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Development of a decision aid for primary treatment of patients with advanced-stage ovarian cancer

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HIGHLIGHTS

- There is need for a tool supporting shared decision-making in patients with advanced-stage epithelial ovarian cancer.
- Patients lack information on treatment options and prognosis.
- A novel tool supports information sharing and dialogue between patients and clinicians.

ABSTRACT

Introduction Despite renewed treatment options for advanced epithelial ovarian cancer, survival remains poor. The Patient Association and the Gynecological Oncology Working Party in the Netherlands have identified a need for a tool to improve shared decision-making. The aim of this study was to develop an evidence-based online decision aid for patients with advanced epithelial ovarian cancer and their medical team.

Methods First, we identified the patients' and clinicians' needs using surveys and in-depth interviews. Second, we conducted multidisciplinary face-to-face meetings with representatives from all stakeholders (clinicians and patient representatives) to determine the content of the decision aid. Third, we developed the decision aid using standardized criteria and national guidelines. Finally, we tested the usability of the tool with patients and clinicians who participated in the needs assessment.

Results Patients and clinicians indicated the need for more sources of reliable information that include all treatment options available in the Netherlands. Although most interviewees were satisfied with the level of information available at the time of their own treatment, the majority (90%) of the patients stated that no choice of treatment was offered. We developed a consultation sheet and an online decision aid based on patient interviews and team discussions. The sheet contains a summary of all treatment options and login codes for the decision aid; it will be offered to patients at their first consultation. The decision aid can be used at home and includes information about epithelial ovarian cancer and all available treatment options and questions about quality of life and treatment preferences, delivering a personalized summary for discussion during the following consultation about the primary treatment choices.

Discussion In cooperation with patients and clinicians, we developed a decision aid for advanced-stage epithelial ovarian cancer patients and their medical team to support shared decision-making, based on a confirmed need for more extensive information sources. The decision aid is currently under assessment in a multicenter implementation trial.

INTRODUCTION

Emphasis on shared decision-making is growing in contemporary medical practice. Decision aids are part of the decision-making process, whereby they encourage patients and clinicians to jointly decide on interventions, based on clinical evidence and the patients' informed preferences.¹ In the Netherlands, patients with ovarian cancer involved with the patient association 'Stichting Olijf' have indicated a need for information resources containing details of different treatment options available for advanced-stage epithelial ovarian cancer. Additionally, clinicians identified a need for improved shared decision-making during a meeting of the Gynecological Oncology Working Party.

Currently, advanced-stage epithelial ovarian cancer (defined by the International Federation of Gynecology and Obstetrics (FIGO) as stage IIb-IV) is treated with aggressive multimodal treatment; however, the prognosis remains poor.² Standard therapy consists of a combination of surgery and chemotherapy. The order in which the treatment components are delivered is often decided at a multidisciplinary team meeting, as recommended by the European Society for Gynecologic Oncology,³ and determined by the stage, extent, and localization of the disease, physical status of the patient, and relevant logistical aspects.⁴ However, the use of neoadjuvant chemotherapy remains controversial as studies have shown that complete primary debulking surgery is associated with the most favorable prognosis.^{4–6} As a result, there is a considerable variation in clinical practice,⁷ which has not led to differences in overall survival between regions. As such, it has been proposed that the patient's preference should be included in the decision regarding the order of treatment.^{7–9}

Previous studies have shown that patient involvement in decision-making for primary treatment of epithelial ovarian cancer is minimal; the main reasons

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for this are the complexity of the therapy and the challenges associated with grasping the implications of therapy.^{10 11} Furthermore, treatment complexity increases with the addition of modalities, such as intraperitoneal chemotherapy and hyperthermic intraperitoneal chemotherapy. The complexity of choice of treatment, variation in clinical practice, and considerable vulnerability of the patients at high risk for poor outcomes regardless of treatment modalities indicated an urgent need for a tool to support shared decision-making in epithelial ovarian cancer, specifically.^{7 12 13} The aim of this study was to develop an online decision aid to help patients with advanced-stage epithelial ovarian cancer and their medical team make a well-informed decision for primary treatment through shared decision-making.

