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Gynaecologic Oncology Society of Kenya (GOSK) clinical management protocol for epithelial ovarian cancer in Kenya: 2026

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Abstract

Objective: To establish a standardized, evidence-based approach to the management of epithelial ovarian cancer in Kenya.

Methods: The protocol was developed through a structured guideline adaptation process, integrating recommendations from internationally recognized clinical practice guidelines with the realities of Kenya's healthcare system and available resources. The adaptation was undertaken by a multidisciplinary expert panel comprising gynecologic oncologists, pathologists, radiologists, oncology nurses, pharmacists, radiation oncologists, public health specialists, and patient representatives. Before commencing the adaptation process, panel members underwent training facilitated by the University of Nairobi and Kenyatta National Hospital on evidence-based guideline adaptation. The training focused on systematic guideline appraisal, critical evaluation of evidence, application of the Appraisal of Guidelines for Research and Evaluation II (AGREE II) instrument, and methods for tailoring recommendations to the Kenyan context. A comprehensive search of PubMed and Google Scholar was conducted to identify international clinical practice guidelines relevant to the management of epithelial ovarian cancer. Five eligible guidelines were identified and independently assessed using AGREE II to determine their methodological quality. Based on this appraisal, three guidelines were selected as the principal reference documents for adaptation: the Scottish Intercollegiate Guidelines Network (SIGN) Guideline for Epithelial Ovarian Cancer, the National Comprehensive Cancer Network (NCCN) Clinical Practice Guidelines, and the European Society for Medical Oncology (ESMO) Clinical Practice Guidelines for the diagnosis, treatment, and follow-up of epithelial ovarian cancer. These guidelines were reviewed in detail, and their recommendations were adapted to reflect Kenya's healthcare infrastructure, resource availability, and clinical practice environment.

Results: The adapted protocol provides recommendations for the diagnosis, staging, treatment, follow-up, and management of newly diagnosed and recurrent epithelial ovarian cancer, incorporating evidence-based surgical, systemic, and supportive care strategies appropriate for the Kenyan healthcare setting.

Recommendations: The protocol provides a standardized, evidence-based framework for the management of epithelial ovarian cancer in Kenya, with recommendations addressing diagnosis, staging, treatment, follow-up, and supportive care within the available healthcare resources.

Keywords: Clear-cell carcinoma; Epithelial ovarian cancer; Kenya; Ovarian cancer

List of abbreviations

ADC	Antibody–Drug Conjugate
AGREE II	Appraisal of Guidelines for Research and Evaluation II
AUC	Area Under the Curve
BRCA	Breast Cancer Gene (BRCA1/BRCA2)
CA-125	Cancer Antigen 125
CEA	Carcinoembryonic Antigen
CI	Confidence Interval
CR	Complete Response
CT	Computed Tomography
DFS	Disease-Free Survival
ECOG	Eastern Cooperative Oncology Group
ECOG PS	Eastern Cooperative Oncology Group Performance Status
EOC	Epithelial Ovarian Cancer
ESGO	European Society of Gynecological Oncology
FIGO	International Federation of Gynecology and Obstetrics
FRα	Folate Receptor Alpha
HER2	Human Epidermal Growth Factor Receptor 2
HNPCC	Hereditary Non-Polyposis Colorectal Cancer (Lynch Syndrome)
HRD	Homologous Recombination Deficiency
HPVCC	HPV-Associated Cervical Cancer
IHC	Immunohistochemistry
IDS	Interval Debulking Surgery
IOTA	International Ovarian Tumor Analysis
MDT	Multidisciplinary Team
MMR	Mismatch Repair
MRI	Magnetic Resonance Imaging
MSI-H	Microsatellite Instability–High
NACT	Neoadjuvant Chemotherapy
NCCN	National Comprehensive Cancer Network
NGS	Next-Generation Sequencing
ORR	Objective Response Rate
OS	Overall Survival
PARP	Poly (ADP-ribose) Polymerase
PD	Progressive Disease
PDS	Primary Debulking Surgery
PET-CT	Positron Emission Tomography–Computed Tomography
PFS	Progression-Free Survival
PR	Partial Response
QoL	Quality of Life

RECIST	Response Evaluation Criteria in Solid Tumors
RMI-4	Risk of Malignancy Index 4
SD	Stable Disease
STIC	Serous Tubal Intraepithelial Carcinoma
TMB-H	Tumor Mutational Burden–High
TVUS	Transvaginal Ultrasound

Summary of recommendations

This guideline is designed to support healthcare providers involved in the diagnosis, referral, treatment, and follow-up of patients with suspected or confirmed epithelial ovarian cancer (EOC) across primary, secondary, and tertiary healthcare settings.

It is intended for healthcare professionals involved in the prevention, screening, diagnosis, referral, treatment, and follow-up of patients with reproductive health cancers. These include medical officers, clinical officers, nurses, obstetricians and gynecologists, gynecologic oncologists, medical oncologists, radiation oncologists, pathologists, radiologists, palliative care providers, and other multidisciplinary team members working across different levels of the healthcare system.

The recommendations apply to adolescents and adults who are at risk of, suspected to have, or diagnosed with EOC. The recommendations are organized by clinical domain to support clinical decision-making and patient management.

Table 1: Summary of GOSK recommendations for the diagnosis of epithelial ovarian cancer

Clinical domain	GOSK recommendations
Risk evaluation	The diagnosis of epithelial ovarian cancer (EOC) is based on risk stratification, presenting symptoms, diagnostic workup, surgical, and histopathological confirmation. The evaluation of women with suspected EOC must commence with a detailed medical history, with particular attention given to clinical features associated with increased risk of malignancy. This should include; Patient's age Personal and family history of breast or ovarian cancers, Known hereditary cancer syndromes such as BRCA mutations, Lynch syndrome, Reproductive and hormonal risk factors including low parity, infertility, early age of menarche, late menopause, and prolonged exposure to unopposed estrogen, including use of hormonal replacement therapy.
Physical examination	A thorough physical examination should be performed and must include a speculum exam and bimanual pelvic and rectovaginal examination to evaluate adnexal masses, fixation of mass to the pelvic wall, and pelvic nodularity. The breasts and thyroid should be examined for completeness to exclude possible metastatic primaries. A diagnostic colonoscopy and cystoscopy are recommended in patients whose symptoms or tumor markers are suggestive of gastrointestinal or renal system involvement.
Laboratory workup	Laboratory tests are recommended to assess patients' fitness for definitive treatment and determine possible secondary metastasis. These include full hemogram, liver function tests, renal function tests, thyroid function tests, and urinalysis.
Risk of malignancy models	The Risk of Malignancy Index-4 (RMI-4) is recommended for risk stratification in women with suspected ovarian malignancy, to improve identification of patients at high risk of EOC and facilitate timely referral to a gynecological oncology specialist. A low score doesn't absolutely rule out malignancy.
Imaging modality	Transvaginal ultrasound is the first line imaging modality recommended for evaluation of suspected ovarian malignancy. Computer tomography scan (CT scan). A contrast enhanced CT scan of the chest, abdomen, and pelvis is recommended for staging when the RMI-4 score is above 450 in a patient with clinical features that are suspicious for malignancy. Both Abdominal/pelvic CT and ultrasound scans may be used selectively to assess disease extent in advanced cases or to obtain a biopsy in settings where interventional radiology is available.

Table 2: Summary of GOSK recommendations for surgical management of epithelial ovarian cancer

Clinical domain	GOSK recommendations
Fertility considerations	Fertility-sparing surgery may be considered in selected pre-menopausal patients with apparent stage 1 EOC who desire fertility preservation. Comprehensive surgical staging must be performed.
Fertility-sparing procedure	The recommended procedure includes; A unilateral salpingooophorectomy of the affected ovary and preservation of the uterus and contralateral ovary. A complete surgical staging including: peritoneal washings for cytology, omentectomy, peritoneal biopsies, and inspection of peritoneal surfaces and inspection of pelvic and para-aortic nodes. A pre-operative consultation with a fertility specialist must be done.

Clinical domain	GOSK recommendations
Surgery and staging	Primary debulking surgery (PDS) is the recommended approach when complete macroscopic resection is considered achievable with acceptable morbidity.
Surgical staging and cytoreduction	All patients with suspected EOC must undergo surgical staging according to the FIGO classification system for EOC. Surgical resection with the aim of achieving maximal cytoreduction with no gross residual disease, where feasible, should be done in all operable and medically fit patients.
Specialist center and surgeon	All surgeries for suspected EOC should be undertaken in a specialized center by a gynecologic oncologist where feasible.
Surgical approach	A vertical midline incision laparotomy is advised for surgical staging, PDS, and interval debulking surgery (IDS). Minimally invasive surgery (MIS) may be considered after multi-disciplinary team (MDT) review, only in highly selected early-stage (stage I–II) disease where optimal cytoreduction is deemed achievable and an experienced gynecologic oncologist performs the procedure, with strict precautions to prevent intraoperative tumor rupture.
Peritoneal cytology	Peritoneal fluid cytology is taken before tumor manipulation. In the absence of peritoneal fluid, a peritoneal wash with at least 80ml of normal saline should be done and a sample collected for cytology.
Abdominal inspection and biopsies	The entire abdominal cavity should be inspected and palpated. Peritoneal biopsies should be obtained from visible lesions or randomly when no disease is apparent.
Surgical procedure	A type I hysterectomy and bilateral salpingooophorectomy with an infracolic omentectomy, peritoneal biopsies.
Lymphadenectomy with early-stage disease	For patients with apparent FIGO stage I-IIA EOC undergoing comprehensive surgical staging, pelvic and para-aortic lymphadenectomy is recommended.
Lymphadenectomy in advanced-stage disease	Routine lymphadenectomy is not recommended for advanced stage disease with clinically negative nodes.

