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# European Cancer Organisation Essential Requirements for Quality Cancer Care for ovarian cancer: Focus on the multidisciplinary team

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## Abstract

European Cancer Organisation Essential Requirements for Quality Cancer Care (ERQCC) are written by experts representing all disciplines involved in cancer care in Europe. They give patients, health professionals, managers and policymakers a guide to essential care. Here, the essential requirements to treat ovarian cancer patients are described.

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Ovarian cancer patients continue to have low cure rates with wide variation in treatment and care in Europe and beyond. They require complex treatment that should be carried out in specialised ovarian/gynaecological cancer centres by professionals with the appropriate expertise interacting in a multidisciplinary team. Such centralisation is still not well established in many European countries. A patient-centred pathway from diagnosis through treatment to survivorship, managed in dedicated centres, is key to achieving optimal care and a successful clinical outcome.

**Keywords**
ovarian, multidisciplinarity, gynecologic oncology, epithelial ovarian cancer

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## Ovarian cancer and the need for quality frameworks

Ovarian cancer is the 8th most frequent cancer diagnosis and the 8th leading cause of death by cancer in women. The Global Cancer Observatory (GLOBOCAN) 2020 estimates that there were 314,000 new diagnoses of ovarian cancer and 207,000 ovarian cancer deaths worldwide. There are large disparities in incidence and mortality among European countries, the highest incidence being in Central Eastern Europe (10.7/100.000) and Northern Europe (8.8/100.000). Mortality rates were similar between countries ranging from 5.6 in Central Eastern Europe to 4.0 in Southern Europe.

About 70% of cases of epithelial ovarian cancer (EOC) have high grade serous histology and are diagnosed at advanced stages with poor prognosis. Factors associated with increased risk include older age; genetic mutations; family history; conditions that increase the number of ovulatory cycles, such as nulliparity, early menarche, and late menopause; endometriosis; and lifestyle factors such as obesity.[1]

The first EU Joint Action on Cancer, the European Partnership for Action Against Cancer (EPAAC, http://www.epaac.eu), reported important variations in service delivery between and within countries. Quality of cancer services such as short waiting times and provision of optimal treatment can explain about a third of the differences in cancer survival, while variations in cancer policies including implementation of a national plan and clinical guidelines, professional training and quality control measures, may be responsible for a quarter.[2]

Moreover, the EU Joint Action on Cancer Control (CANCON) recognised that many cancer patients are treated in general hospitals and not in comprehensive cancer centres (CCCs) and explored a model of 'comprehensive cancer care networks' that integrates expertise in all areas of treatment under a single governance structure.[3]

At European level, there has been widespread effort to establish universal, dedicated units for example for breast cancer[4] and adult glioma patients.[5]

This ERQCC paper aims to define the essential requirements for an ovarian cancer centre and the role of the multidisciplinary team.

## Care pathways and timelines

Care for women with ovarian cancer, applicable to all people with ovaries including transexual men or people that do not identify themselves as women, should be organised in pathways that cover the patient's journey from diagnosis to follow-up including surgical/medical treatment, rehabilitation, psychosocial support, survivorship and palliative care; those pathways should be aligned with current national and European clinical practice guidelines.

Examples of ovarian cancer care pathways are available from the Cancer Council Victoria, Australia[6] and Cancer Care Ontario.[7] According to the former, surgery should be conducted within four weeks of the suspected or confirmed diagnosis and within two weeks from the multidisciplinary team (MDT) board meeting. Neoadjuvant chemotherapy should start within two weeks from the MDT board and adjuvant chemotherapy within four weeks from surgery. After the diagnosis, the professional team responsible for each step of the pathway should be identified, including a case manager or a nurse patient navigator.

## Ovarian cancer centres and multidisciplinary teams

Ovarian cancer patients should be managed by a core and extended MDT of professionals. The ERQCC expert group considers that optimal care is delivered when all members of the core MDT work in a single centre, but it is recognised that some members of the MDT may be based in other locations. For patients who do not live near specialist units there must be a structure to enable referral for complex surgery to an expert centre, with teleconferences with expert centres to discuss other aspects of patient management.

A number of indicators for the management of EOC have been developed at national and international levels with targets for attainment.