METHODS

We followed a four-stage development process under the supervision of a multidisciplinary team as described below.

Stage 1: Patients, Multidisciplinary Team, and Expert Panel

Patients with stage IIB-IV epithelial ovarian cancer treated at four Dutch hospitals (Radboud University Medical Center Nijmegen, Maastricht University Medical Center+, Catharina Hospital Eindhoven, and Netherlands Cancer Institute Amsterdam) were invited by their treating physician to participate in either the interview and/or survey between December 2017 and November 2018. We assembled a nationwide multidisciplinary team of gynecologic oncologists, medical oncologists, specialist nurses, representatives of the patient association ('Stichting Olijf' and Dutch Patient Federation (NPF)), an implementation expert, and an expert in development and implementation of decision aids. In order to gain national support, the multidisciplinary team included members of all Dutch regions and they were mandated to participate by their professional association. Six face-to-face meetings over the course of a year were organized to discuss the scope and content of the decision aid. Additionally, an expert panel involving a comparable group of clinicians was formed to determine their opinion on the decision aid; the aim of this was to prevent bias since they were not involved in the development process.

Stage 2: Needs Assessment Among Patients and Clinicians

The needs assessment consisted of a semi-structured in-depth interview, conducted by two researchers (JO, RT) and a survey shown in Online supplementary tables 1 and 2, respectively. The goal was to obtain information on the patients' need for information to enable them to make a well-informed decision about treatment. The purpose of the survey was to collect more quantitative information in addition to the interviews. Patients were eligible to participate in either the interview and/or survey if they had completed primary treatment (ie, debulking surgery and (neo)adjuvant chemotherapy) and had no signs of disease relapse. All patients provided written informed consent, and the relevant institutional review boards approved the study protocol (No. 2017–3788). Clinical data were extracted from patients' medical records.

The interview guide was based on literature and expert opinion provided by professionals from ZorgKeuzeLab.¹⁴ Follow-up questions were based on the participants' reflections and experiences. The survey was developed using a previously-validated tool used

in another malignancy that was adapted for epithelial ovarian cancer.¹⁵ Surveys were either filled online, using Castor Electronic Data Capture, or on paper. A panel of experts and a multidisciplinary team were asked to complete two surveys. The first survey interrogated their views on current information provisions, barriers, and facilitators of decision aids and treatment options to be included in a decision aid for patients with epithelial ovarian cancer. The second involved a two-round Delphi process to identify the order in which treatment options included in the decision aid should be arranged. Agreement within the expert panel was assessed with answers to seven statements graded on a five-point Likert scale.

Stage 3: Development of the Decision Aid

The decision aid was developed in accordance with the International Patient Decision Aid Standards criteria and the Dutch guidelines for decision aid development.^{16–18} The content was based on current guidelines, needs assessments and usability tests among patients and clinicians, and the discussions in the multidisciplinary team.¹³ The end product consisted of a consultation sheet and an online support tool.

Usability Testing

Patients who participated in the interviews and clinicians from the expert panel were asked to test a draft version of the decision aid. Two researchers (JO, RT) performed the tests on Skype or telephone. Skype enabled observation of the patient going through the decision aid and captured non-verbal reactions. All patients were asked to describe the context in which the decision aid was handed out by their clinician during the consultation. They were asked to use the decision aid as if they were preparing for the next consultation. During this usability test, patients were also asked to think aloud so that the researchers were able to follow their thought processes.¹⁹ All clinicians were asked to study the sheet and online tool beforehand. Finally, the interviewers asked both patients and clinicians for their feedback on the aid and how to improve it.

