Fertility Preservation in People with Cancer: ASCO Guideline Update

COG Supportive Care Endorsed Guidelines

Click **here** to see all the COG Supportive Care Endorsed Guidelines.

The “Fertility Preservation in People with Cancer: ASCO Clinical Practice Guideline Update” guideline was endorsed by the COG Supportive Care Guidelines sub-Committee in June 2025. It is an update to the 2018 clinical practice guideline that was also endorsed by the COG and is now archived. The 2025 clinical practice guideline is published (Su HI, Lacchetti C, Letourneau J, et al. Fertility preservation in people with cancer: ASCO guideline update. J Clin Onc 2025; 43, 1488-1515.) and is available here: https://ascopubs.org/doi/10.1200/JCO-24-02782

This guideline provides a comprehensive approach to assessing, discussing and offering fertility preservation options to people with cancer. The good practice statements and recommendations of the source clinical practice guideline are presented below.

Good Practice Statements for Fertility Preservation for People with Cancer

GOOD PRACTICE STATEMENTS
Role of clinicians
6.2. All clinicians should encourage patients to participate in registries and clinical studies, as available, to define further the gonadotoxic risks of cancer-directed therapies as well as the safety and efficacy of fertility preservation interventions and strategies.
6.3. All clinicians should refer patients who express an interest in fertility, as well as those who are ambivalent or uncertain, to reproductive specialists as soon as possible.
6.4. Oncology teams should identify and ensure prompt access to a multidisciplinary fertility preservation team including fertility specialists, trained mental-health professionals for emotional support and guidance on family building decision-making, social workers, financial counseling and insurance navigation, and genetic counselors. Effective, timely, and regular communication among team members is essential to provide coordinated, comprehensive care for patients.
6.5. Health insurance benefit mandates and benefits for fertility preservation should specify comprehensive coverage of guideline-based fertility preservation services and long-term storage, parity with other insurance benefits, and elimination of prior authorization. Clinicians should advocate for comprehensive insurance coverage of fertility preservation services for their patients with cancer with legislators, insurance regulators, and health plans, as well as for clinic-based resources to help patients access insurance benefits.

Summary of Recommendations for Fertility Preservation for People with Cancer

RECOMMENDATIONS	Strength of Recommendation and Quality of Evidence
Discussing risk of infertility with patient	
1.1 Clinicians caring for adult and pediatric patients with cancer should discuss the possibility of infertility as early as possible before treatment starts to preserve the full range of options.	Strong Moderate quality evidence
1.2 Clinicians should refer patients who express an interest in fertility preservation, and those who are uncertain, to reproductive specialists.	Strong Very low quality evidence
1.3 Clinicians should initiate the discussion regarding infertility with the knowledge that it can ultimately reduce distress and improve quality of life, even if the patient does not undergo fertility preservation.	Strong Moderate quality evidence
1.4 Additional discussions and/or referrals may be offered yearly when the patient returns for follow-up after completion of cancer-directed therapy or when treatment plans change or evolve, as well as if pregnancy is being considered. The discussions should be ongoing throughout survivorship and documented in the medical record.	Strong Low quality evidence
Qualifying Statement for Recommendations 1.3 and 1.4*: It is essential that these discussions take place with all patients, irrespective of their reproductive risk profile, current family size, cancer prognosis, sexual orientation or identity, religious beliefs, financial or insurance resources, access to care, or other potential considerations, including disparities.*	
Risks of infertility from cancer treatment	
2.1 Clinicians should offer an evaluation and counseling regarding the risk of reproductive function impairment and infertility to ensure that all patients are appropriately informed and supported in managing the potential reproductive impacts of their cancer treatment. This assessment should consider specific patient groups known to be at increased risk due to the gonadotoxic nature of the therapies they receive or could receive in the future, and those on longer-term treatments that delay or preclude the ability to conceive. It should also consider those for whom the risk remains uncertain due to the unknown reproductive toxicity of many cancer-directed therapies. The effect of chronologic age should also be taken into account for females due to increased infertility risk with concomitant aging.	Strong Moderate quality evidence
Fertility preservation in males	
3.1 Sperm cryopreservation: Cryopreservation of ejaculated sperm (sperm banking) should be offered prior to initiating cancer-directed therapy. Health care clinicians should discuss sperm banking with all pubertal and postpubertal males prior to receiving cancer treatment.	Strong High quality evidence