## The MDT for ovarian cancer

Treatment strategies for ovarian cancer patients must be decided on, planned and delivered as a result of consensus among a core MDT with the most appropriate members. MDT should meet weekly to discuss all the cases to

balance the recommendations of the clinical guidelines with the needs of the individual patient before treatment starts. Figure 1 reports a schematic representation of the disciplines of the core MDT. The extended MDT includes professionals of additional disciplines who must be accessible to the core MDT whenever their expertise is required (Figure 1).

The expert group also recognises the contributions of department heads, data managers, documentation specialists, patient representatives, caregivers, clinical trials coordinators and others (see also 'Other essential requirements').

## Disciplines in the core MDT

The core and extended MDTs are described as specialists with certain skills and knowledge.

Core MDT members who meet patients must have excellent communications skills to discuss benefits and risks of therapies with patients, families and caregivers to ensure that appropriate treatment options are explained and shared decisions on the subsequent treatments are taken.

### *Gynaecological pathology*

Pathologists establish the correct diagnosis and stage. They should have experience in gynaecological pathology and detailed knowledge of EOC. The fallopian tubes, or at least their fimbriated ends, should be totally sampled after risk reducing surgery for BRCA variants carriers by a Sectioning and Extensively Examining the FIMbriated End (SEE-FIM)-like protocol to avoid overlooking this site of disease which probably represents the tumour origin in the majority of cases.[8,9]

Immunohistochemical (IHC) examinations are now part of standard pathological examinations with definition of IHC markers. Pathology reports must provide the final diagnosis according to the most recent FIGO and TNM classifications. The use of a structured (or synoptic) report must be encouraged. Access to an accredited laboratory for molecular techniques must be provided for diagnosis and/or prognosis and, if indicated, targeted treatment. Somatic tumour genetic testing must be available. Centralised pathology review is strongly recommended for cases of dubious interpretation and for rare entities. Molecular pathologists should be available because of the growing need for Homologous Recombination Deficiency and (HRD) and Next generation sequencing (NGS) assays.

### *Gynaecological radiology*

Imaging plays a major role in diagnosis, staging, postoperative assessment and follow-up of ovarian cancer patients. It may also provide information for guiding surgery. When performing/interpreting imaging studies, radiologists must be aware of patient history, clinical presentation, ultrasound findings and tumour markers;[10] the final clinical interpretation must be discussed with the treating clinicians. Ovarian cancer staging must be based on abdominal and pelvic contrast-enhanced CT findings for assessment of primary tumours, nodal spread, intraperitoneal disease and metastatic spread, with inclusion of chest CT.[11] High magnetic field MRI ($\geqslant$1.5T) must be used for staging in situations where CT is contraindicated.[12,13] Non-enhanced MRI must be considered when contrast enhanced MRI is contraindicated. 18F FDG-PET/CT may be considered as an adjunct modality in unclear cases, for example when CT is indeterminate or on suspicion of recurrence.

### *Gynaecological oncology (surgery)*

Surgery for EOC should be carried out by gynaecological oncologists who are accredited in gynaecological oncology, or by gynaecology surgeons who are experts in gynaecological cancers in those countries where no specialist registers and accreditation system is established. Gynaecological oncologists are usually the lead members of the MDT and may also be certified to deliver medical therapy depending on the healthcare system. Ideally, they should spend more than 50% of their time in treating gynaecological cancers. The surgical expertise of gynaecological oncologists goes beyond pelvic procedures and includes upper abdominal, gastrointestinal and retroperitoneal resection techniques to achieve complete macroscopic tumour clearance. Other specialist surgeons may assist in operations to achieve optimal cytoreduction in extra-abdominal sites. According to the European Society of Gynaecological Oncology (ESGO)'s quality indicators, a minimum of 20 surgeries with the aim of complete cytoreduction for advanced EOC should be carried out at the centre (intermediate target 50, optimal target 100).[14] Younger women with early-stage disease must be offered fertility preservation surgery where applicable. An intensive care unit must be available and comprehensive perioperative care provided. Operative reports should be structured and contain at a minimum: size and location of disease at the beginning and residual disease at end of the operation; all the areas of the abdominal and pelvic cavity evaluated and described; reasons for not achieving complete cytoreduction.