DATA ANALYSIS

The results of the surveys were summarized using descriptive statistics. The patient interviews were audio-taped and transcribed verbatim. After reading the transcripts, preliminary themes were defined by two researchers (JO, RT). In addition, thematic content analyses were performed by open coding and constant comparison within- and between-interview transcripts by two researchers (JO, BM). Consensus regarding the main themes was reached through an iterative process, and unresolved issues were discussed and agreed on jointly with a third researcher (RT). ATLAS.ti version 8 for Windows (ATLAS.ti Scientific Software Development GmbH, Germany) was used. In the Delphi process we calculated median scores, summarized comments, and discussed the outcome in the multidisciplinary meeting. Remaining points of discussion were presented again to the expert panel, and were discussed in the next meeting of the multidisciplinary team where consensus was reached. Usability tests were analyzed point-per-point, the feedback was summarized, the researchers proposed changes based on the patients' feedback, and critical issues were discussed in the multidisciplinary meeting. The Consolidated Criteria for Reporting

Qualitative Research were used; these criteria provide guidelines for best practices in the reporting of qualitative research.²⁰

RESULTS

Needs Assessment Among Patients

Twelve patients participated in the interviews, and an additional 43 patients provided answers to the surveys (Table 1). The main outcomes of the interviews were consistent with those of the surveys. When asked if they were offered different treatment options, the majority of the patients did not feel that actual treatment choices were presented to them. Furthermore, they expressed a need for additional information about the risk of disease recurrence, recovery after treatment, and workforce reintegration. The identified needs are summarized in Table 2.

In the survey, 60% (n=43) of patients indicated being informed by their doctor regarding different treatment options, while only 10% (n=4) stated that they were given options to choose and decide. Three of these last four patients chose intraperitoneal chemotherapy as treatment. The majority (90%) of patients stated that according to their doctor, there was only one viable treatment option available at the time treatment was required. Moreover, 41.9% of patients indicated they had not been informed of the advantages and disadvantages of the options presented to them. The vast majority (87.5%) of the surveyed patients indicated the importance of receiving information about their likely prognosis. Moreover, in the ranking exercise on the importance of the topics discussed, the topic 'life expectancy' was ranked first by the patients, emphasizing the importance of providing prognosis-related information (Table 2); 'no anti-cancer treatment' was ranked last by the patients.

Needs Assessment Among Clinicians

The survey response rate among the participating clinicians in the multidisciplinary and expert teams was 95% (Table 1). The majority (85%) of experts wanted to provide information about all treatment options available in the Netherlands, including the best supportive care (95%). (Table 3) In the two-round Delphi-consensus process, additional statements were tested on the level of agreement; 19/22 experts responded. The majority (60%) agreed to provide information on treatment options before a multidisciplinary meeting. However, they emphasized the importance of patient awareness that restrictions may apply, and that not all patients are eligible for all treatments. In addition, 84% of expert respondents agreed with the statement: "When there is not a preference from the multidisciplinary tumor board on starting with surgery or chemotherapy, the patient can choose the order of treatment". Moreover, 63% agreed with the statement: "When the multidisciplinary team prefers primary debulking surgery, the patient can choose whether to start with surgery or chemotherapy".

Multidisciplinary Steering Team

In the clinicians' opinion, the starting point to shared decision-making was to present all treatment options available in the Netherlands. An additional meeting was organized to reach consensus on the order in which treatment options should be presented. The most recent literature on primary debulking surgery versus neoadjuvant chemotherapy was reviewed to ensure that the information given to patients was clear, balanced, and up-to-date. As a result, the