RECOMMENDATIONS	Strength of Recommendation and Quality of Evidence
Qualifying Statement for Recommendation 3.1*: More sperm samples will provide greater flexibility in future fertility treatments, ie, inseminations versus IVF. While fertility clinicians empirically recommend a minimum of three ejaculates of sufficient quality, achieving this may not be feasible for all patients. Clinicians should adopt a flexible approach and collect as many ejaculates as possible before the start of gonadotoxic therapy. Importantly, any cryopreserved sperm can offer a chance for biological parenthood.*	
3.2 Testicular sperm extraction (TESE): TESE with sperm cryopreservation should be offered to pubertal and postpubertal males who cannot produce a semen sample, before cancer treatment begins.	Strong High quality evidence
3.3 Hormonal gonadoprotection: Hormonal suppression therapy should not be offered to males as an approach for preserving fertility. It is not effective and therefore not recommended.	Strong High quality evidence
3.4 Other methods to preserve male fertility: Other methods, such as testicular tissue cryopreservation in pre-pubertal males and reimplantation or grafting of human testicular tissue, should be performed only as part of clinical trials or approved experimental protocols.	Strong Very low quality evidence
3.5 Post-treatment setting: Males should be advised of a potentially higher risk of genetic damage in sperm collected soon after initiation and completion of antineoplastic and/or radiation therapy. It is strongly recommended that sperm be collected before initiation of treatment because the quality of the sample and sperm DNA integrity may be compromised after single treatment. Although sperm counts and quality of sperm may be diminished even before initiation of therapy, and even if there may be a need to initiate chemotherapy quickly such that there may be limited time to obtain optimal numbers of ejaculate specimens, these concerns should not dissuade patients from banking sperm. Intracytoplasmic sperm injection allows the future use of a very limited amount of sperm; thus, even in these compromised scenarios, fertility may still be preserved.	Strong Low quality evidence
Fertility preservation in females	
4.1 Embryo cryopreservation: Embryo cryopreservation should be offered as it is an established fertility preservation method, and it has routinely been used for storing embryos after in vitro fertilization.	Strong High quality evidence
4.2 Mature oocyte cryopreservation: Cryopreservation of unfertilized oocytes should be offered as it is an established fertility preservation method and may be especially well suited to females who do not have a male partner, do not wish to use donor sperm, or have religious or ethical objections to embryo freezing. Oocyte cryopreservation should be performed in centers with the necessary expertise.	Strong High quality evidence