Table 3: Summary of GOSK recommendations for systemic chemotherapy in epithelial ovarian cancer

Clinical domain	GOSK recommendations
Systemic chemotherapy	Adjuvant chemotherapy is recommended after primary debulking surgery for stage IC3 to stage IV. The recommended regimen is six cycles of carboplatin AUC 5 and paclitaxel 175mg/m^2 should be administered, bevacizumab may be added in selected advanced cases. Maintenance using PARP inhibitor should be offered to patients with confirmed HRD and BRACA positive status
Neoadjuvant chemotherapy (NACT)	Neoadjuvant chemotherapy (NACT) is recommended for patients with FIGO stage IIIC to stage IV disease who are unlikely to achieve complete cytoreduction, or who have high surgical risk.
NACT regimen and timing	The standard recommended NACT regimen is carboplatin AUC 5 and paclitaxel 175 mg/m^2 every 3 weeks for 3 cycles, followed by interval debulking surgery where feasible, then 3 additional cycles to complete six cycles. Weekly paclitaxel 175mg/m^2 carboplatin is an alternative.

Table 4: Summary of GOSK recommendations for treatment monitoring in epithelial ovarian cancer

Clinical domain	GOSK recommendations
Treatment monitoring	Patients undergoing treatment for EOC should undergo regular clinical evaluation, toxicity assessment, tumor marker monitoring, and radiologic assessment as clinically indicated to evaluate treatment response, detect tumor progression, and guide ongoing treatment.

Table 5: Summary of recommendations for targeted therapy in epithelial ovarian cancer

Clinical domain	GOSK recommendations
PARP inhibitors	PARP inhibitors are recommended as the first-line maintenance therapy in patients with BRCA-mutated disease responding to platinum-based chemotherapy for a duration of up to 2 years.
Bevacizumab	Bevacizumab may be used in combination with systemic chemotherapy in patients with advanced disease, and continued as maintenance therapy for up to 15 months. Dose reduction should be considered in frail or low-weight patients.

Table 6: Summary of GOSK recommendations for treatment of specific histological types of epithelial ovarian cancer

Clinical domain	GOSK recommendations
Low-grade epithelial ovarian carcinoma	Adjuvant platinum-based chemotherapy if optimal cytoreduction is not achieved.
Hormone receptor-positive disease	Letrozole is recommended.
Clear-cell carcinoma	Comprehensive surgical staging and an adjuvant combination of carboplatin and paclitaxel.
Mucinous carcinoma	Comprehensive surgical staging and an adjuvant combination of carboplatin and paclitaxel. Gastrointestinal regimens and HER2-targeted therapy may be considered for progressive mucinous cases.
Endometrioid carcinoma	Treatment includes surgery, chemotherapy, radiotherapy, and hormonal therapy for ER/PR-positive tumors
Carcinosarcoma	Aggressive cytoreduction and six cycles of chemotherapy, with ifosfamide-based options in select cases.
Borderline tumors	Fertility-sparing surgery in pre-menopausal women who desire fertility. Adjuvant chemotherapy is not recommended for these group of women, but long-term follow-up is essential.

Table 7: Summary of GOSK recommendations for disease relapse and follow-up in epithelial ovarian cancer

Clinical domain	GOSK recommendations
Relapsed disease	Platinum-sensitive relapse should be managed with secondary cytoreductive surgery if complete resection is feasible, followed by platinum-based doublet chemotherapy ± bevacizumab, and a PARP inhibitor maintenance is recommended for responders based on HRD status. Platinum-resistant disease is treated with non-platinum single agents ± bevacizumab.
Biomarker-directed treatment	Where available, biomarker-directed therapies, immune checkpoint inhibitors (MSI-H/dMMR/TMB-H), and trastuzumab should be considered. Diagnostic confirmation with NGS, HRD testing, and IHC for FRα/HER2 is recommended, with maintenance therapy reserved for responders.
Follow-up after treatment	Follow-up after completion of treatment is recommended to be focused on regular clinical review, symptom assessment, and patient-centered care. Its recommended more frequent visits typically every 3 months then spacing to 6-monthly until year 5 and annually thereafter.
CA-125 monitoring	CA-125 monitoring is advised only if the tumor marker was elevated at diagnosis.
Imaging	Imaging in asymptomatic patients is discouraged and only recommended when prompted by symptoms or rising tumor markers.
Rehabilitation and survivorship	Rehabilitation and survivorship are recommended with focus on quality of life, psychosocial support, management of treatment-related effects, and lifestyle counselling.

1.0 Introduction

1.1 Background

Ovarian cancers are broadly categorized into three major histopathological subtypes: epithelial ovarian cancers (EOC), which arise from the ovarian surface epithelium or, more commonly, from serous tubal intraepithelial carcinoma (STIC) lesions of the fallopian tube fimbria; germ cell tumors, derived from primordial germ cells of the ovarian cortex; and sex cord-stromal tumors, which originate from the stromal and theca/granulosa cell populations within the ovarian cortex (1). Epithelial ovarian cancer (EOC) is the eighth most common cancer among women globally and accounts for approximately 90% of all malignant ovarian neoplasms (2).

Management strategies differ significantly across these categories. Importantly, epithelial ovarian, fallopian tube, and primary peritoneal carcinomas are considered a single disease entity because of their shared Müllerian origin, similar molecular profiles, and near-identical clinical behavior (3). Thus, international guidelines, including those of the National Comprehensive Cancer Network (NCCN) and the European Society of Gynaecological Oncology (ESGO), recommend unified diagnostic and therapeutic algorithms for these malignancies (1,4). This treatment protocol focuses exclusively on EOC.

The pathogenesis of EOC is multifactorial, involving complex interactions between genetic predisposition, hormonal influences, reproductive history, and environmental exposures. Well-established risk factors include increasing age, nulliparity, infertility, and prolonged unopposed estrogen exposure (5). Protective influences, such as multiparity, breastfeeding, tubal ligation, and long-term use of combined oral contraceptives, significantly reduce lifetime risk, primarily by suppressing ovulation and lowering epithelial turnover (5).

Hereditary factors account for approximately 20–25% of EOC cases (3). Germline mutations in BRCA1 and BRCA2 significantly increase lifetime risk and are particularly important in high-grade serous carcinoma (3). Mutations in mismatch repair genes associated with Lynch syndrome (MLH1, MSH2, MSH6, and PMS2) also confer elevated risk, especially for endometrioid and clear cell subtypes (4). Additional associations include endometriosis, particularly with clear cell and endometrioid carcinomas; obesity; metabolic dysfunction; perineal talc use; and prior exposure to postmenopausal hormone replacement therapy (5).

1.2 Epidemiology

The highest incidence rates of epithelial ovarian cancer (EOC) are observed in high-income regions such as North

America, Europe, and Oceania, where annual incidence ranges from 9–12 per 100,000 women. In contrast, African countries report substantially lower rates, estimated at 2–5 per 100,000 women (8). However, these figures likely represent a significant underestimation because of weak cancer surveillance systems, limited diagnostic capacity, reduced access to gynecologic oncology services, and competing public health priorities that favor infectious diseases over noncommunicable conditions (6).

In Kenya, the age-standardized incidence of ovarian cancer is approximately 3.4 per 100,000 women. Available data are derived largely from population-based cancer registries in urban centers, particularly Nairobi, where cancer registration and diagnostic services are better established than in many other parts of the country (9,10).

EOC remains one of the most lethal gynecologic malignancies, with a high mortality-to-incidence ratio largely attributable to late-stage presentation and the absence of an effective screening strategy (3,10). Globally, more than 70% of women with EOC present with advanced-stage disease (FIGO stages III–IV). Similar patterns of late presentation are observed in Kenya, where delayed diagnosis is influenced by nonspecific early symptoms, the absence of an effective screening test, and barriers to timely access to specialized care (6,11).

Late-stage presentation contributes substantially to poor survival outcomes. In high-income countries, the 5-year overall survival for EOC ranges from approximately 30% to 50%, depending on disease stage and access to optimal treatment. In Kenya, available hospital-based studies suggest poorer survival outcomes, although robust population-based survival data remain limited (3,11). These disparities are further compounded by socioeconomic barriers to timely diagnosis and treatment, inadequate pathology and diagnostic services, shortages of specialist oncology personnel, and weaknesses in referral pathways, treatment coordination, and follow-up systems. Furthermore, cancer registry data in Kenya remain incomplete because of underreporting and limited population-based cancer registration (12).

1.3 Epithelial ovarian cancer in Kenya

Despite advances in the diagnosis and management of EOC, significant gaps remain in the delivery of evidence-based care in Kenya. Variations in diagnostic capacity, surgical expertise, pathology services, access to systemic therapy, and molecular testing contribute to inconsistencies in clinical practice and patient outcomes (12). Existing international guidelines provide comprehensive recommendations; however, many require adaptation to reflect Kenya's healthcare infrastructure, available resources, and disease burden (3,13). This protocol was therefore developed to provide standardized, evidence-based recommendations for the diagnosis, staging, treatment, and follow-up of EOC, with the aim of improving the quality, consistency, and equity of care across all levels of the Kenyan health system.