Table 1 Characteristics of the patients and clinicians

Patients' characteristics	Interview (n (%))	Survey (n (%))	
	(n=12)	(n=43)	
Age (years) (median (range))	67 (41–84)	68 (41–84)	
Time between end of therapy and interview/survey (months) (median (range))	12 (0–48)	14 (0–75)	
Hospital where patients were treated:			
Antoni van Leeuwenhoek Hospital	2 (16.7)	3 (7.0)	
Catharina Hospital	2 (16.7)	12 (27.9)	
Maastricht UMC+	3 (25.0)	10 (23.2)	
Radboudumc	5 (41.7%)	18 (41.9)	
Level of education			
Low	4 (33.3)	28 (65.1)	
Medium	4 (33.3)	12 (27.9)	
High	4 (33.3)	2 (4.7)	
Unknown	–	1 (2.3)	
FIGO stage of disease			
Stage II	1 (8.3)	1 (2.3)	
Stage III	10 (83.4)	28 (65.2)	
Stage IV	1 (8.3)	14 (32.5)	
Type of treatment			
PDS + adjuvant chemotherapy	4 (33.3)	17 (39.5)	
NACT + IDS	8 (66.7)	26 (60.5)	
Received IP chemotherapy	3 (25.0)	7 (16.3)	
Received HIPEC	1 (8.3)	0 (0.0)	
Clinicians' characteristics	Multidisciplinary team (n)	Expert panel (n)	Usability tests (n)
	(n=11)	(n=11)	(n=10)
Clinician type			
Nurse specialized in oncology	3	4	3
Medical oncologist	2	4	4
Gynecologic oncologist	6	3	3
Hospitals			
Specialized	9	10	9
Semi-specialized	2	1	1

The values are numbers (n) and percentages (%) unless otherwise specified.

FIGO, International Federation of Gynecology and Obstetrics; HIPEC, hyperthermic intraperitoneal chemotherapy; IDS, interval debulking surgery; IP chemotherapy, intraperitoneal chemotherapy; Maastricht UMC+, Maastricht University Medical Center+; NACT, neoadjuvant chemotherapy; PDS, primary debulking surgery; Radboudumc, Radboud university medical center.

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Table 2 Needs assessment among patients. The results of the (A) interviews (n=12), (B) surveys (n=43), and (C) ranking exercise (n=43)

(A) Interviews			
Opinion on current information provision	Processing of the results in the DA		
Experienced doctor's delay from symptoms to diagnosis	Explanation of reasons of delay in diagnosis including patient examples added in the DA		
Experience of not having a choice for treatment	Addition of all available treatment options in the Netherlands together with eligibility criteria		
Feeling insecure about own treatment after hearing about other options afterwards	The possibility to tick the box on the option grid of the treatment options the patient is eligible for		
Not aware of the severity and prognosis of the disease at time of diagnosis	Addition of general information on prognosis in the DA		
Missing information on the aftercare process	Recommendation for future research		
Facilitators and preference			
Trust in treating physician	The DA will not replace the doctor, but it is set up as an addition in providing information		
Receiving information on all available treatment options in the Netherlands	The DA contains all options offered in the Netherlands		
(B) Surveys			
Questions (translated from Dutch)	Yes (n (%))	No (n (%))	N/A (n (%))
Are you aware of the different treatment options?	32 (74.4)	11 (25.6)	–
Are you aware that some patients start with chemotherapy while others start with surgery?	39 (90.7)	4 (9.3)	–
Were you informed about different treatment options by your treating physician?	26 (60.5)	17 (39.5)	–
Were you informed about the (dis)advantages associated with the treatment by your treating physician?	24 (55.8)	18 (41.9)	1 (2.3)
At the time, was there a choice in treatment options according to your doctor?	4 (9.3)	38 (88.4)	1 (2.3)
At the time, did you feel prepared to make a well-considered decision?	32 (74.4)	4 (9.3)	7 (16.3)
Were you informed that your opinion was of influence in the decision-making by your treating physician?	24 (55.8)	9 (20.9)	10 (23.3)
Did your doctor ask you what is important for you in daily life?	17 (39.5)	17 (39.5)	9 (21.0)
Was your opinion on what is important in life taken into consideration when the decision was made?	16 (37.2)	16 (37.2)	11 (25.6)
Did you feel you had a choice of treatment?	21 (48.8)	12 (27.9)	10 (23.3)
(C) Ranking exercise (top five) among patients for the question: "What knowledge do you think is most important in making a decision for treatment?"			
	Patients (n (%))	Mean score (5-point scale)	
1 Life expectancy	10 (23.3)	4.58	
2 Likelihood of successful surgery	9 (20.9)	4.74	
3 All available treatment options	6 (14.0)	4.16	
4 Recurrence of disease	6 (14.0)	4.58	
5 Long-term effects of treatment	6 (14.0)	4.33	