RECOMMENDATIONS	Strength of Recommendation and Quality of Evidence
Qualifying Statements for Recommendations 4.1 and 4.2*: Embryo and oocyte cryopreservation are both recommended options for fertility preservation in female patients with cancer undergoing gonadotoxic therapy. The choice between embryo and oocyte cryopreservation should be guided by patient preferences, clinical considerations, and individual circumstances including future flexibility, success rates, and legal considerations. The Expert Panel emphasizes shared decision-making among the primary oncology team, the reproductive endocrinology team, and the patient to determine safety and appropriateness of ovarian stimulation and to tailor protocols. Flexible ovarian stimulation protocols for oocyte collection are available. Timing of this procedure no longer depends on the menstrual cycle in most cases, and stimulation can be initiated with less delay compared with older protocols. Thus, oocyte harvesting for the purpose of oocyte or embryo cryopreservation is now possible on a cycle day–independent schedule. Of special concern in estrogen-sensitive breast and gynecologic malignancies is the possibility that these fertility preservation interventions (eg, ovarian stimulation regimens that increase estrogen levels) may increase the risk of cancer progression or recurrence. Aromatase inhibitor– based stimulation protocols are now well established and may alleviate these concerns. In particular, there is no increased cancer recurrence risk as a result of aromatase inhibitor–supplemented ovarian stimulation.*	
4.3 Post-treatment setting: Embryo and oocyte cryopreservation for fertility preservation may be offered in the post-treatment setting to patients who did not undergo fertility preservation before their cancer treatment but are at risk of primary ovarian insufficiency or infertility. They may also be offered to survivors who previously underwent fertility preservation but may not have enough cryopreserved tissue to meet their desired family size, as well as for those who want or need to delay childbearing and consequently face the risk of age-related fertility decline, which may be accelerated in cancer survivors.	Strong Moderate quality evidence
Qualifying Statement for Recommendation 4.3*: In the post-treatment setting, the efficacy of oocyte retrieval and embryo creation is contingent upon the presence of a viable ovarian reserve, which can be assessed through markers such as anti-Mullerian hormone (AMH) levels and antral follicle count (AFC). It is important to acknowledge that the reproductive potential of gametes may be affected by the proximity to cancer treatment. Due to timelines of oocyte development, there may be no oocyte yield within 3 months of last chemotherapy dose. Patients should be counseled on the unknown reproductive potential and offspring health of gametes obtained proximal to gonadotoxic therapy.*	
4.4. In vitro maturation (IVM): IVM of oocytes may be offered as an emerging FP method.	Conditional Low quality evidence
Qualifying Statement for Recommendation 4.4*: IVM has lower pregnancy and live birth rates compared to IVF in females without cancer. The pregnancy and live birth rates of IVM in cancer survivors is unknown.*	
4.5. Ovarian transposition: Ovarian transposition (oophoropexy) may be offered to reproductive-aged patients when pelvic irradiation is required. However, because of radiation scatter, ovaries are not always protected, and patients should be aware that this technique is not always successful. Because of the risk of remigration of the	Strong Moderate quality evidence

RECOMMENDATIONS	Strength of Recommendation and Quality of Evidence
ovaries, this procedure should be performed as close to the time of radiation treatment as possible.	
Qualifying Statement for Recommendation 4.5*: Ovarian transposition is not suitable for patients with a moderate or high risk of ovarian metastasis, or those receiving concomitant gonadotoxic chemotherapy.*	
4.6. Uterine transposition: Uterine transposition in reproductive-aged patients remains experimental and should be offered only as part of a clinical trial or approved experimental protocols.	Conditional Low quality evidence
4.7. Conservative gynecologic surgery: a. For patients with stage IA2 to IB1 cervical cancer, radical trachelectomy may be offered to preserve fertility if the tumor diameter is <2 cm and invasion depth is < 10mm. b. For patients with well-differentiated (grade1) endometrial tumors with minimal myometrial invasion, as confirmed by magnetic resonance imaging, fertility-sparing surgery may be offered. Hormonal therapy using progestins, either orally or via an intrauterine device, is the primary fertility-preserving option for early-stage endometrial cancer. c. Patients with stage IA grade1 epithelial ovarian cancer after thorough staging may be offered fertility-sparing surgery. Uterine preservation may be considered in other stages and grades to enable future use of assisted reproductive technologies. d. In other gynecologic malignancies, less radical surgeries may be offered to spare reproductive organs when clinically appropriate.	Strong Moderate quality evidence
Qualifying Statement for Recommendation 4.7*: Each surgical decision should balance optimal oncologic care with the patient's fertility goals, involving a multidisciplinary team for comprehensive treatment planning and follow-up care.*	
4.8. Ovarian suppression: Gonadotropin-releasing hormone agonists (GnRHa) should not be used in place of established fertility preservation methods such as oocyte, embryo, or ovarian tissue cryopreservation. GnRHa may be offered as an adjunct to females with breast cancer. Beyond breast cancer, the potential benefits and risks of GnRHa warrant further investigation, and trials are encouraged.	Conditional Moderate quality evidence
4.9. Ovarian suppression: For patients with oncologic emergencies requiring urgent chemotherapy, GnRHa may be offered and can provide benefits such as menstrual suppression.	Conditional Low quality evidence
4.10. Ovarian tissue cryopreservation and transplantation: Ovarian tissue cryopreservation (OTC) for the purpose of future transplantation may be offered to patients with cancer as an established fertility preservation method. As it does not require ovarian stimulation, it can be performed immediately in those unable	Strong Moderate quality evidence

