

Physicians' attitudes, beliefs and knowledge concerning ovarian cancer

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Summary

Objective: To determine physicians' attitudes, beliefs and knowledge concerning surgical care of women with ovarian cancer.

Methods: A survey was created from items generated from the literature, a focus group and individual interviews. The survey was mailed on two occasions to all practicing gynecologists, general surgeons and urologists in Ontario.

Results: 701 responses were received (overall response rate: 43.7%); 293 were eligible responses. The responses were analyzed in terms of four determinants of surgical care: knowledge, practice patterns, perceived goals of surgery and barriers to accessing surgical care. These variables would be influenced by the surgeon's specialty, access to an oncologist (medical or gynecologic) at one's facility and distance of one's facility to the nearest cancer center with a gynecologic oncologist. Surgeon's specialty and distance from the cancer center influenced both the intraoperative surgical plan and referral practices. The most important goals of surgery were survival and optimal debulking. The barriers to care included available operating time and surgical beds.

Conclusion: We have shown that peer influence has reached a ceiling effect in ovarian cancer and novel approaches are required to ensure appropriate referrals, knowledge transfer and provincial resourcing to expert centers to provide optimal surgical care for women with ovarian cancer.

Key words: Ovarian cancer; Beliefs and attitudes; Referral.

Introduction

Ovarian cancer (OC) affects one in 70 women and 60% present with advanced disease. The mainstay for successful treatment begins with surgery. Here the histologic diagnosis, the extent of disease and therapy in terms of debulking is provided. The literature describes variation in delivery of operative care, which appears to be influenced by surgical specialty [1-6], volume of surgery conducted per surgeon [6], whether the hospital is affiliated with an academic center [6, 7], and hospital volume of OC surgery [6]. In other words, some of the variation seen in OC surgery may be based on fixed factors that are not changeable (i.e., geographic distance from the local hospital to the cancer center). However, some of the variation may be based on changeable factors (i.e., knowledge). If these factors are identified, they could be influenced by intervention strategies.

A recent Ontario population based OC study identified that the gynecologic oncologist (GO) conducts 25% of OC operations whereas general surgeons and gynecologists do 10% and 60%, respectively [6]. We sought to understand surgeons' attitudes and knowledge concerning primary surgery for OC. We hypothesized that there are four determinants of surgical care: the referring surgeon's knowledge, one's practice pattern (i.e., referral), the physician's perceived goals of surgery, and barriers to accessing surgical care that would be influenced by the physician's surgical specialty (gynecologist vs surgeon), access to an onsite GO, and the distance of the hospital to the nearest cancer center (CC) (Table 1).

Methods

Design

A mail-out survey was sent to all gynecologists, general surgeons and urologists (n = 1,685) practicing in Ontario in 2002 using a modified Dillman technique. The survey was mailed in the spring of 2002 with a second mailing later that summer. In the initial contact, we asked respondents to identify whether they had participated in at least one OC operation in the previous year.

Survey Development

The survey included these sections: 1) Demographic information; 2) Knowledge about surgical staging and debulking; 3) Attitudes concerning perceived skills and willingness to refer; 4) Beliefs around the goals of surgery; 5) Attitudes about current hospital environment; and 6) Engagement in continuing medical education (CME).

Knowledge: Knowledge was assessed in two ways. Knowledge of OC surgical guidelines was assessed using four scenarios (Table 2). Physicians were given scenarios that had been previously used with American and Canadian GOs [8]. They were asked which procedures should be part of the patient's operative care. Secondly, the respondents were asked to rate the degree of importance of various prognostic factors (Table 3).

Practice patterns: Factors that would reflect surgeons' beliefs and attitudes about surgical care for ovarian cancer were identified from the literature and by using qualitative methods with an expert panel of physicians, patients and survey experts. These factors were developed into a series of questions where the respondent would rate their agreement level for each question on a five-point Likert scale. These rating scales were validated with one-hour interviews with five test subjects and revised based on the feedback.

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Table 1. — *Factors being assessed.*

Independent factors	Dependent factors
Surgeon type	Knowledge
Gynecologic oncologist onsite	(scenarios, prognostic factors)
Distance from the cancer center	Practice pattern (skills/resources, attitude toward referral)
	Goals in managing ovarian cancer
	Barriers to care

Table 2. — *Scenarios used to assess knowledge of intra-operative ovarian cancer care.*

A 55-year-old woman with a 10 cm complex cystic solid right ovarian mass. In the OR, the mass was mobile with no excrescences and no evidence of metastases. Frozen pathology indicated an adenocarcinoma.

