Acceptability of Quality Indicators for the Management of Endometrial, Cervical and Ovarian Cancer: Results of an Online Survey

Annemie L[1], Wyckmans L[1], Anne-Sophie B[1], Xuan BT[1,2] and Peter AVD[1,2]*

[1]Multidisciplinary Oncologic Centre Antwerp, Antwerp University Hospital, Belgium

[2]Centre for Oncological Research, University of Antwerp, Belgium

Abstract

Objective: Measuring Quality Indicators (QI's) is a tool to improve the quality of care. The aim of this study was to evaluate the acceptability of 36 QI's, defined after a literature search (doi. org/10.1016/j.ejso.2018.10.051) for the management of endometrial, cervical and ovarian cancer. Relevant specialists in the field of interest were surveyed.

Methods: To quantify the opinions of these specialists, an online survey was sent out *via* mailing to members of gynecological or oncological societies. The relevance of each QI was questioned on a scale from one to five (1= irrelevant, 2= less relevant, 3= no opinion/neutral, 4= relevant, 5= very relevant). If a QI received a score of 4 or 5 in 65% or more of the answers, we state that the respondents consider this QI to be sufficiently relevant to use in daily practice.

Results: The survey was visited 238 times and resulted in 53 complete responses (29 Belgian, 24 other European countries). The majority of the specialists were gynecologists (45%). Five of the 36 QI's (13.9%) did not reach the cut-off of 65%: Referral to a tertiary center, preoperative staging of endometrial cancer by MRI, preoperative staging of cervical cancer by positron-emission tomography, incorporation of intracavitary brachytherapy in the treatment of cervical cancer, reporting ASA and WHO score for each patient. After removing the 5 QI's that were not considered as relevant by the specialists and 3 additional 3 QI's that we were considered to be superfluous, we obtained an optimized QI list.

Conclusion: As QI's gain importance in gynecological oncology, their use can only be of value if they are universally interpreted in the same manner. We propose an optimized list of 28 QI's for the management of endometrial, cervical and ovarian cancer which responders of our survey found relevant. Further validation is needed to finalize and define a set of QI's that can be used in future studies, audits and benchmarking.

Keywords: Quality indicators; Survey; Endometrial cancer; Cervical Cancer; Ovarian Cancer

Introduction

During the last decade, there is a growing interest in measuring the quality of care as it has been proven that this has a positive impact on the survival of the patients [1]. In order to improve the standards of care, it is of paramount importance to identify suboptimal elements in the clinical trajectory of a patient. These may be related to factors implicated in the diagnosis, decision making and/or treatment of patients. A tool to expose these deficiencies is Quality Indicators (QI's). These are norms, criteria, standards or other direct qualitative and quantitative measures of health care quality that make use of readily available hospital inpatient administrative data [2]. They can highlight potential quality concerns, identify areas that need further study and investigation, track changes over time, and enable physicians to compare their practices with the guidelines and with each other, in order to strive for optimal health care [3,4]. Recent literature shows that less than 50% of patients suffering from ovarian cancer in Europe is treated according to the guidelines and that there is a correlation between treatment adherent to the guidelines and survival [5]. This is a striking example demonstrating that there is a high need for quality control and benchmarking in our health care systems [4]. Unfortunately, many physicians and hospitals consider measuring QIs an obstacle of their practice and functioning, mainly because of the administrative burden and costs involved [4,6]. We recently performed a systematic literature search to identify QI's for the management

