ADVANCED (STAGE III-IV) OVARIAN CANCER SURGERY

QUALITY INDICATORS

- Summary report -

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1 Introduction

Ovarian cancer is the leading cause of death among all gynecologic cancers and remains the most common cause of death for 15 years after diagnosis in women with stage III-IV tumours[1,2].Surgery is the cornerstone in treatement of advanced ovarian cancer. Quality of surgical care as a component of a comprehensive regimen of multidisciplinary management has been shown to benefit the patient in other types of malignancies. Implementation of a quality improvement programme helped to reduce both morbidity and costs in other tumours where surgical interventions is also high risk.A mere implementation of a quality management programme could impact survival of patients with advanced ovarian cancer[3,4].

The European Society of Gynaecological Oncology (ESGO) took a position to promote the training of gynaecological surgeons treating cancer for abdominal procedures including colorectal resection and upper abdominal surgery[5].The aim of this project is to develop a list of quality indicators for advanced ovarian cancer surgery that can be used to audit and improve the clinical practice in an easy and practical way. These quality indicators give practitioners and health administrators a quantitative basis for improving care and organizational processes. They also facilitate the documentation of quality of care, the comparison of performance structures, and the establishment of organizational priorities as a basis for accreditation.

The quality indicators and proposed targetsare based on the standards of practice determined from scientific evidence and/or expert consensus. The key characteristics of an ideal indicator are clear definition, clinical relevance, measurability, feasibility in clinical practice, and a scientific basis.

The philosophy behind the project is to improve the average standard of surgical care by providing a set of quality criteria which can be used for self-assessment, for institutional quality assurance programs, for governmental quality assessment, and eventually to build a network of certified centres for ovarian cancer surgery. The mindset is not punitive but incentive. Certified centers can make the award known from doctors, patients, patient advocacy groups and lay persons. On the contrary, the targets defined by the workgroup can absolutely not be used to penalize or litigate doctors or institutions.

2 Acknowledgements

ESGO would like to thank the international experts panel (development group) for their constant availability, work, and for making possible the development of these quality indicators for the advanced ovarian cancer surgery. ESGO is also very grateful to the external panel of physicians and patients (international reviewers) for their participation. The names of the participants in each group are listed on Appendices 1 and 2.

ESGO also wishes to express sincere gratitude to the Institut National du Cancer (INCa, France) for providing the main funding for this work.

[1]Dinkelspiel, H.E., et al. Long-term mortality among women with epithelial ovarian cancer. Gynecol Oncol (2015).

[2]Ferlay, J., et al. Cancer incidence and mortality pattens in Europe : estimates for 40 countries in 2012. Eur J Cancer 49, 1374-1403 (2013).

[3]Harter, P., et al. Impact of a structured quality management program on surgical outcome in primary advanced ovarian cancer. Gynecol Oncol 121, 615-619 (2011).

[4]Aletti, G.D., et al. Quality improvement in the surgical approach to advanced ovarian cancer : the Mayo Clinic experience. J Am Coll Surg, 614-620 (2009).

[5]Cibula, D., et al. Training in bowel and upper abdominal surgery in gynaecological oncology : European Society of Gynecological Oncology (ESGO) statement. Int J Gynecol Cancer 21, 1264-1265 (2011).

3 Method

3.1 Quality indicators development process

Quality indicators for advanced ovarian cancer surgery were developed using a four-step evaluation process (*Figure 1*). The strengths of this process are (1) multidisciplinarity of an international development group, (2) scientific evidence and/or international expert consensus to support the quality indicators, (3) patients' involvement in the process, (4) use of an external review process (international validation by physicians and patients), (5) use of a structured format to present the quality indicators, and (6) management of potential conflicts of interests.

It is inspired by published development processes and initiatives identified from a literature search carried out (1) using a list of selected websites, and (2) in Medline without any restriction in the search period (indexing terms: consensus, development process, evidence-based medicine, method, methodology, methodology research, program development, quality assurance, quality improvement, quality indicators, quality management). This development process involved 2 face to face meetingsoftheinternational experts panel, chaired by Professor Denis Querleu (Institut Bergonié, Bordeaux, France) convened in May 19, 2015 then in September 4, 2015.

