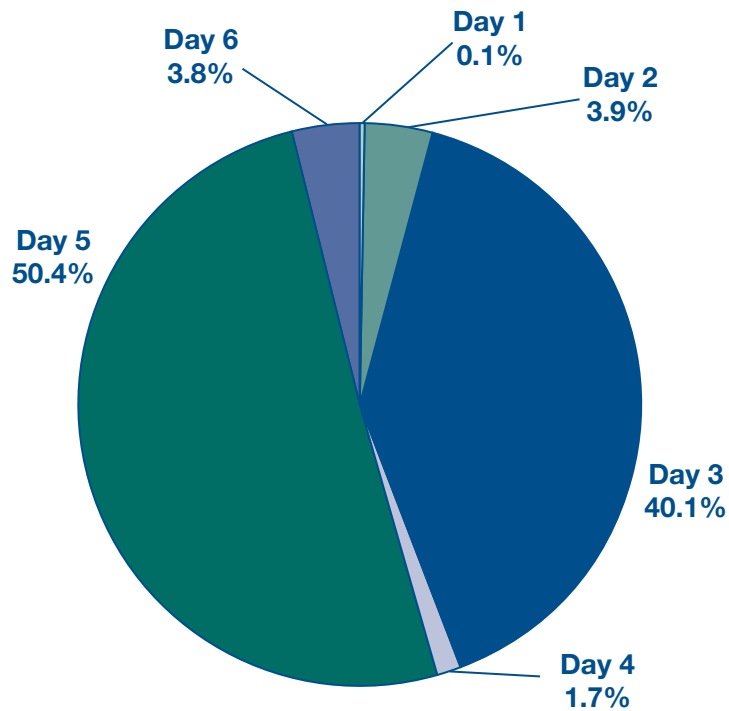
How long after egg retrieval did embryo transfer occur?

Once an ART cycle has progressed from egg retrieval to fertilization, the embryo(s) can be transferred into the woman's uterus anytime in the next 1 to 6 days. As seen in Figure 30, transfers 3 days after retrieval (a day 3 transfer) and transfers

5 days after retrieval (a day 5 transfer) were the most common (40% and 50%, respectively) among those embryos that progressed to the embryo transfer stage.

Figure 30

Day of Embryo Transfer* Among All ART Transfers Using Fresh Nondonor Eggs or Embryos,† 2013



* Number of days following egg retrieval.

† Cycles using GIFT or ZIFT are excluded. Missing or implausible values for day of embryo transfer (i.e., 0 or greater than 6) are not included.

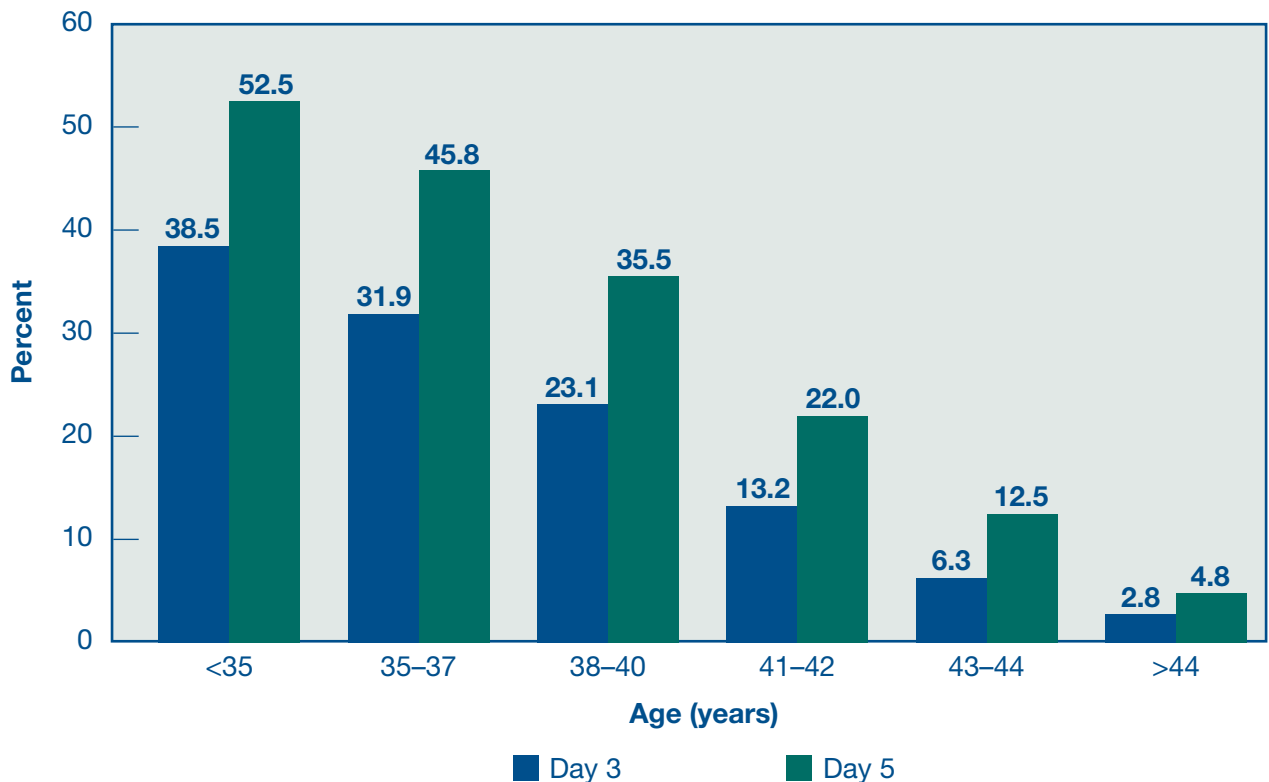
Were day 5 embryo transfers more likely to result in a live birth?

In 2013, for all age groups, live-birth percentages were higher for day 5 embryo transfers than for day 3 transfers. As shown in Figure 30 (page 36), the vast majority (more than 90%) of ART fresh nondonor embryo transfers were performed on day 3 or day 5. Figure 31 compares percentages of day 3 embryo transfers that resulted in live births with day 5 embryo transfers. Percentages of day 5 transfers resulting in a live birth were

higher than percentages of day 3 transfers resulting in a live birth, although all live-birth percentages decreased with age. While day 5 embryo transfers have higher live-birth percentages, not all embryos survive to transfer. Some embryos do not survive to day 3, and some embryos that survive to day 3 do not survive to day 5.

Figure 31

Percentages of Day 3 and Day 5 Embryo Transfers Using Fresh Nondonor Eggs or Embryos That Resulted in Live Births, by Age Group,* 2013



* Cycles using GIFT or ZIFT are excluded. Embryo transfers performed on days 1, 2, 4, and 6 are not included because each of these accounted for a small proportion of procedures.

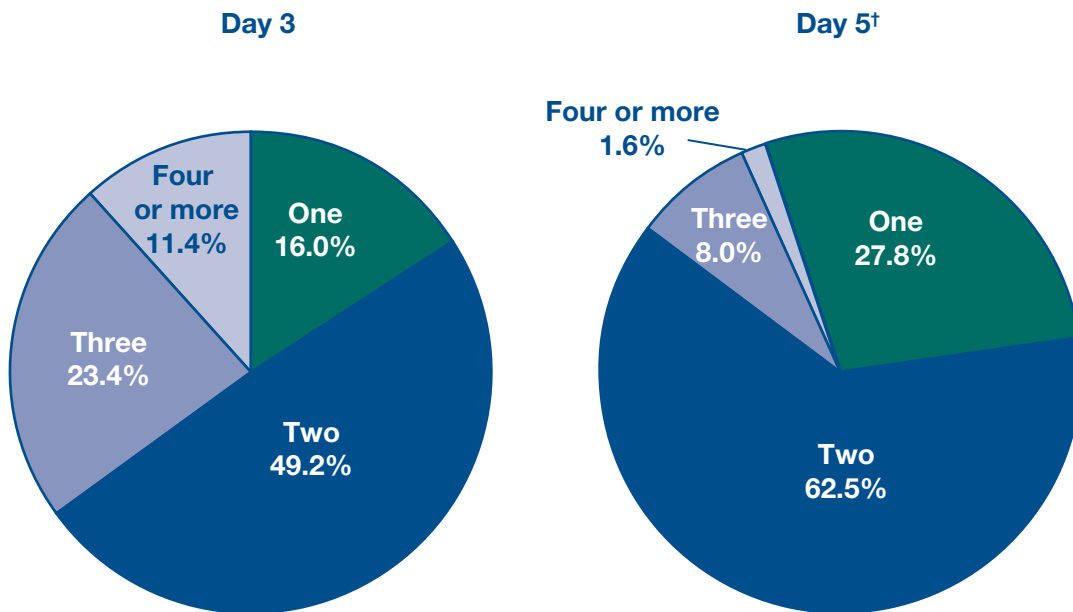
Did the number of embryos transferred per woman differ for day 3 and day 5 transfers?

Overall, fewer embryos were transferred on day 5 than on day 3. Figure 32 shows the distribution of the number of fresh nondonor embryos transferred on day 3 and day 5. Approximately 35% of day 3 embryo transfers and 10% of day 5 embryo transfers involved the transfer of three

or more embryos. The decrease in the number of embryos transferred on day 5, however, did not translate into a lower risk of multiple-infant births. See Figure 33 (page 39) for more details on the relationship between the day of embryo transfer and multiple-infant births.

Figure 32

Numbers of Embryos Transferred on Day 3 and Day 5 Among All Transfers Using Fresh Nondonor Eggs or Embryos,* 2013



* Cycles using GIFT or ZIFT are excluded. Embryo transfers performed on days 1, 2, 4, and 6 are not included because each of these accounted for a small proportion of procedures.

† Total does not equal 100% due to rounding.

How did the multiple-infant birth risk vary by the day of embryo transfer among fresh nondonor transfers?

The percentage of multiple-infant births was higher for day 5 transfers than for day 3 transfers. Multiple-infant births are associated with greater problems for both mothers and infants, including higher rates of caesarean section, prematurity, low birth weight, and infant disability or death.

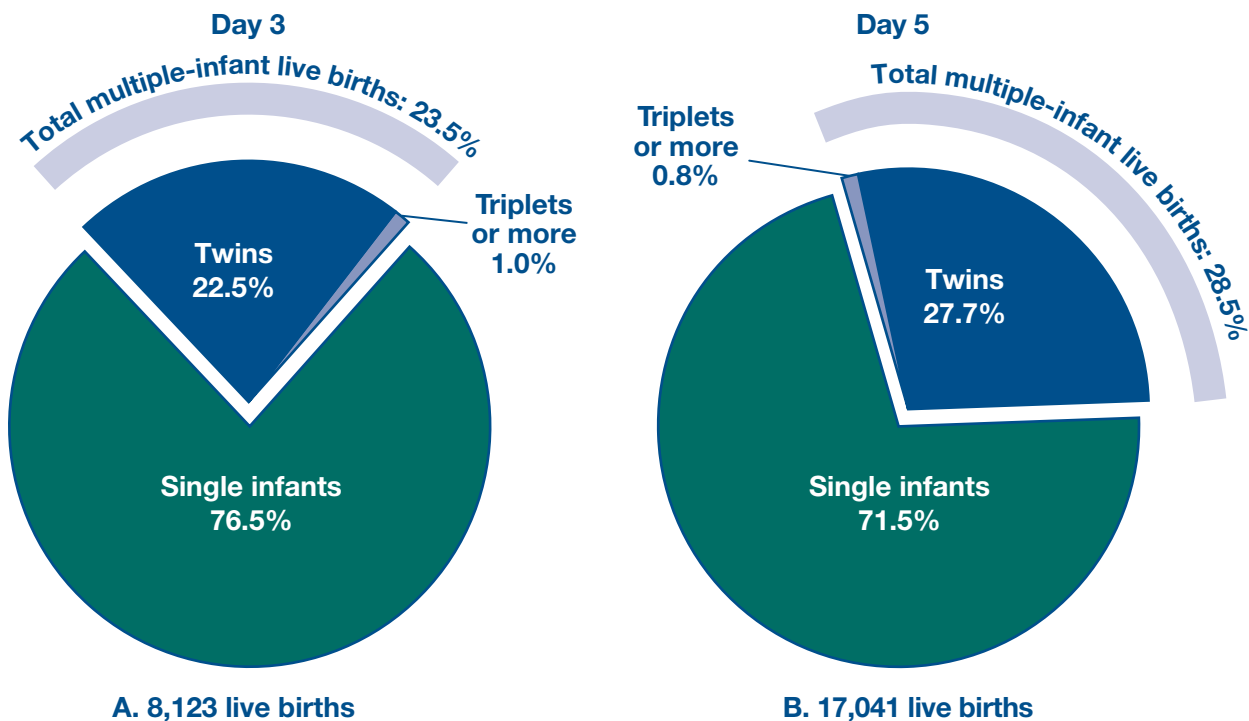
Part A of Figure 33 shows that among the 8,123 live births that occurred following the transfer of day 3 fresh nondonor embryos, about 77% were single infants. Approximately 24% of these live births involved the birth of more than one infant (about 23% were twins, and 1% were triplets or more).