DA, decision aid; N/A, not applicable.

decision aid included information on the non-inferiority of interval to primary debulking surgery in terms of overall survival and on the lower morbidity associated with interval debulking. Additional information regarding primary debulking surgery is provided, stating that, among eligible patients, primary debulking surgery resulting

in complete cytoreduction is associated with the longest overall survival.^{21–25}

Furthermore, ways of involving the patient in the treatment decision and improving shared decision-making were discussed. Initially, although not every professional involved in the steering

Table 3 Needs assessment among clinicians (n=21)

Expected advantages of a DA	Expected disadvantages of a DA
Better informed patients	Time consuming during implementation
More prepared patients during consultation; more structured consult, may save time	Less confidence in treatment
Well-informed decision of patients, leading to more satisfied patients	Unrealistic expectations; because the patient is not eligible for a treatment
Objective information about treatment options and consequences	Temporary decrease in QoL because they receive 'fair' information and awareness occurs
Visual support during the consultation	Practice medicine according to a fixed protocol
More insight into wishes of the patient	
Opinion on current information provision	
Sufficient (70%)	
Satisfied with reliability of information (68.4%)	
Opinion on information needed in DA	
All available treatment options for which a patient is eligible in the Netherlands (80%)	
Best supportive care (95%)	
IP chemotherapy (85%)	
HIPEC (70%)	
Chemotherapy alone (61.1%)	

DA, decision aid; HIPEC, hyperthermic intraperitoneal chemotherapy; IP chemotherapy, intraperitoneal chemotherapy; QoL, quality of life.

team declared their recognition of the importance of shared decision-making, over the course of the discussion a consensus was reached in which all participating clinicians acknowledged the role of shared decision-making in patient care.

The Decision Aid

The final content included in the decision aid was presented as a consultation sheet/option grid and combined with an online tool. The text was edited by a text writer at language level B1 (common Dutch). The option grid was developed to include an overview of available treatment options and a login code to access the online tool, which can be handed out when the (suspected) diagnoses are discussed during consultation (Online supplementary figure 1). Patients can log in from home and read about advanced epithelial ovarian cancer (step 1) and the available treatment options (step 3). In addition, the patient is asked to answer questions regarding personal values and answer statements on quality of life versus life expectancy (step 2 and 4). (Box 1) The results are provided as a printable personalized summary with an overview of the answers given in steps 2 and 4, which can serve as a springboard for discussions with the treating physician during subsequent appointments (Online supplementary figure 2).

Usability Testing

Online supplementary table 3 shows the changes made to the decision aid after usability testing, involving seven patients and

Box 1 Content of the decision aid DA (translated from Dutch into English)

Step 1: About ovarian cancer

General information

What is ovarian cancer?

What are the symptoms?

Which clinicians are involved in your medical team?

What are the diagnostic tests usually performed?

What are the different stages of disease and where can metastasis be found?

Is ovarian cancer hereditary?

What is your life expectancy?

Step 2: About you

Which activities in daily life do you enjoy?

How is your physical status?

Can you walk for more than 30 min?

Can you get dressed without help?

Can you do your own grocery shopping?

What do you notice about the disease? Possibly you have complaints, you lost weight, your diet changed, or your physical status declined?

What do you hope to achieve with the treatment? What do you want to continue doing after treatment?

Step 3: Treatments

What are the treatment options in the Netherlands?

Which option(s) are you eligible for?

What is anti-cancer treatment?

What does the surgical procedure involve?

Which complications can occur during surgery?