1.4 Rationale for the GOSK protocol

Epithelial ovarian cancer (EOC) is the most common and most lethal form of ovarian malignancy, accounting for the majority of ovarian cancer–related deaths worldwide. The disease is often diagnosed at an advanced stage because of its nonspecific clinical presentation and the lack of effective population-based screening strategies, resulting in poor survival outcomes. In Kenya, the burden of EOC continues to increase, yet the Kenya National Cancer Treatment Protocols (2019) provide limited detailed guidance on the comprehensive management of this disease, leading to variability in clinical practice and inconsistencies in treatment delivery across healthcare institutions.

While international guidelines emphasize the importance of accurate histopathological classification, FIGO staging, multidisciplinary management, cytoreductive surgery, platinum-based chemotherapy, and molecularly guided maintenance therapy, Kenya currently lacks localized clinical protocols that comprehensively address these components within the realities of the local healthcare system. The absence of standardized national guidelines hinders uniform risk stratification, referral pathways, treatment planning, follow-up, and the systematic collection of outcome data necessary for quality improvement and research.

The development of national EOC management guidelines will directly address these gaps by standardizing clinical practice, promoting earlier diagnosis and referral, and providing context-appropriate recommendations for surgery, systemic therapy, follow-up, and palliative care. Incorporation of evidence-based diagnostic pathways, prognostic factors, feasible therapeutic options, and resource-stratified recommendations will support equitable access to quality cancer care across different levels of the healthcare system. Furthermore, the guidelines will strengthen multidisciplinary collaboration, improve treatment outcomes, and contribute to the advancement of Kenya's national cancer control agenda.

Given the high mortality associated with EOC and the existing disparities in care, the development of comprehensive national management guidelines is both justified and urgently necessary to ensure effective, equitable, and evidence-based care for affected patients.

2.0 Risk factors, Clinical presentation, Histology and staging

2.1 Risk factors

Table 8: Risk factors for epithelial ovarian cancer

Category	Risk Factor	Description
Non-modifiable	Age	Risk increases with age, especially after menopause (peak incidence in the 50s-60s).
	Genetic predisposition	BRCA1 and BRCA2 mutations significantly increase lifetime risk. Lynch syndrome (HNPCC) is associated with increased ovarian cancer risk.
	Family history	First-degree relatives (mother, sister, daughter) with ovarian, breast, or colorectal cancer increase risk.
	Personal history of cancer	Previous breast, colorectal, or endometrial cancer raises risk.
	Ethnicity	Ashkenazi Jewish ancestry has a higher prevalence of BRCA mutations.
	Early menarche and late menopause	Longer exposure to ovulatory cycles increases risk.
	Endometriosis	Increases risk, especially for clear cell and endometrioid ovarian cancer.
Modifiable	Reproductive factors	Nulliparity (never having children) increases risk. Late age at first pregnancy is a risk factor. Use of oral contraceptives reduces the risk (protective). Tubal ligation and hysterectomy lowers the risk of ovarian cancer. Breastfeeding offers some protection.
	Hormone replacement therapy (HRT)	Postmenopausal estrogen-only HRT increases risk.
	Lifestyle factors	Obesity is associated with a higher risk and poorer prognosis. A high-fat diet may contribute to increased risk. Smoking increases risk, particularly for mucinous ovarian cancer. Alcohol consumption may have a weak association with increased risk.
	Environmental carcinogens	Talcum powder use is a possible risk factor.

2.2 Clinical presentation and diagnostic workup

There is currently no effective screening strategy for ovarian cancer in the general population (14). Diagnosis of epithelial ovarian cancer commonly occurs at an advanced stage because of the disease's nonspecific early symptoms (14). The initial clinical evaluation of ovarian malignancies is broadly similar across histological subtypes; however, subsequent diagnostic investigations, tumor markers, and management are tailored according to the suspected histological subtype. The diagnostic work-up involves a multimodal approach to confirm malignancy, determine the histological subtype, assess disease extent and FIGO stage, evaluate the patient's fitness for treatment, and guide appropriate surgical and systemic management (4).

Table 9: Diagnostic workup for epithelial ovarian cancer

Diagnostic workup	Key components	Details
Clinical history and risk assessment	Clinical history	A history of Persistent pelvic or abdominal pain, bloating, early satiety, urinary urgency, family history (BRCA1/2, Lynch syndrome), nulliparity, hormonal exposure is suggestive of ovarian malignancy
Physical examination	General, abdominal, speculum, and bimanual pelvic examination	A complete general, abdominal, speculum and bimanual pelvic examination should be performed. Findings suggestive of epithelial ovarian cancer include: abdominal distension or ascites, a palpable pelvic/adnexal mass that is solid, irregular, fixed or bilateral, abdominal tenderness, nodularity of the pouch of Douglas, reduced mobility of the pelvic mass, omental cake, pleural effusion,

Diagnostic workup	Key components	Details
		supraclavicular or inguinal lymphadenopathy, and features of advanced disease such as cachexia or bowel obstruction.
Imaging studies	Transvaginal ultrasound (TVUS)	First-line imaging to assess mass characteristics like solid/cystic features, vascularity, septations, and capsule thickness.
	Pelvic and abdominal CT scan (MRI if feasible)	Preferred for staging, evaluating peritoneal disease, lymph nodes, liver metastases.
	Contrast-enhanced CT of chest/chest X-ray	CT chest is the preferred modality, while chest radiography is an acceptable alternative in resource-limited settings to evaluate pleural effusion and other features of lung metastases to determine disease extent.
	PET-CT scan	Used selectively to detect distant metastases, especially in recurrence, and degree of metastasis
Surgical evaluation and histopathology	Exploratory laparotomy/laparoscopy	Preferred for definitive diagnosis and staging.
	Histopathologic examination	Confirms EOC subtype (serous, mucinous, endometrioid, clear cell.
	Immunohistochemistry (IHC) studies	Differentiates primary ovarian from metastatic cancers (e.g., WT1, PAX8, CK7, CK20).
Genetic and molecular testing	BRCA1/BRCA2 testing	Recommended for high-grade serous ovarian cancers (implications for PARP inhibitors).
	Homologous recombination deficiency (HRD) testing	Guides targeted therapies.
	MSI/MMR Testing	Evaluates for Lynch syndrome/inherent familial disorders
	Epithelial ovarian cancer: carcinoembryonic antigen (CEA)	Levels are elevated in mucinous ovarian tumors, helps in differentiating EOCs from colorectal cancers
	Germ cell tumors: alpha-fetoprotein (AFP)	High sensitivity for yolk sac tumors (80-90%)
	Germ cell tumors: beta-human chorionic gonadotropin (β-hCG)	High sensitivity for choriocarcinoma (90%)
	Germ cell tumors: lactate dehydrogenase (LDH)	Elevated in dysgerminomas (80%)
	Sex cord-stromal tumors: inhibin A and B	High sensitivity for granulosa cell tumors (80-90%)
	Sex cord-stromal tumors: testosterone	Elevated in Sertoli-Leydig tumors (60-80%)
	Sex cord-stromal tumors: estradiol	Can be elevated in granulosa cell tumors (50-70%)

2.3 Histological classification

EOC accounts for approximately 90% of ovarian malignancies (14). Most are now believed to originate from the fallopian tube epithelium, particularly high-grade serous carcinoma, although the pathogenesis differs among histological subtypes. The classification has been summarized in Table 10 (1).

Table 10: Histology and grading of epithelial ovarian cancer

Histological subtype	Key features	Grading system
Serous carcinoma	Most common type of EOC (70-80%).	High-grade serous carcinoma Low grade serous carcinoma
endometrioid carcinoma	Associated with endometriosis.	Three-Tier system: Grade 1 – well-differentiated; Grade 2 – moderately differentiated; Grade 3 – poorly differentiated (high grade).
Clear cell carcinoma	Aggressive, linked to endometriosis.	Generally considered high-grade
Mucinous carcinoma	Rare, can be primary or metastatic from the GI tract.	Three-Tier System (same as Endometrioid)
Transitional cell (Brenner) carcinoma	Rare, resembles urothelial carcinoma.	Generally considered high-grade.

2.4 FIGO staging

Cancer stage describes the extent of disease spread from its site of origin and is determined according to the FIGO staging system based on surgical findings, pathological assessment, and relevant imaging studies (3).

Table 11: FIGO staging of epithelial ovarian cancer

Stage	Description	Key Features
Stage I	Tumor confined to ovaries or fallopian tubes	
IA	One ovary/tube, intact capsule, no malignant cells in ascites/washings	No surface involvement
IB	Both ovaries/tubes, intact capsule, no malignant cells in ascites/washings	No surface involvement
IC	One/both ovaries/tubes with additional risk factors	IC1: Surgical spill; IC2: Capsule rupture before surgery or surface involvement; IC3: Malignant cells in ascites/washings
Stage II	Tumor extends to the pelvis	
IIA	Spread to uterus and/or fallopian tubes/ovaries	
IIB	Spread to other pelvic tissues (bladder, rectum, etc.)	
Stage III	Peritoneal spread outside pelvis and/or retroperitoneal lymph node involvement	
IIIA1	Retroperitoneal lymph node metastasis only	IIIA1(i): ≤10 mm; IIIA1(ii): >10 mm
IIIA2	Microscopic peritoneal metastases beyond pelvis	
IIIB	Peritoneal metastases ≤2 cm outside pelvis	
IIIC	Peritoneal metastases >2 cm outside pelvis	
Stage IV	Distant metastases	
IVA	Malignant pleural effusion (positive cytology)	
IVB	Parenchymal organ metastases (liver, lungs) or extra-abdominal lymph nodes	

2.5 Tumor grading

Tumor grade reflects the degree of differentiation of malignant cells and provides information regarding tumor biology, aggressiveness, and prognosis. In general, well-differentiated tumors resemble normal ovarian epithelium and tend to exhibit slower growth, whereas poorly differentiated tumors demonstrate marked cellular atypia, increased mitotic activity, and more aggressive clinical behavior. For most EOCs, grading is based on histopathological assessment of degree of architectural differentiation, nuclear atypia, pleomorphism, and mitotic activity (15)(3).