of patients with endometrial, cervical and ovarian cancer and could select a list of 36 relevant QI's [7]. We focused on structural, process and outcome measures of health care predominantly for the management of these three cancers. Structural measures refer to health care facility resources, e.g. the number and qualification of staff, case volume of the hospital and specialist, supplies, access to specific technologies etc [8,9]. Process measures refer to specific actions implemented to achieve an optimal result, where outcome measures are indicators of the total health of treated patients and the quality of given care [7-9]. Our search showed that important QI's related to the structural organization of health care were referral to high volume specialists in high volume hospitals, treatment by specialized gynecological oncologists and discussion of a treatment plan by a multidisciplinary team according to current guidelines. Process measures were adequate pretreatment staging, a patient report of high quality and adherence to treatment guidelines, while outcome indicators were treatment related morbidity and increased survival. In order to be relevant in a clinical setting, the list of 36 selected QI's list should adequately measure the quality of care, improve the quality of care in daily practice, be cost-effective and contribute to create uniformity. Optimally, consensus guidelines and QI's are formulated after a systematic assessment of the literature looking for evidence based healthcare recommendations on how to treat or diagnose a disease with the aim of better patient outcomes [10]. In order to obtain a widely supported workable framework the Delphi method is often used to further refine and define these guidelines and QI's in a second stage. The Delphi method is forecasting process frameworks whereby questionnaires on the subject of interest are send out to a panel of experts asking them to score the relevance of the guidelines. When opinions differ on certain issues, the experts are allowed to adjust their answers anonymously in subsequent rounds based on how they interpret the group response, thereby aiming to work towards a mutual agreement. This was achieved successfully for many tumor types including breast cancer [11,12]. Although international organizations such as ESMO and ESGO have provided guidelines on the treatment of gynecological cancers, up to now no agreement has been reached on the proper QI's which could be used to measure and benchmark the quality of the provided care [7,13-15]. Therefore we decided to perform an online survey for specialists involved in the treatment of patients with endometrial, cervical and ovarian cancer to question the acceptability and practicability in daily practice of the QI's which were distilled out of our literature search [5].

Materials and Methods

Study population

To evaluate the relevance of the 36 QI's [10], we designed an online survey (Appendix 1). The questionnaire was sent by electronic mail to all members of the Flemish and Dutch Society of Obstetricians and Gynecologists, and the Belgian Society of Medical Oncology. A link to the questionnaire with an invitation to participate was also put on the website of the European Society of Gynecological Oncology, and was also available in our paper published in the European Journal of Surgical Oncology [7]. The full survey can be found in the supplementary Appendix 1. Participating specialists were informed that they answered the list voluntarily without any rewards and that their anonymized answers would be used for the further course of the study. Since we received less than 50 responses in first three months, we sent reminders to all above mentioned specialists.

Table 1: Characteristics of respondents.

Characteristic	No. Respondents	% Total
Sex		
Male	29	54.7
Female	24	45.3
Age		
<45 years	19	35.8
>45 years	34	64.2
Specialism		
Gynaecological oncologist	15	28.3
General gynaecologist	24	45.3
Medical oncologist	8	15.1
Radiotherapist	5	9.4
Other	1	1.9
Working country		
Belgium	29	54.7
Another country within Europe	24	45.3
Another country outside Europe	0	0

Scoring

This survey was created using an online form (my.survio.com) and was accessible from 1 September 2018 to 28 February 2019. The participants were asked to indicate their specialism (gynecological oncologist, general gynecologist, medical oncologist, radiotherapist or other) and demographics. The answers of non-European specialists were excluded. The relevance of each QI was questioned on a scale from one to five (1= irrelevant, 2= less relevant, 3= no opinion/neutral, 4= relevant, 5= very relevant). Physicians evaluating a QI not belonging to their discipline (e.g. radiotherapist on surgical issues), had the possibility to not score that QI. In contrast to process measures which are cancer specific, structural and outcome measures applicable for all three cancer types were not questioned separately per cancer type. At the end of the questionnaire, there was room to give remarks and suggestions. For each QI, the 'Survio' software recorded all given answers and the frequency of each particular score (1, 2, 3, 4 and 5). Subsequently, the corresponding percentages were calculated. If a QI received a score of 4 or 5 in 65% or more of the answers, we state that the respondents consider this QI to be sufficiently relevant to use in daily practice.

Statistical analysis

Statistical analysis was performed using the IBM software package, SPSS V.25, and results were graphically displayed with GraphPad prism V.6.0h.

Results

Respondent's characteristics

Sending out the survey to the specialists resulted in 238 visits and 53 responses. 29 respondents (54.7%) are working in Belgium and 24 respondents (45.3%) are employed in another European country. The majority of these specialists are gynecologists (45.3%). The demographic characteristics of the respondents are displayed in Table 1.