RECOMMENDATIONS	Strength of Recommendation and Quality of Evidence
to delay chemotherapy. In addition, it does not require sexual maturity and hence may be the only method available in prepubertal patients. This method may also be offered as an emerging method to restore global ovarian function. While this option may be offered as an alternative to embryo or oocyte cryopreservation, it may also serve as an adjunct option. Proceeding with OTC should be guided by patient preferences, clinical considerations, and individual circumstances including future flexibility, success rates, and legal considerations.	
Qualifying Statement for Recommendation 4.10*: Evaluating cancer survivors for residual neoplastic cells before ovarian tissue transplantation is essential to mitigate disease transmission risks and to prioritize patient safety. There is a theoretical risk of reintroducing malignant cells but the clinical significance of this is unknown. To reduce this risk, OTC may be deferred until posttreatment MRD negativity is achieved.*	
Fertility preservation in children	
5.1 Clinicians should offer established methods of fertility preservation (eg, semen or oocyte cryopreservation) in children and adolescents who have initiated puberty, with patient assent and parent or guardian consent. For prepubertal children, the only fertility preservation options are ovarian and testicular cryopreservation, the latter of which is currently investigational.	Strong Moderate quality evidence
Role of clinicians	
6.1 All clinicians should be prepared to discuss infertility as a potential risk of therapy. This discussion should take place as soon as possible once a cancer diagnosis is made and can occur simultaneously with staging and the formulation of a treatment plan. There are benefits for patients in discussing fertility information with clinicians at every step of the cancer journey.	Strong Very low quality evidence

*see Appendix 1

Appendix 1: Systems for Classifying Recommendations and Evidence used by the Source Clinical Practice Guidelines

I. GRADE

Strength of Recommendations:

Strong Recommendation	When using GRADE, panels make strong recommendations when they are confident that the desirable effects of adherence to a recommendation outweigh the undesirable effects.
Conditional Recommendation	Conditionals recommendations indicate that the desirable effects of adherence to a recommendation probably outweigh the undesirable effects, but the panel is less confident.

Strength of Recommendations Determinants:

Factor	Comment
Balance between desirable and undesirable effects	The larger the difference between the desirable and undesirable effects, the higher the likelihood that a strong recommendation is warranted. The narrower the gradient, the higher the likelihood that a weak recommendation is warranted
Quality of evidence	The higher the quality of evidence, the higher the likelihood that a strong recommendation is warranted
Values and preferences	The more values and preferences vary, or the greater the uncertainty in values and preferences, the higher the likelihood that a conditional recommendation is warranted
Costs (resource allocation)	The higher the costs of an intervention—that is, the greater the resources consumed—the lower the likelihood that a strong recommendation is warranted

Quality of Evidence

High Quality	Further research is very unlikely to change our confidence in the estimate of effect
Moderate Quality	Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate
Low Quality	Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate
Very Low Quality	Any estimate of effect is very uncertain

Guyatt, G.H., et al., *GRADE: an emerging consensus on rating quality of evidence and strength of recommendations.* BMJ, 2008; 336: 924-926.
Guyatt, G.H., et al., *GRADE: going from evidence to recommendations.* BMJ, 2008; 336: 1049-1051.