

Criteria for number of embryos to transfer: a committee opinion

The Practice Committee of the American Society for Reproductive Medicine and the Practice Committee of the Society for Assisted Reproductive Technology

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Based on American Society for Reproductive Medicine (ASRM) and Society for Assisted Reproductive Technology data available for 2010, ASRM's guidelines for the number of embryos to be transferred in in vitro fertilization cycles have been further refined in continuing efforts to reduce the number of higher-order multiple pregnancies. This version replaces the document titled Guidelines on number of embryos transferred that was published most recently in August of 2009, *Fertil Steril* 2009;92:1518-9. (*Fertil Steril*® 2012; ■: ■-■. ©2012 by American Society for Reproductive Medicine.)

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Based on American Society for Reproductive Medicine (ASRM) and Society for Assisted Reproductive Technology (SART) data available for 2010, ASRM's guidelines for the number of embryos to be transferred in in vitro fertilization (IVF) cycles were revised in an effort to reduce the number of higher-order multiple pregnancies.

High-order multiple pregnancy (three or more implanted embryos) is an undesirable consequence (outcome) of assisted reproductive technologies (ART) (1). Multiple gestations lead to an increased risk of complications in both the fetuses and the mothers (2). Ideally, the goal of ART is to achieve a singleton gestation (3, 4).

Although multifetal pregnancy reduction can be performed to reduce fetal number, the procedure may result in the loss of all fetuses, does not completely eliminate the risks associated with multiple pregnancy, and may have adverse psychological consequences (5). Moreover, multifetal pregnancy reduction is not an acceptable option for many women.

In an effort to reduce the incidence of high-order multiple gestations and promote singleton gestations, ASRM and SART have developed the following guidelines to assist ART programs and patients in determining the appropriate number of cleavage-stage (usually 2 or 3 days after fertilization) embryos or blastocysts (usually 5 or 6 days after fertilization) to transfer. Strict limitations on the number of embryos transferred, as required by law in some countries, do not allow treatment plans to be individualized after careful consideration of each patient's own unique circumstances. Therefore, transferring greater or fewer embryos than dictated by these criteria may be justified according to individual clinical conditions, including patient age, embryo quality, the opportunity for cryopreservation, and as clinical experience with newer techniques accumulates.

I. Individual programs are encouraged to generate and use their own data regarding patient characteristics

and the number of embryos to be transferred. Accordingly, programs should monitor their results continually and adjust the number of embryos transferred to minimize undesirable outcomes. Programs that have a high-order multiple pregnancy rate that is >2 standard deviations above the mean rate for all SART-reporting clinics for 2 consecutive years may be audited by SART.

II. Independent of age, the following characteristics have been associated with a favorable prognosis: 1) first cycle of IVF; 2) good-quality embryos as judged by morphologic criteria; and 3) excess embryos of sufficient quality to warrant cryopreservation. Patients who have had previous success with IVF also should be regarded as being in a favorable prognostic category. The number of embryos transferred should be agreed upon by the physician and the treated patient(s), informed consent documents completed, and the information recorded in the clinical record. In the absence of data generated by the individual program, and based on data generated by all clinics providing ART services, the following guidelines are recommended (Table 1):

A. Patients under the age of 35 who have a favorable prognosis

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TABLE 1

Recommended limits on the numbers of embryos to transfer.

Prognosis	Age (y)			
	< 35	35–37	38–40	41–42
Cleavage-stage embryos ^a				
Favorable ^b	1–2	2	3	5
All others	2	3	4	5
Blastocysts ^a				
Favorable ^b	1	2	2	3
All others	2	2	3	3

^a See text for more complete explanations. Justification for transferring one additional embryo more than the recommended limit should be clearly documented in the patient's medical record.

^b Favorable = first cycle of IVF, good embryo quality, excess embryos available for cryopreservation, or previous successful IVF cycle.

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should be offered a single-embryo transfer and no more than two embryos (cleavage stage or blastocyst) should be transferred (4, 6). If two embryos are transferred, the patient(s) must be counseled regarding the risks of multifetal pregnancy and the counseling should be documented in the patient's permanent medical record.

- B. For patients between 35 and 37 years of age who have a favorable prognosis, no more than two cleavage-stage embryos should be transferred. All others in this age group should have no more than three cleavage-stage embryos transferred. If extended culture is performed, no more than two blastocysts should be transferred to women in this age group.
- C. For patients between 38 and 40 years of age who have a favorable prognosis, no more than three cleavage-stage embryos or two blastocysts should be transferred. All others in this age group should have no more than four cleavage-stage embryos or three blastocysts transferred.
- D. For patients 41–42 years of age, no more than five cleavage-stage embryos or three blastocysts should be transferred.
- E. In each of the above age groups, for patients with two or more previous failed fresh IVF cycles or a less favorable prognosis, one additional embryo may be transferred according to individual circumstances. The patient must be counseled regarding the risks of multifetal pregnancy. Both the counseling and the justification for exceeding the recommended limits must be documented in the patient(s)'s permanent medical record.
- F. In women >43 years of age, there are insufficient data to recommend a limit on the number of embryos to transfer.
- G. In donor-egg cycles, the age of the donor should be used to determine the appropriate number of embryos to transfer, but when the donor is <35 years of age single embryo transfer should be strongly considered.
- H. In frozen-embryo transfer cycles, the number of good-quality thawed embryos transferred should not exceed the recommended limit on the number of fresh embryos transferred for each age group.

III. Because not all oocytes may fertilize when gamete intrafallopian transfer is performed, one more oocyte than embryo may be transferred for each prognostic category (7).

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