A 55-year-old woman with a 10 cm complex cystic solid right ovarian mass. In the OR, the mass was mobile with no excrescences but with a 2 cm nodule in the omentum. Nodes were palpably normal.

A 55-year-old woman with a 10 cm complex cystic solid right ovarian mass. At laparotomy the mass was mobile with no excrescences. There was no visible intraabdominal disease but the paraaortic node was 3 cm at the level of the inferior mesenteric artery.

A 55-year-old woman with 10 cm complex cystic solid right ovarian mass. On assessment of the abdomen, there was a 2 cm nodule in the omentum and a 3 cm paraaortic node.

Analysis

Independent variables

1. *Board certified specialty.* 2. *Access to onsite GO.* 3. *Geographical distance from the respondent's office to the nearest regional CC with a GO:* Individual respondent's addresses and the addresses of the five regional CCs who have a GO on staff (i.e., Toronto, Kingston, London, Hamilton and Ottawa) were entered into a geographic coding software (GeoPinpoint V3.0101 Desktop Mapping Technologies) and the data were transferred to Arc into 8.3 to measure the distance (UTM projection) between each of the five regional cancer centers to the individual respondent's addresses in meters. Distances between all five sites and the individual respondent's addresses were converted into kilometers and categorized into drive time ranges (i.e., less than one hour, one to two hours, etc.) based on one-hour drive time being equivalent to 80 kilometers.

Dependent variables

Knowledge: Each scenario was scored in the following manner: two points were assigned to each response that was recommended, one point for each response that was the minimum standard of care and a point subtracted for each response that was not recommended. The four scores were then added together and divided by four to achieve an average scenario score. All scenario scores were highly correlated (0.70 to 0.94); therefore, it was valid to use an average scenario score as a summative statistic to compare to other domains in the questionnaire.

Practice patterns: An exploratory factor analysis using principal component analyses (varimax rotation) determined that there were subscales with each sub-score explaining 82-89% of the variance for each set of attitudinal questions and had high reliability scores (Cronbach's alpha between 0.82 and 0.92). These sub-scores represented the following constructs. One group of questions addressed physicians' **perceived skills and attitudes towards access to care.** (Perceived skills and avail-

Table 3. — *Attitudes, beliefs and knowledge about OC.*

Prognostic Factors Score (Factors that may affect patient outcome)
The patient's duration of survival depends on the extent of surgical staging procedures done at the initial operation.
The patient's duration of survival depends on the degree of debulking done at the initial operation.
The patient's duration of survival will be influenced by her other co-morbid disorders.
The patient's duration of survival will be influenced by the patient's age.
Patient's outcome depends on the volume of ovarian cancer cases seen in the hospital.
Patient's outcome depends on the university or community status of the hospital.
Patient's outcome depends on the volume of ovarian cancer operations the surgeon does.
The patient's survival depends on which surgical specialty does the surgery.
Perceived Skills and Available Resources Score (Attitude toward one's skills and resources available locally)
The patient wants surgery in our local hospital because it is close to her family and social support.
Another referral means it will take longer for the patient to receive surgical care.
My medical oncology colleagues feel more comfortable having me as the local expert (gynecologist/general surgeon/urologist) being involved in the patient's surgical care.
The patient does not want to go to a cancer center affiliated hospital because it is impersonal.
I have the skills and experience to provide optimal surgical management.
The patient will get the same chemotherapy regardless of the degree of surgical staging or debulking.
Our hospital can deal with the severity and/or urgency of the patient's symptoms.
I have access to physician experts in my local hospital who can complete additional surgery as required.
It is exciting for me to have a challenging operation.
It is financially rewarding for me to do the surgery.
Referral to GO Score (Reasons to refer the patient to a subspecialist)
I do not feel that I have the surgical skills to do the operation.
Patient may require chemotherapy prior to surgery.
Patient's request.
These patients and their families require a lot of counseling. I do not have the time or skills or resources for this.
These patients are difficult to manage postoperatively i.e., fluid and electrolyte shifts.
First chance for surgical debulking is the best opportunity to enhance survival.
Advanced age.
Due to other medical problems or poor performance status, we are unable to do the surgery locally.
Centers with a gynecologic oncologist have other resources that would benefit the patient like nurse specialists and supportive care
Goals of Surgery Score
Increase duration of survival.
Remove as much tumor as possible.
Need histologic diagnosis and surgical staging to determine adjuvant therapy.
Provide care in the patient's community.
Expedite care.
I want to be seen by my colleagues and patients as making good decisions for my patients.
Financial incentive.
Barriers Score (Barriers to achieving optimal surgical care for women with ovarian cancer)
Takes too long to see a subspecialist.
Difficulty getting an appointment with the subspecialist - phones always busy, long time to call back with appointment date.
Difficult to talk directly with the subspecialist about my concerns about the patient.
Subspecialist's consultation reports take too long to get to my office
Patient has to wait too long to have surgery.
Subspecialists are not sensitive to the patient's degree of distress.