In 2013, a total of 17,041 live births occurred following the transfer of day 5 fresh nondonor embryos. Part B of Figure 33 shows that approximately 29% of these live births involved the birth of more than one infant.

As shown in Figure 32 (page 38), fewer embryos were transferred on day 5 than on day 3, although the majority of day 5 transfers still involved the transfer of more than one embryo. The proportion of live births resulting in twins was higher among transfers performed on day 5 than on day 3. Thus, the risk of having a multiple-infant birth was higher for day 5 embryo transfers.

Figure 33

Distribution of Number of Infants Born Among Day 3 and Day 5 Embryo Transfers Using Fresh Nondonor Eggs or Embryos That Resulted in Live Births,* 2013



* Cycles using GIFT or ZIFT are excluded. Embryo transfers performed on days 1, 2, 4, and 6 are not included because each of these accounted for a small proportion of procedures.

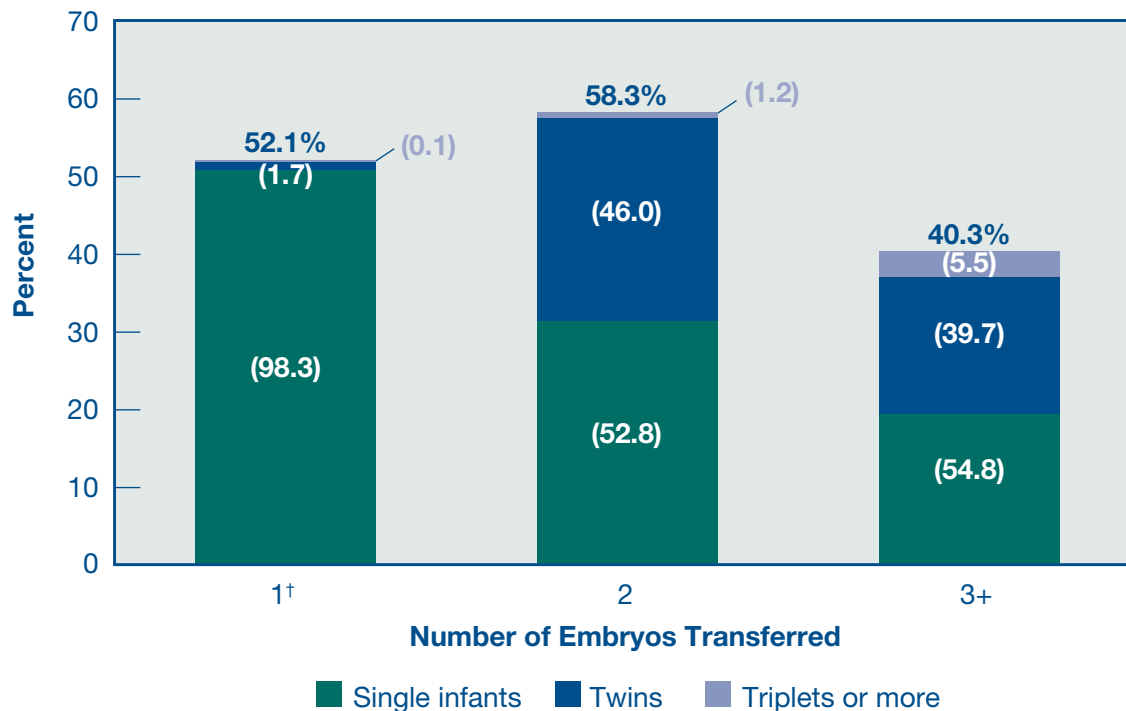
Were percentages of day 5 transfers that resulted in live births affected by the number of embryos transferred for good-prognosis women?

The percentage of day 5 transfers resulting in live births was highest when two embryos were transferred among good-prognosis women. Good-prognosis women are defined here as women younger than age 35 with extra embryos set aside for future cycles. As shown in Figure 33 (page 39), fresh nondonor embryos transferred on day 5 resulted in a higher percentage of multiple-infant births than embryos transferred on day 3. Figure 34 shows the relationship between the number of embryos transferred, the percentage of transfers resulting in live births, and the percentage of multiple-infant births for day 5 transfers among good-prognosis women.

In 2013, the percentage of day 5 transfers resulting in live births was about 58%; however, the proportion of live births that were multiples (twins or more) was about 47%. Multiples pose a higher risk of poor health outcomes for both mother and infant. The highest percentage of live births of a single infant resulted from the day 5 transfer of a single embryo (52%). In rare cases a single embryo may divide and thus produce multiple-infant births. For this reason, a small percentage of twins and triplets or more resulted from a single embryo transfer, and a small percentage of triplets or more resulted when two embryos were transferred.

Figure 34

Percentages of Day 5 Transfers Using Fresh Nondonor Eggs or Embryos That Resulted in Live Births and Distribution of Number of Infants Born Among Good-Prognosis Women, by Number of Embryos Transferred,* 2013



* Percentages of transfers resulting in live births are shown on top for each bar graph. Percentages of live births that were single infants, twins, and triplets or more are in parentheses. Cycles using GIFT or ZIFT are excluded.

† Total does not equal 100% due to rounding.

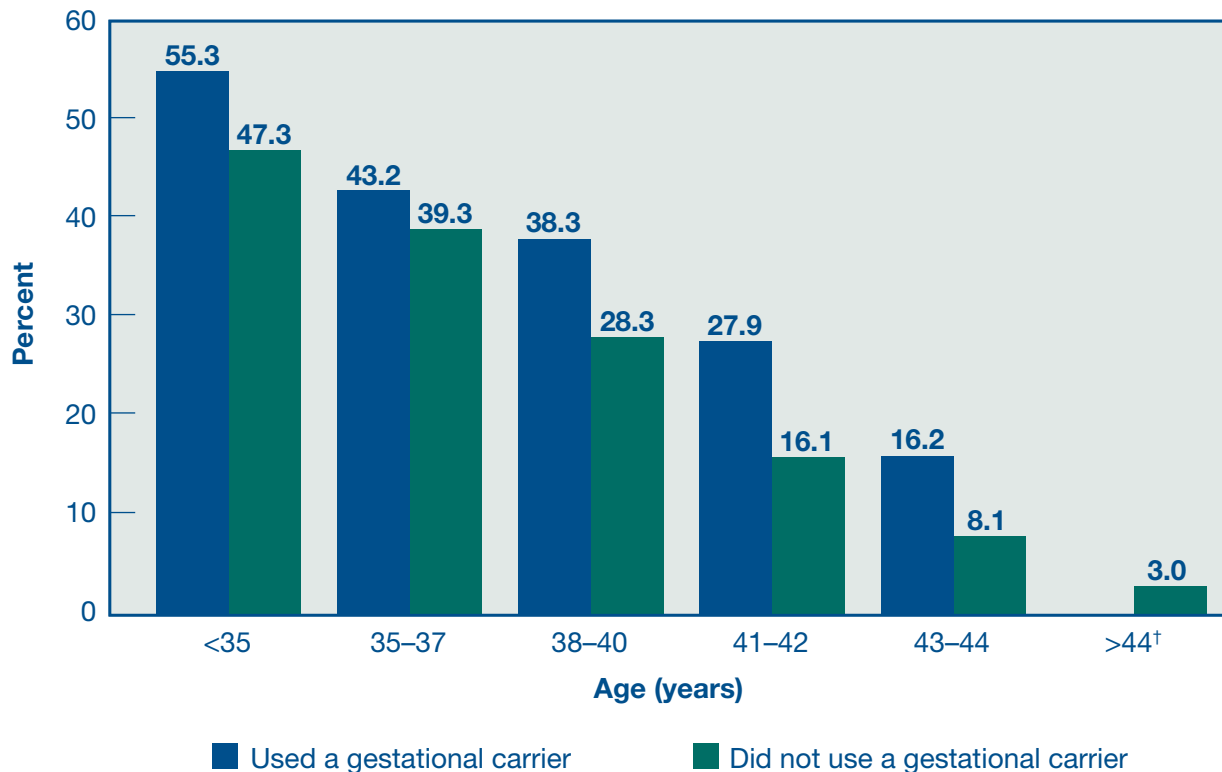
Did percentages of transfers resulting in live births differ by gestational carrier use?

In 2013, percentages of transfers that resulted in live births were higher among gestational carrier cycles in all age groups except older than age 44. A gestational carrier or gestational surrogate is a woman who agrees to carry a developing embryo created from another woman's egg for others. Gestational carriers were used in about 1% of fresh nondonor ART cycles in 2013 (822 cycles). Figure 35 compares percentages of transfers that resulted in live births for transfers using a

gestational carrier with transfers that did not use a gestational carrier. While the percentage of live births decreased with the women's age with or without a gestational carrier, the percentage of live births when using a gestational carrier was 8% higher among women younger than age 35, 4% higher among women aged 35–37, 10% higher among women aged 38–40, 12% higher among women aged 41–42, and 8% higher among women aged 43–44.

Figure 35

Comparison of Percentages of Transfers Using Fresh Nondonor Eggs or Embryos That Resulted in Live Births Between ART Cycles That Used Gestational Carriers and Those That Did Not, by Age Group,* 2013



* Age categories reflect the age of the ART patient, not the age of the gestational carrier.

† There were no transfers resulting in live births among ART patients older than age 44 who used gestational carriers.

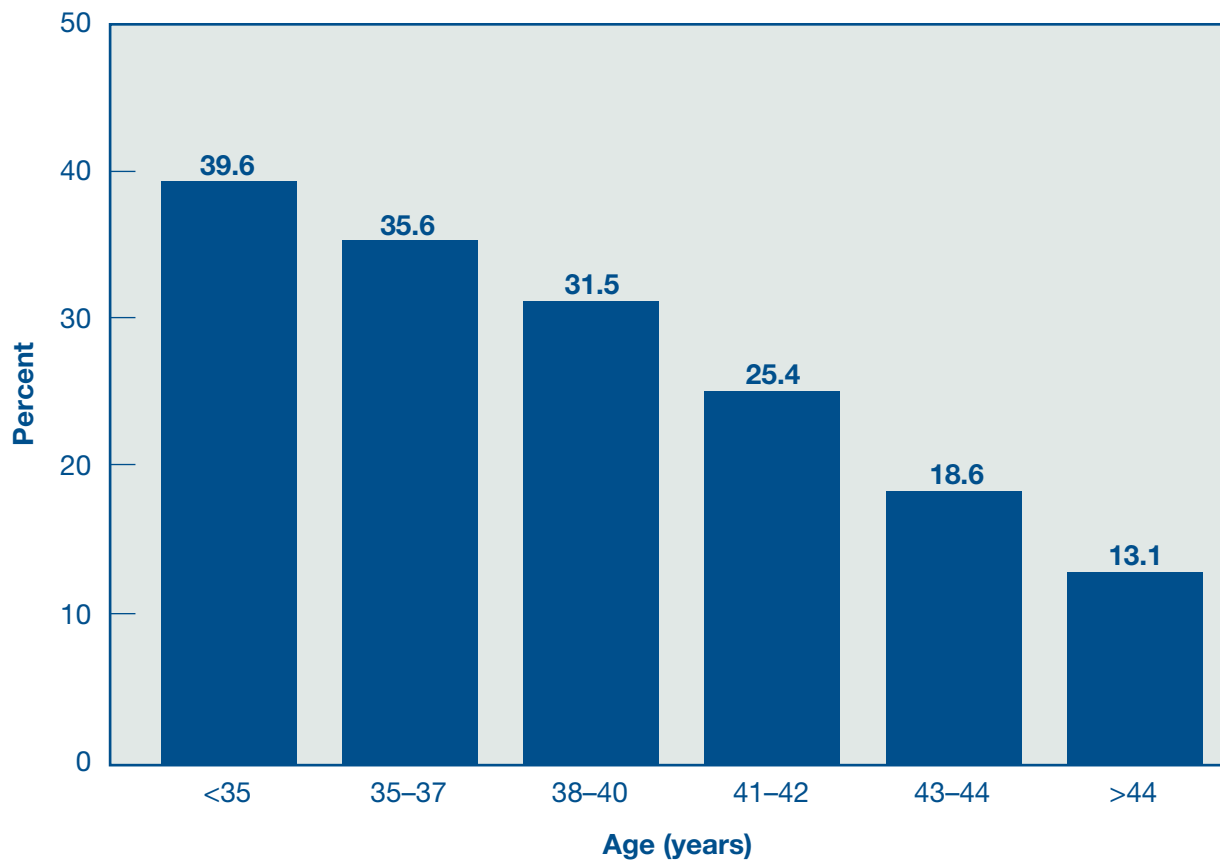
SECTION 3: ART CYCLES USING FROZEN NONDONOR EMBRYOS

Did implantation rates differ by a woman's age?