Table 12: Grading of epithelial ovarian cancer

Grading system	Description	Key features
Two-Tier System	Most commonly used, particularly for serous carcinomas.	Low-grade: Well-differentiated, low mitotic activity. High-grade: Poorly differentiated, high mitotic activity.
Three-Tier System (WHO/FIGO 2020)	Used for endometrioid and mucinous carcinomas.	Grade 1: Well-differentiated, mild atypia Grade 2: Moderately differentiated, increased atypia. Grade 3: Poorly differentiated, severe atypia

Grading system	Description	Key features
Serous carcinomas	Graded as low-grade or high-grade	Low-grade: KRAS, BRAF mutations, less aggressive. High-grade: TP53 mutations, aggressive, chemotherapy-sensitive.
Endometrioid and mucinous carcinomas	Follow the three-tier FIGO grading system	Grade 1: Glandular pattern predominates. Grade 2: Mixed glandular and solid areas. Grade 3: Mostly solid growth, high mitotic rate.
Clear cell carcinomas	Generally considered high-grade without a formal grading system.	Aggressive behavior, often chemo resistant.
Clinical importance	Determines tumor aggressiveness and treatment response	Low-grade: Indolent, less chemo-sensitive. High-grade: Aggressive, more chemo-sensitive.

3.0 Objectives

3.1 Overall Objective

To establish a standardized evidence-based approach to management of epithelial ovarian cancer in Kenya.

3.2 Specific Objectives

This management protocol for epithelial ovarian cancer provides recommendations and guidance on:

1. Diagnostic evaluation.
2. Management according to the stage of disease.
3. Management based on surgical operability.
4. Post-treatment surveillance strategies.
5. Special considerations for specific histological types.
6. Supportive and palliative care.
7. Management of recurrent disease.

4.0 Clinician responsibility

This protocol represents the evidence-based consensus of the multidisciplinary development group for the management of patients with epithelial ovarian cancer. It is intended to provide guidance to clinicians; however, application of these recommendations should always be informed by independent clinical judgment, considering each patient's individual circumstances.

5.0 Methods

5.1 Guideline Adaptation Approach

This protocol was developed through an adaptation approach, drawing on high-quality existing international guidelines and tailoring them to Kenya's health system and resource context. The adaptation process aimed to ensure alignment with internationally accepted standards while addressing the unique challenges of Kenya's healthcare setting. It involved the systematic evaluation of published guidelines and protocols and the contextualization of recommendations to local realities.

5.2 Development panel

A multidisciplinary protocol development panel was convened, comprising gynecologic oncologists, pathologists, radiologists, gynecologic oncology nurses, onco-pharmacists, radiation oncologists, public health specialists, and patient representatives. The panel received technical orientation from experts at the University of Nairobi and Kenyatta National Hospital on the principles of evidence-based guideline adaptation. The training emphasized the use of standardized appraisal tools, systematic methods for evaluating published guidelines and protocols, and approaches for contextualizing recommendations to local realities.

5.3 Search strategy

A comprehensive search was conducted through PubMed and Google Scholar to identify relevant evidence-based guidelines, systematic reviews, and best practice statements on the management of epithelial ovarian cancer. Search terms included "ovarian cancer," "clinical guideline," "gynecologic oncology," "protocols," and "guidelines."

5.4 Source guideline identification

Five primary reference guidelines were identified for the adaptation of this protocol (Table 13).

Table 13: Summary of retrieved gudelines

Title	Type	Publisher	Year
Clinical Practice Guidelines in Oncology: Ovarian Cancer Including Fallopian Tube Cancer and Primary Peritoneal Cancer	Clinical guideline	National Cancer Comprehensive Network (NCCN)(4)	2025
Non-epithelial ovarian cancer: ESMO Clinical Practice Guidelines for diagnosis, treatment and follow-up of epithelial ovarian cancer	Clinical guideline	European Society of Medical Oncology (ESMO)(14)	2026
British Gynecological Cancer Society (BGCS) Epithelial Ovarian / Fallopian Tube / Primary Peritoneal Cancer Guidelines: Recommendations for Practice	Clinical guideline	British Gynecological Society (BGCS)(16)	2017
SEOM–GEICO clinical guideline on epithelial ovarian cancer (2023)	Clinical guideline	Spanish society of medical oncology & Spanish group for research on ovarian cancer(17)	2024

Title	Type	Publisher	Year
Management of Epithelial Ovarian Cancer.	Clinical guideline	Scottish intercollegiate guidelines network for epithelial ovarian cancer (SIGN)(18)	2018

5.5 AGREE II Appraisal

All retrieved guidelines were appraised independently by two trained panelists using the Appraisal of Guidelines for Research and Evaluation II (AGREE II) instrument. The instrument comprises 23 items grouped into six domains: scope and purpose (D1), stakeholder involvement (D2), rigor of development (D3), clarity of presentation (D4), applicability (D5), and editorial independence (D6). Each item was scored on a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Four eligible clinical practice guidelines were subjected to AGREE II appraisal: the Scottish Intercollegiate Guidelines Network (SIGN) epithelial ovarian cancer guideline, the European Society for Medical Oncology (ESMO) epithelial ovarian cancer guideline, the National Comprehensive Cancer Network (NCCN) ovarian cancer guideline, and the SEOM–GEICO epithelial ovarian cancer guideline. The Cochrane systematic review identified during the literature search was excluded from AGREE II appraisal because it was an evidence synthesis rather than a clinical practice guideline.

For each domain, the scores assigned by the two appraisers were summed and standardized using the following formula:

Standardized domain score (%) = [(Obtained score − Minimum possible score) ÷ (Maximum possible score − Minimum possible score)] × 100

Based on this appraisal, three high-quality guidelines (SIGN, NCCN, and ESMO) were retained for adaptation. The SEOM–GEICO guideline was excluded. The domain scores and selection decisions are summarized in Table 14.

Table 14: Summary of guideline appraisal using the AGREE II instrument

Guideline	D1	D2	D3	D4	D5	D6	Decision
SIGN	75%	75%	88%	97%	60%	88%	Included
ESMO	81%	72%	96%	94%	44%	83%	Included
NCCN	81%	69%	94%	94%	48%	92%	Included
SEOM–GEICO	92%	58%	56%	47%	85%	38%	Excluded

AGREE II, Appraisal of Guidelines for Research and Evaluation II; D1, scope and purpose; D2, stakeholder involvement; D3, rigor of development; D4, clarity of presentation; D5, applicability; D6, editorial independence; ESMO, European Society for Medical Oncology; NCCN, National Comprehensive Cancer Network; SEOM–GEICO, Spanish Society of Medical Oncology–Spanish Group for Research on Ovarian Cancer; SIGN, Scottish Intercollegiate Guidelines Network.

6.0 Review of evidence

Table 15 Comparison of guideline recommendations for initial workup and staging of epithelial ovarian cancer

Guideline aspect	NCCN guidelines	SIGN guidelines	ESMO guidelines
Clinical evaluation	Recommends a clinical history and physical exam (pelvic and abdominal) and assessment of family history	Recommends a focused history on frequency and chronicity of symptoms (e.g., bloating, urinary urgency); screen >12x/month	Recommends a detailed history focused on clinical exam focused on symptoms like pain, bloating, GI issues, early satiety and, fatigue
Use of risk models	Does not recommend RMI; prefers direct referral to a specialist and imaging	Uses RMI-1 (cut-off ≥200) to guide specialist referral	Recommends IOTA models (Simple Rules or ADNEX) as superior to RMI in diagnostic accuracy
Laboratory workup:			
Tumor markers	CA-125 is the central tumor marker. It also recommends other tumor markers (CEA, CA 19-9, AFP, inhibin, β-hCG) based on suspicion	Primarily recommends use of CA-125; CEA /CA 19-9 ratio is rarely used CA-125 level is recommended if symptoms suggestive of EOC; ≥35 IU/mL	Recommends use of serum CA-125 levels and, if mucinous tumor is suspected, CA 19-9 and CEA; promotes CA-125/CEA ratio usage