How does chemotherapy work?

What is intraperitoneal (IP) chemotherapy or hyperthermic intraperitoneal chemotherapy (HIPEC)?

What does the symptomatic treatment involve?

Where can you find more support?

Step 4: Your considerations (contains statements, which patients can answer by moving a slider)

"I want to live as comfortable as possible even though it may be shorter" vs "I want to live as long as possible even though it can be less comfortable"

"I think it is acceptable if nothing is done against cancer growth" vs "I want something to be done against the cancer growth, even though I experience side effects"

"I do not want to visit the hospital a few times a month" vs "I do not mind visiting the hospital a few times a month"

"I do not want a stoma, even though this negatively affect my prognosis" vs "I can live with a stoma if this gives me a better chance of survival"

Do you have any additional information about your considerations, or do you have any further questions?


Step 5: Summary

A summary of the answers given in steps 2 and 4 is provided, which the patient can print out


10 experts, including changes to the text, illustrations, and visibility of textual changes and supportive care options. An example of the decision aid interface is shown in Figure 1.

3. Treatment options

What are the treatment options in the Netherlands?	✓
Which option(s) are you eligible for?	✓
What is anti-cancer treatment?	✓
What does the surgical procedure involve?	✓
Which complications can occur during surgery?	✓
How does chemotherapy work?	✓
What is IP-chemotherapy or HIPEC?	✓
What does 'symptomatic' treatment involve?	✓
Where can you find more support?	✓


What is anti-cancer treatment? 

Common treatment for ovarian cancer consists of both surgery and chemotherapy. The goal is to remove as much of the tumor as possible and reduce the symptoms.

 **Surgery**


The goal of ovarian cancer surgery is to remove as much of the visible tumor as possible. It is called "debulking" surgery and is performed through an incision in your abdomen.

The effectiveness of treatment increases with the extent of tumor removal. Like any major surgery, this operation also carries a risk of complications.

 **Chemotherapy**

Chemotherapeutics are drugs that kill cancer cells and inhibit the spread of the disease. These drugs also act on healthy cells, resulting in side effects.

Chemotherapeutics are administered into the vein and travel through your blood to reach almost all areas of the body. It is also possible to administer the drugs directly into the abdomen (peritoneal cavity; intraperitoneal [IP] chemotherapy). In such cases, chemotherapy is administered through an IP port/catheter or during surgery (HIPEC).

 **What order?**

Whether you will start with surgery or chemotherapy, depends on your condition. Your gynecologist will provide you with the information about available options.

Figure 1 An example of the decision aid interface.

DISCUSSION

In this study, we described the systematic development process of a novel decision aid for the primary treatment of advanced-stage epithelial ovarian cancer. The patients, as well as their clinicians, expressed the need for additional information about ovarian cancer treatment, including information about prognosis, and no anti-cancer treatment. The majority of the patients did not feel that actual treatment choices were presented to them. A Dutch patient association and gynecologic oncology society acknowledged the importance of a tool to help patients and clinicians with shared decision-making. The importance of shared decision-making is increasingly recognized, given the vulnerability of epithelial ovarian cancer patients who face intensive therapies and poor prognoses. The decision aid was developed using a four-stage rigorous method.

It is noteworthy that the majority of patients indicated that they did not have a choice in their primary treatment, suggesting that patients consent to treatment without being involved in decision-making. While patients choose to start treatment, the choice between surgery, chemotherapy, and no treatment appeared to be made by the supervising physician, which highlights the importance of the development of a suitable decision aid. In contrast to the 90% of patients having only one treatment option according to their doctor, 48.8% still answered that they felt they had a choice at the end of the survey. The most obvious explanation for this is that

the first question is primarily aimed at different treatment options given by their physician, while at the end patients realized that they had the choice whether or not to start treatment.