Table 4. — Study findings.

	Surgeon's specialty	Onsite gynecologic oncologist	Distance from the cancer center
Knowledge	+	-	±
Practice pattern			
Skills/resources	-	-	-
Attitude toward referral	+	-	+
Goals of managing ovarian cancer			
Barriers - themes	OR time	Pathology ICU beds Ward beds	N/A

+: a relationship is seen; -: no relationship is seen; OR: operating room.

able resources score derived from 10 items; a high score (40-50) suggests a physician has strong beliefs in his ability to handle the case given the resources available). The second group of questions addressed the **factors that influence a physician's decision to refer the patient** for an opinion. (Referral score derived from 9 items; a high score of 36-45 indicates that the practitioner is likely to refer the patient to a specialist).

Goals of surgery: A group of questions addressed **factors that the physician believes are goals of surgery**. (Goals of surgery score derived from 7 items; a high score of 32-40 indicates a belief that many factors influence patient's survival).

Barriers: Comparisons between the subgroups identified by the independent variables were conducted using independent samples t-test and ANOVA with values of less than 0.05 as significant for the p values. Regressions between two variables were simple linear regressions between the independent and dependent variable using a constant.

Results

A total of 1,691 surveys were mailed and 807 were returned. Of the returned surveys, 87 were due to non-contact with physicians (i.e., death (5), returned to sender (8), and moved (74)). Nineteen returns refused to participate. The overall response rate was 43.7% (701/1,604). There were 403 ineligible responses: leave of absence from profession (7), retired (75), does not practice surgery on the gynecologic tract (96), did not operate on at least one ovarian cancer patient in the last year (216), incomplete survey (9). There were 293 eligible responses or a response rate of 41.8%.

Demographics

The majority of respondents were 40-49 years old; gynecologists made up two-thirds of respondents (Table 5). The demographic factors of distance of practice to nearest cancer center and surgical specialty were the same between respondents and non-respondents (not shown).

Characteristics

Specialist

Gynecologists saw a mean of 3.00 ± 7.43 women with OC annually and the surgeons 0.64 ± 0.85 . Half of the women suspected as having OC were referred to GOs for primary surgery. The gynecologists operated on 40% while the surgeons knowingly only operated on 5%. If a

Table 5. — Characteristics of the respondents.

Characteristic	Number	Percent
<i>Age</i>		
30-39	70	23.6%
40-49	106	35.8%
50-59	57	19.3%
60-69	51	17.2%
70 or older	11	3.7%
<i>Profession</i>		
Obstetrician gynecologist	206	70.1%
General surgery	88	29.9%
<i>Duration of exposure to gynecologic oncology training</i>		
None	70	23.8%
1-3 months	103	35.0%
4-6 months	67	22.8%
7-12 month	39	13.3%
> 12 mos	15	5.1%
<i>Practice setting</i>		
Private practice	130	43.9%
University setting	87	29.4%
Community hospital affiliated teaching program	45	15.2%
Community hospital non-affiliated program	67	22.6%
<i>Number of practice settings</i>		
1	257	86.8%
2	36	12.2%
Medical oncologist only in your hospital	104	36.4%
Gynecologic oncologist only in your hospital	15	5.2%
Both available in your hospital	81	28.3%
Neither available in your hospital	78	27.3%
<i>Distance to the nearest cancer center</i>		
Hamilton	160 km ± 75	
Kingston	290 ± 176	
London	224 ± 176	
Ottawa	144 ± 179	
Toronto	370 ± 199	
<i>Distance of physician to nearest cancer center</i>		
< 1 hour drive (< 80 km)		81%
> 1 hour drive (> 80 km)		19%

patient was referred to a GO less than 4% were referred to the gynecologist/surgeon for primary surgery.

