

Guidelines on number of embryos transferred

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

Birmingham, Alabama

Based on data from the most current published CDC/ASRM/SART yearly report, guidelines for the number of embryos to be transferred in IVF cycles have been further refined. (Fertil Steril® 2006;86(Suppl 4):S51–52. © 2006 by American Society for Reproductive Medicine.)

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

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 (3). Moreover, multifetal pregnancy reduction is not an acceptable option for many women.

In an effort to reduce the incidence of high-order multiple gestations, the American Society for Reproductive Medicine (ASRM) and the Society for Assisted Reproductive Technology (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. Accordingly, these guidelines may be modified, 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 in order to minimize undesirable outcomes. Programs that have a high-order multiple pregnancy rate that is greater than two standard deviations above the mean rate for all SART reporting clinics for two consecutive years will be audited by SART.
- II. Independent of age, the following characteristics have been associated with a more favorable prognosis: 1) first cycle of in vitro fertilization (IVF), 2) good quality embryos as

judged by morphologic criteria, and 3) excess of embryos of sufficient quality to warrant cryopreservation. Patients who have had previous success with IVF also should be regarded as being in a more 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:

- A. For patients under the age of 35 who have a more favorable prognosis, consideration should be given to transferring only a single embryo. All others in this age group should have no more than 2 embryos (cleavage-stage or blastocyst) transferred in the absence of extraordinary circumstances.
 - B. For patients between 35 and 37 years of age who have a more favorable prognosis, no more than 2 cleavage-stage embryos should be transferred. All others in this age group should have no more than 3 cleavage-stage embryos transferred. If extended culture is performed, no more than 2 blastocysts should be transferred to women in this age group.
 - C. For patients between 38 and 40 years of age who have a more favorable prognosis, no more than 3 cleavage-stage embryos or more than 2 blastocysts should be transferred. All others in this age group should have no more than 4 cleavage-stage embryos or 3 blastocysts transferred.
 - D. For patients greater than 40 years of age, no more than 5 cleavage-stage embryos or 3 blastocysts should be transferred.
 - E. For patients with 2 or more previous failed IVF cycles or a less favorable prognosis, additional embryos may be transferred according to individual circumstances after appropriate consultation.
 - F. In donor egg cycles, the age of the donor should be used to determine the appropriate number of embryos to transfer.
- III. Because not all oocytes may fertilize when GIFT is performed, one more oocyte than embryo may be transferred for each prognostic category (4).

Guideline

Revised June 2006.

Received and accepted July 21, 2006.

Reprints will not be available.

SUMMARY AND RECOMMENDATIONS

TABLE 1

Recommended limits on the numbers of embryos to transfer.

Cleavage-Stage Embryos^a

Prognosis	Age <35	Age 35–37	Age 38–40	Age >40
Favorable ^b	1–2	2	3	5
All others	2	3	4	5

Blastocysts^a

Prognosis	Age <35	Age 35–37	Age 38–40	Age >40
Favorable ^b	1	2	2	3
All others	2	2	3	3

^a See text for more complete explanations. Justification for transferring more than the recommended number of embryos 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.

ASRM Practice Committee. Guidelines on number of embryos transferred. Fertil Steril 2006.

Acknowledgments: This report was developed under the direction of the Practice Committee of the Society for Assisted Reproductive Technology and the Practice Committee of the American Society for Reproductive Medicine as a service to their members and other practicing clinicians. While this document reflects appropriate management of a problem encountered in the practice of reproductive medicine, it is not intended to be the only approved standard of practice or to dictate an exclusive course of treatment. Other plans of management may be appropriate, taking into account the needs of the individual patient, available resources, and institutional or clinical practice limitations. This report has been approved by the Executive Council of the Society for Assisted Reproductive Technology and by the Board of Directors of the American Society for Reproductive Medicine.

REFERENCES

1. Society for Assisted Reproductive Technology and American Society for Reproductive Medicine. Assisted reproductive technology in the United States: 2000 results generated from the American Society for Reproductive Medicine/Society for Assisted Reproductive Technology Registry. *Fertil Steril* 2004;81:1207–20.
2. Schieve LA, Peterson HB, Meikle S, Jeng G, Danel I, Burnett NM, et al. An evaluation of the multiple-birth risk associated with in vitro fertilization in the United States. *JAMA* 1999;282(19):1832–8.
3. Stone J, Eddleman K, Lynch L, Berkowitz RL. A single center experience with 1000 consecutive cases of multifetal pregnancy reduction. *Am J Obstet Gynecol* 2002;187(5):1163–7.
4. Qasim SM, Karacan M, Corsan GH, Shelden R, Kemmann E. High-order oocyte transfer in gamete intrafallopian transfer patients 40 or more years of age. *Fertil Steril* 1995;64:107–10.