### *Gynaecological medical oncology*

Medical oncologists play a key role in the management of ovarian cancer patients. Platinum-taxane based chemotherapy remains the mainstay of the first treatment for early and advanced stages. The subsequent treatment has become more modulated in the advanced setting, according to histological subtypes, grading and genomic profile. Maintenance with bevacizumab and/or PARP inhibitors is added in the frontline or in the recurrent settings.[15]

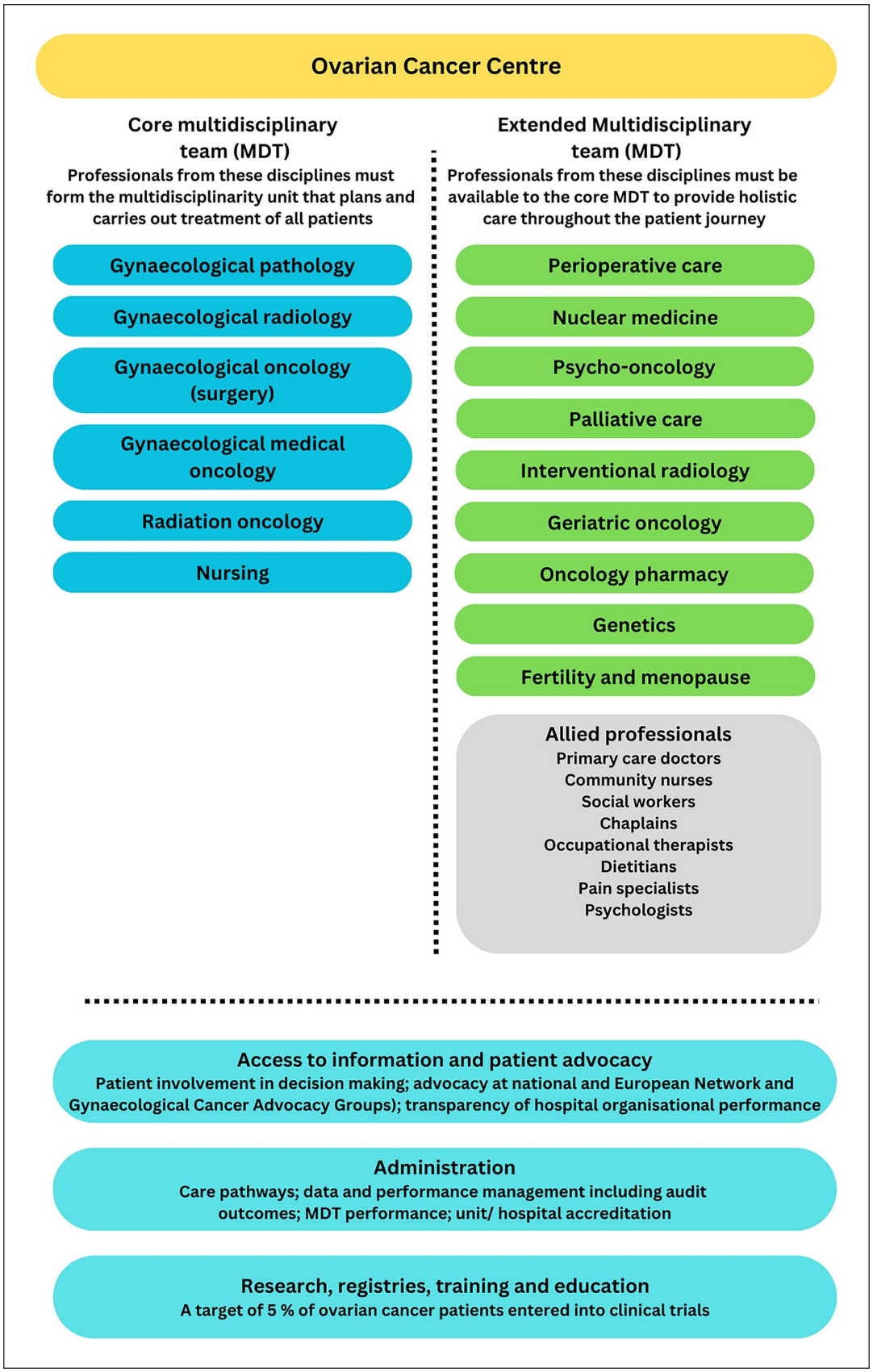


**Figure 1.** Schematic of ovarian cancer centre.
Molecular pathologist should be available because of the growing need for Homologous Recombination Deficiency and (HRD) and Next generation sequencing (NGS) assays.

The main aim of the frontline treatment is to achieve a prolonged complete remission, to increase the chance of cure and delay the development of platinum- resistance.

Medical oncologists need to know and apply the latest national and European recommendations on the medical treatment for first line and recurrent disease, and the importance of assessing genomic profile, to personalise treatment.