The main strength of this study was the collaboration of all parties involved in patient care. This reduced variation due to differences in care paths associated with different hospitals and provided a more objective overview of patients' needs. In general, patients' involvement in clinical research has led to more relevant results, ensured that patients' perspectives and preferences were considered, and improved patients' recruitment and retention in research.²⁶ However, future research should include a palliative care specialist and a general practitioner to ensure all areas of the entire care path are involved. Another strength of this study is that we followed the international criteria combined with the Dutch guidelines on decision aid development. In contrast, detailed information about the development process of decision aids is generally lacking in other studies.¹⁷

Two main obstacles were identified while writing the decision aid content. The first problem was the global discussion about the evidence regarding the order of treatment (starting with surgery versus chemotherapy). Therefore, the steering team discussed the current evidence and reached the consensus that primary debulking surgery results in best survival when reaching complete surgery compared with starting with chemotherapy. Also, they consented

to the non-inferiority of interval debulking surgery and its lower morbidity.⁷ Second, there is an ongoing worldwide discussion on the addition of intraperitoneal chemotherapy and hyperthermic intraperitoneal chemotherapy to primary treatment.^{27–30} Standard adjuvant intraperitoneal chemotherapy is not available across all Dutch hospitals or regions; therefore, deciding whether to include it was a point of contention. Following a discussion, the steering team decided to add both options to the decision aid, so that patient information was transparent and uniform. This was further justified given that intraperitoneal chemotherapy combined with primary debulking surgery and hyperthermic intraperitoneal chemotherapy combined with interval debulking surgery are included in the current national treatment guidelines.³⁰

During the development process, several barriers to adoption were mentioned. Clinicians expected it to be time consuming. However, Stacey et al reported no difference in the duration of consultation when the decision aid was used versus when it was not.³¹ Another barrier for clinicians was the concern of creating unrealistic expectations by presenting all treatment options to the patient. However, the patient representatives involved in the process stressed the need for knowledge about all treatment options, and thus a comprehensive list was included. Nevertheless, to manage patients' expectations, treatment eligibility criteria were included. Clinicians also hesitated about whether to present treatment-associated life expectancy data in the decision aid, which differ between patients and are difficult to predict. In this case, too, the participating patients indicated the importance of information on life expectancy, stating that patients who do not wish to have this information can move on to another item. As a result, general life expectancy information was included in the decision aid.

Another noteworthy finding from our study is the relatively low ranking by patients of 'no anti-cancer treatment' (mean score 3.56, on a five-point scale); however, in the opinion of the working party, this option should be included in the decision aid. The low ranking of this option may be explained by the fact that all participating patients received anti-cancer treatment and were in a stable phase of their disease, as required by the medical ethics committee. This could have resulted in biased views, since refusing treatment might have not been an option for them, and they might be more positive about the care path. Moreover, a substantial number of patients with epithelial ovarian cancer in the Netherlands never receive any treatment (12%) or receive single therapy only (19%).³²

Although the online component of the decision aid requires internet access, its advantages include the ability to rapidly update medical information, easily disseminate the tool, and track compliance and usage patterns.³³ In addition, internet coverage in the Netherlands is estimated at 96.5%, which suggests that access to the internet should not hamper the use of the decision aid.³⁴ Syrowatka et al have reported that computer-based decision aids are associated with significant improvements in knowledge and decisional conflict compared with usual care or alternative aids.³⁵ Previous analytical data on other decision aids developed by ZorgKeuzeLab professionals showed that most patients ask their relatives to help them use the online tool, which also helps them to discuss the information provided by their doctors. Another noteworthy result was the need for more information about the after-care process. However, the focus of our decision aid was primary treatment; therefore, this topic was not included. Improved source

information regarding this stage in the care process might be a welcome addition.

In conclusion, we designed a decision aid to help patients with advanced-stage epithelial ovarian cancer and their medical team to improve shared decision-making regarding primary treatment. The presented decision aid is currently under assessment in a multi-center trial, ahead of its implementation into the care path across Dutch hospitals that treat patients with epithelial ovarian cancer.

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