Figure 36 shows the relationship between implantation percentage and the age of the woman when frozen nondonor embryos were transferred. The percentage of frozen nondonor embryos transferred that resulted in implantation decreased as the age of the woman increased from about 40% among women younger than

age 35 to 13% among women older than age 44. Note that for frozen cycles, although not shown, the age of the woman at the time of retrieval has a larger effect on implantation rates than the age of the woman at the time of transfer.

Figure 36
Percentages of Embryos Transferred That Implanted Using Frozen Nondonor Embryos, by Age Group, 2013



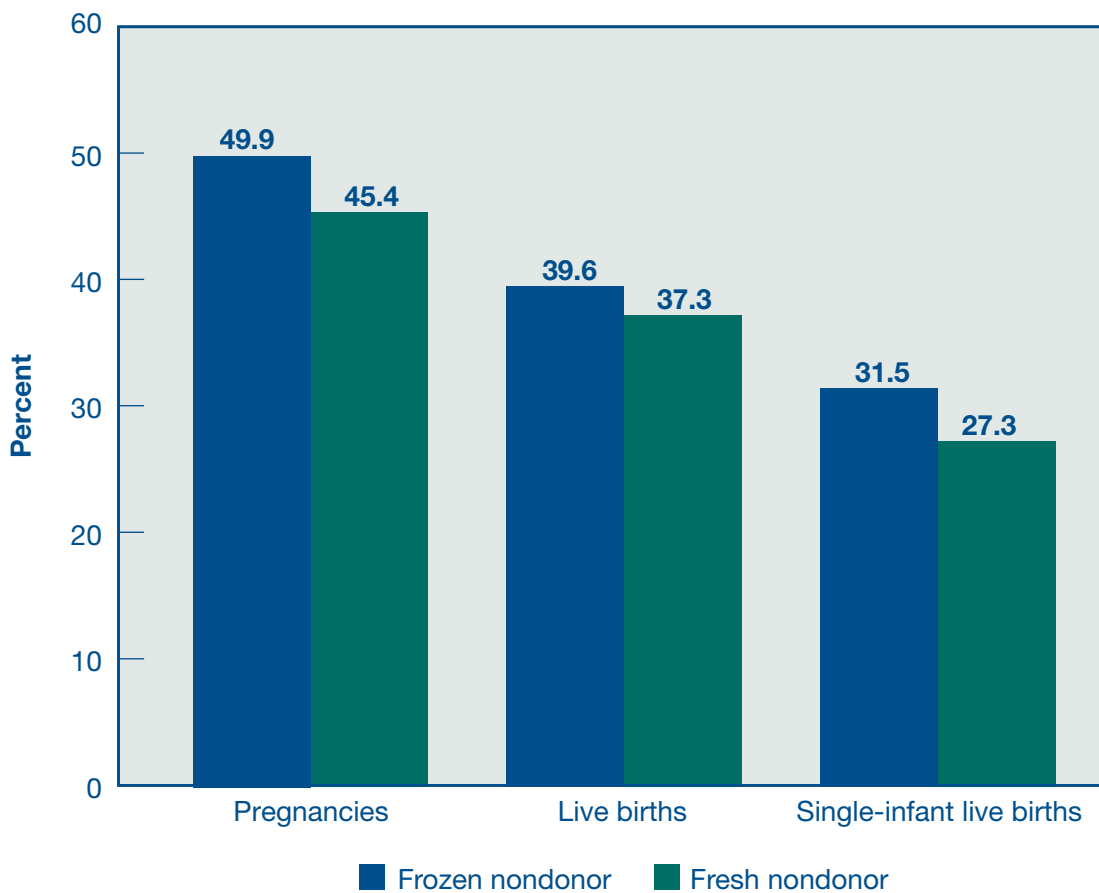
Was the percentage of transfers that resulted in pregnancies, live births, and single-infant live births higher for fresh or frozen nondonor embryos?

Figure 37 shows that percentages of transfers resulting in pregnancies, live births, and single-infant live births were higher for frozen nondonor embryos than for fresh nondonor embryos in 2013.

Frozen nondonor embryos were used in 46,779 ART cycles performed in 2013. Cycles using

frozen nondonor embryos are both less expensive and less invasive than those using fresh nondonor embryos because the woman does not have to go through the fertility drug stimulation and egg retrieval steps again.

Figure 37
Percentages of Transfers Using Frozen or Fresh Nondonor Embryos That Resulted in Pregnancies, Live Births, and Single-Infant Live Births, 2013



What was the risk of a multiple-fetus pregnancy or multiple-infant birth after ART?

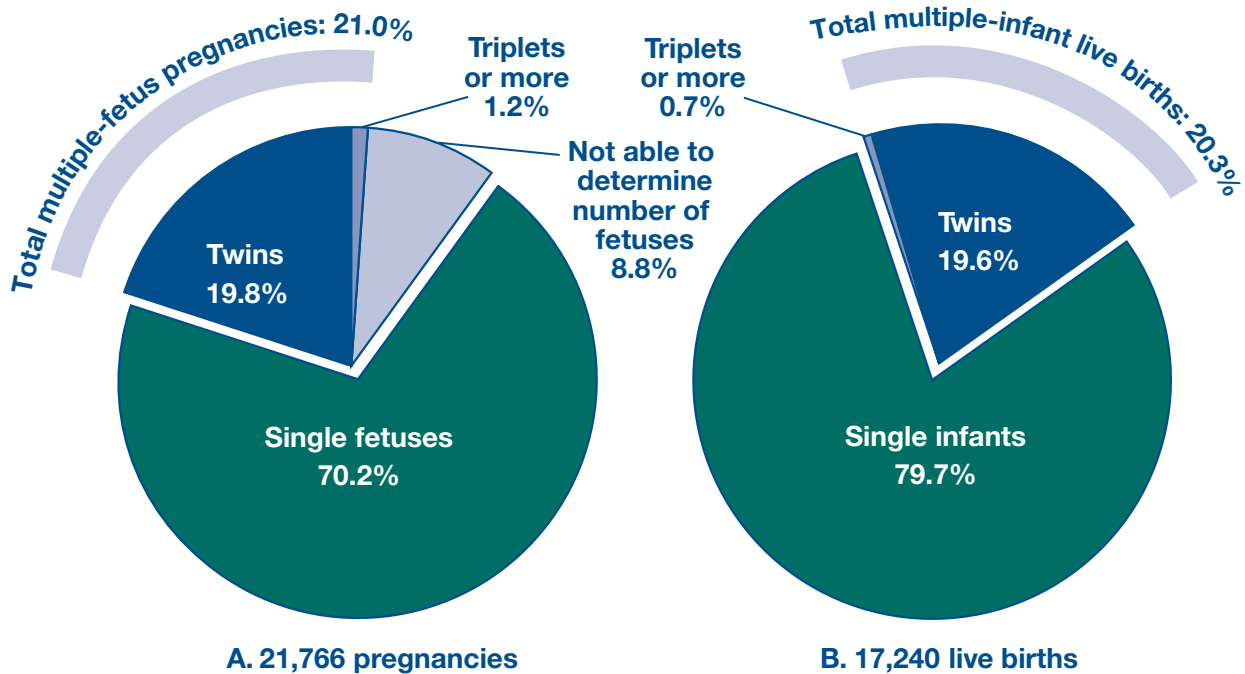
Among ART cycles using frozen nondonor embryos, about 21% of resulting pregnancies involved multiple fetuses and about 20% of resulting live births involved multiple births. Multiple-infant births are associated with greater problems for both mothers and infants, including higher rates of caesarean section, prematurity, low birth weight, and infant disability or death. ART pregnancies are more likely to result in multiple-infant births (twins, triplets or more) than pregnancies resulting from natural conception because more than one embryo may be transferred.

Part A of Figure 38 shows that among 21,766 pregnancies that resulted from ART cycles using frozen nondonor embryos, 70% were single-fetus pregnancies, approximately 20% were twins, and 1% were triplets or more. Approximately 9% of pregnancies ended before the number of fetuses could be accurately determined.

Part B of Figure 38 shows 17,240 live births in 2013 resulted from ART cycles that used frozen nondonor embryos. Approximately 20% of these live births involved the birth of more than one infant, almost all of which were twins.

Figure 38

Distribution of Multiple-Fetus Pregnancies and Multiple-Infant Live Births Among ART Cycles Using Frozen Nondonor Embryos, 2013



SECTION 4: ART CYCLES USING DONOR EGGS

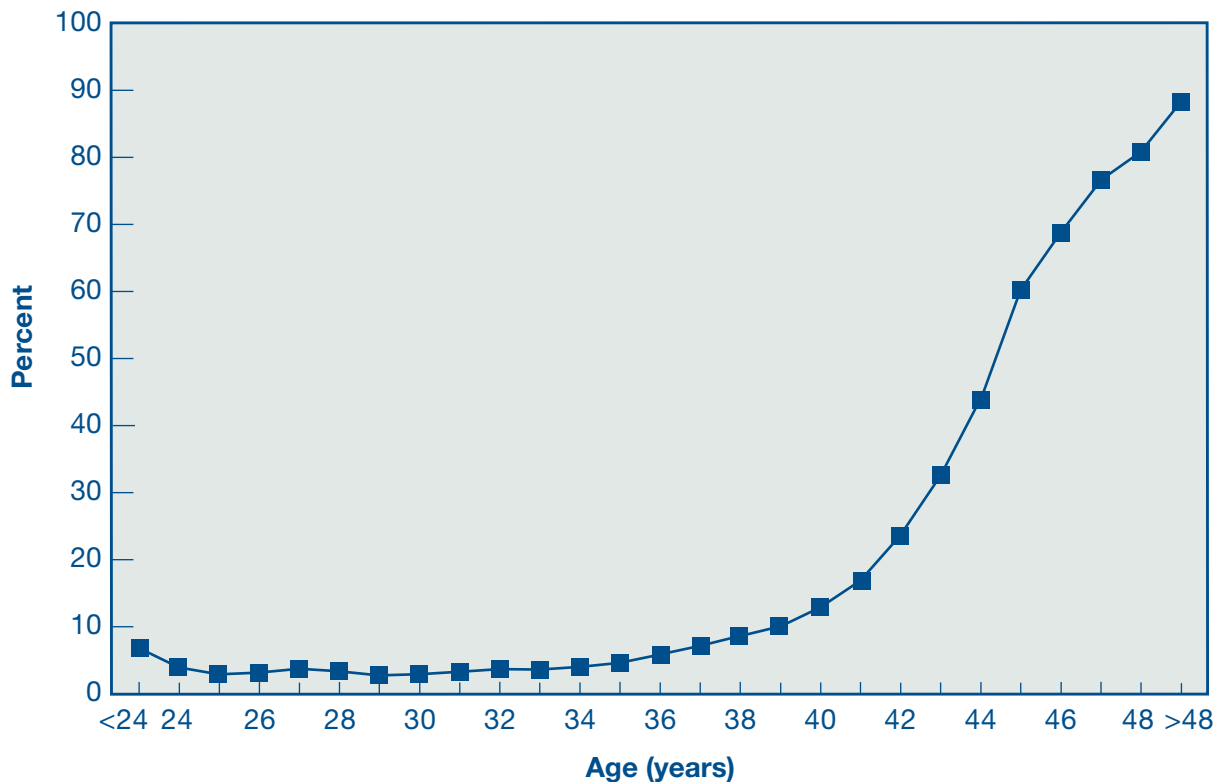
Were older women undergoing ART more likely to use donor eggs or embryos?

ART using donor eggs is much more common among older women than among younger women. As shown in Figures 16 and 36 (pages 22 and 42), eggs produced by women in older age groups form embryos that are less likely to implant and more likely to result in miscarriage if they do implant. Donor eggs or embryos were used in 19,988 ART cycles performed in

2013. Figure 39 shows the percentage of ART cycles using donor eggs in 2013 according to the woman's age. The percentage of cycles performed with donor eggs increased sharply after age 40. Among women older than age 48, for example, 88% of all ART cycles used donor eggs.