Guideline aspect	NCCN guidelines	SIGN guidelines	ESMO guidelines
		triggers further imaging	
Genetic testing		Germline BRCA1/2 testing is recommended for non-mucinous tumors; genetic counseling can be done if needed but no specific recommendation on who to receive it.	BRCA1/2 testing (germline and/or somatic) and HRD testing is recommended for all high-grade tumors
Histological confirmation	Tissue biopsy or fluid cytology is recommended if resection is not feasible	Recommends intraoperative histological confirmation, not emphasized preoperatively	Diagnostic biopsy or surgical specimen is mandatory; cytology is recommended if pleural effusion/ascites present
Endoscopy use	Optional if gastrointestinal origin is suspected	Not included	Advised if CEA/CA 19-9 elevated, to rule out GI malignancy
Other laboratory tests and assessments	CBC, LFTs, renal function; performance status (ECOG/Karnofsky) ; nutritional status	Implicit in preoperative planning, not explicitly detailed	Required for staging and treatment planning (tho not specified which tests)
Imaging modality	Ultrasound (TVUS/pelvic) as first-line; CT abdomen/pelvis with contrast for staging; MRI/PET-CT selectively	TVUS if CA-125 elevated; CT abdomen/pelvis if RMI >200	Mandates TVUS and CT of thorax/abdomen/pelvis; prefers expert sonographer; US-based IOTA models preferred
Role of laparoscopy	Optional for assessing resectability before NACT	Not addressed	Recommended for staging and surgical planning in advanced disease. (advanced disease not specifically defined- stage 3 and 4?)
Fertility considerations	Reproductive endocrinology consultation for young patients	Not discussed	Fertility-preserving surgery acceptable for Stage IA/IC low-grade tumors
Specialist referral	Based on suspicion or imaging, not RMI-based	Based on RMI >200 or unresolved symptoms	Mandatory referral to specialist centers with multidisciplinary teams

RMI 4= U×M×CA-125×S. Where U (ultrasound score, M (menopausal status, CA-125 (absolute value in U/ml), and S (size of lesion in cm)

Where:

- **U:** Ultrasound score—one point for each of the following features: multilocular cyst, solid areas, bilateral lesions, and ascites. U = 0 if none of the features are present, U = 1 if one feature is present, and U = 4 if two or more features are present.
- **M:** Menopausal status score—1 for premenopausal status and 4 for postmenopausal status.
- **CA-125:** Absolute serum CA-125 value in U/mL.
- **S:** Lesion size score—1 if the lesion is less than 7 cm and 2 if it is 7 cm or larger.

Table 16: Comparison of guideline recommendations for surgical management of epithelial ovarian cancer

Surgical element	NCCN guidelines	SIGN guidelines	ESMO guidelines
Primary surgical objective	Maximal cytoreduction with	Optimal debulking is the goal; upfront	Complete cytoreduction (no macroscopic

Surgical element	NCCN guidelines	SIGN guidelines	ESMO guidelines
	no gross residual disease	surgery is preferred where feasible	disease) is the gold standard
Indications for primary debulking surgery (PDS)	Recommended for FIGO stage I–IV if operable and the patient is fit	PDS preferred if operable and MDT assessment supports surgery	Preferred in operable patients with potential for complete resection
Surgical staging for early EOC	TAH, BSO, omentectomy, pelvic and para-aortic lymphadenectomy, peritoneal biopsies	Same as NCCN; emphasizes comprehensive staging to guide adjuvant therapy	TAH, BSO, omentectomy, peritoneal biopsies; lymphadenectomy optional if imaging is negative
Extent of cytoreduction in advanced disease	Aggressive Multivisceral resection is recommended if needed to achieve no gross residual disease	Cytoreduction to <1 cm is acceptable if no gross resection is impossible; avoid excessive morbidity	Strive for complete cytoreduction even if Multivisceral resection is needed; recommends high surgical expertise centers
Lymphadenectomy in advanced-stage stage	Therapeutic only if nodes are enlarged or suspicious; routine lymphadenectomy not recommended after LION trial	Lymph node resection only if nodes are enlarged/suspicious; routine dissection not advised	Same as NCCN; no benefit in overall survival if nodes are not enlarged
Fertility-sparing surgery	May be considered for Stage IA/IB, Grade 1 tumors in young patients desiring fertility	Same as NCCN; strongly individualized decision	Allowed for highly selected patients with early-stage, low-grade tumors
Secondary cytoreductive surgery (SCS)	Considered in platinum-sensitive relapse with good performance status, and if complete resection is likely	Recommended in highly selected cases; use of DESKTOP II/III criteria encouraged	Endorsed if complete cytoreduction is feasible and the patient selection criteria (AGO/ESGO) met

Table 17: Comparison of guideline recommendations for neoadjuvant and adjuvant chemotherapy recommendations

Aspect	NCCN guidelines	SIGN guidelines	ESMO guidelines
Indications for neoadjuvant chemotherapy (NACT)	Advanced-stage disease (FIGO IIIC–IV) where complete cytoreduction is not feasible or high surgical risk Poor performance status Large volume ascites, pleural effusion, or unresectable disease	Patients with bulky disease not amenable to optimal debulking High surgical risk patients Significant comorbidities or frailty	Patients with high tumor load and low likelihood of complete resection on imaging or laparoscopy Poor general condition, extensive peritoneal carcinomatosis, or extra-abdominal spread
Assessment before NACT	Imaging (CT, MRI or PET/CT) Optional diagnostic laparoscopy to assess resectability	Cross-sectional imaging; laparoscopy encouraged to assess feasibility of surgery	Mandatory imaging + recommended diagnostic laparoscopy to assess resectability and exclude inoperable cases
Number of NACT cycles	Typically, 3–4 cycles before interval debulking surgery (IDS)	3 cycles, followed by IDS, then another 3 cycles post-surgery (total 6)	3 cycles of NACT, followed by IDS, then 3 additional cycles if no contraindications
Chemotherapy regimen	*Carboplatin* AUC 5–6 IV every 3 weeks *Paclitaxel* 175 mg/m² IV every 3 weeks	Same as NCCN Alternative in frail patients: Weekly low-dose paclitaxel + carboplatin or single-agent carboplatin	Standard: Carboplatin AUC 5 + Paclitaxel 175 mg/m² every 3 weeks Alternative: Weekly Paclitaxel 80 mg/m² +

Aspect	NCCN guidelines	SIGN guidelines	ESMO guidelines
			Carboplatin AUC 2 (days 1, 8, 15)
Timing of interval debulking surgery (IDS)	After 3–4 cycles, if the disease has responded and the patient is operable	After 3 cycles, if performance status allows and surgery is feasible	Strongly advised after 3 cycles if complete resection is now possible
Post-IDS shemotherapy	An additional 3 cycles of the same regimen (to complete 6 total)	Complete an additional 3 cycles (total of 6 cycles)	Continue treatment to complete 6 cycles *unless toxicity or poor performance status*
Adjuvant chemotherapy (early stage)	Carboplatin + paclitaxel; IV or IP/IV; tailored by histology and residual disease.	Carboplatin + paclitaxel x 6 cycles. Stage IC3 or high-risk IA/IB.	Carboplatin + paclitaxel x 6; based on stage and histology. IC3 and above.
Adjuvant chemotherapy (advanced disease)	Standard carboplatin-paclitaxel; addition of bevacizumab and/or PARPi based on BRCA/HRD.	Same as early but mandatory; IV or IP/IV regimens acceptable.	Similar to NCCN, carboplatin-paclitaxel with targeted therapy options.
Preferred route of chemotherapy	Intravenous (IV) standard The intraperitoneal (IP) route is not recommended with NACT	IV only; IP route not suitable for NACT settings	IV administration preferred IP/integrated regimens discouraged in the NACT setting
Response monitoring	CT imaging after 3 cycles + CA-125 response	Imaging + CA-125 Clinical improvement considered	CT + CA-125 Possible repeat laparoscopy if resectability remains unclear

Table 18: Comparison of guideline recommendations for targeted and maintenance therapy recommendations

Aspect	NCCN guidelines	SIGN guidelines	ESMO guidelines
Bevacizumab	15 mg/kg IV q3w with chemo, continued for up to 15 months as maintenance	15 mg/kg IV q3w with chemo, maintenance continuation	15 mg/kg IV q3w with chemo, continued up to 15 months as maintenance
Olaparib	300 mg orally BID for BRCA-mutated after response to 1st-line chemo, up to 2 years	300 mg orally BID *for BRCA-mutated patients*	300 mg orally *BID for BRCA*-mutated after 1st-line response, up to 2 years
Niraparib	300 mg orally QD for all patients post platinum response, up to 3 years	300 mg orally QD for BRCA and non-BRCA post-chemo	300 mg orally QD for BRCA and non-BRCA post-chemo, up to 3 years
Rucaparib	600 mg orally BID for maintenance in platinum-sensitive recurrence	600 mg orally BID as maintenance for recurrence	600 mg orally BID for platinum-responsive recurrent cases
Combination (olaparib + bevacizumab)	Recommended for HRD-positive tumors post-1st line chemo	Recommended for HRD-positive tumors	Recommended for HRD-positive tumors
Molecular profiling	Essential for therapy decisions (BRCA/HRD)	Recommended to guide the use of PARP inhibitors	Recommended for selecting targeted therapy

Table 20: Comparison of guideline recommendations for special histological types of epithelial ovarian cancer

Histological subtype	NCCN guidelines	SIGN guidelines	ESMO guidelines
Low-grade serous carcinoma	Surgery preferred. Adjuvant chemo optional. Maintenance with hormonal therapy (e.g, letrozole).	Surgery ± hormonal therapy. Chemotherapy benefit is unclear.	Surgery mainstay. Maintenance hormonal therapy; limited chemo role.