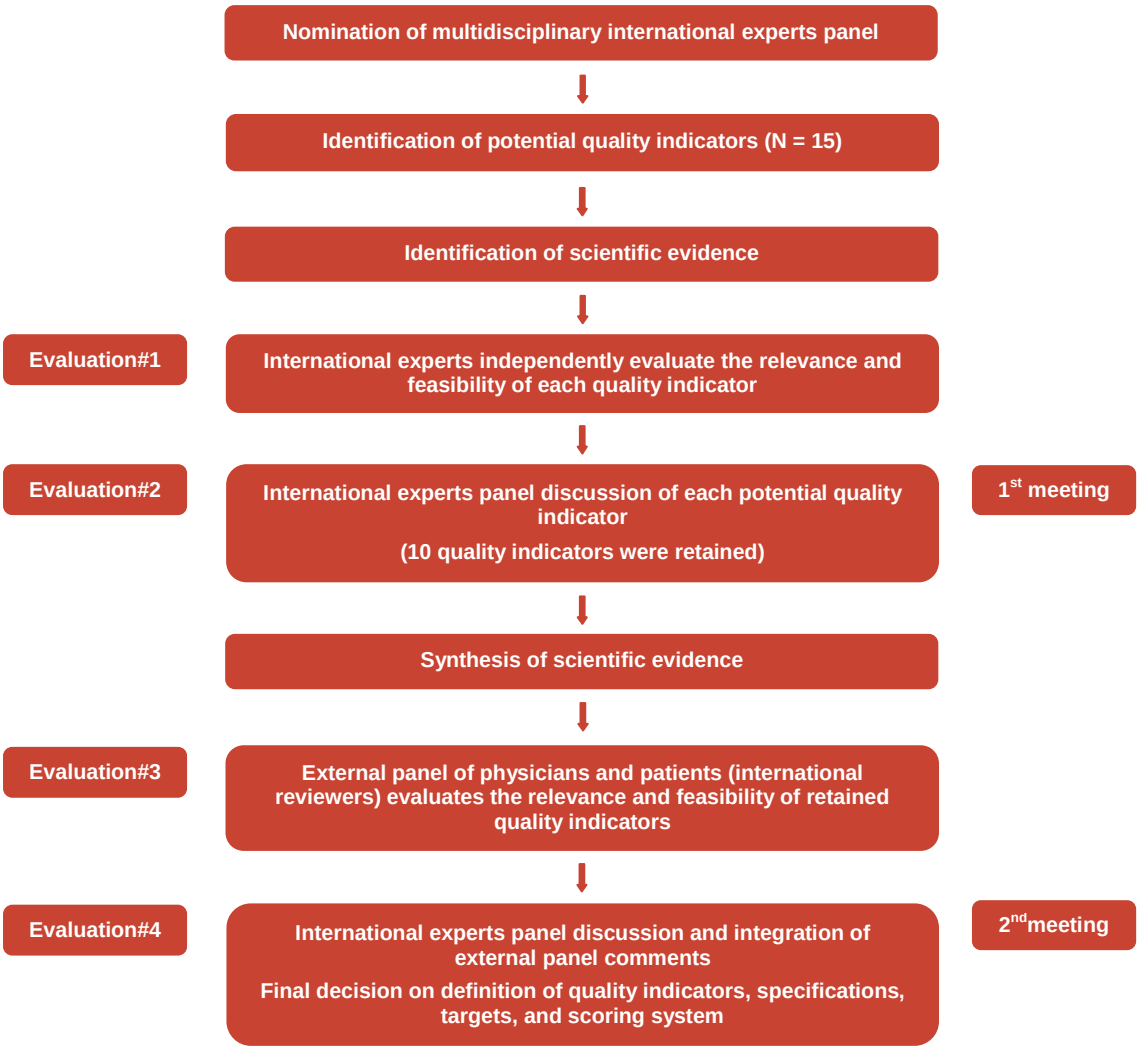

Figure 1. Development process - A four-step evaluation process

3.1.1 Nomination of multidisciplinary international experts panel

The ESGO Council nominated practicing clinicians that provide care to advanced ovarian cancer patients and had demonstrated leadership in quality improvement through research, administrative responsibilities, or committee membership to serve as experts panel. The objective was to assemble a multidisciplinary panel, including one surgical and one methodologic co-chairs. It was therefore essential to include professionals on the panel from relevant disciplines so that their multidisciplinary perspective would influence the validity and acceptability of the chosen indicators (surgery, medical oncology, pathology, radiology, anaesthesiology, gynecology, radiation oncology). Another requirement was a balanced representativity of countries across Europe. The list of international experts (development group) is available in Appendix 1.