Figure 39

Percentages of ART Cycles Using Donor Eggs, by Age of Woman, 2013



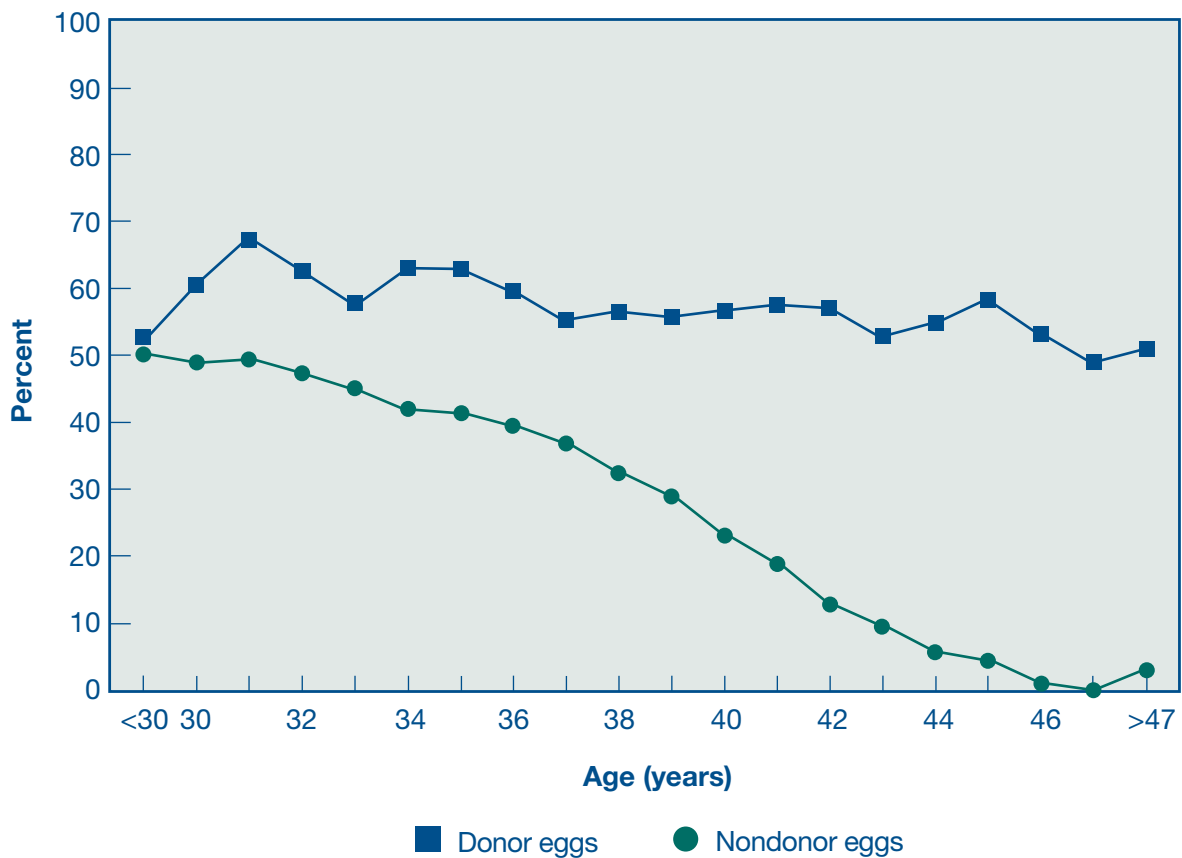
Did percentages of ART transfers that resulted in live births differ between fresh donor and fresh nondonor eggs?

Figure 40 compares percentages of transfers using fresh embryos from donor eggs that resulted in live births with those using fresh embryos from nondonor eggs among women of different ages. The likelihood of a fertilized egg implanting is related to the age of the woman who produced the egg. The percentage of transfers

using fresh nondonor embryos resulting in live births declines as women get older. In contrast, since egg donors are typically in their 20s or early 30s, the percentage of transfers using embryos from donor eggs that resulted in live births remained consistently above 50% among women of almost all ages.

Figure 40

Percentages of Transfers Using Fresh Embryos from Donor or Nondonor Eggs That Resulted in Live Births, by Age of Woman, 2013



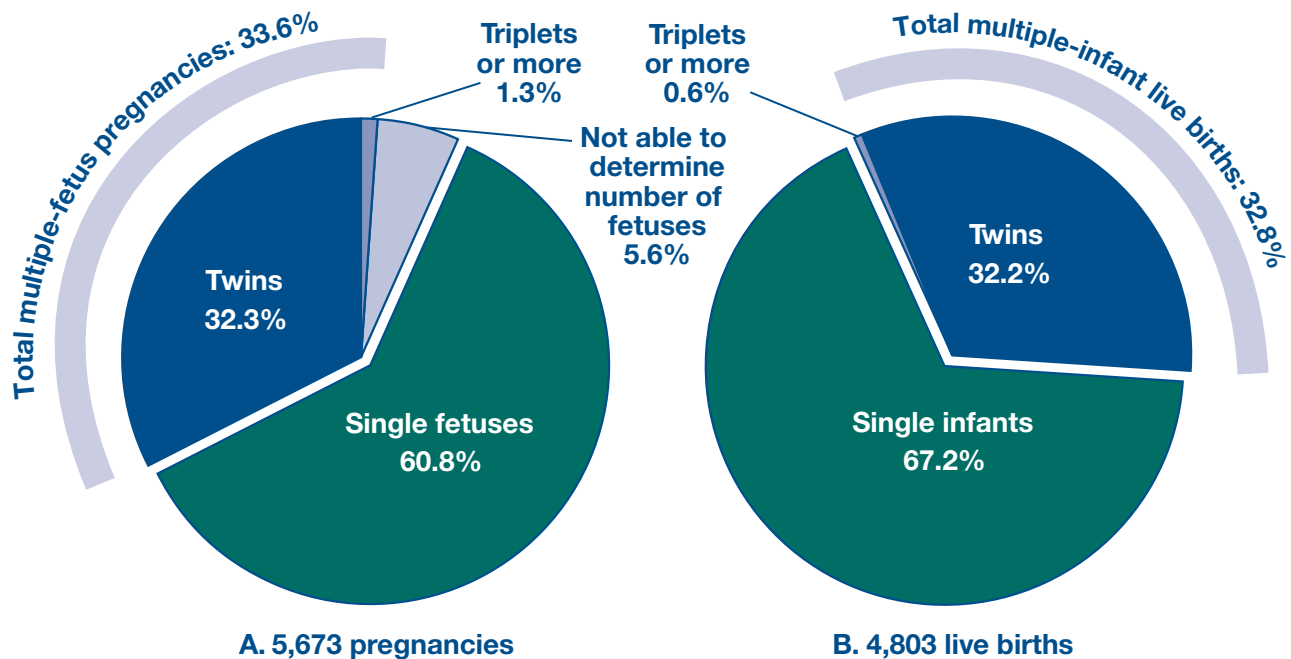
What was the risk of a multiple-fetus pregnancy or multiple-infant birth after ART?

Among ART cycles using donor eggs or embryos, about 34% of resulting pregnancies involved multiple fetuses and about 33% of resulting live births involved multiple births. Multiple-infant births are associated with greater problems for both mothers and infants, including higher rates of caesarean section, prematurity, low birth weight, and infant disability or death. ART pregnancies are more likely to result in multiple-infant births (twins, triplets or more) than pregnancies resulting from natural conception because more than one embryo may be transferred.

Part A of Figure 41 shows that among the 5,673 pregnancies that resulted from ART cycles using fresh embryos from donor eggs, approximately 61% were single-fetus pregnancies, 32% were twins, and 1% were triplets or more. About 6% of pregnancies ended before the number of fetuses could be accurately determined.

Part B of Figure 41 shows that 4,803 live births in 2013 resulted from ART cycles that used fresh embryos from donor eggs. Approximately 33% of these live births involved the birth of more than one infant.

Figure 41
Distribution of Multiple-Fetus Pregnancies and Multiple-Infant Live Births Among ART Cycles Using Fresh Embryos from Donor Eggs, 2013



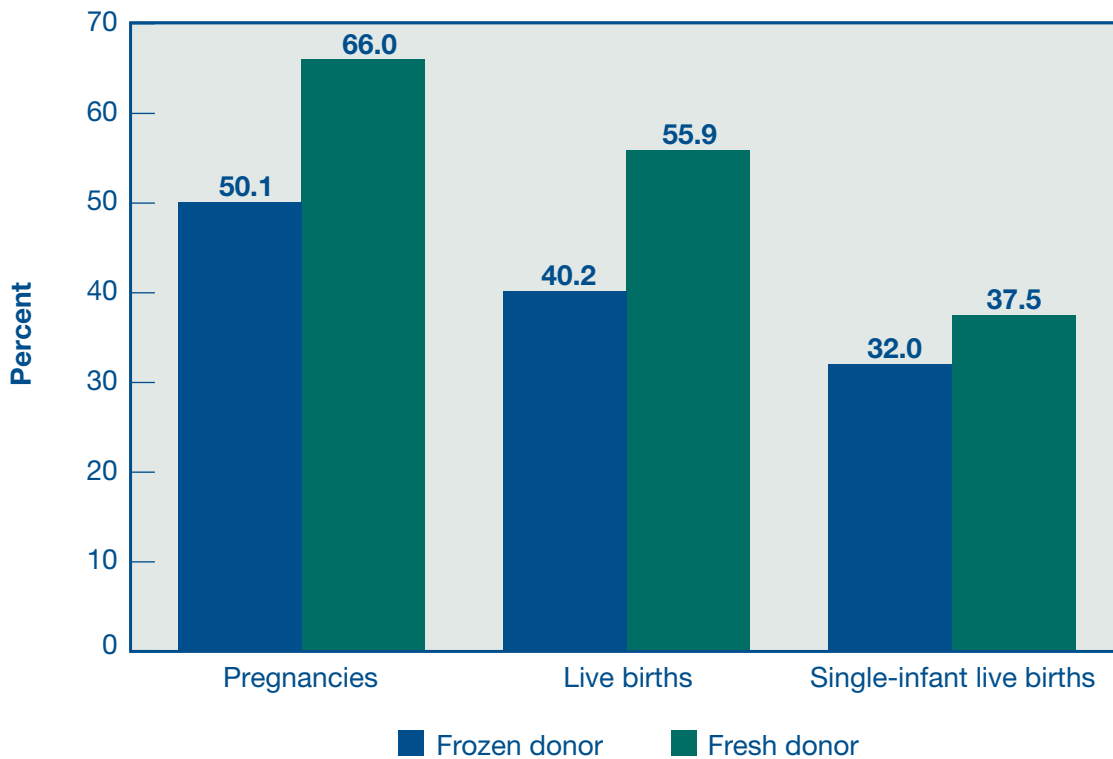
Did transfers resulting in pregnancies, live births, and single-infant live births differ when using frozen donor and fresh donor embryos?

Figure 42 shows that percentages of transfers resulting in pregnancies, live births, and single-infant live births were lower for transfers using frozen donor embryos compared with fresh

donor embryos in 2013. The average number of embryos transferred was the same for transfers using frozen donor embryos and those using fresh donor embryos.

Figure 42

Percentages of Transfers Using Frozen or Fresh Donor Embryos That Resulted in Pregnancies, Live Births, and Single-Infant Live Births, 2013



SECTION 5: ART TRENDS, 2004–2013

This report marks the nineteenth consecutive year that CDC has published an annual report detailing the success rates for ART clinics in the United States. Having many years of data provides us with the opportunity to examine trends in ART use and success rates over time. This report

features an examination of trends for the most recent 10-year period, 2004–2013. Statistics for earlier years are available in CDC's previous annual publications of ART success rates and national summaries.