Histological subtype	NCCN guidelines	SIGN guidelines	ESMO guidelines
Clear cell carcinoma	Surgical staging. Adjuvant carboplatin + paclitaxel.	Surgical staging. Adjuvant chemo recommended; data limited.	Surgical staging. Platinum-based chemo advised (e.g., carboplatin + paclitaxel).
Mucinous carcinoma	Surgical staging with appendectomy. Observation for early stage. Carboplatin + paclitaxel if advanced.	Surgical staging. GI evaluation advised. Chemo role less clear.	Surgical staging. Rule out GI origin. Chemo of limited value.
Endometrioid carcinoma	Surgical staging. Adjuvant chemo ± radiotherapy. Hormonal therapy in select cases.	Surgery. Adjuvant therapy based on risk.	Surgery. Adjuvant chemo ± radiotherapy; hormonal therapy for selected patients.
Carcinosarcoma	Aggressive surgery. Adjuvant carboplatin + paclitaxel.	Surgery. Adjuvant chemo advised (platinum-based).	Surgery. Adjuvant chemo recommended. Poor prognosis.
Borderline tumors	Fertility-sparing surgery possible. Observation preferred. No chemo.	Surgical management. No adjuvant therapy	Surgery only. No routine adjuvant therapies.

Table 20: Comparison of guideline recommendations for management of relapsed epithelial ovarian cancer

Domain	NCCN guidelines	SIGN guidelines	ESMO guidelines
Relapse classification	Uses PFI ≥6 months = platinum-sensitive; <6 months = resistant (still in algorithms).	De-emphasizes rigid PFI; uses therapy-oriented context incl. prior PARPi/bevacizumab, comorbidities.	Therapy-oriented (proven vs assumed sensitivity/resistance), not just time cut-offs.
Secondary cytoreductive surgery (SCS)	Consider in PSR if complete resection is feasible; MDT decision; mixed trial data.	Recommend in selected PSR patients with likely R0 resection (AGO/iMODEL).	Same as ESMO; only if R0 feasible; strict selection emphasized.
Systemic therapy: Platinum-sensitive relapse (PSR)	Platinum doublets (carbo–paclitaxel/PLD/gem) ± bevacizumab; PARPi maintenance only after response (restricted).	Same platinum doublets ± bevacizumab; PARPi maintenance, esp. BRCA-mut/HRD+, cautious in HRD–.	Similar to ESMO, PARPi maintenance mainly for BRCA/HRD+; limit exposure; consider prior PARPi.
Systemic therapy: Platinum-resistant relapse (PRR)	Non-platinum single agents (PLD, weekly paclitaxel, topotecan, gem) ± bevacizumab; biomarker-driven options: Mirvetuximab (FRα-high), immunotherapy (MSI-H/dMMR, TMB-H), HER2+ (T-DXd).	Same non-platinum ± bevacizumab; Mirvetuximab in FRα-high; tumor-agnostic approvals (MSI-H, HER2+).	Echoes ESMO; FRα testing/ADC where available; precision-medicine framework.
PARP inhibitors (PARPi) in recurrence	Maintenance only after response in PSR; single-agent later-line PARPi largely removed (OS concerns).	Allows PARPi maintenance, strongest in BRCA-mut/HRD+; caution in HRD–.	Same as ESMO; one-time judicious PARPi exposure; careful HRD/BRCA selection.
Hyperthermic intraperitoneal chemotherapy (HIPEC) in recurrence	Not routine; consider only in trials or expert centers (CHIPOR PFS modest, OS unclear).	Same – cautious; not standard outside trials.	Same stance – trial setting only.
Testing at recurrence	Broad profiling: BRCA/HRD, MSI-H/dMMR, TMB, FRα, HER2; NCCN explicitly lists tumor-agnostic options.	Recommends NGS + HRD; IHC for FRα/HER2 as available; precision medicine emphasized.	Endorses comprehensive profiling at relapse; biomarker-driven therapy prioritized.

Table 21: Summary of follow-up and surveillance after completion of treatment for epithelial ovarian cancer

Domain	SIGN guidelines	NCCN guidelines	ESMO guidelines

Clinic Visit Frequency	Every 3 months for 2 years; then 4–6 monthly until 5 years; annually thereafter.	Every 2–4 months for 2 years; then every 3–4 months for years 3–5; annually thereafter.	Every 3 months for 2 years; then every 6 months until year 5; individualized thereafter.
CA-125 Monitoring	If elevated at diagnosis; trend-based; act mainly based on symptoms.	Check at each visit if elevated at baseline; rising CA-125 prompts assessment, not automatic treatment.	Recommended only if elevated pre-treatment; avoid overtreatment of biochemical recurrence.
Routine Imaging	Not routine; only when symptoms or CA-125 rise.	Not routine; CT/MRI/PET only when clinically indicated.	Not routine; imaging only for clinical suspicion of relapse.
Duration of follow-up	Structured follow-up for ~5 years; longer if needed.	Follow-up for 5 years, then annual as clinically indicated.	Usually 5 years; extend based on risk, treatment, or symptoms.
Rehabilitation & Survivorship	Symptom-led, psychosocial support, resource-appropriate care.	Comprehensive survivorship plan including psychosocial and late-effects care.	Strong focus on quality of life, psychosocial needs, sexual health, and rehabilitation.

7.0 GOSK recommendations

Table 22: Summary of GOSK recommendations for the diagnosis of epithelial ovarian cancer

Clinical domain	GOSK recommendation
Risk-predisposing cistory	Assessment of recognized hereditary and reproductive risk factors is recommended during the evaluation of patients with suspected epithelial ovarian cancer (EOC). These include; A family or personal history of ovarian, breast, colorectal, or endometrial cancer Familial genetic syndromes including BRCA1/BRCA2 mutations and lynch syndrome Low parity or nulliparity, infertility, early menarche, and late menopause or prolonged unopposed estrogen exposure.
General characteristics and constitutional symptoms	Evaluation for EOC is recommended in peri-menopausal and post-menopausal women presenting with persistent non-specific constitutional symptoms, including unexplained fatigue, unintentional weight loss, loss of appetite, and occasional low-grade fever, particularly when symptoms persist for weeks to months without an alternative explanation.
Abdominal and gastrointestinal symptoms	EOC should be suspected in women presenting with non-specific symptoms such as progressive abdominal distention or bloating, early satiety, dyspepsia, nausea and/or vomiting, altered bowel habits including constipation or diarrhea, vague abdominal or pelvic pain, and palpable abdominal or pelvic mass should raise suspicion of ovarian malignancy.
Urinary and gynecological symptoms	EOC should be suspected in women presenting with persistent pelvic pressure symptoms including urinary frequency, urgency, dysuria, incomplete bladder emptying, menstrual irregularities, pelvic pain or pressure, and postmenopausal bleeding, particularly in peri-menopausal and post-menopausal women without an alternative explanation. Hematuria may occur in advanced disease.
Features suggestive of advanced disease	Advanced EOC should be suspected in patients presenting with progressive weight loss, cachexia, chronic pain, constipation or obstipation, dyspnea, cough, pleural effusion, or declining functional performance status.
General physical examination	A comprehensive physical examination is recommended in all patients with suspected EOC and should include assessment for pallor, anemia, cachexia, lower limb edema, pleural effusion, and supraclavicular, cervical, inguinal, or pelvic lymphadenopathy.
Neck and breast examination	Examination of the neck, including the thyroid gland and cervical lymph nodes, as well as breast examination, should be performed where clinically indicated to exclude synchronous malignancy or metastatic disease.
Abdominal examination	Abdominal examination should assess for abdominal distention, ascites, tenderness, hepatomegaly, splenomegaly, abdominal or pelvic masses, umbilical nodules, abdominal wall nodules or distended vessels, and inguinal lymphadenopathy suggestive of advanced intra-abdominal disease.
Pelvic examination	Bimanual pelvic examination assessing mass size, consistency, mobility and fixation; evaluation for parametrial or pelvic sidewall involvement must be done in patients with suspected ovarian malignancy.
Rectovaginal examination	Assessment for pouch of Douglas nodularity, rectovaginal septum involvement, cul-de-sac obliteration and pelvic sidewall disease should be done.
Use of risk models	The guideline recommends using the Risk of Malignancy Index (RMI-4)* to increase the index of suspicion for EOC and assist in risk stratification, triage, and timely referral to specialist gynecological oncology services. Clinical suspicion is still paramount to diagnosis even if the RMI index does not reach the threshold.