Availability of an onsite gynecologic oncologist

Of the 293 responders, 82 responses came from centers where there were no medical oncologists or GOs, 113 responses from centers with only a medical oncologist; 98 responses from centers with a medical oncologist and GO. In those centers where there were no GO, a referral to a GOs led to one-third of patients being referred back to the center for surgery. In those centers where there was a GO, almost all of the referred cases had surgery and the GO was consulted.

Distance to nearest CC

The distance to the nearest CC as assessed by the respondent's surgical discipline was significantly longer for physicians referring to Kingston. Referrals made from centers where there was only an onsite medical oncologist had a significantly longer distance for patients who traveled to Kingston or Toronto.

Knowledge

Knowledge was assessed by case scenarios and respondents were asked to indicate what operation they would perform. The responses to the knowledge questions correlated well with defined standards of care (Pearson correlation coefficient $r = 0.704-0.937$).

Type of Specialist

Surgeon specialty was found to influence the knowledge scores (Table 3). On each scenario, gynecologists scored better than general surgeons ($p < 0.0001$). GOs from a previous study were clearly more aggressive in their surgical approach with an emphasis on staging including lymphadenectomy in early disease and resection of any clinically suspicious lesions in advanced disease [8]. In this study, few gynecologists advocated lymphadenectomy in early disease (10-30%). The surgeon's focus was on making a diagnosis with fewer than half of them recommending staging or debulking.

Several prognostic factors were assessed for their impact on outcome. All the factors were rated as having an important role. The factors that were rated as being most important were patient comorbidities (mean score 2.54 ± 2.00) (1 means very strongly disagree and 5 very strongly agree) and degree of debulking (mean score 3.06 ± 1.00). The gynecologists attributed a stronger influence to the prognostic factors on survival than the surgeons ($p = 0.003$).

Availability of an onsite GO

The answers to the case scenarios were not affected by the presence or absence of a medical oncologist or GO at the facility. Thus the presence of a GO onsite does not appear to enhance knowledge. The ratings for the prognostic importance of individual factors on outcome did not differ among doctors when assessed by whether or not a GO was present in a center. Using ANOVA to compare the total score showed that the doctors at centers with or without an oncologist, gave the same importance to prognostic factors ($p = 0.06$).

Distance to nearest center with a GO

The average scenario score was higher the further the physicians were from the CC ($p = 0.023$). Thus physicians further from the CC appeared more knowledgeable about the intraoperative management of a woman with a pelvic mass. Ratings for the importance of various prognostic factors were not related to the distance of the physician from the CC.

Practice Patterns

Attitudes and beliefs

Two scales assessed attitudes and beliefs concerning where ovarian cancer surgery takes place: the perceived skills/resource score measures physicians' perception about their skills and resources available at their center, and the GO referral score measures physicians' opinions about referring a patient to a subspecialist (Table 3).

Type of specialist

There were no very strong barriers toward referral to a subspecialist based on perceived personal skills or available hospital resources. On individual items, physicians clearly stated that financial reasons (mean score 1.42 ± 0.82 , scale from 1 very strongly disagree to 5 very strongly agree) and peer pressure do not influence the decision of where to conduct the operation (mean score 1.23 ± 1.08). The physician's impression of patient preference for where the surgery occurs (mean score 2.96 ± 1.35) and length of time to undergo surgery (mean score 2.96 ± 1.36) did not appear to be a concern. When assessing the total scores for this question, there was no difference in response from the two groups.

Availability of an onsite GO

No differences were identified between the scores of individual items when assessed by whether or not a medical oncologist or GO was on site. The assessment of total score confirmed this impression ($p = 0.140$).

Distance to nearest CC

Distance to the nearest CC did not influence physicians' assessment of their skill and attitudes.

Referral to GO

Type of specialist

The most cogent reason for referral is for debulking surgery (mean score 4.0 ± 0.86 where 1 is very strongly disagree and 5 is very strongly agree). The surgeons were more likely to refer upon patient request (mean score 3.82 ± 1.62). Gynecologists are more likely to refer for difficult perioperative issues like anticipated fluid shifts (3.00 ± 1.38 vs 2.01 ± 1.27) and advancing age (3.27 ± 1.46 vs 2.63 ± 1.50). When assessing the total score, the gynecologists valued the reasons for referral more strongly ($p = 0.001$). A correlation matrix showed that as physicians' perceived skills/resources increased, their tendency to refer to a subspecialist decreased (Pearson correlation -0.220 , $p = 0.01$).

