

# LIVE BIRTH RATE AFTER FEMALE FERTILITY PRESERVATION FOR CANCER OR HEMATOPOIETIC STEM CELL TRANSPLANTATION: A SYSTEMATIC REVIEW AND META-ANALYSIS

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## Abstract Body

**Introduction:** Nowadays, Fertility Preservation (FP) has become a major public health issue as diagnostic and therapeutic progress has made it possible to achieve an 80% survival rate in children, adolescents, and young adults. In the last ESHRE guidelines, only oocyte and embryo cryopreservation are considered as established options for FP, whereas Ovarian Tissue Cryopreservation (OTC) is still considered as an innovative method. However, given the lack of studies on long-term outcomes after FP it is still unclear which technique offers the best chance to achieve a live birth.

**Objectives:** What are the chances of achieving a live birth after embryo, oocyte and OTC in female cancer survivor?

**Material and methods:** We made a systematic review and meta-analysis of published controlled studies. Searches were conducted from January 2004 to May 2021 on Medline, Embase and Cochrane library using the following search terms: cancer, stem cell transplantation, fertility preservation, embryo cryopreservation, oocyte vitrification, ovarian tissue cryopreservation, reproductive outcome. The studies were selected, and their data extracted by two independent reviewers according to Cochrane methods. A fixed-effect meta-analysis was made apart for outcomes with high heterogeneity.

**Results:** A total of 126 full-text articles were pre-selected from 1436 references, based on title and abstract and assessed via the Newcastle-Ottawa Quality Assessment Scale. Data from 34 studies were used for this meta-analysis. Regarding cryopreserved embryos, the LBR after IVF was 41 % (95% CI: 34-48, I2: 0%, fixed effect). Concerning vitrified oocytes, the LBR was 32 % (95% CI: 26-39, I2: 0%, fixed effect). Finally, the LBR after IVF and the spontaneous LBR after ovarian tissue transplantation were respectively 21 % (95% CI: 15-26, I2: 0%, fixed-effect) and 33 % (95% CI: 25-42, I2: 46.1%, random-effect). For all outcomes, in the sensitivity analyses, the maximum variation in the estimated percentage was 1%. The heterogeneity of the literature prevents us from comparing these three techniques and this meta-analysis can only provide guidance to counsel women.

**Conclusion:** This study highlights the need for long-term follow-up registers to assess return rates, as well as spontaneous pregnancy rates and birth rates after FP.