Clinical domain	GOSK recommendation
Tumor markers	Serum CA-125 is recommended as the primary tumor marker for raising suspicion of EOC and for treatment monitoring. HE-4 may be considered where available and where cost implications are acceptable. Additional tumor markers including AFP, CA19-9, CEA, Inhibin, and LDH may be considered in selected patients to exclude non-epithelial ovarian malignancies, germ cell tumors, sex cord stromal tumors, or tumors of possible gastrointestinal origin.
Genetic testing	BRCA1/BRCA2 mutation testing and homologous recombination deficiency (HRD) testing may be offered to patients with high-grade serous ovarian carcinoma (HGSOC), subject to availability and cost considerations, particularly where PARP inhibitor maintenance therapy is being considered. Testing may also be considered in platinum-sensitive or platinum-resistant recurrent disease following individualized assessment of cost, availability, and clinical benefit.
Histological confirmation	Histological confirmation should preferably be obtained intraoperatively following appropriate clinical, laboratory, and radiological assessment. In patients with unresectable or advanced disease, tissue diagnosis may be obtained by image-guided biopsy or diagnostic laparoscopy where feasible.
Role of endoscopy	Upper or lower gastrointestinal endoscopy may be considered in patients presenting with gastrointestinal bleeding, altered bowel habits, suspected gastrointestinal malignancy, or elevated tumor markers suggestive of gastrointestinal origin.
Other laboratory workup and assessments	Baseline investigations must include; Complete blood count (CBC), Liver function tests (LFTs), Urea, Electrolytes and Creatinine (UECs), and random blood sugar Nutritional assessment should be performed using locally available nutritional assessment tools in collaboration with the nutrition team where available. ECOG/performance status assessment is mandatory. Additional investigations should be individualized based on patient comorbidities and clinical status.
Imaging modalities	Pelvic and transvaginal ultrasound are recommended as first-line imaging modalities for initial evaluation and calculation of RMI-4. Contrast-enhanced CT scan of the chest, abdomen, and pelvis is recommended for staging and assessment of disease extent in patients with high suspicion of malignancy, including those with elevated RMI-4 scores.
Role of laparoscopy	Diagnostic laparoscopy may be considered in selected patients to assess disease extent, resectability, and obtain tissue diagnosis in advanced disease, depending on available expertise and institutional capacity. It may also be useful in obtaining biopsies in settings where interventional radiology services are unavailable in patients considered to have advanced disease and not candidates for full surgical staging.
Fertility considerations	Fertility-sparing surgery with unilateral Salpingo-oophorectomy may be considered in carefully selected pre-menopausal patients with presumed early-stage disease and no evidence of metastatic spread who express desire for future fertility. Early consultation with fertility specialists is recommended where feasible. Patients should receive counseling regarding oncological safety, reproductive implications, and the potential need for completion surgery.
Specialist referral	Referral to a center with gynecological oncology expertise is recommended for patients with suspected or confirmed epithelial ovarian cancer to facilitate multidisciplinary evaluation, appropriate staging, and definitive management where feasible.
RMI 4 estimates malignancy risk in an ovarian mass using ultrasound features, menopausal status, CA-125 level, and tumor size. Ultrasound score (U): 0 for no features, 1 for one malignant feature, 4 for two or more features (e.g., solid areas, multiloculation, ascites, metastases). Menopausal status (M): 1 if premenopausal, 4 if postmenopausal. Tumor size (S): 1 if <7 cm, 2 if ≥7 cm. Formula: RMI-4 = U × M × CA-125 × S.	

Table 23: Summary of GOSK recommendations for the surgical management of epithelial ovarian cancer

Surgical element	GOSK recommendations
Primary surgical objective	Primary definite surgery is the standard of care of initial treatment for patients with operable EOC. The goal of surgery should be to achieve complete cytoreduction with no gross residual disease wherever feasible, following multidisciplinary team evaluation and treatment planning where available.
Indications for primary debulking surgery (PDS)	Primary debulking surgery is recommended for patients with FIGO stage I–IV EOC who are deemed operable and medically fit for surgery following appropriate clinical assessment.
Surgical staging for early EOC	Comprehensive surgical staging MUST include peritoneal cytology collection, total hysterectomy (Type I radical hysterectomy), bilateral salpingo-oophorectomy, Infracolic omentectomy, peritoneal biopsies, and resection of any surgically visible or palpable lymph nodes suspicious for metastatic involvement. In confirmed or suspected mucinous ovarian carcinoma, appendectomy is recommended only if macroscopically abnormal.
Extent of cytoreduction in advanced disease	In advanced EOC, every effort should be made to achieve complete cytoreduction while balancing the potential benefits of surgery against the risk of excessive perioperative morbidity.

Surgical element	GOSK recommendations
	Maximal cytoreductive surgery with the goal of no visible residual disease is considered the gold standard for advanced EOC. It includes extensive procedures such as diaphragmatic stripping, peritonectomies, bowel and liver resections, splenectomy, partial gastrectomy, pancreatic tail resection, and removal of extra-abdominal disease. Multidisciplinary evaluation is recommended to assess resectability and determine optimal treatment sequencing. The surgery should be performed by experienced gynecologic oncologists at high-volume, specialized centers with access to multidisciplinary teams.
Lymphadenectomy in advanced disease	Routine systematic lymphadenectomy in advanced-stage EOC is not recommended in the absence of suspicious lymph nodes. Only clinically enlarged, palpable, or radiologically suspicious lymph nodes should be resected since this contributes to optimal cytoreduction.
Fertility-sparing surgery	Fertility-sparing surgery may be considered in carefully selected patients of reproductive age with FIGO stage IA or IB EOC who express a documented desire for future fertility and are considered suitable candidates following fertility assessment. The decision should be individualized and undertaken following multidisciplinary team discussion and counseling regarding oncological and reproductive outcomes.
Secondary cytoreductive surgery (SCS)	Secondary cytoreductive surgery may be considered in selected patients with recurrent EOC and resectable disease where complete gross resection appears achievable. The procedure should be performed by a gynecological oncologist following multidisciplinary team review and approval.
*Complete cytoreduction- no macroscopic residual disease remains after surgery.	

Table 24: Summary of GOSK recommendations for neoadjuvant and adjuvant chemotherapy

Chemotherapy aspect	GOSK recommendation
Indications for neoadjuvant chemotherapy (NACT)	NACT is recommended for patients with advanced-stage disease (FIGO stage IIIC–IV) in whom complete cytoreduction is not feasible, or in those with high surgical risk, poor performance status, pleural effusion, or other features suggestive of unresectable disease.
Assessment before NACT	Contrast-enhanced CT is recommended for pre-treatment assessment prior to initiation of NACT. MRI may be considered in cases of complex adnexal masses where CT findings are inconclusive. Where available and with appropriate expertise, diagnostic laparoscopy may be utilized to assess resectability and exclude inoperable disease before commencing NACT
Number of NACT cycles	Neoadjuvant chemotherapy should consist of 3 cycles, followed by interval debulking surgery (IDS), and an additional 3 cycles of chemotherapy post-surgery, for a total of 6 cycles
Chemotherapy regimen	Standard: Carboplatin AUC 5 + Paclitaxel 175 mg/m² every 3 weeks Alternative: Weekly Paclitaxel 80 mg/m² + Carboplatin AUC 2 (days 1, 8, 15)
Timing of interval debulking surgery (IDS)	Interval debulking surgery is recommended 3-6 weeks (21-38 days) after 3–4 cycles of NACT to allow marrow recovery while avoiding unnecessary delay in patients who demonstrate disease response and are deemed operable
Post-IDS chemotherapy	It is recommended that NACT be continued to complete 6 cycles unless toxicity or poor performance status.
Adjuvant chemotherapy (early stage)	Adjuvant chemotherapy is recommended for patients with stage IC3 to stage IV epithelial ovarian cancer (EOC) following primary debulking surgery. The standard regimen consists of six cycles of carboplatin (AUC 5–6) plus paclitaxel (175 mg/m² administered intravenously over 3 hours every 21 days
Adjuvant chemotherapy (advanced disease)	For patients with advanced EOC, the standard adjuvant regimen is a combination of carboplatin (AUC 5–6) and paclitaxel (175 mg/m2) administered intravenously every 3 weeks for six cycles. The addition of bevacizumab may be considered in selected high-risk patients, especially those with stage III disease with macroscopic residual tumor or stage IV disease, and maintenance therapy with PARP inhibitors should be offered based on BRCA mutation or homologous recombination deficiency (HRD) status. Patients who are intolerant to paclitaxel—due to allergy, neuropathy, or other significant toxicities—may be given alternatives such as docetaxel or pegylated liposomal doxorubicin in combination with carboplatin. Weekly dosing schedules such as weekly paclitaxel 60–70 mg/m2 with carboplatin AUC 2, may be considered for frail or elderly patients unable to tolerate standard three-weekly regimens.
Response monitoring	Follow-up assessment after three cycles of chemotherapy should include contrast-enhanced CT imaging and evaluation of CA-125 response. Where available and affordable, HE4 may be utilized in selected patients with mucinous/clear cell histology or CA-125 non-expressors.

Table 25: Summary of GOSK recommendations for targeted and maintenance therapy

Clinical aspect	GOSK recommendation
Bevacizumab	Bevacizumab is recommended at a dose of 15 mg/kg administered intravenously every 3 weeks in combination with adjuvant chemotherapy, and may be continued as maintenance therapy for up to 15 months.