Availability of an onsite GO

The need for debulking is the strongest reason for referral (mean score 4.03 ± 1.36). Access to other resources such as subspecialty nursing and supportive care was also important (mean score 3.81 ± 1.50). Using ANOVA, there was no difference in reasons to refer in centers with or without an oncologist ($p = 0.379$).

Distance to nearest CC

Centers more than one-hour drive away from a center with a GO were more likely to refer to subspecialists ($p = 0.44$).

We evaluated the triad of perceived skills/resources score, patient prognosis score (from the knowledge instrument) and referral to GO scores. There was a strong correlation between the importance placed on prognostic factors and the referral (Pearson correlation 0.4 , $p = 0.01$). Also, the stronger the importance placed on prog-

nostic factors, the lower the perceived skills/resources (Pearson correlation -0.198 , $p = 0.01$). These findings may or may not explain the strong inverse relationship that when the perceived confidence in skills/resources was low there was a higher percentage of patients referred to GO ($r^2 = 0.1073$, $p = 0.0001$).

Goals of Surgery

Type of specialist

The strongest goals of surgery were to "increase survival" (mean score 4.77 ± 0.56), followed closely by "achieving optimal debulking" (mean score 4.71 ± 0.61) (where 1 is not at all important to 5 is very important). The importance of each goal was similar between the specialists. The question about financial incentive was reported as being of low importance (mean score 1.58 ± 0.90).

Availability of an onsite GO

The goals of surgery were the same regardless if a GO was locally available.

Distance to nearest CC

The goals of surgery were the same regardless of distance from the nearest center with a GO.

The correlation matrix showed an inverse relationship between perceived skills/resources and the value placed on survival (Pearson correlation -0.2 , $p = 0.01$).

Barriers to accessing surgical care - Barriers score

Type of specialist

Approximately 20% of respondents experienced difficulty accessing surgical care for their patients. The strongest barrier was the lack of operative time (62%) and this was consistent across the specialists. Both groups commented on lack of availability of ward (39.1%) and ICU beds (23.6%). Surgeons had a strong concern about availability of diagnostic tests (52.5% surgeons vs 28% gynecologists) and onsite pathologists (15.4% surgeons vs 6.7% gynecologists).

Availability of an onsite GO

The responses from hospitals where there were no oncologists indicated that availability of surgical (18.6% no GO vs 37.1% GOs available) and ICU beds (21.7% no GO vs 38.3% GOs available) were not a major problem; however, they did have problems with access to onsite pathology (54.2% no GO vs 12.5% GOs available). The most important issues at centers where there were GOs were access to ICU or surgical beds. Centers where there was only a medical oncologist had clear concerns about all the issues assessed.

Problems experienced in referring to specialists

Type of specialist

Both groups indicated that notes from specialists took a long time to get to the referring doctors (21.7% often and 43.2% sometimes).

Availability of an onsite GO

Physicians from centers where there was only a medical oncologist present appeared to have more concerns than centers where there were no oncologists; their concerns were stronger than in centers where there were both specialists onsite. There appeared to be problems around length of time to get appointments (45.5%), phones being busy (56.8%), difficulty talking to a subspecialist (51.6%), length of time to get surgery (51.5%) and sensitivity to patient distress (37.5%).

Suggested changes

Type of specialist

Both surgical groups strongly supported more CME (48.4%) on ovarian cancer; however, 25% of doctors felt that the current standard of care was acceptable. Gynecologists (46.4%) favored having a GO travel to their hospital.

Availability of an onsite GO

The interest in changes that could improve care was strongest in centers where there was a medical oncologist but no GO (50% vs 33% in centers with no oncologist and 20% in centers with both types of oncologists). About one-third of respondents felt that the current care was acceptable and no changes were necessary.

CME

Most respondents were aware of at least one guideline concerning surgery for OC (none - 18.2%, 1 - 27.5%, 2 - 30.1%, 3 - 11.0%, 4 - 6.8%, 5 - 4.2%, 6 - 2.1%). If they could only recall one guideline, it was the Society of Obstetricians and Gynecologists Canada guideline. There was some correlation between knowledge and awareness of guidelines (Pearson correlation $r = 0.3$). There was no relationship between the number of patients seen and being aware of guidelines.