Medical oncologists should decide, together with the health care team and the patients, when it is time to switch to only a supportive symptom control approach. It is essential that medical oncologists can participate in clinical studies and develop activities and provide structures and resources to perform translational studies. Medical oncologists also play key roles in geriatric, supportive and palliative care and contact specialists in case of complications arising from the disease or from the treatment. Medical oncologists can lead gynaecological MDTs.

### *Radiation oncology*

There is no current role for radiation in the first line treatment of EOC. However, selected cases with recurrences of limited dimensions and anatomical sites can be managed by radiation. Radiation can also be used for symptom control, like bone pain, bleeding from pelvic masses, lymph-nodal compression. Radiation oncologists determine the volume to be irradiated, the most suitable dose, fractionation and technique. Radiation oncologists must be involved in follow-up of radiation related toxicities, with protocols available for their management.

### *Nursing*

Nurses are a key contact for patients and family, providing information to facilitate informed decision-making, helping managing symptoms and treatment side-effects, providing support at all key points of the patient journey and assuring homogeneity of the communications. There is a need for specialised gynaecological cancer nursing carried out by advanced nurse practitioners or specialists. Nurses should have training in gynaecological oncology with experience in daily care and be able to coordinate care with healthcare professionals within and outside the core MDT, including nutrition, rehabilitation, psychosocial, home care and palliative care services.

## Disciplines in the extended MDT

### *Perioperative care*

Anaesthesiologists and intensive care specialists have key roles in the management of patients undergoing surgery for EOC. Their roles include surgical risk assessment, preoperative optimisation of co-existing medical conditions, intraoperative care, postoperative management and management of complications in intensive care facilities, acute and chronic pain management. The enhanced recovery after surgery (ERAS) guidelines for gynaecologic oncology are recommended as well as the inclusion of patient reported outcome measures (PROMs) in recovery.

### *Nuclear medicine*

Nuclear medicine can complement diagnosis and follow-up of ovarian cancer.[16-18] There is evidence of the efficacy of 18F-FDG PET/CT in lesion detection and characterisation where there is non-conclusive radiological imaging or negative radiological imaging with increased tumour markers.

Nuclear medicine departments must be able to perform daily verification protocols and to react accordingly. Quality-assurance protocols must be in place. An option for ensuring the high quality of PET/CT scanners is provided by the European Association of Nuclear Medicine (EANM) through EARL accreditation.

### *Psycho-oncology*

About 30% of women with ovarian cancer experience severe distress with an increased risk of developing more severe conditions such as anxiety and depression in the absence of an adequate psychosocial intervention.[19]

Predictors of psychological distress include younger age at diagnosis, factors related to fertility and ability to give birth, physical complications and side effects that impair quality of life (such as impact on sexuality, negative perceptions of body image), previous adverse events and a history of psychological distress.

Distress should be screened regularly through a self-administered psychological assessment tool (such as the distress thermometer).[20] Reduced levels of distress can be managed by the clinical team through good communication skills that address common concerns and questions; higher levels of distress (above a cut-off level which includes anxiety and/or depression) require referral to specialised professionals in psycho-oncology. Psycho-oncologists should ensure that psychosocial distress, psychological disorders and psychosocial needs are identified by regularly screening patients for distress, and are considered by the MDT. Moreover, they should provide evidence-based psychosocial care to support patients, family members and caregivers and promote effective communication among patients, family members, caregivers and healthcare professionals. Psychosocial care is still not well-resourced in Europe[21] and cancer policy guidelines recommend improvements to provide services.[22]

### *Palliative care*

Palliative care applies throughout all cancer care (http://www.who.int/cancer/palliative/definition). Supportive

care is most correctly defined as the prevention and management of the adverse effects of cancer and its treatment' (MASCC, https://www.mascc.org). Supportive/palliative care is an essential component of treatment and European Society for Medical Oncology (ESMO) has proposed the term 'patient-centred care' to encompass both supportive and palliative care.[23] Patients with advanced EOC should have access to palliative/supportive care from the MDT and to a specialist palliative care team in the outpatient and inpatient setting.[24,25]

The palliative care team must include palliative care physicians and specialist nurses, working with social workers, psychologists, physiotherapists, occupational therapists, nutritionists, pain specialists and chaplains.

Palliative care specialists and oncologists must aspire to meet the standards of the European Society for Medical Oncology (ESMO) Designated Centres of Integrated Oncology and Palliative Care (https://www.esmo.org/for-patients/esmo-designated-centres-of-integrated-oncology-palliative-care).