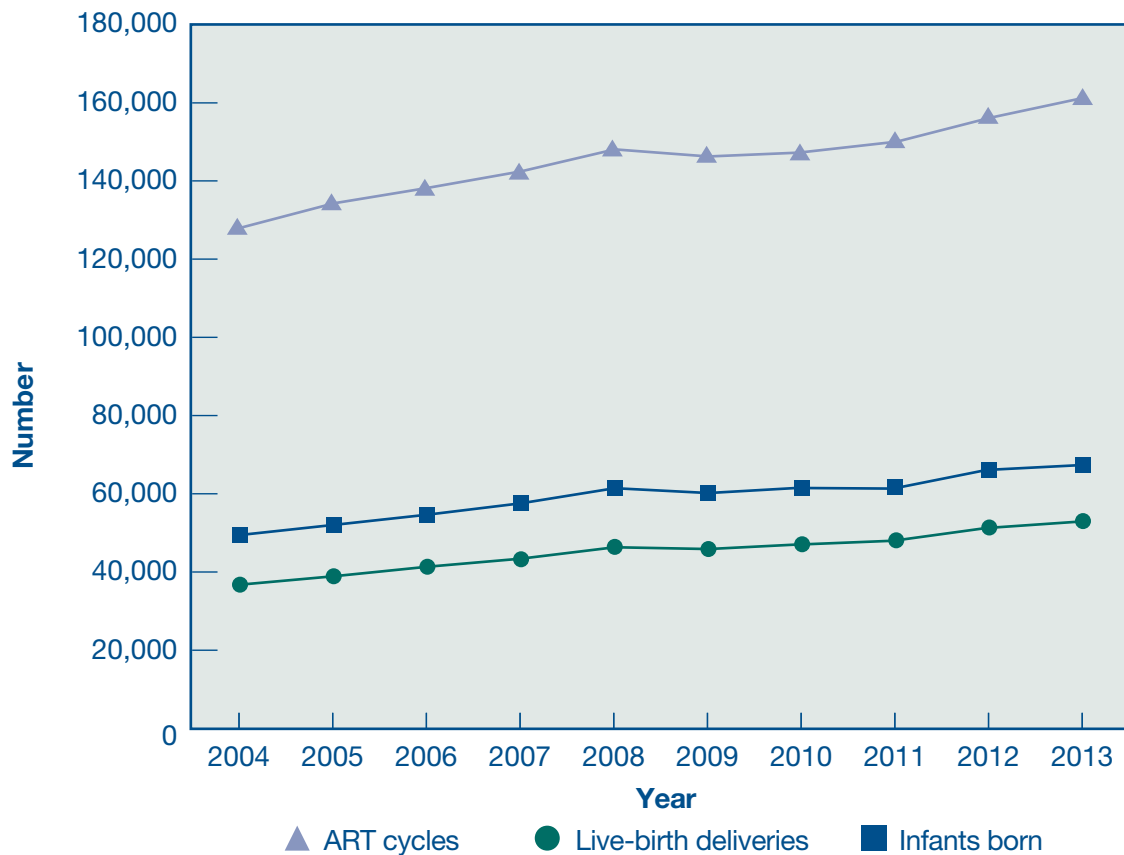
Has the use of ART increased?

Figure 43 shows the number of ART cycles performed, live-birth deliveries, and infants born using ART from 2004 through 2013. The number of ART cycles performed in the United States has increased 25%, from 127,977 cycles in 2004 to 160,554 in 2013. The number of live-birth deliveries in 2013 (53,264) was almost one and

a half times higher than in 2004 (36,760). The number of infants born who were conceived using ART increased from 49,458 in 2004 to 66,706 in 2013. Because more than one infant can be born during a live-birth delivery (for example, twins), the total number of infants born is greater than the number of live-birth deliveries.

Figure 43

Numbers of ART Cycles Performed, Live-Birth Deliveries, and Infants Born Using ART, 2004–2013



What are egg/embryo banking cycles and have they increased?

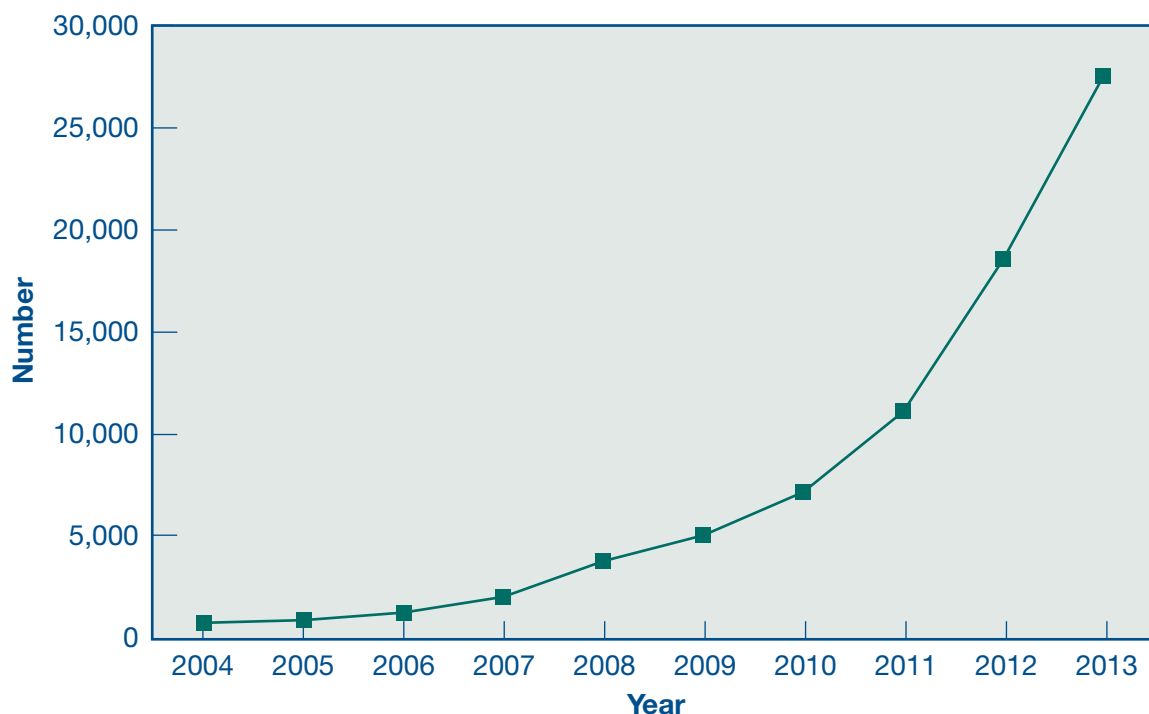
Figure 44 shows that the number of cycles performed for banking all fresh nondonor eggs or embryos increased dramatically from 2004 through 2013.

An egg/embryo banking cycle is an ART cycle started with the intention of freezing all resulting eggs or embryos for potential future use, when they may be thawed, fertilized (if eggs), and transferred. Banking cycles may be performed to avoid potentially negative effects of stimulation, or when it is necessary to wait for results of genetic

testing. Egg/embryo banking also may be used when only a small number of eggs or embryos develop during one cycle. In this case, women may undergo several banking cycles to improve availability of good-quality eggs or embryos for transfer. In other situations, patients may choose to freeze eggs or embryos because the patient or partner needs to undergo medical treatment that may be harmful for their future reproduction capabilities or to delay childbearing for other reasons. These cycles are referred to as fertility preservation cycles.

Figure 44

Numbers of ART Cycles Performed for Banking All Fresh Nondonor Eggs or Embryos, 2004–2013



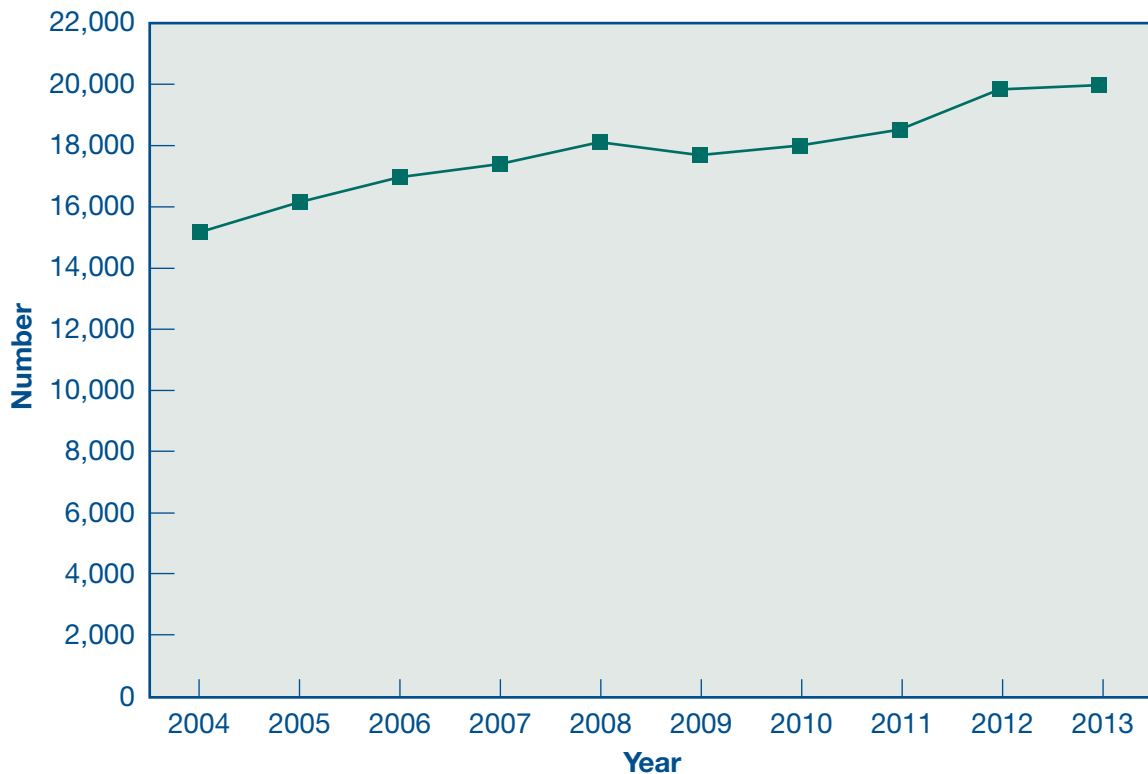
Has the number of cycles using donor eggs or embryos increased?

Figure 45 shows that the number of cycles performed using donor eggs or embryos increased almost 32%, from 15,175 in 2004 to 19,988 in 2013.

A donor egg cycle is a cycle in which an embryo is formed from the egg of one woman (the donor) and the sperm from her partner or a donor and then transferred to another woman (the recipient). A donor embryo cycle is a cycle in which an

embryo is donated by a patient who previously underwent ART treatment; neither the sperm nor egg is genetically related to the parent(s) who will raise the child. Donor cycles are most commonly used by women with diminished ovarian reserve, usually as a result of advanced maternal age or premature ovarian insufficiency. Donors are usually younger women, which results in higher pregnancy and lower miscarriage rates among recipients.

Figure 45
Numbers of ART Cycles Using Donor Eggs or Embryo, 2004–2013



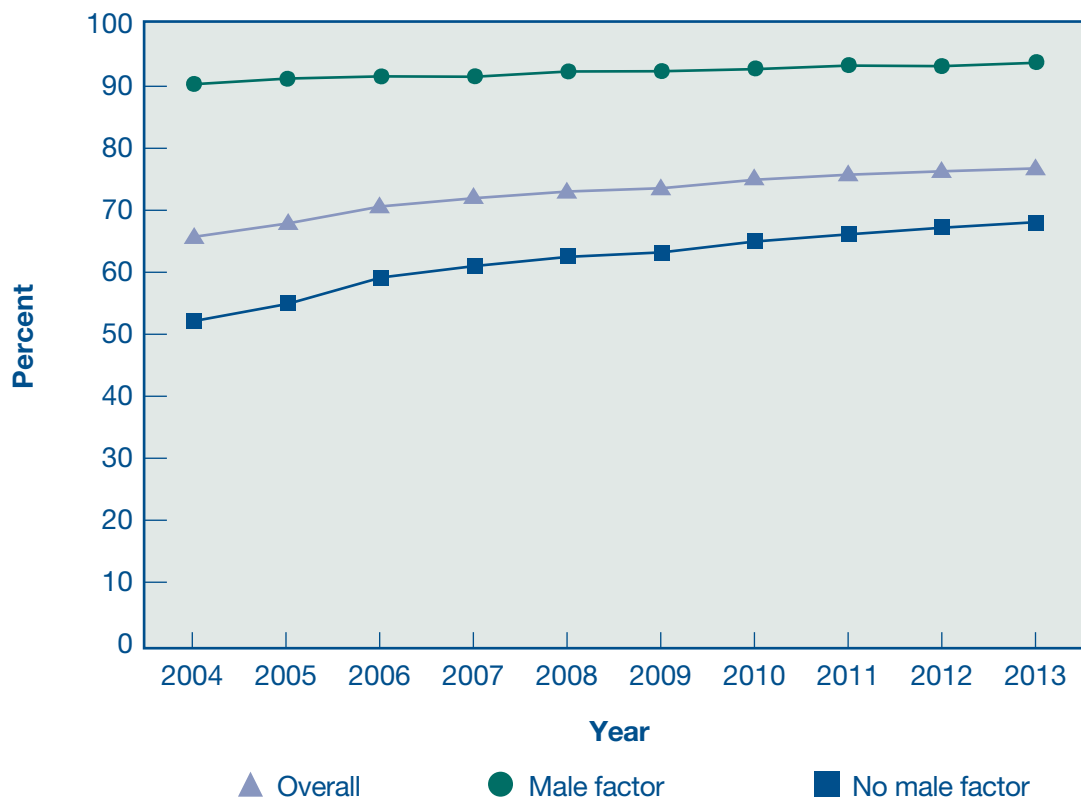
Has ICSI use changed over time?