3.1.2 Identification of potential quality indicators

All possible quality indicators for advanced ovarian cancer surgery were identified from existing guidelines and published indicators. A systematic literature search was conducted in MEDLINE without any restriction in the search period, using indexing terms as follows: quality indicators, ovarian cancer, surgery, methodology, guidelines, evidence-based medicine. An another bibliographic search was carried out using selected websites to identify guidelines. References were selected if they described indicators developed by other agencies or synthesized research evidence describing practice contributing to improved patient outcomes (guidelines or consensus statements). Five previous initiatives publishing quality indicators for advanced ovarian cancer surgery were identified[6,7,8,9,10]. The surgical and methologic co-chairs compiled a list of 15 possible indicators:

1. Inclusion in the surgical team of a medical oncologist
2. Surgery performed by a gynecologic oncologist
3. Inclusion of patients in clinical trials
4. Delay between the decision to treat and treatment
5. Pelvic and para-aortic lymphadenectomy
6. Pretreatment multidisciplinary decision-making process
7. Anaesthetic management
8. Prospective reporting of complications
9. Midline laparotomy
10. Volume of ovarian surgery
11. Pathology report
12. Operative report
13. Intraoperative frozen sections
14. Complete surgical resection
15. Perioperative investigations

3.1.3 Identification of scientific evidence

A systematic literature search was conducted in MEDLINE to identify available scientific evidence which supports the 15 possible quality indicators (research period: 2005/01/01 - 2015/04/01). This search used indexing terms as follows: anaesthesiology, clinical competence, clinical studies, clinical trials, complete resection, cytoreduction, cytoreductive surgery, debulking, decision making, delayed cytoreduction, delayed cytoreductive surgery, frozen sections, hospital teaching, hospital

[6]Gagliardi, A.R., Fung Kee Fung, M., Langer, B. Stern, H. & Brown, A.D. Development of ovarian cancer surgery quality indicators using a modified Delphi approach. *Gynecol Oncol***97**, 446-456 (2005).

[7]Verleye, L. Ottevanger, P.B., van der Graaf, W., Reed, N.S. & Vergote, I. EORTC-GCG process quality indicators for ovarian cancer surgery. *Eur J Cancer***45**, 517-526 (2009).

[8]Querleu, D. et al. Quality indicators in ovarian cancer surgery : report from the French Society of Gynecologic Oncology (Societe Francaise d'Oncologie Gynecologique, SFOG). *Ann Oncol***24**, 2732-2739 (2013).

[9]NHS. Ovarian cancer, clinical quality performance indicators. http://www.healthcareimprovementscotland.org/our_work/cancer_care_improvement/cancer_qois.aspx (2013).

[10]Wagner, U. et al. S3-Guideline on Diagnostics, Therapy and Follow-up of Malignant Ovarian Tumours : Short version 1.0 – AWMF registration number : 032/035OL, June 2013. Geburtshilfe Frauenheilkd 73, 874-889 (2013).

mortality,hospital volume, hospital university, in-hospital death, intensive care, intensive care unit, laparoscopy, laparotomy, length of stay, lymphadenectomy, lymph node dissection, medical audit, medical records, medical standards, mortality rate, mortality analysis, multidisciplinary team, multidisciplinary team approach, multivariate analysis, nutrition assessment, nutritional status, nutritional support, operation, operative report, operative report documentation, optimal cytoreduction, ovarian cancer, ovarian neoplasm, ovarian tumour, ovariectomy, para-aortic lymphadenectomy, pathology, pathology report, pathology report adequacy, pelvic lymphadenectomy, perioperative care, physician's role, physician specialty, postoperative care, postoperative complications, preoperative care, preoperative workup, primary cytoreduction, primary cytoreductive surgery, prognosis, quality of health care, quality of life, reoperation, repeat surgery, reporting, resection, residual disease, residual tumour, risk factors, specialization, suboptimal cytoreduction, surgeon volume, surgery, surgical management, surgical outcome, surgical outcome criteria, surgical procedures, surgical resection, survival rate, survival analysis, treatment outcome.

The literature search was limited to publications in French and English. Priority was given to high-quality systematic reviews and meta-analyses but lower levels of evidence were also evaluated. The search strategy excluded editorials, letters, case reports and *in vitro* studies. The reference list of each identified article was reviewed for other potentially relevant papers. The bibliography was also be supplemented by additional references provided by the international experts panel.

3.1.4 Evaluation of the potential quality indicators

The 15 possible quality indicators were formated as a questionnaire, and were sent by email to the international experts panel (development group). Experts were asked to evaluate each indicator according to relevance and feasibility in clinical pratice (evaluation #1). Responses were pooled and organized according to consensus about relevance and feasibility. The results of this first evaluation was sent to experts who convened during the first one-day meeting (May 19, 2015). Acceptance, rejection or the need for further consideration of each indicator was discussed during the meeting (evaluation #2). Candidate quality indicators were retained if they were supported by sufficient high level scientific evidence and/or when a large consensus among experts was obtained. Finally, ten quality indicators for advanced ovarian cancer surgery were retained by the international experts panel. The 5 remaining indicators were not retained by the international experts panel, as a result of lack of evidence, or of duplication of quality information:

1. Inclusion in the medical team of a medical oncologist: this potential quality indicator has been incorporated in the number 5 quality indicator;

2. Delay between the decision to treat and treatment: no evidence of impact was found and no consensus has been reached within the international experts panel;

3. Midline laparotomy: this potential quality indicator will be considered in recommendations to avoid rupture of early ovarian cancer; in advanced ovarian cancer, midline laparotomy is the mainstay of comprehensive description of tumor extent and of complete surgery, which are two retained quality indicators (number 1 and 8);

4. Intraoperative frozen sections: this potential quality indicator will be considered in the management of suspicious adnexal masses; in advanced ovarian cancer, the differential diagnosis between peritoneal carcinomatosis secondary to genital tract malignancy and other conditions may be difficult ; however, availability of frozen section examination by a specialized pathologist is strongly encouraged;

5. Pelvic and para-aortic lymphadenectomy: removal of enlarged nodes is part of complete cytoreduction ; as the current literature does not provide evidence of increased overall survival when routine comprehensive node dissection is performedafter complete intraperitoneal cytoreduction,the international experts panel concluded that it is more appropriate to wait for the

publication of the results of ongoing clinical trials on this topic.Comprehensive pelvic and aortic lymph node dissection is the standard in patients with stage III based on lymph node involvement only.

3.1.5 Synthesis of scientific evidence

For the 10 retained quality indicators, the systematic literature search as described above has been extended until July 1, 2015 in order to update the documentation for the 2nd one-day meeting. All retrieved articles have been methodologically and clinically appraised. After the selection and critical appraisal of the articles, a summary of the scientific evidence has been developed. To classify the risk of bias or confounding in the identified studies, we used the Oxford Centre for Evidence-Based Medicine levels of evidence[11].

3.1.6 External evaluation of the retained quality indicators - International review

The ESGO Council established a large panel of practicing clinicians that provide care to advanced ovarian cancer patients and patients. These international reviewers were independent from the development group. Another requirement was a balanced representativity of countries across Europe. The 10 retained quality indicators were formated as a questionnaire, and were sent by email to the international reviewers who were asked to evaluate each indicator according to relevance and feasibility in clinical pratice (only physicians).

Quantitative and qualitative evaluations of the 10 retained quality indicators were performed by 84 independent physicians and by 8 ovarian cancer patients between july 6, 2015 and August 31, 2015 (evaluation #3). The list of international reviewers is available in Appendix2.

3.1.7 Integration of international reviewers comments and finalization of the quality indicators

Responses were pooled and sent to experts who convened during the second one-day meeting (September 4, 2015). The development group discussed all comments (evaluation #4).

Each retained quality indicator has a description which specifies what the indicator is measuring. The measurability specifications are then detailed. The latter highlight how the indicator will actually be measured in practice to allow audits. In this regard, the timeframe for assessment of criteria is the last calendar year. Further to measurement of the indicator, a target is indicated. This dictates the level which each unit/center should be aiming to achieve against each indicator. When appropriate, two targets were defined : an optimal target, expressing the best possible option for patients, and a minimal target, expressing the minimal requirement when practical feasibility factors are taken into account. Targets were based on evidence whenever available, on the personal experience or database of workgroup members, on expert consensus, and on feedback from the physicians external reviewers.

Each retained quality indicator is categorized as structural indicators, process indicators, and outcome indicators as defined[12] below :

- “Structure” refers to health system characteristics that affect the system’s ability to meet the health care needs of individual patients or a community. Structural indicators describe the type and amount of resources used by a health system or organization to deliver programs and services, and they relate to the presence or number of staff, clients, money, beds, supplies, and buildings. The assessment of structure is a judgment on whether care is being provided under conditions that are either conductive or inimical to the provision of good care;

[11] http://www.cebm.net/oxford-centre-evidence-based-medicine-levels-evidence-march-2009/

[12] Mainz, J. Defining and classifying clinical indicators for quality improvement. *Int J Qual Health Care* **15**, 523-530 (2003).

- Process indicators assess what the provider did for the patient and how well it was done. Processes are a series of inter-related activities undertaken to achieve objectives. Process indicators measure the activities and tasks in patient episodes of care. Some authors include the patient's activities in seeking care and carrying it out in their definition of the health care process.Others limit this term to care that health care providers are giving. It may be argued that providers are not accountable for the patient's activities and these, therefore, do not constitute part of the quality of care, but rather fall into the realm of patient characteristics and behavior that influence patients' health outcomes;

- Outcomes are states of health or events that follow care, and that may be affected by health care. An ideal outcome indicator would capture the effect of care processes on the health and wellbeing of patients and populations. Outcomes can be expressed as 'The five Ds': (i) death: a bad outcome if untimely; (ii) disease: symptoms, physical signs, and laboratory abnormalities; (iii) discomfort: symptoms such as pain, nausea, or dyspnea; (iv) disability: impaired ability connected to usual activities at home, work, or in recreation; and (v) dissatisfaction: emotional reactions to disease and its care, such as sadness and anger. Intermediate outcome indicators reflect changes in biological status that affect subsequent health outcomes. Some outcomes can only be assessed after years (e.g. 5-year cancer survival). It is therefore important to assess intermediate outcome indicators. They should be evidence-based and reflect the final outcome. The final outcome criterion, such as cancer survival, which can be assessed only long after the completion of surgery, may have to be replaced by a surrogate outcome that can be assessed in a timely fashion. The surrogate indicator must be predictive of the final outcome.

3.2 Management of conflicts of interest

The experts of the multidisciplinary international experts panel (development group) were required to complete the declaration of interest form, and to promptly inform the ESGO counil if any change in the disclosed information occurred during the course of this work. The completed declaration of interest forms were reviewed by the surgical and methodologic co-chairs with a view to managing disclosed interests in the field of advanced ovarian cancer surgery. The decision was that all experts could participate in the process.

4 Quality indicators

4.1 QI 1 -Rate of complete surgical resection

DESCRIPTION OF THE PROPOSED QUALITY INDICATOR	
TYPE	Outcome indicator.
DESCRIPTION	Complete abdominal surgical resection is defined by the absence of remaining macroscopic lesions after careful exploration of the abdomen. Whenever feasible, localized thoracic disease is resected. Surgery can be decided upfront, or planned after neoadjuvant chemotherapy. However, the quality assurance program must take into account that patients who can be operated upfront with a reasonable complication rate benefit most from primary debulking surgery.
SPECIFICATIONS	(i) Complete resection rate: • *Numerator*: number of patients with advanced ovarian cancer undergoing complete surgical resection. • *Denominator*: all patients with advanced ovarian cancer referred to the center. (ii) Proportion of patients who are operated upfront*(based on evidence from the EORTC 55971 trial, only patients presenting with low metastatic volume (peritoneal metastases less than 5 cm in diameter) are considered;patients with unresectable parenchymal metastases are excluded).* • *Numerator*: patients who are offered upfront surgery. • *Denominator*: all patients not previously treated.
TARGET(S)	(i) Complete resection rate: • *Optimal target*: > 65%. • *Minimum required target:*> 50%. (ii) Proportion of patients who are operated upfront: >80%

4.2 QI 2 -Number of cytoreductive surgeries performed per center and per surgeon per year

DESCRIPTION OF THE PROPOSED QUALITY INDICATOR	
TYPE	Structural indicator (number of upfront or interval cytoreductive surgeries performed per center). Process indicator(number of surgeries per surgeon per year).
DESCRIPTION	Only surgeries with an initial objective of complete cytoreduction are recorded. Exploratory endoscopies, exploratory laparotomies, or surgeries limited to tissue biopsy that do not include at least a bilateral salpingo-oophorectomy (if applicable), hysterectomy (if applicable), and a comprehensive peritoneal staging including omentectomy are not included.
SPECIFICATIONS	*Numerator*: (i) number of cytoreductive surgeries as defined above performed per center per year. (ii) number of cytoreductive surgeries as defined above performed per surgeon per year. Secondary and tertiary procedures are accepted. *Denominator*: not applicable.
TARGET(S)	(i) Number of surgeries performed per center per year: • *Optimal target: N* ≥ 100. • *Intermediate target: N* ≥ 50. • *Minimum required target: N* ≥ 20 (ii) ≥ 95% of surgeries are performed or supervised by surgeons operating at least 10 patients a year.

4.3 QI 3 -Surgery performed by a gynecologic oncologist or a trained surgeon specifically dedicated to gynaecological cancers management

DESCRIPTION OF THE PROPOSED QUALITY INDICATOR	
TYPE	Process indicator.
DESCRIPTION	Surgery is performed by a certified gynecologic oncologist or, in countries where certification is not organized, by a trained surgeon dedicated to the management of gynecologic cancer (accounting for over 50% of his practice) or having completed an ESGO accredited fellowship. Skills to successfully complete abdominal and pelvic surgery procedures necessary to achieve complete cytoreduction must be available.
SPECIFICATIONS	*Numerator*: number of patients with advanced ovarian cancer operated by a specialist (as defined above). *Denominator*: all patients undergoing surgery for advanced ovarian cancer.
TARGET(S)	≥ 90%.

4.4 QI 4 -Center participating in clinicaltrials in gynecologic oncology

DESCRIPTION OF THE PROPOSED QUALITY INDICATOR	
TYPE	Structural indicator.
DESCRIPTION	The center actively accrues patients in clinical trials in gynecologic oncology.
SPECIFICATIONS	*Numerator*: not applicable. *Denominator*: not applicable.
TARGET(S)	Not applicable.

4.5 QI 5 -Treatment planned and reviewed at a multidisciplinary team meeting

DESCRIPTION OF THE PROPOSED QUALITY INDICATOR	
TYPE	Process indicator.
DESCRIPTION	The decision for any major therapeuticinterventionhas been taken by a multidisciplinary team (MDT) including at least a surgical specialist as defined in 4.2 and 4.3,a radiologist, a pathologist (if a biopsy is available), and a physician certified to deliver chemotherapy (a gynecologic oncologist in countries where the subspecialty is structured and/or a medical oncologist with special interest in gynecologic oncology).
SPECIFICATIONS	*Numerator*: number of patients with advanced ovarian cancer for whom the decision for therapeutic intervention(s) has been taken by a MDT. *Denominator*: all patients with advanced ovarian cancer undergoing therapeutic intervention(s).
TARGET(S)	≥ 95%

4.6 QI 6 -Required preoperative workup

DESCRIPTION OF THE PROPOSED QUALITY INDICATOR	
TYPE	Process indicator.
DESCRIPTION	Unresectable parenchymal metastases have been ruled out by imaging. Ovarian and peritoneal malignancy secondary to gastrointestinal cancer has been ruled out by suitable methods e.g. plasma CA 125 and CEA levels, and/or by biopsy under radiologic or laparoscopic guidance.
SPECIFICATIONS	*Numerator*: number of patients with advanced ovarian cancer who had undergone cytoreductive surgery and who were offered minimum preoperative workup as defined above. *Denominator*: all patients with suspected advanced ovarian cancer who underwent cytoreductive surgery.
TARGET(S)	≥ 95%

4.7 QI 7 -Pre-, intra-, and post-operative management

DESCRIPTION OF THE PROPOSED QUALITY INDICATOR	
TYPE	Structural indicator.
DESCRIPTION	The minimal requirements are: (1) intermediate care facility, and access to an intensive care unit (ICU) in the center are available, (2)anactive perioperative management program is established[1].
SPECIFICATIONS	*Numerator*: not applicable. *Denominator*: not applicable.
TARGET(S)	Not applicable.

[1]Details of perioperative management includes (non-exhaustive list): preoperative hemoglobin optimization and iron deficit correction; correction of denutrition and immunonutrition according the current guidelines; fluid management, involving a Goal Directed Therapy (GDT) policy rather than liberal fluid therapy without hemodynamic goals. However, the superiority of GDT compared to restrictive fluid strategy remains unclear. There is no recognized standard method of monitoring; pain management, including in the absence of contra-indication the use of epidural analgesia in order to avoid opioids; while routine premedication is no longer recommended, prevention of postoperative nausea and vomiting should be systematic

4.8 QI 8 -Minimum required elements in operative reports

DESCRIPTION OF THE PROPOSED QUALITY INDICATOR	
TYPE	Process indicator.
DESCRIPTION	Operative report is structured. Size and location of disease at the beginning of the operation must be described. All the areas of the abdominal cavity[1] must be described. If applicable, the size and location of residual disease at the end of the operation, and the reasons for not achieving complete cytoreduction must be reported.
SPECIFICATIONS	*Numerator*: number of patients with advanced ovarian cancer undergoing cytoreductive surgery who have a complete operative report that contains all required elements as defined above. *Denominator*: all patients with advanced ovarian cancer undergoing cytoreductive surgery.
TARGET(S)	90%.

[1]ovaries, tubes, uterus, pelvic peritoneum, paracolic gutters, anterior parietal peritoneum, mesentery, peritoneal surface of the colon and bowel, liver, spleen, greated and lesser omentum, porta hepatis, stomach, Morrison pouch, lesser sac, undersurface of both hemidiaphragms, pelvic and aortic nodes and if applicable pleural cavity.

4.9 QI 9 -Minimum required elements in pathology reports

DESCRIPTION OF THE PROPOSED QUALITY INDICATOR	
TYPE	Process indicator.
DESCRIPTION	Pathology report contains all the required elements listed in the International Collaboration on Cancer Reporting (ICCR) histopathology reporting guide[(1)(2)].
SPECIFICATIONS	*Numerator*: number of patients with advanced ovarian cancer undergoing cytoreductive surgery who have a complete pathology report that contains all required elements as defined in ICCR histopathology reporting guide. *Denominator*: all patients with advanced ovarian cancer undergoing cytoreductive surgery.
TARGET(S)	≥90%. The tolerance within this target reflects situations where it is not possible to report all components of the data set due to poor quality of specimen.

[(1)] https://www.rcpa.edu.au/Library/Practising-Pathology/ICCR/Cancer-Datasets.

[(2)] McCluggage, W.G., et al. Data set for reporting of ovary, fallopian tube and primary peritoneal carcinoma: recommendations from the International Collaboration on Cancer Reporting (ICCR). Mod Pathol (2015).

4.10 QI 10 -Existence of a structured prospective reporting of postoperative complications

DESCRIPTION OF THE PROPOSED QUALITY INDICATOR	
TYPE	Outcome indicator.
DESCRIPTION	Data to be recorded are reoperations, interventional radiology, readmissions, secondary transfers to intermediate or intensive care units, and deaths.
SPECIFICATIONS	*Numerator*: number of recorded serious postoperative complications or deaths occurred among patients with advanced ovarian cancer who have undergone cytoreduction. *Denominator*: all complications occurred among patients with advanced ovarian cancer who have undergone cytoreduction.
TARGET(S)	*Optimal target*: 100% of complications are prospectively recorded. *Minimum required target*: selected cases are discussed at morbidity and mortality conferences.

5 Future developments

Future developments, which will be made available on the ESGO website, will include:

- A paper will be submitted for publication in the international literature
- An ESGO approved template for operative report
- A methodology for ESGO certification, including a self-assessment and possible audits on site
- An educational project with the contribution of certified centers

6 Appendices

6.1 Appendix 1 - List of the international experts panel(development panel)

Name	Specialty	Affiliation
Denis Querleu	Surgeon (chair)	Institut Bergonié, Bordeaux(France)
François Planchamp	Methodologist (co-chair)	Institut Bergonié, Bordeaux (France)
Giovanni Aletti	Gynecologic Oncologist	European Institute of Oncology, Milan (Italy)
Desmond Barton	Gynecologic Oncologist	Royal Mardsen Hospital, London (United Kingdom)
Silvestro Carinelli	Pathologist	European Institute of Oncology, Milan (Italy)
Luis Chiva	Gynecologic Oncologist	Anderson Cancer Center, Madrid (Spain)
David Cibula	Gynecologic Oncologist	Charles University Hospital, Prague (Czech Republic)
Karen Creutzberg	Radiation Oncologist	Leiden University Medical Center, Leiden (Netherlands)
Ben Davidson	Pathologist	Norwegian Radium Hospital, Olso (Norway)
Andreas du Bois	Gynecologic Oncologist	Kliniken Essen-Mitte, Essen (Germany)
Christina Fotopoulou	Gynecologic Oncologist	Imperial College London, London (United Kingdom)
Philip Harter	Gynecologic Oncologist	Kliniken Essen-Mitte, Essen (Germany)
Eric Leblanc	Surgeon	Centre Oscar Lambret, Lille (France)
Lene Lundvall	Gynecologic Oncologist	Rigshospitalet, Copenhagen (Denmark)
Christian Marth	Gynecologic Oncologist	Innsbruck Medical University, Innsbruck (Austria)
Philippe Morice	Surgeon	Institut Gustave Roussy, Villejuif (France)
Sébastien Pierre	Anesthesiologist	Institut Universitaire du Cancer de Toulouse, Toulouse (France)
Arash Rafii	Gynecologist	Weill Cornell Medical College in Qatar, Doha (Qatar)
Isabelle Ray-Coquard	Medical Oncologist	Centre Léon Bérard, Lyon (France)
Andrea Rockall	Radiologist	Imperial College London, London (United Kingdom)
Christiana Sessa	Medical Oncologist	Oncology Institute of Southern Switzerland, Bellinzona (Swizerland)
Ate van der Zee	Gynecologic Oncologist	University Medical Center, Groningen (Netherlands)
Ignace Vergote	Gynecologic Oncologist	University Hospitals, Leuven (Belgium)

6.2 Appendix 2 - List of external panel of physicians and patients(international reviewers)

Name	Physician/Patient	Country
Azra Abazari	Patient	Sweden
Lukas Angleitner Boubenizek	Gynecologic oncologist	Austria
Jana Barinoff	Gynecologic oncologist	Germany
Christer Borgfeldt	Gynecologic oncologist	Sweden
Tatjana Bozanovic	Gynecologist	Serbia
Line Bjørge	Gynecologist	Norway
Simon Alastair Butler-Manuel	Gynecologic oncologist	United Kingdom
Angelo Cagnacci	Gynecologist	Italy
Eduardo Cazorla Amoros	Gynecologist	Spain
Elisabeth Chereau	Gynecologic oncologist	France
Nicoletta Colombo	Gynecologic oncologist	Italy
Hannelore Denys	Medical oncologist	Belgium
Marcia Donziger	Patient	United States of America
Anna Fagotti	Gynecologic oncologist	Italy
Scott Fegan	Gynecologic oncologist	United Kingdom
Paz Ferrero	Patient	Spain
Anne Floquet	Medical oncologist	France
José Alberto Fonseca Moutinho	Gynecologic oncologist	Portugal
Michael Friedrich	Gynecologist	Germany
Laurence Gladieff	Medical oncologist	France
Mikel Gorostidi	Gynecologic oncologist	Spain
Andreas Guenthert	Gynecologic oncologist	Switzerland
Frederic Guyon	Gynecologic oncologist	France
Bjørn Hagen	Gynecologic oncologist	Norway
Dimitrios Haidopoulos	Gynecologic oncologist	Greece
Annette Hasenburg	Gynecologic oncologist	Germany
C. William Helm	Gynecologic oncologist	United Kingdom
Christoph Honegger	Gynecologic oncologist	Switzerland
Ahmet Cem Iyibozkurt	Gynecologic oncologist	Turkey

Name *(continued)*	Physician/Patient	Country
Ibon Jaunarena	Gynecologic oncologist	Spain
Rachel Jones	Medical oncologist	United Kingdom
Pascale Jubelin	Patient	France
Matias Jurado	Gynecologist	Spain
Päivi Kannisto	Gynecologic oncologist	Sweden
Sean Kehoe	Gynecologic oncologist	United Kingdom
Vesna Kesic	Gynecologic oncologist	Serbia
Preben Kjölhede	Gynecologic oncologist	Sweden
Petra Kohlberger	Gynecologic oncologist	Austria
Jacob Korach	Gynecologic oncologist	Israel
Gunnar Kristensen	Gynecologic oncologist	Norway
Maria Kyrgiou	Gynecologic oncologist	United Kingdom
Birthe Lemley	Patient	Denmark
Christianne Lok	Gynecologic oncologist	Netherlands
Tito Lopes	Gynecologic oncologist	United Kingdom
Domenica Lorusso	Gynecologic oncologist	Italy
Tiziano Maggino	Gynecologic oncologist	Italy
Sven Mahner	Gynecologic oncologist	Germany
Gemma Mancebo	Gynecologic oncologist	Spain
Frederik Marmé	Gynecologist	Germany
Leon Massuger	Gynecologic oncologist	Netherlands
Mohamed Mehasseb	Gynecologic oncologist	United Kingdom
Usha Menon	Gynecologic oncologist	United Kingdom
Lucas Minig	Gynecologic oncologist	Spain
Miloš Mlynček	Gynecologic oncologist	Slovakia
Ole Mogensen	Gynecologic oncologist	Denmark
Sara Morales Sierra	Gynecologist	Spain
Tim Mould	Gynecologic oncologist	United Kingdom
Hans Nijman	Gynecologic oncologist	Netherlands
Andrew Nordin	Gynecologic oncologist	United Kingdom

Name *(continued)*	Physician/Patient	Country
Ernst Oberlechner	Gynecologic oncologist	Germany
Maaike Oonk	Gynecologic oncologist	Netherlands
Peter Oppelt	Gynecologic oncologist	Austria
Maja Pakiž	Gynecologic oncologist	Slovenia
Janine Panier	Patient	France
Fedro Alessandro Peccatori	Medical oncologist	Italy
Jacobus Pfisterer	Gynecologic oncologist	Germany
Jurgen Piek	Gynecologic oncologist	Netherlands
Alexander Reinthaller	Gynecologic oncologist	Austria
Maria de los Reyes Oliver Perez	Gynecologist	Spain
Lukas Rob	Gynecologic oncologist	Czech Republic
Alexandros Rodolakis	Gynecologic oncologist	Greece
Henk W.R Schreuder	Gynecologic oncologist	Netherlands
Jalid Sehouli	Gynecologic oncologist	Germany
Philippe Simon	Gynecologic oncologist	Belgium
Piero Sismondi	Gynecologic oncologist	Italy
Špela Smrkolj	Gynecologic oncologist	Slovenia
Erik Soegaard-Andersen	Gynecologic oncologist	Denmark
Eva Maria Strömsholm	Patient	Finland
Sudha Sundar	Gynecologic oncologist	United Kingdom
Karl Tamussino	Gynecologic oncologist	Austria
Cagatay Taskiran	Gynecologic oncologist	Turkey
Ingrid Thranov	Gynecologic oncologist	Denmark
Catherine Transler	Patient	Germany
Dimitrios Tsolakidis	Gynecologist	Greece
Daiva Vaitkiene	Gynecologic oncologist	Lithuania
Eleonora van Dorst	Gynecologic oncologist	Netherlands
René Hewnricus Maria Verheijen	Gynecologic oncologist	Netherlands
Ingvild Vistad	Gynecologist	Norway
Pauline Wimberger	Gynecologic oncologist	Germany

Name *(continued)*	**Physician/Patient**	**Country**
Alain Zeimet	Gynecologic oncologist	Austria
Paolo Zola	Gynecologist	Italy
Cristina Zorrero	Gynecologic oncologist	Spain

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