### Interventional radiology

Interventional radiology plays a crucial role in the diagnosis, perioperative, clinical and palliative care of ovarian cancer patients.

Image-guided percutaneous targeted core needle biopsy can confirm the diagnosis before treatment or at the time of recurrence. Perioperative and clinical/palliative care procedures include drainage of fluid collections, embolisation for bleeding control, stent insertion for pancreatic leaks, duodenal or gastric outlet stenosis and biliary leaks.

### Geriatric oncology

The MDT should have access to geriatricians with oncology experience or oncologists familiar with the care of elderly (70+) women.

Treatment decisions should be based on patient's general health, comorbidities and patient preference. Pretreatment objective assessment of frailty using validated scales, like the Geriatric Vulnerability Score (GVS) in ovarian cancer, could allow a safe use of combination chemotherapy also in frail women.[26] Cognitive impairment affects all aspects of treatment —— and screening using tools such as Mini-Cog[27] is essential. A geriatrician or a geriatric psychiatrist or neurologist would preferably be involved with impaired patients.

For frail and disabled patients, the geriatrician or specialist nurse must be present in the MDT meeting to discuss treatment options aligned with the patient's goals of care.

### Oncology pharmacy

Oncology pharmacy plays a critical role in the extended MDT given the importance of systemic treatment.

Oncology pharmacists should liaise with the medical oncologist to discuss cancer specific treatments, including drug interactions, supervise the preparation of oncology drug, be aware of both common and rare side effects of chemotherapy, targeted treatments and immunotherapies and the supportive measures to control them.

Oncology pharmacists must comply with European QuapoS.[28] Oncology drugs must be prepared in the pharmacy and dispensing must take place under the supervision of the oncology pharmacist.

### Genetics

Genetic counselling is an essential part of the cancer service for all women with non-mucinous EOC. Genetic testing is done after genetic counselling by clinical geneticists, supported by genetic counsellors. The main aims are to identify relatives who may be at high risk of developing EOC and other cancers in the hereditary breast ovarian cancer syndrome (HBOC) and guide prognosis and treatment decision-making for patients.

About 25% of EOC cases are associated with *BRCA1/2* mutations. The lifetime risk of developing EOC in women with germline *BRCA* mutations is 40-60%.[29] As about 40% of women with germline variants have no family history of EOC or breast cancer, the other cancer most associated with *BRCA*, it is important to test regardless of family history. Healthy individuals with significant family history should be offered genetic testing with multigene panels of clinically validated genes (such as those in Lynch syndrome, *BRIP1*, *RAD51C/D, PALB2, ATM)*.[30] Both germline and tumour tests should be available for detecting familial predisposition and for therapeutic decision-making.

Carriers should be offered prophylactic surgery because of the lack of effective screening. Risk-reducing bilateral salpingo-oophorectomy (BSO) has been estimated to give an 80-90% reduction in ovarian/fallopian tube cancer risk in BRCA carriers and can be proposed to women in their early 40s following childbearing.[31] Salpingectomy with delayed oophorectomy is an option only within clinical trials.

Women affected by *BRCA* should undergo surveillance for the risk of developing other cancers (breast and pancreas) in the HBOC syndrome.

It is important that genetic reassessment is scheduled to capture new family history information and to apply clinical re-evaluation in light of medical advances and identification of significant genetic variants previously classified as variants of unknown significance (VUS).

### Fertility and menopause services

The risks of treatment related infertility should be discussed with women as soon as possible by MDT members and early referral to a fertility service arranged where required.

In pre-menopausal women, cytoreductive surgery induces premature menopause, which may cause hot

flushes, sweats and vaginal dryness and can increase the risk of heart disease and osteoporosis. Hormone replacement therapy (HRT) is a treatment option for some women; lifestyle changes and complementary therapies can help to alleviate symptoms. In hormone receptor positive advanced or relapsed low grade EOC cancer, HRT carries oncologic risks and should not be prescribed. Counselling should be available to discuss measures to reduce the risk of osteoporosis and related complications.

### *Patients' involvement and advocacy groups*

Patients must be involved in every step of the decision-making process for treatment and care. Patients, families and caregivers should be offered relevant, objective and understandable information and be allowed to take time for additional information and questions. It is essential that ovarian cancer patients and advocacy organisations are involved all throughout the patient pathway. These groups should provide information about ovarian cancer in lay language and help patients and families to understand the treatment options, thus improving patients' ability to make decisions, secure access to innovative therapies and improve quality of treatment.