The percentage of retrievals using ICSI has increased over time from 66% in 2004 to 77% in 2013. The increase in use was larger for patients with no diagnosis of male factor infertility than

for those patients with a diagnosis of male factor infertility, where the use has remained consistently high over the last ten years.

Figure 46

Percentages of Retrievals Using Fresh Nondonor or Donor Eggs or Embryos That Used ICSI, 2004–2013



How has the percentage of transfers that resulted in single-infant live births for ART patients of different ages changed?

Figure 47 presents percentages of transfers using fresh nondonor eggs or embryos that resulted in single-infant live births, by the age of the woman.

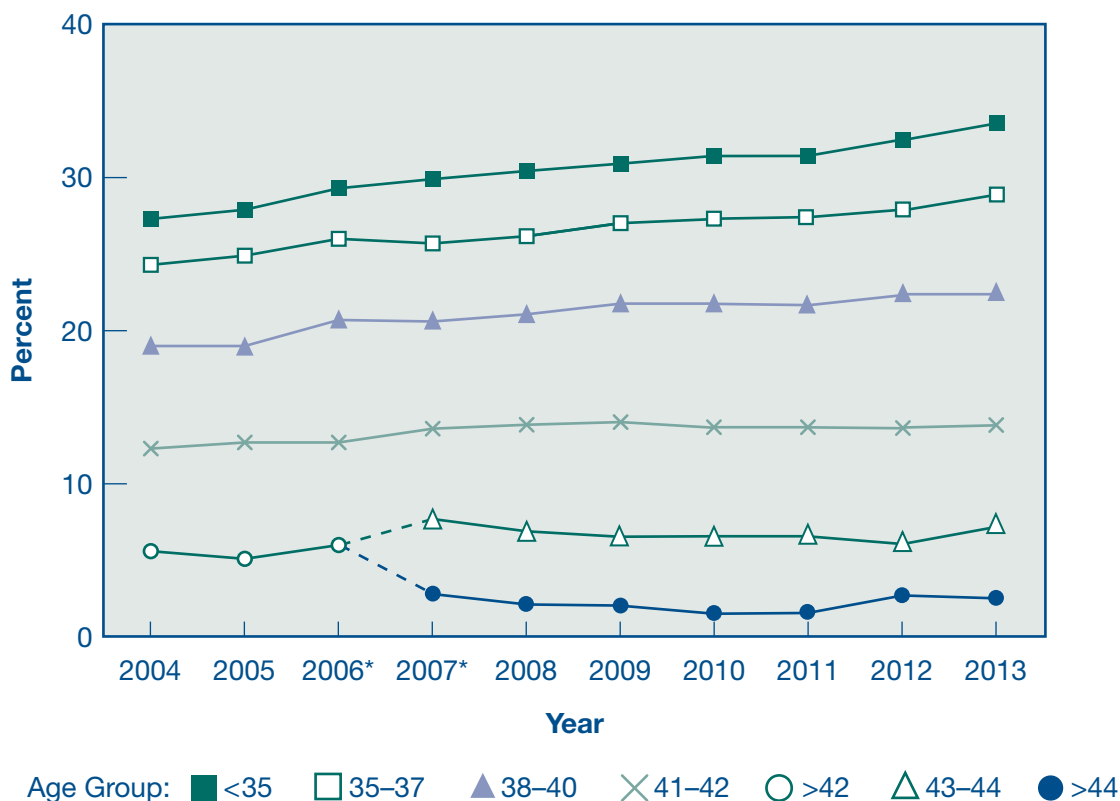
From 2004 through 2013, the percentage of transfers that resulted in single-infant live births increased from 27% in 2004 to 34% in 2013 for women younger than age 35, from 24% to 29% for women aged 35–37, from 24% to 29%

for women aged 35–37, from 19% to 22% for women aged 38–40, and from 12% to 14% for women aged 41–42.

Single-infant births have a lower risk than multiple-infant births for poor infant health outcomes, including prematurity, low birth weight, disability, and death.

Figure 47

Percentages of Transfers Using Fresh Nondonor Eggs or Embryos That Resulted in Single-Infant Live Births, by Age Group, 2004–2013



* Through 2006, data for women older than age 42 were combined. Starting in 2007, data for women older than age 42 were reported as women aged 43–44 and women older than age 44.

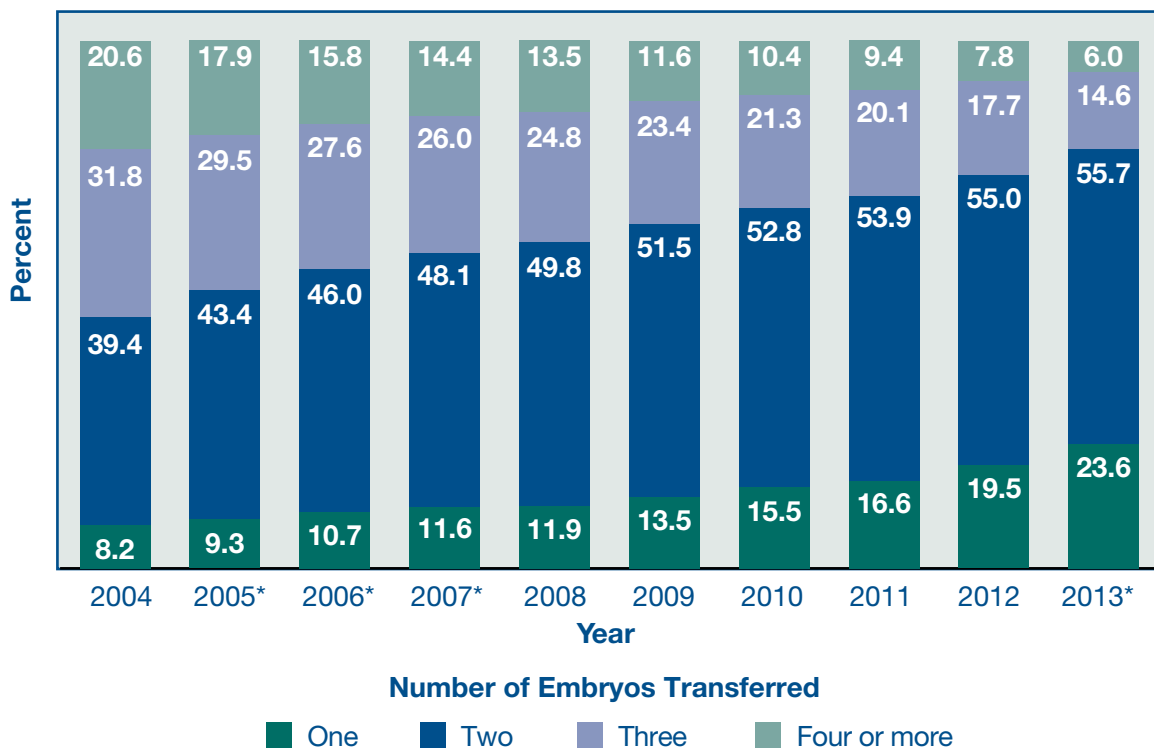
Has the number of embryos transferred changed in fresh nondonor transfers?

Figure 48 shows the distribution of the number of embryos transferred for all fresh nondonor cycles that resulted in a transfer by year. From 2004 through 2013, transfers of one embryo tripled from 8% to almost 24%, and transfers of two embryos increased from 39% to approximately

56%. During the same time period, transfers of three embryos decreased from about 32% to less than 15%, and transfers of four or more embryos decreased by more than three times from approximately 21% to 6%.

Figure 48

Percentages of Fresh Nondonor Transfers of One, Two, Three, or Four or More Embryos, 2004–2013



* Totals do not equal 100% due to rounding.

Has the percentage of elective single embryo transfers changed?

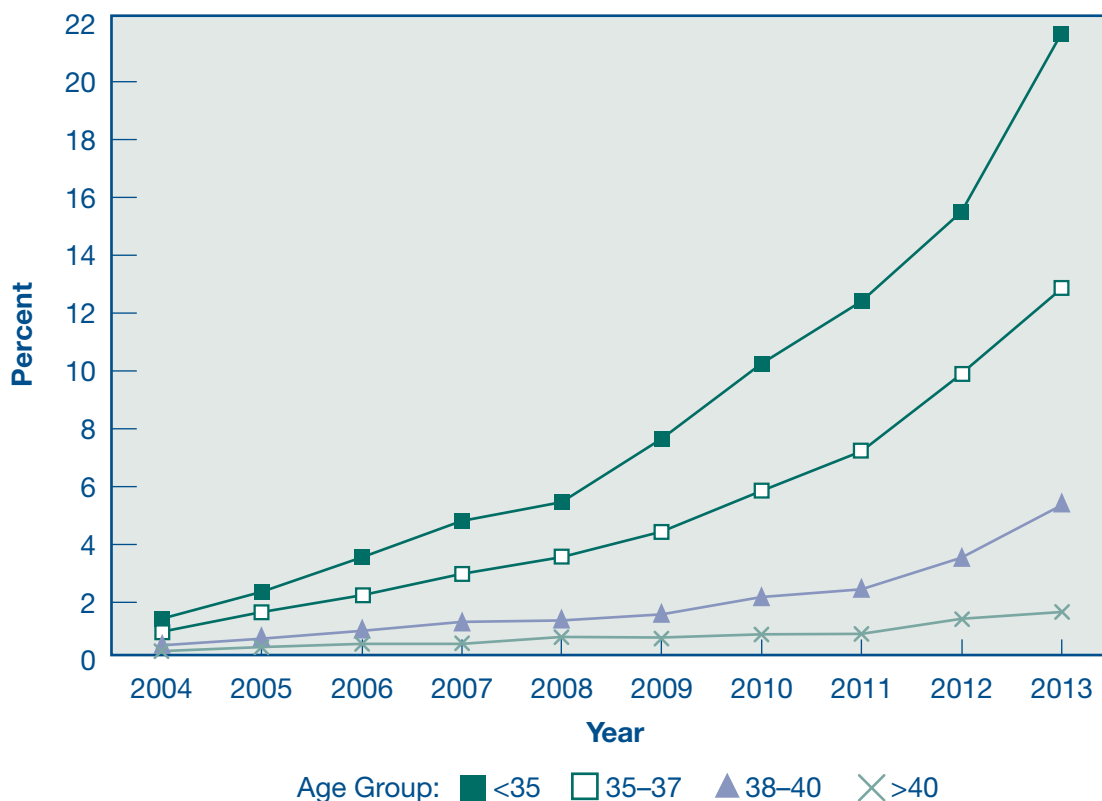
From 2004 through 2013, the percentage of transfers using elective single embryo transfer (eSET) increased dramatically from about 1% to 21% for women younger than age 35 and from slightly less than 1% to almost 13% for women aged 35–37.

An eSET cycle is one in which at least two embryos are available for transfer but only one

embryo is transferred. It does not include cycles in which only one embryo is available. The use of eSET is the most effective way to avoid a multiple-fetus pregnancy and to reduce the risk for poor infant health outcomes such as prematurity and low birth weight. Figure 49 shows percentages of ART transfers that used eSET, by the age of the woman.

Figure 49

Percentages of Elective Single Embryo Transfer (eSET) Among All Transfers Using Fresh Nondonor Eggs or Embryos, by Age Group,* 2004–2013



* All ages older than 40 years are reported together due to the small number of transfers performed with eSET.

How has the relationship between number of embryos transferred and live-birth rate changed?