Almost every physician was involved in some form of CME (94.9%). The preferred activities were journals (95.3%), grand rounds (79.7%), national meetings (76.7%), international meetings (48.6%), tumor board (12.2%), surgical workshops (26.4%) and other (i.e., audit). The most widely read publication was the Journal of the Society of Obstetrics and Gynaecology of Canada. The most widely read general journal was the Canadian Medical Association Journal.

Less than a quarter of the population had attended a continuing medical educational event on ovarian cancer in the prior six months.

Discussion

We describe the impact of three independent variables (surgical specialty, the availability of a GO in a hospital and distance to a CC with a GO) on four dependent variables (physician's knowledge, referral practices (perception of one's skills/resource, attitude toward referral), goals of OC surgery and barriers to surgery). We have found the following (Table 4):

1. The intraoperative surgical plan was influenced by the type of surgical specialist and distance from the CC. The availability of an onsite GO did not influence the surgical recommendation suggesting that peer influence has reached a ceiling. Knowledge of prognostic factors was not impacted by the three independent variables.

2. A physician's perceived skills and resources were not influenced by the three independent variables. However, surgical specialty and distance from the nearest CC did influence the belief that certain patients should be referred. This makes it likely that some aspects of belief/attitude/knowledge rather than perceived skills/resources influence the decision to refer.

3. The most important goals of surgery were to increase survival and achieve optimal debulking. These goals were not influenced by the independent variables. This unanimity in focus could be an important starting point for discussions around OC care delivery.

4. The barriers to care were influenced by the three independent variables. The lack of operating time was the most important barrier to surgical care and was the premier issue despite surgical specialty and at hospitals with oncologic specialists. Hospitals without a GO had concerns about the lack of onsite pathology. Although resources were not highlighted in the domain evaluating referral, resources were clearly highlighted as a barrier to care delivery.

The results of this survey suggest that there is a knowledge deficit regarding optimal intraoperative management of OC by surgical specialty and distance from a CC with a GO. It appears that in contrast to the literature which suggests the importance of opinion leaders [9], knowledge concerning intraoperative management did not vary whether a GO practiced at the facility or not. These findings suggest that the status quo is not adequate and we need to look at new ways of incorporating GOs as a knowledge resource.

We identified that referral patterns varied by surgical specialist and distance from the CC. Gynecologists were more likely to refer for reasons of perioperative management. Surgeons referred when patients requested it. Those physicians practicing more than one hour from a center with GO were more likely to refer than those physicians practicing closer. One could hypothesize that onsite subspecialty access is associated with a lower preoperative referral rate and higher likelihood of attempting the surgery knowing that subspecialty resources are more easily accessible for intraoperative consult. However, the Society of Gynecologic Oncologists strongly advocates that women with a mass suspicious for cancer be offered the opportunity for preoperative consultation with a GO [10]. Thus, our findings suggest novel approaches are required to influence referral practices.

Barriers to OC surgery were influenced by all three independent variables and the focus was on structural variables such as operative time, hospital beds and access to pathology. The sentiment is clear that an increase in resources at the centers with appropriately trained manpower is required to support timely care.

The strengths of this survey include our attempt to sample all Ontario gynecologists and surgeons who may

have been involved in at least one OC operation in the prior year. A Dilman approach was used to maximize responses. We began this work with four hypotheses and we have provided descriptive information related to these hypotheses.

A weakness of this survey was that although the response rate was acceptable (43.7%), with 58% of the responses being ineligible. This report is based on 293 responses from physicians who have operated on women with OC in the last year. It must be acknowledged that these responses could represent either those who have great concerns or least concerns about OC surgical care. It also remains to be determined whether self-reported attitudes and beliefs reflect actual behavior.

Health services research and practice guidelines outline the importance of appropriate surgical staging and debulking to optimize a woman's survival with OC. In this survey we have addressed how knowledge, perception of one's own skills, attitudes toward referral, goals of surgery and barriers to care are influenced by surgical specialty, availability of a GO onsite and distance from the CC. We have shown that peer influence has reached a ceiling effect in OC care. New approaches are required for both general surgical and gynecology forums to ensure appropriate referrals and more appropriate provincial resourcing of expert centers to provide timely and informed surgical care.

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