Moreover, they should contribute to ovarian cancer research, being involved in the design of clinical trial, encourage patients to participate in clinical trials and advocate at European and national health policy level. There are several advocacy groups in Europe for ovarian and gynaecological cancers, the umbrella body being the European Network of Gynaecological Advocacy Groups ENGAGe (https://engage.esgo.org/). The World Ovarian Cancer Coalition was established in 2016 and has published the Every Woman Study, which draws on an atlas of global trends, a survey of women and a clinician report (https://worldovariancancercoalition.org/everywoman).[32]

## Performance, quality and audit of outcomes

To meet the minimum requirements for quality performance, the ERQCC expert group recommends that ovarian cancer centres develop performance measurement metrics/quality indicators based on the requirements mentioned in this paper and on clinical guidelines. In addition, the ERQCC expert group recommends centres to develop systems to ensure safe and high-quality patient care and experience throughout the clinical pathway, effective data management and reporting systems, engagement with patients, care-providers and support groups to ensure the reporting of patient outcomes and experience. Clinical outcome, process outcome or patient reported outcome need to be measured and collected in databases in the specialist centre, regionally and/or nationally.

These approaches can be developed in the context of quality management systems (QMS) depending on the health economy of an individual country.

The ERQCC expert group recommends that the following outcome metrics are systematically measured and collected for audit:

- Rate of complete surgical resection
- Number of cytoreduction surgeries per centre and per surgeon per year
- Surgery performed by a gynaecological oncologist or a surgeon dedicated to gynaecological cancer
- Pre-operative, intra-operative, and post-operative management
- Required elements in operative and pathology reports
- Structured prospective reporting of post-operative complications.
- 30-day mortality and readmission
- Participation in clinical trials
- Adherence to MDT recommendations

All MDT decisions should be documented and become part of patient records. Decisions taken during MDT meetings must be monitored, and deviations reported back to the MDT. PROMs should be part of discussions and evaluation within the MDT. The core and extended MDTs must meet at least twice a year to review the activity based on the audited metrics, discuss changes in protocols and procedures, and improve the performance of the unit/centre. MDT performance must be quality assured by internal and external review.

The ERQCC expert group strongly recommends participation in national or international accreditation programmes, e.g. Organisation of European Cancer Institutes (OECI) accreditation (https://www.oeci.eu/Accreditation/Page.aspx?name=MANUAL_3)[33] the German Cancer Society certification system for cancer centres, which is offered to centres outside Germany (http://www.ecc-cert.org); European Society of Gynaecological Oncology (ESGO) accreditation (https://www.esgo.org/explore/esgo-accreditation); European Society for Medical Oncology (ESMO) Designated Centres of Integrated Oncology and Palliative Care accreditation programme.[34]

## Education and training

Each ovarian cancer centre should provide professional, clinical and scientific education with one person responsible for the programme. Healthcare professionals must also receive training in psychosocial oncology, palliative care, rehabilitation and communication skills. The ERQCC expert group highlights the importance of European training standards in medical and gynaecological oncology,

available from European Society for Medical Oncology (ESMO), European Society of Gynaecological Oncology (ESGO), from the European School of Oncology (ESO) and from the European Union of Medical Specialists (UEMS).

## Clinical research and registries

Centres treating ovarian cancer must have clinical research programmes The research portfolio should have interventional and non-interventional projects including academic research. The ERQCC expert group considers that the inclusion of 5% of patients in clinical trials is an important target for ovarian cancer centres.[35] Collaborations with European academic networks are strongly recommended – see the European Network of Gynaecological Oncological Trial Groups (ENGOT– https://www.esgo.org/network/engot), the gynaecological cancer group of the European Organisation for Research and Treatment of Cancer (EORTC – http://www.eortc.org).

## Conclusions

The recommendations of this paper provide the organisational and clinical requirements for establishing a high-quality ovarian cancer service, led by an MDT with specialised expertise, to guarantee adequate standard treatment to all patients. Challenges for the implementation of an MDT with specialised expertise could be, among others, the lack of adequate human and structural resources, difficulties in collaboration and communication among team members, delay in the return of pathological results, poor coordination in patient management. Proper training and the participation of an external MDT, where cases can be referred for discussion, could be a useful way to convince member of a new potential MDT on its value and need for the implementation of effective multidisciplinary patient care.

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