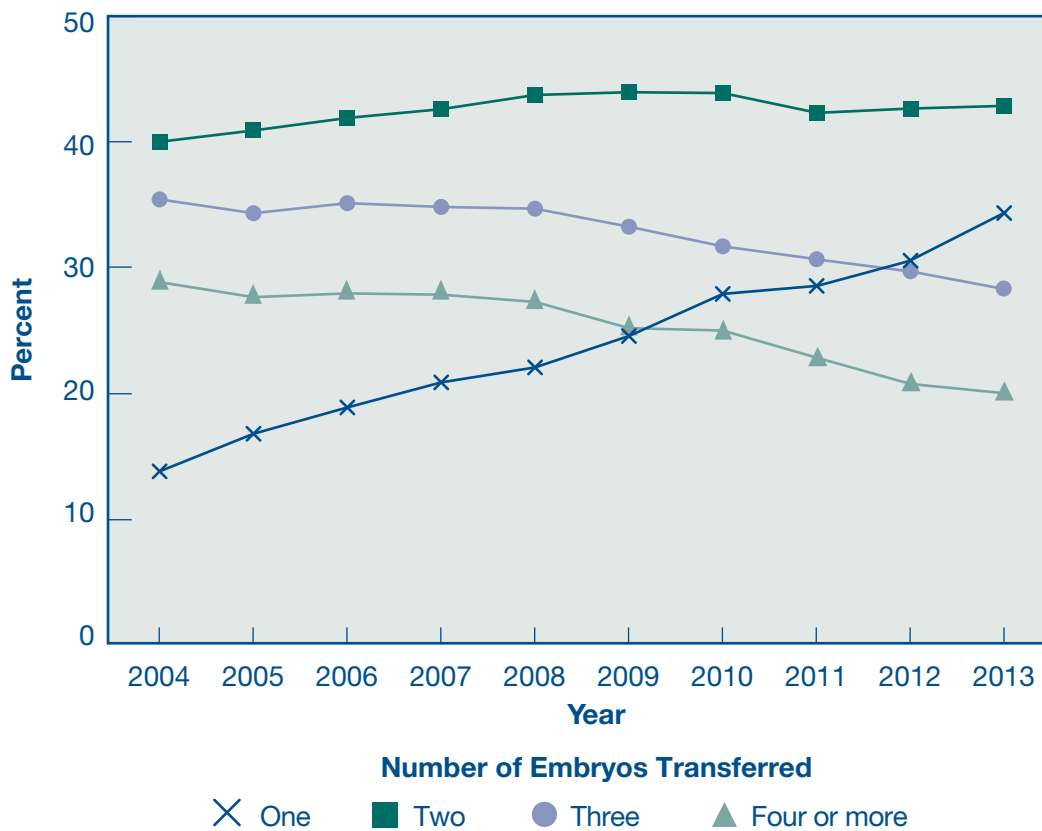
Figure 50 shows percentages of transfers using fresh nondonor eggs or embryos that resulted in live births, by the number of embryos transferred, from 2004 through 2013. The percentage of transfers that resulted in live births more than doubled from 14% in 2004 to 34% in 2013 for the transfer of one embryo, and increased slightly from 40% to 43% for the transfer of two embryos. During the same period, the percentage of transfers that resulted in live births decreased from 35% to 28% for the transfer of three embryos and from 29% to 20% for the transfer of four or more embryos.

embryos and from 29% to 20% for the transfer of four or more embryos.

Interpretation of the relationship between the number of embryos transferred and success rates over time is complicated by several factors, such as the woman's age and embryo quality. The improvement in live-birth rates among those transferring one embryo is likely due in part to a shift toward elective single embryo transfer (eSET) among good-prognosis patients as well as overall improvements in ART practice.

Figure 50

Percentages of Transfers Using Fresh Nondonor Eggs or Embryos That Resulted in Live Births, by Number of Embryos Transferred, 2004–2013



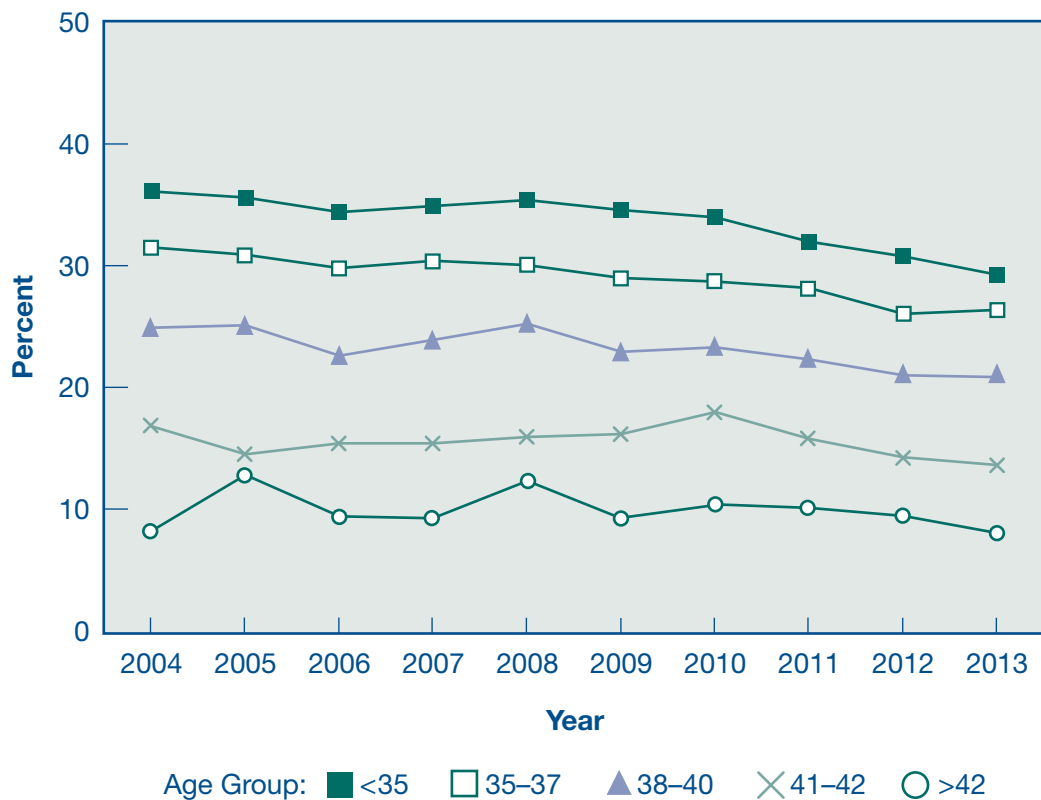
Have percentages of multiple-infant live births changed in particular age groups?

Figure 51 shows percentages of live births that resulted in multiple infants born by the age of the woman, for ART cycles using fresh nondonor eggs or embryos. From 2004 through 2013, the percentage of multiple-infant live births decreased from 36% to 29% for women younger than age

35, from 32% to 26% for women aged 35–37, from 25% to 21% for women aged 38–40, and from 17% to 14% for women aged 41–42. From 2004 through 2013, the percentage of multiple-infant live births ranged from approximately 8% to 12% for women older than age 42.

Figure 51

Percentages of Live Births Using Fresh Nondonor Eggs or Embryos That Resulted in Multiple Infants Born, by Age Group, 2004–2013



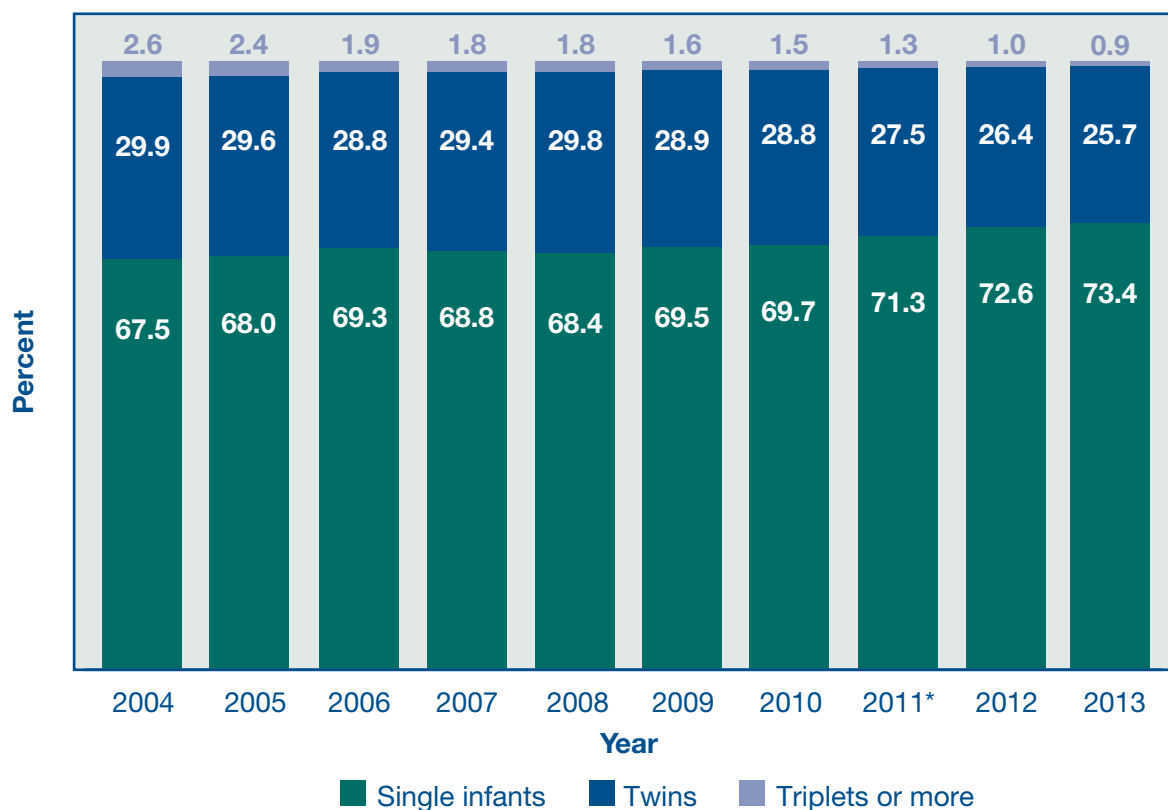
Have percentages of single infants, twins, and triplets or more changed for transfers resulting in live births?

Figure 52 shows trends in percentages of transfers using fresh nondonor eggs or embryos that resulted in single-infant and multiple-infant live births. During the past 10 years, the percentage of single-infant live births increased from 67% to 73%; the percentage of twin births decreased from 30% to 26%; and the percentage

of triplets or more births decreased from 3% to 1%. Infants born from multiple-infant births, including twins, are at substantially greater risk of poor outcomes, including low birth weight, preterm birth, neurological impairments such as cerebral palsy, and death, compared with infants born from single-infant births.

Figure 52

Percentages of Single Infants, Twins, and Triplets or More Among ART Transfers Using Fresh Nondonor Eggs or Embryos That Resulted in Live Births, 2004–2013

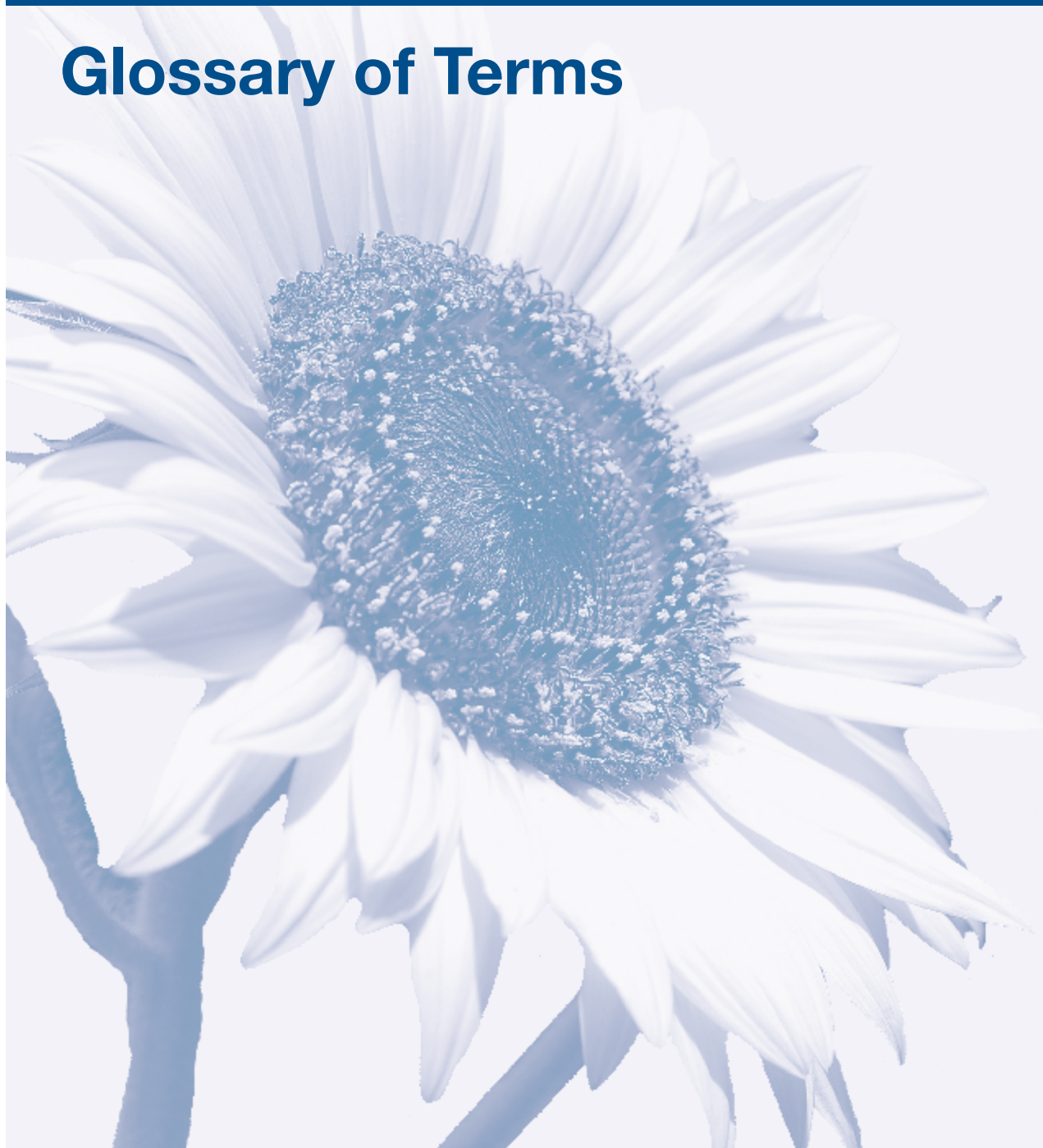


* Total does not equal 100% due to rounding.