Clinical aspect	GOSK recommendation
	The use of bevacizumab should not be guided by the presence of molecular biomarkers such as BRCA mutations or homologous recombination deficiency.
PARP inhibitors	PARP inhibitor maintenance therapy may be considered in selected patients with epithelial ovarian cancer who demonstrate a complete or partial response following platinum-based chemotherapy. Olaparib is recommended at a dose of 300 mg orally twice daily for patients with BRCA-mutated ovarian cancer who have achieved a response following first-line platinum-based chemotherapy. Treatment may be continued for up to 2 years in patients with stable or progressive disease. Niraparib may be considered for both BRCA-mutated and non-BRCA epithelial ovarian cancer at a dose of 300 mg orally once daily, particularly where availability and cost are not limiting factors. Dose adjustments should be individualized based on patient tolerance, frailty status, body weight, hematological parameters, comorbidities, and treatment-related toxicities.
Combination of olaparib and bevacizumab)	The combination of Olaparib and bevacizumab is recommended as maintenance therapy for patients with homologous recombination deficiency (HRD)-positive epithelial ovarian cancer who have responded to first-line platinum-based chemotherapy
Molecular profiling	Molecular profiling, specifically BRCA mutation and (HRD) testing, is recommended in patients being considered for targeted therapy, where testing and treatment are available and affordable

Table 26: Summary of GOSK recommendations for special histological types of epithelial ovarian cancer

Histological type	GOSK recommendation
Low-grade serous ovarian carcinoma (LGSOC)	In patients with low-grade epithelial ovarian carcinoma where optimal cytoreduction is not achieved, adjuvant platinum-based chemotherapy may be considered. Early stage LGSOC- Stage 1A- observation or carboplatin and paclitaxel administered every three weeks, with the optional addition of maintenance hormonal therapy such as letrozole, for stages IB to IC. Maintenance hormonal therapy is recommended in selected patients using letrozole 2.5 mg orally once daily and continued until disease progression or unacceptable toxicity. For advanced-stage disease (stage II–IV), platinum– taxane chemotherapy is recommended, and may be combined with bevacizumab and followed by maintenance therapy with bevacizumab or hormonal agents.
Ovarian clear cell carcinoma	Comprehensive surgical staging is recommended for patients with ovarian clear cell carcinoma. Adjuvant chemotherapy with carboplatin plus paclitaxel should be administered following surgery where clinically appropriate.
Mucinous ovarian carcinoma	Comprehensive surgical staging including appendectomy is recommended in patients with mucinous ovarian carcinoma. Adjuvant chemotherapy with carboplatin plus paclitaxel should be considered following surgery. In patients with progressive or stable disease after three cycles of platinum-based chemotherapy, gastrointestinal-type regimens including FOLFOX, CAPOX, or FOLFIRI may be considered where feasible. HER2 testing is recommended, and HER2-targeted therapy may be offered in eligible patients' subject to local availability and cost considerations.
Endometrioid ovarian carcinoma	Comprehensive surgical staging is recommended for patients with endometrioid ovarian carcinoma. Adjuvant chemotherapy with carboplatin plus paclitaxel, with or without radiotherapy, may be offered based on disease stage and risk assessment. Hormone receptor testing is recommended in confirmed endometrioid subtypes. Hormonal therapy may be considered in ER/PR-positive disease, including letrozole 2.5 mg orally once daily or tamoxifen 20 mg orally twice daily, continued until disease progression or unacceptable toxicity.
Ovarian carcinosarcoma	Aggressive cytoreductive surgery is recommended in patients with ovarian carcinosarcoma where feasible. Adjuvant chemotherapy with carboplatin (AUC 5–6) plus paclitaxel (175 mg/m² every 3 weeks for six cycles) is the preferred regimen. In selected patients, ifosfamide-based combinations may be considered as alternative treatment options depending on patient status, institutional expertise, and drug availability.
Borderline tumors	For those patients with borderline ovarian tumors, fertility-sparing surgery may be considered in pre-menopausal women who desire fertility preservation. In patients with no desire for fertility preserving surgery, optimal surgery; hysterectomy and, bilateral salpingo-oophorectomy is recommended. Observation is the preferred management strategy following complete resection. Adjuvant chemotherapy is not recommended in this group of patients.

Table 27: Summary of GOSK recommendations for follow-up and rehabilitation

Clinical domain	GOSK recommendation
Follow-up schedule	Patients treated for epithelial ovarian cancer should undergo follow-up review every 3 months during the first 2 years following treatment and subsequently every 6 months until the fifth year. After 5 years the follow up is done annually. Follow-up schedules may be individualized based on disease status, treatment response, recurrence risk, comorbidities, and patient-related factors.
CA-125 monitoring	Serum CA-125 monitoring is recommended during follow-up in patients with elevated baseline values. Rising CA-125 levels should prompt further clinical evaluation and radiological assessment

Clinical domain	GOSK recommendation
	where indicated and should not independently trigger initiation of treatment in the absence of clinical or radiological evidence of recurrence.
Imaging during follow-up	Routine imaging during follow-up is not recommended in asymptomatic patients. Contrast-enhanced CT imaging should be performed when clinically indicated based on symptoms, examination findings, and rising CA-125 levels pointing to recurrence. PET/CT imaging may be considered in selected patients, particularly in the evaluation of suspected recurrence where conventional imaging findings are inconclusive.
Rehabilitation and survivorship	Survivorship care should incorporate rehabilitation, psychosocial support, sexual health assessment, symptom management, and quality-of-life considerations. Patients should receive individualized counseling and supportive care interventions based on informed decision-making and locally available resources.

Table 28: Summary of GOSK recommendations for management of epithelial ovarian cancer disease recurrence

Clinical domain	GOSK recommendation
Relapse classification	The guideline recommends classification of recurrent epithelial ovarian cancer according to the platinum-free interval (PFI). This classification should guide subsequent treatment planning and systemic therapy selection. *Platinum sensitive recurrence*; Epithelial ovarian cancer recurring ≥6 months following completion of platinum-based chemotherapy should be classified as platinum-sensitive disease. *Platinum resistance recurrence*; Recurrent epithelial ovarian cancer developing <6 months following completion of platinum-based chemotherapy should be considered platinum-resistant disease. *Platinum refractory disease*; Disease progression occurring during platinum-based chemotherapy or within 4 weeks of treatment completion should be considered platinum-refractory disease.
Performance status assessment	Performance status assessment using ECOG criteria is recommended prior to initiation of treatment for recurrent epithelial ovarian cancer and should guide treatment selection, suitability for systemic therapy, surgical intervention, and overall goals of care.
Patient selection for secondary cytoreductive surgery (SCS)	Secondary cytoreductive surgery should be considered in patients with good performance status, limited disease burden, absence of ascites, and where complete gross resection appears achievable on clinical evaluation and imaging.
Secondary cytoreductive surgery (SCS)	Secondary cytoreductive surgery should be considered in selected patients with platinum-sensitive recurrent disease where optimal cytoreduction with no visible residual tumor or residual tumor less than 1cmis considered achievable following multidisciplinary team (MDT) evaluation and assessment of surgical fitness.
Management of platinum-sensitive relapse (PSR)	In patients with platinum-sensitive recurrent disease, platinum-based doublet chemotherapy is recommended. This may include; Carboplatin AUC 5–6 IV plus paclitaxel 175 mg/m² IV administered every 21 days for 6 cycles. Carboplatin AUC 5 IV plus pegylated liposomal doxorubicin 30 mg/m² IV administered every 28 days for 6 cycles. Carboplatin AUC 4–5 IV on day 1 plus gemcitabine 1000 mg/m² IV on days 1 and 8 every 21 days for 6 cycles. Bevacizumab 15 mg/kg IV may be added every 21 days in eligible patients and continued as maintenance therapy until disease progression or unacceptable toxicity, where available and feasible. PARP inhibitor maintenance therapy may be offered in patients demonstrating complete or partial response to platinum-based chemotherapy following BRCA and/or HRD assessment where feasible.
Management of platinum-resistant relapse (PRR)	In patients with platinum-resistant recurrent epithelial ovarian cancer, treatment with sequential non-platinum single-agent chemotherapy is recommended. Treatment selection should consider patient performance status, prior toxicities, expected quality of life, treatment accessibility, and resource availability. The guideline recommends the following single agent regimens; *pegylated liposomal doxorubicin* 40 mg/m² IV every 28 days *paclitaxel* 80 mg/m² IV administered on days 1, 8, and 15 every 28 days *topotecan* 4 mg/m² IV on days 1, 8, and 15 every 28 days or 1.25 mg/m² IV daily for 5 consecutive days every 21 days *gemcitabine* 1000 mg/m² IV on days 1 and 8 every 21 days. *Treatment duration:* Treatment should be continued until disease progression, unacceptable toxicity, or clinical deterioration *Bevacizumab* 15 mg/kg IV every 21 days may be considered in eligible patients where available and clinically appropriate. Dose modifications and treatment delays should be individualized based on hematologic toxicity, neuropathy, renal function, performance status, comorbidities, and treatment tolerance
Biomarker-directed and targeted therapies	Biomarker-directed therapies may be considered in selected patients with recurrent epithelial ovarian cancer where molecular testing, drug availability, and supportive care services are accessible. These include; Mirvetuximab Soravtansine: This may be considered in patients with folate receptor-α (FRα)-positive tumors at a dose of 6 mg/kg IV every 3 weeks until disease progression or unacceptable toxicity. Immune checkpoint inhibitors: pembrolizumab 200 mg IV every 3 weeks or 400 mg every 6 weeks may be considered in tumors demonstrating microsatellite instability-high (MSI-H), mismatch repair deficiency (dMMR), or high tumor mutational burden (TMB-H).

Clinical domain	GOSK recommendation
	Trastuzumab deruxtecan (T-DXd) may be considered in HER2-positive disease at a dose of 5.4 mg/kg IV every 3 weeks where clinically appropriate. In our setting, these therapies are recommended preferably in centers with access to pathology, immunohistochemistry, molecular diagnostics, infusion services, and appropriate monitoring for treatment-related toxicities. Treatment selection should consider patient performance status, expected benefit, drug availability, and financial implications.
PARP inhibitors	PARP inhibitor maintenance therapy is recommended only in patients with platinum-sensitive recurrent disease who demonstrate response following platinum-based chemotherapy. Treatment selection should consider BRCA/HRD status, patient tolerance, availability, and financial implications.
Testing of disease at recurrence	Histological confirmation through image-guided biopsy should be considered in recurrent disease where feasible to exclude alternative primary malignancies or histological transformation. Molecular profiling including HRD testing, next-generation sequencing (NGS), and immunohistochemistry for FRα and HER2 may be considered where locally available to guide eligibility for targeted therapies.

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