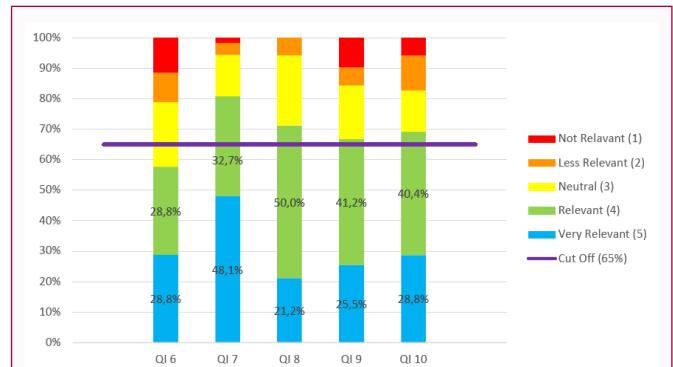## Percentages of given scores

As mentioned above, the percentages of given scores were calculated for each QI and are displayed in Figure 1-5. Figure 1
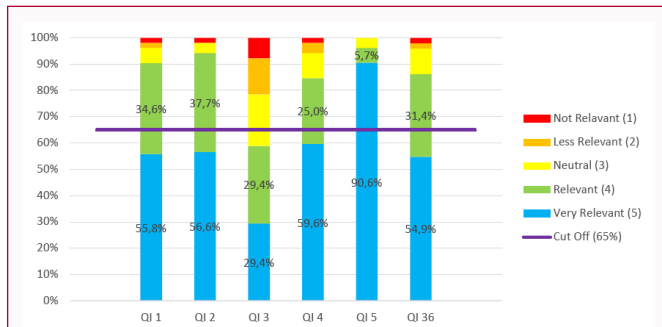
Figure 1: Relevance of structural and outcome quality indicators for endometrial, cervical and ovarian cancer.
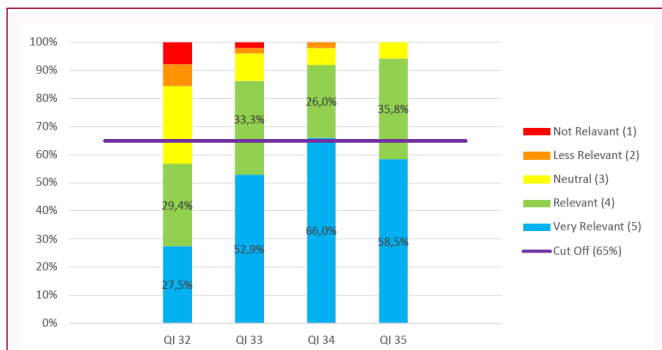
Quality Indicators

QI1 Proportion of patients with endometrial, cervical or ovarian cancer who are treated by a high volume surgeon (>10 cases/year) in a high volume hospital (>20 cases/year).

QI2 Proportion of patients with endometrial, cervical or ovarian cancer treated according to the guidelines.

QI3 Proportion of patients with endometrial, cervical or ovarian cancer, who are referred to a tertiary center.

QI4 Proportion of patients with endometrial, cervical or ovarian cancer, who are treated by a gynecologic oncologist (instead of a gynecologist).

QI5 Proportion of patients with endometrial, cervical or ovarian cancer, who are discussed at a Multidisciplinary Team Meeting (MDT/MOC).

QI36 Proportion of patients with endometrial, cervical or ovarian cancer, who are alive 1/3/5 y after their diagnosis.

Figure 2: Relevance of common process quality indicators for endometrial, cervical and ovarian cancer.

Quality Indicators

QI32 Proportion of patients with endometrial, cervical or ovarian cancer, whose ASA and/or WHO score is reported.

QI33 Proportion of patients with endometrial, cervical or ovarian cancer, who have an operative report that contains all minimum required elements.

QI34 Proportion of patients with endometrial, cervical or ovarian cancer, who have a pathology report that contains all minimum required elements.

QI35 Proportion of recorded serious postoperative complications or deaths.

contains the results of the structural and outcome QI's for both endometrium, cervix and ovarian cancer. Figure 2 contains the results of the common process QI's for the three cancers. The results of the specific process QI's are displayed in a separate chart per cancer type (Figure 3-5).

Identification of insufficiently relevant quality indicators

To consider a quality indicator as sufficiently relevant to use in daily practice, we stated that the total percentage of scores 4 and 5 had to be 65% or more. Thirty one of the 36 QI's (86.1%) reached this cut-off. Seven QI's were indicated as "very relevant" in 65% or more of the given answers and thus achieved this cut-off with only the percentage of score 5. This concerns QI 5, QI 14, QI 20, QI 21, QI 22, QI 23, and QI 34. Five QI's (13.9%) did not reach the cut-off of 65%:

Figure 3: Relevance of specific process quality indicators for endometrial cancer.

Quality Indicators

QI6 Proportion of patients with endometrial cancer, who have an MRI and/or CT scan performed to have their stage of disease assessed prior to first treatment.

QI7 Proportion of patients with endometrial cancer, who undergo total hysterectomy (TH) and Bilateral Salpingo-Oophorectomy (BSO).

QI8 Proportion of patients with endometrial cancer undergoing definitive surgery who undergo laparoscopic surgery.

QI9 Proportion of patients with stage IB (grade 1 or 2) or stage IA (grade 3 endometrioid or mucinous) endometrial cancer having adjuvant vaginal brachytherapy.

QI10 Proportion of patients with stage IV endometrial cancer receiving chemotherapy.

Figure 4: Relevance of specific process quality indicators for cervical cancer.
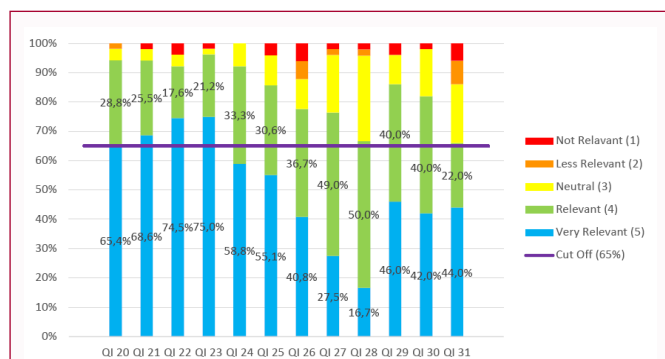
Quality Indicators

QI11 Proportion of patients with cervical cancer, who have their stage of disease assessed by Magnetic Resonance Imaging (MRI) prior to first treatment.

QI12 Proportion of patients with cervical cancer, for whom primary definitive surgery is not appropriate, who undergo positron emission tomography - computed tomography imaging.

QI13 Proportion of patients with stage IB1 cervical cancer, who undergo radical hysterectomy.

QI14 Proportions of patients with surgically treated cervical cancer, who have clear resection margins.

QI15 Proportion of patients with cervical cancer, who have pelvic lymphadenectomy specimens that contain at least one examined lymph node in each common iliac, external and internal iliac and obturator area or proportion of patients who have successful bilateral identifications of sentinel nodes after a sentinel node procedure.

QI16 Proportion of patients with cervical cancer suffering pelvic recurrence after radical hysterectomy.

QI17 Proportion of patients with cervical cancer undergoing radical radiotherapy for whom treatment time is no longer than 56 days.

QI18 Proportion of patients with cervical cancer undergoing radical radiotherapy, who receive concurrent platinum based chemotherapy.

QI19 Proportion of patients with locally advanced cervical cancer, where intracavitary brachytherapy is incorporated into treatment.

QI 3, QI 6, QI 12, QI 19, and QI 32. Therefore, we conclude that the specialists considered these QI's as insufficiently relevant. These five

Figure 5: Relevance of specific process quality indicators for ovarian cancer.
Quality Indicators
QI20 Proportion of patients with ovarian cancer, who received a required preoperative workup.
QI21 Proportion of patients with ovarian cancer, who had a thorough staging with peritoneal and retroperitoneal assessment for early disease stages.
QI22 Proportion of patients with ovarian cancer, who got histo-/cytological diagnosis prior to starting neo-adjuvant chemotherapy.
QI23 Proportion of patients with ovarian cancer, who underwent an adequate surgical staging.
QI24 Proportion of patients with ovarian cancer, who had a complete surgical resection.
QI25 Proportion of performed staging laparotomies in which all of the following procedures are included: total hysterectomy, bilateral salpingo-oophorectomy, cytology of the peritoneal cavity, infracolic omentectomy, random peritoneal biopsies and systematic pelvic and para-aortic lymphadenectomy if medium or high risk features.
QI26 Proportion of patients with ovarian cancer having hysterectomy, bilateral salpingo-oophorectomy and infracolic omentectomy when optimal debulking was considered feasible.
QI27 Proportion of patients with ovarian cancer experiencing significant morbidity during the first 28 days following surgery.
QI28 Proportion of patients with ovarian cancer, who had a readmission within 30 days of a surgical procedure.
QI29 Proportion of patients with ovarian cancer, who received postoperative platinum-based chemotherapy (3 cycles to 6 cycles of platinum/carboplatin and paclitaxel).
QI30 Proportion of patients with invasive stages (grade 3), IC-IV ovarian cancer, to whom platin or taxane is administered within 42 days following cytoreduction.
QI31 Proportion of patients with invasive ovarian cancer, who received venous thromboembolism prophylaxis within 24 h of cytoreduction.

QI's are discussed in detail below.

Discussion

Gynecological cancers are challenging and complex diseases. According to the GLOBOCAN 2018 estimates on the global cancer burden, produced by the International Agency for Research, the incidence and mortality of cervical cancer, cancer of the corpus uteri and ovarian cancer respectively are 569.847, 382.069, 299.414 and 311.365, 89.929, 184.799 [16]. In developed countries, endometrial cancer is the most common of these gynecological cancers and ovarian cancer is the leading cause of death [17,18]. Several studies have been performed listing relevant QI's to measure the quality of cancer care. We were the first to create one list for endometrial, cervical and ovarian cancer [7]. The present survey examined the relevance of the 36 quality indicators which were retained in the above-mentioned literature search. Using an online survey, sent to physician's active in the field, we have shown that 5 of these indicators are not considered to be relevant to measure the quality of care for these three cancers.

"Referral to a tertiary center (QI 3)" is a structural quality indicator that was questioned for all three cancer types by one single statement in our survey. Although the literature supports that there is a survival advantage for patients treated for ovarian and cervical cancers in high volume centers by high volume surgeons, the evidence is much less clear for endometrial cancer [19]. At the end of the questionnaire the specialists had the opportunity to give remarks and suggestions. Some correspondents correctly regretted that they could not score this QI separately for the different tumors types as they considered it relevant for ovarian and cervical cancer. Although surgery is often less complex and the need for adjuvant treatment is often not indicated in endometrial cancer patients with low risk histology, this is not the case in patients with high risk histology. Recent evidence is emerging that in this second group of patients perioperative mortality is higher and survival reduced in low volume hospitals [19,20]. It is likely that in a true Delphi procedure this QI would have been debated and rephrased in a second round and accepted for cancer of the ovary, cervix and high risk endometrial cancer. "Preoperative assessment by MRI and/or computed tomography in patients with endometrial cancer (QI 6)" and "Pretreatment Positron Emission Tomography-Computed Tomography imaging (PET-CT) should be performed when primary definitive surgery is not appropriate in cervical cancer (QI 12)" are staging process quality indicators. These were based on the opinions of scientific societies but are not feasible in all centers. Although they may have an impact on referral patterns of patients, there is no hard evidence that these issues have a direct impact on patient survival. We therefore dropped them as mandatory QI's.

According to QI 19, another process indicator, "intracavitary brachytherapy should be incorporated into the treatment of patients with locally advanced cervical cancer". Our respondents did not accept this QI as mandatory, probably because this technology is not available in all units. It should be mentioned that this QI was the most endorsed QI among specialized radiotherapists, as individual tailored radiotherapy treatment incorporating brachytherapy results in a better outcome of patients [21,22]. This underscores the need to refer these patients to tertiary centers offering this treatment modality to patients. We therefore would advise to incorporate this QI in future quality control programs.

"Reporting of an ASA and/or WHO score for each patient" (QI 32) is a common process quality indicator for all three cancer types. Although associations between ASA and WHO scores and specific surgical complications or outcomes have been reported in the literature, they can vary over the treatment trajectory of a patient. It was considered complicated by some respondents to register them systematically. To maintain the practicality, this QI was not incorporated in the optimized QI list [23]. The common QI's must be assessed separately per cancer type. Therefore, they are mentioned separately for each cancer type in the optimized list. Additionally, we have split the outcome QI into a separate QI for 1, 3 and 5-year survival so this can be investigated more accurately. One of the limitations of the present study is the limited response rate. This is comparable to the proportion of answers recorded after similar electronic surveys on other subjects [24,25]. Apparently, it is difficult to motivate clinicians to fill in questionnaires voluntarily amid the many other occupations of daily and professional life. However, our respondents seemed to be very motivated. They could make general remarks regarding the entire survey and often did so. We considered every opinion given by a specialist in this field of interest useful as it reflects the vision of clinicians in the real world, which may differ from the view of "experts". Some of them stated that a few of the QI's on the list are rather vague, unclear or quite obvious and that some similar QI's should be combined into one unambiguous

23. Daabiss M. American Society of Anaesthesiologists physical status classification. Indian J Anaesth. 2011;55(2):111-5.

24. Kordes M, Gerling M. Variations in the management of diarrhoea induced by cancer therapy: Results from an international, cross-sectional survey among European oncologists. ESMO open. 2019;4(6):e000607.

25. Richtig G, Richtig E, Bohm A, Oing C, Bozorgmehr F, Kruger S, et al. Awareness of predatory journals and open access among medical oncologists: Results of an online survey. ESMO open. 2019;4(6):e000580.