2013

Appendix A

Glossary of Terms



APPENDIX A: GLOSSARY OF TERMS

American Society for Reproductive Medicine (ASRM). Professional society whose affiliate organization, the Society for Assisted Reproductive Technology (SART), is composed of clinics and programs that provide ART.

ART (assisted reproductive technology). All treatments or procedures that include the handling of human eggs or embryos to help a woman become pregnant. ART includes but is not limited to in vitro fertilization (IVF), gamete intrafallopian transfer (GIFT), zygote intrafallopian transfer (ZIFT), tubal embryo transfer, egg and embryo cryopreservation, egg and embryo donation, and gestational surrogacy.

ART cycle. An ART cycle starts when a woman begins taking fertility drugs or having her ovaries monitored for follicle production. If eggs are produced, the cycle progresses to egg retrieval. Retrieved eggs are combined with sperm to create embryos. If fertilization is successful, at least one embryo is selected for transfer. If implantation occurs, the cycle may progress to clinical pregnancy and possibly live birth. ART cycles include any process in which (1) an ART procedure is performed, (2) a woman has undergone ovarian stimulation or monitoring with the intent of having an ART procedure, or (3) frozen embryos have been thawed with the intent of transferring them to a woman.

Canceled cycle. An ART cycle in which ovarian stimulation was performed but the cycle was stopped before eggs were retrieved or, in the case of frozen embryo cycles, before embryos were transferred. Cycles are canceled for many reasons: eggs may not develop, the patient may become ill, or the patient may choose to stop treatment.

Cryopreservation. The practice of freezing eggs or embryos from a patient's ART cycle for potential future use.

Diminished ovarian reserve. This diagnosis means that the ability of the ovary to produce eggs is reduced. Reasons include congenital, medical, or surgical causes or advanced age.

Donor egg cycle. An embryo is formed from the egg of one woman (the donor) and then transferred to another woman (the recipient). The donor relinquishes all parental rights to any resulting offspring.

Donor embryo. An embryo that is donated by a patient or couple who previously underwent ART treatment and had extra embryos available.

Ectopic pregnancy. A pregnancy in which the fertilized egg implants in a location outside of the uterus—usually in the fallopian tube, the ovary, or the abdominal cavity. Ectopic pregnancy is a dangerous condition that must receive prompt medical treatment.

Egg. A female reproductive cell, also called an oocyte or ovum.

Egg/Embryo banking cycle. An ART cycle started with the intention of freezing (cryopreserving) all resulting eggs or embryos for potential future use.

Egg retrieval (also called oocyte retrieval). A procedure to collect the eggs contained in the ovarian follicles.

Egg transfer (also called oocyte transfer). The transfer of retrieved eggs into a woman's fallopian tubes through laparoscopy. This procedure is used only in GIFT.

Embryo. An egg that has been fertilized by a sperm and has undergone one or more divisions.

Embryo transfer. Placement of embryos into a woman's uterus through the cervix after IVF: in ZIFT, zygotes are placed in a woman's fallopian tube.

Endometriosis. A medical condition that involves the presence of tissue similar to the uterine lining in abnormal locations.

eSET (elective single embryo transfer). Elective single embryo transfer is a procedure in which one embryo, selected from a larger number of available embryos, is placed in the uterus or fallopian tube. The embryo selected for eSET might be a frozen (cryopreserved) embryo from a previous IVF cycle or a fresh embryo selected from a larger number of fresh embryos yielded during the current fresh IVF cycle.

Female factor infertility. Infertility due to ovulatory disturbances, diminished ovarian reserve, pelvic abnormalities affecting the reproductive tract, or other abnormalities of the reproductive system.

Fertility Clinic Success Rate and Certification Act of 1992 (FCSRCA). Law passed by the United States Congress in 1992 requiring all clinics performing ART in the United States to annually report their success rate data to the Centers for Disease Control and Prevention.

Fertilization. The penetration of the egg by the sperm and the resulting combining of genetic material that develops into an embryo.

Fetus. The unborn offspring from the eighth week after conception to the moment of birth.

Follicle. A structure in the ovaries that contains a developing egg.

Fresh eggs, sperm, or embryos. Eggs, sperm, or embryos that have not been frozen. Fresh embryos, however, may have been conceived using either fresh or frozen sperm.

Frozen embryo cycle. An ART cycle in which frozen (cryopreserved) embryos are thawed and transferred to the woman.

Gamete. A reproductive cell, either a sperm or an egg.

Gestational age. The deviation of time from estimated last menstrual period (LMP) to birth. LMP is estimated using the date of retrieval or transfer.

Gestational carrier (also called a gestational surrogate). A woman who gestates, or carries, an embryo that was formed from the egg of another woman. The gestational carrier usually has a contractual obligation to return the infant to its intended parents.

Gestational sac. A fluid-filled structure that develops within the uterus early in pregnancy. In a normal pregnancy, a gestational sac contains a developing fetus.

GIFT (gamete intrafallopian transfer). An ART procedure that involves removing eggs from the woman's ovary and using a laparoscope to place the unfertilized eggs and sperm into the woman's fallopian tube through small incisions in her abdomen.

ICSI (intracytoplasmic sperm injection). A procedure in which a single sperm is injected directly into an egg; this procedure is commonly used to overcome male infertility problems.

Implantation rate. A measurement of ART success when the ART cycle results in an intrauterine clinical pregnancy, defined as the larger of either the number of maximum fetal hearts by ultrasound or maximum infants born, including live births and stillbirths, out of the total number of embryos transferred.

Induced or therapeutic abortion. A surgical or other medical procedure used to end a pregnancy.

Infertility. In general, infertility refers to the inability to conceive after 12 months of unprotected intercourse. Women aged 35 and older unable to conceive after 6 months of unprotected intercourse generally are considered infertile.

IUI (intrauterine insemination). A medical procedure that involves placing sperm into a woman's uterus to facilitate fertilization. IUI is not considered an ART procedure because it does not involve the manipulation of eggs.

IVF (in vitro fertilization). An ART procedure that involves removing eggs from a woman's ovaries and fertilizing them outside her body. The resulting embryos are then transferred into a woman's uterus through the cervix.

Live birth. The delivery of one or more infants with any signs of life.

Male factor infertility. Any cause of infertility due to low sperm count or problems with sperm function that makes it difficult for a sperm to fertilize an egg under normal conditions.

Miscarriage (also called spontaneous abortion). A pregnancy ending in the spontaneous loss of the embryo or fetus before 20 weeks of gestation.

Multifetal pregnancy reduction. A procedure used to decrease the number of fetuses a woman carries and improve the chances that the remaining fetuses will develop into healthy infants. Multifetal reductions that occur naturally are referred to as spontaneous reductions.

Multiple factor infertility, female and male. A diagnostic category used when one or more female cause of infertility and male factor infertility are diagnosed.

Multiple factor infertility, female only. A diagnostic category used when more than one female cause of infertility but no male factor infertility is diagnosed.

Multiple-fetus pregnancy. A pregnancy with two or more fetuses, determined by the number of fetal hearts observed on an ultrasound.

Multiple-infant birth. A pregnancy that results in the birth of more than one infant.

NASS (National ART Surveillance System). Web-based data collection system used by all ART clinics to report data for each ART procedure to CDC.

Oocyte. The female reproductive cell, also called an egg.

Other causes of infertility. These include immunological problems, chromosomal abnormalities, cancer chemotherapy, and serious illnesses.

Ovarian hyperstimulation syndrome. A possible complication of ovarian stimulation or ovulation induction that can cause enlarged ovaries, a distended abdomen, nausea, vomiting, and/or diarrhea, fluid in the abdominal cavity and/or chest, breathing difficulties, changes in blood volume and/or viscosity, and diminished kidney perfusion and function.

Ovarian monitoring. The use of ultrasound and/or blood or urine tests to monitor follicle development and hormone production.

Ovarian stimulation. The use of drugs (oral or injected) to stimulate the ovaries to develop follicles and eggs.

Ovulatory dysfunction. A diagnostic category used when a woman's ovaries are not producing eggs normally. It is usually characterized by irregular menstrual cycles reflective of ovaries that are not producing one mature egg each month. It includes polycystic ovary syndrome and multiple ovarian cysts.

PGD (preimplantation genetic diagnosis). A technique combining advances in molecular genetics and ART. PGD allows physicians to identify various genetic diseases in the embryo (fertilized egg with several divisions) prior to implantation, that is, before the pregnancy is established. It is of special value for those who are at risk of having children with serious genetic problems.

Pregnancy (clinical). A pregnancy documented by ultrasound that shows a gestational sac in the uterus. For ART data reporting purposes, pregnancy is defined as a clinical pregnancy rather than a chemical pregnancy (i.e., a positive pregnancy test).

Singleton. A single infant.

Society for Assisted Reproductive Technology (SART). An affiliate of ASRM composed of clinics and programs that provide ART.

Sperm. The male reproductive cell.

Spontaneous abortion. See Miscarriage.

Stillbirth. The birth of an infant that shows no sign of life after 20 or more weeks of gestation.

Stimulated cycle. An ART cycle in which a woman receives oral or injected fertility drugs to stimulate her ovaries to develop follicles that contain mature eggs.

Thawed embryo cycle. Same as frozen embryo cycle.

Tubal factor infertility. A diagnostic category used when the woman's fallopian tubes are blocked or damaged, making it difficult for the egg to be fertilized or for an embryo to travel to the uterus.

Ultrasound. A technique used in ART for visualizing the follicles in the ovaries, the gestational sac, or the fetus.

Unknown cause of infertility. A diagnostic category used when no cause of infertility is found in either the woman or the man.

Unstimulated cycle. An ART cycle in which the woman does not receive drugs to stimulate her ovaries to produce more follicles and eggs. Instead, follicles and eggs develop naturally.

Uterine factor infertility. A structural or functional disorder of the uterus that results in reduced fertility.

ZIFT (zygote intrafallopian transfer). An ART procedure in which eggs are collected from a woman's ovary and fertilized outside her body. A laparoscope is then used to place the resulting zygote into the woman's fallopian tube through a small incision in her abdomen.

Zygote. A fertilized egg before it begins to divide.

2013

Appendix B

National Consumer Organizations



APPENDIX B: NATIONAL CONSUMER ORGANIZATIONS

The following national consumer organizations offer support to people experiencing infertility:

Path2Parenthood
315 Madison Ave, Suite 901
New York NY 10017
Telephone: (888) 917-3777
info@path2parenthood.org
<http://www.path2parenthood.org>

RESOLVE: The National Infertility Association
7918 Jones Branch Dr, Suite 300
McLean VA 22102
Telephone: (703) 556-7172; Fax: (703) 506-3266
info@resolve.org
<http://www.resolve.org>

Womenshealth.gov
Office on Women's Health
US Department of Health and Human Services
200 Independence Ave, S.W., Room 712E
Washington DC 20201
Telephone: (202) 690-7650; Fax: (202) 205-2631
<http://www.womenshealth.gov>



US DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention