



Universiteit
Leiden
The Netherlands

Implementation, participation and satisfaction rates of a web-based decision support tool for patients with metastatic colorectal cancer

Keikes, L.; Vos-Geelen, J. de; Groot, J.W.B. de; Punt, C.J.A.; Simkens, L.H.J.; Trajkovic-Vidakovic, M.; ... ; Oijen, M.G.H. van

Citation

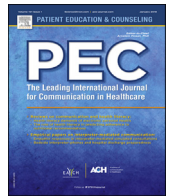
Keikes, L., Vos-Geelen, J. de, Groot, J. W. B. de, Punt, C. J. A., Simkens, L. H. J., Trajkovic-Vidakovic, M., ... Oijen, M. G. H. van. (2019). Implementation, participation and satisfaction rates of a web-based decision support tool for patients with metastatic colorectal cancer. *Patient Education And Counseling*, 102(7), 1331-1335. doi:10.1016/j.pec.2019.02.020

Version: Publisher's Version

License: [Licensed under Article 25fa Copyright Act/Law \(Amendment Taverne\)](#)

Downloaded from: <https://hdl.handle.net/1887/4103752>

Note: To cite this publication please use the final published version (if applicable).



Implementation, participation and satisfaction rates of a web-based decision support tool for patients with metastatic colorectal cancer

Lotte Keikes^{a,*}, Judith de Vos-Geelen^b, Jan Willem B. de Groot^c, Cornelis J.A. Punt^a, Lieke H.J. Simkens^d, Marija Trajkovic-Vidakovic^e, Johanneke E.A. Portielje^f, Allert H. Vos^g, Laurens V. Beerepoot^h, Cornelis B. Huntingⁱ, Miriam Koopman^j, Martijn G.H. van Oijen^a

^a Department of Medical Oncology, Amsterdam University Medical Centers, Location AMC, Cancer Center Amsterdam, Amsterdam, the Netherlands

^b Department of Internal Medicine, Division of Medical Oncology, GROW - School for Oncology and Developmental Biology, Maastricht UMC+, Maastricht, the Netherlands

^c Department of Medical Oncology, Isala, Zwolle, the Netherlands

^d Department of Medical Oncology, Maxima Medical Center, Veldhoven, the Netherlands

^e Department of Medical Oncology, Albert Schweitzer Hospital, Dordrecht, the Netherlands

^f Department of Medical Oncology, Haga Hospital, The Hague, the Netherlands

^g Department of Medical Oncology, Hospital Bernhoven, Uden, the Netherlands

^h Department of Medical Oncology, Elisabeth-Tweesteden Hospital, Tilburg, the Netherlands

ⁱ Department of Medical Oncology, Antonius Hospital, Nieuwegein, the Netherlands

^j Department of Medical Oncology, University Medical Center, Utrecht, the Netherlands

ARTICLE INFO

Article history:

Received 10 October 2018

Received in revised form 3 February 2019

Accepted 19 February 2019

Keywords:

Metastatic colorectal cancer

Decision support tool

Shared decision-making

Patient values

Treatment preferences

ABSTRACT

Objective: To examine implementation and patients' and providers' participation and satisfaction of a newly developed decision support tool (DST) for patients with metastatic colorectal cancer (mCRC) in palliative setting.

Methods: Our DST consisted of a consultation sheet and web-based tailored information for mCRC treatment options. We conducted an implementation trajectory in 11 Dutch hospitals and evaluated implementation, participation and satisfaction rates.

Results: Implementation rates fluctuated between 3 and 72 handed out (median:23) consultation sheets per hospital with patients' login rates between 36% and 83% (median:57%). The majority of patients (68%) had (intermediate)-high participation scores. The median time spent using the DST was 38 min (IQR:18–56) and was highest for questions concerning patients' perspective (5 min). Seventy-six% of patients were (very) satisfied. The provider DST rating was 7.8 (scale 1–10) and participation ranged between 25 and 100%. Remaining implementation thresholds included providers' treatment preferences, resistance against shared decision-making and (over)confidence in shared decision-making concepts already in use.

Conclusion: We implemented a DST with sufficient patient and oncologist satisfaction and high patient participation, but participation differed considerably between hospitals suggesting unequal adoption of our tool.

Practice implications: Requirements for structural implementation are to overcome remaining thresholds and increase awareness for additional decision support.

© 2019 Elsevier B.V. All rights reserved.

1. Introduction

Shared decision-making between healthcare professionals and cancer patients within the field of advanced oncological conditions seems unquestionable as treatment decisions are often complex and involve considerations between life extension and quality of life, but shared decision-making concepts have not yet been widely adopted [1–3]. Shared decision-making can be facilitated in several ways, of which decision support tools have shown their value [4,5]. However, effective implementation of decision support tools with

* Corresponding author at: Department of Medical Oncology, Amsterdam University Medical Centers, location AMC, Cancer Center Amsterdam, Meibergdreef 9, 1105 AZ, Amsterdam, the Netherlands.

E-mail addresses: l.keikes@amc.uva.nl (L. Keikes), judith.de.vos@mumc.nl (J. de Vos-Geelen), j.w.b.de.groot@isala.nl (J.W.B. de Groot), c.punt@amc.uva.nl (C.J.A. Punt), lieke.simkens@mmc.nl (L.H.J. Simkens), m.vidakovic@asz.nl (M. Trajkovic-Vidakovic), j.portielje@hagaziekenhuis.nl (J.E.A. Portielje), a.vos@bernhoven.nl (A.H. Vos), l.beerepoot@etzn.nl (L.V. Beerepoot), j.hunting@antoniusziekenhuis.nl (C.B. Hunting), m.koopman-6@umcutrecht.nl (M. Koopman), m.g.vanoijen@amc.uva.nl (M.G.H. van Oijen).

adequate patient and provider participation remains a challenge, because of fear of losing time, lack of confidence in the content of decision support interventions and the disruption of established workflows [6].

For patients diagnosed with metastatic colorectal cancer (mCRC), shared decision-making becomes increasingly important in a palliative setting where treatment goals balance between life extension and maintaining quality of life [7]. Currently available systemic agents that are incorporated in the current guideline include cytotoxic drugs (fluoropyrimidines, oxaliplatin, irinotecan and trifluridine/tipiracil) and targeted drugs (bevacizumab, cetuximab and panitumumab) [8]. There are several options for the use of these agents (i.e. combinations, sequence, method of administration) available, which require explanation from medical oncologists in balancing harm and benefits [9–11].

Experience with decision support tools for patients with mCRC is thus far limited. One tool, consisting of a take-home booklet with audio recording, demonstrated improved patient understanding of prognosis, treatment options, risks and benefits and did not increase patients' anxiety [12]. However, the information in this tool was not tailored nor web-based and implementation in routine clinical practice, an essential clinical endpoint, was not studied.

Therefore, our study aims to implement a newly developed decision support tool for mCRC patients treated with palliative intent and examine patients' and providers' participation and satisfaction.

2. Methods

In the developmental phase of the decision support tool, we interviewed 10 patients who had received treatment for mCRC and we surveyed 12 medical oncologists, who were experienced in the treatment of mCRC patients, to assess information needs. Thereafter, we developed a decision support tool for mCRC patients, who had no surgical options for resection of metastases and with whom a decision had to be made about palliative treatment. Patients were eligible for decision support if they had access to and were able to use the internet and read and understand the Dutch language. Our decision tool focused on treatment decisions, patients' perspective and balancing harm and benefit before the start of first or subsequent lines of palliative systemic treatment (chemotherapy and/or targeted therapy) or best supportive care. Our team consisted of medical oncologists with expertise in the treatment of mCRC (MK, JdV, JWdG) and two graphic design experts (RT, KK; in acknowledgements) who developed and implemented several other decision support tools. Prior research identified several implementation difficulties such as lack of confidence in decision support interventions and concerns about disruption of established workflows due to implementation of decision support [6,13,14]. Therefore, our team extensively interacted with healthcare professionals involved in mCRC (e.g. nurses, medical oncologists and oncology fellows) and patient advocates during the developmental phase to overcome these challenges. We also performed content and usability studies with patients and providers before we started the implementation phase of the decision tool.

2.1. Decision support tool

Our decision support tool consisted of 3 components. First, patients received a 'consultation sheet' (Appendix A) to use during consultation with their medical oncologist. This concerned an A3-format paper with an overview of different available treatment options including best supportive care, supplemented with the most common and important side

effects per treatment, administration (tablets or by infusion), treatment schedule and average impact on physical condition (scale 1 to 4). During consultation, the medical oncologist selected eligible treatment options for each individual patient from the list. The consultation sheet included a personal login code for a web-based interactive program. Login codes were unique per participating hospital, in order to obtain individual hospital implementation rates.

In the online second component of the decision support, after login, objective background information on colorectal cancer was provided in lay language by answering 10 frequently asked questions (FAQ's) about the development, incidence rates, (location of) metastases, genetic predisposition, symptoms, different treatment options in general (e.g. surgery, radiotherapy and systemic therapy), and prognosis. The decision tool also included a section about patients' perspective, which concerned questions about daily activities, physical condition and treatment considerations (quality of life versus life extension; preferences according to immediate versus delayed start of treatment and the number of hospital visits) and patients' treatment goals. Next, patients were offered lay language information about general side effects and detailed information about the separate treatment options and the severity and incidence of specific systemic therapy toxicities (diarrhea, hand-foot syndrome, neuropathy, alopecia and skin abnormalities). This information was tailored based on the treatment options that were selected on the consultation sheet by patients' own medical oncologist. Then, patients were invited to judge these specific side effects with the following rating: no difficulty, difficulty, much difficulty.

The third component of the decision support tool concerned an overview of all completed questions and selected options with rated side effects (Appendix B). This summary with patients' preferences aimed to facilitate discussion about patients' values and treatment preferences during the next consultation.

After development of the decision support tool, we started an implementation trajectory for 8 months (from July 2016 to February 2017) in 3 academic, 6 teaching and 2 regional Dutch hospitals. Additional support during the implementation phase was provided with an instruction sheet for providers (Appendix C), continuous availability of a helpdesk, monthly reports with the number of patient logins per participating center, participation rates and patient satisfaction and a best practice article three months after start of the implementation phase.

2.2. Outcomes

The primary outcome of our study was the implementation rate of our decision support tool, defined as the number of handed out consultation sheets per individual hospital and the number of patients who logged in to the online decision tool. Secondary outcomes of our study were participation and satisfaction rates of patients and medical oncologists.

We extracted anonymous information about patient participation, provided answers, selected options, treatment preferences and time spent from the online part of the decision tool during the second phase. We calculated a patient participation score (1 point for high participation per domain) based on 4 specified domains: the number of read FAQ's (more or less than 5 out of 10 FAQ's), filled in questions about physical condition (at least 1 or none), selected treatment options (at least 1 or none) and side effect ratings (at least 1 or none). This resulted in a participation score of 0 to 4 (low, intermediate low, intermediate, intermediate high or high). Medical oncologists' participation was measured by the number of oncologists that handed out at least 1 consultation sheet divided by the number of medical oncologists treating mCRC patients in that particular center.

Patients' satisfaction was voluntarily obtained at the end of the online decision tool consisting of a rating (very unsatisfied, unsatisfied, neutral, satisfied, very satisfied) and comments. Satisfaction was sufficient if at least 70% of patients were (very) satisfied. Patients could also indicate the name of their physician, which resulted in participation rates of medical oncologists per participating hospital. Medical oncologists and other health care providers' satisfaction was obtained at the end of the implementation phase with an online survey consisting of a rating of 1–10 for the level of satisfaction (1 = not satisfied; 10 = very satisfied). Provider satisfaction was defined as sufficient if rated with at least a 7. We also conducted structural interviews with one medical oncologist per participating center.

2.3. Statistical analyses

Descriptive statistics were performed for all study variables. We reported count data (e.g. number of patient logins) with a median and a total range or interquartile range (IQR) (difference between 75th and 25th percentiles) and we presented dichotomous or categorical variables with frequencies and percentages. Comparisons between time spent and satisfaction rates were tested using Kruskal Wallis tests. All statistical analyses were performed with SPSS version 24. A p-value below 0.05 was considered as statistically significant.

3. Results

3.1. Needs assessment

All patients who were interviewed during the development phase (n = 10) emphasized the need for an objective and reliable overview of treatment options and side effects and merited the

possibility to facilitate discussion with their provider about their values and preferences. The majority of medical oncologists (56%) confirmed the need for additional decision support and they reported better informed and motivated patients, improved shared decision-making and decreased decisional conflict as possible advantages of a decision support tool.

3.2. Implementation rates

All 11 hospitals started and completed the implementation phase. Hospital participation fluctuated between 3 and 72 (median 23) handed out consultation sheets and 2–31 (median 12) patients who logged in to the online decision tool. In total, 301 patients received a consultation sheet of whom 155 patients participated in the online part of the decision tool (51%). Patients' login rates per hospital fluctuated between 36% and 83% (median 57%; Fig. 1).

3.3. Patient and provider participation

During online decision support, the median amount of read FAQ's was 7 out of 10 (IQR 1–10). The majority of patients (73%) completed all questions about their condition and treatment considerations. In total, 79% of all patients selected at least 1 and 56% at least 2 treatment options. A total of 67% of patients rated at least one of the presented side effects. The majority of patients (68%) had an intermediate high (3 points; 31%) or high (4 points; 37%) composite participation score (Fig. 2). The median overall time spent on online decision support was 38 min (IQR: 18–56). Time spent was highest on reading treatment background information (median: 4 min; IQR: 1–11) and answering questions about patients' perspective (median: 5 min; IQR: 2–11) (Fig. 3). The participation of medical oncologists ranged between 25% and 100% per individual hospital.

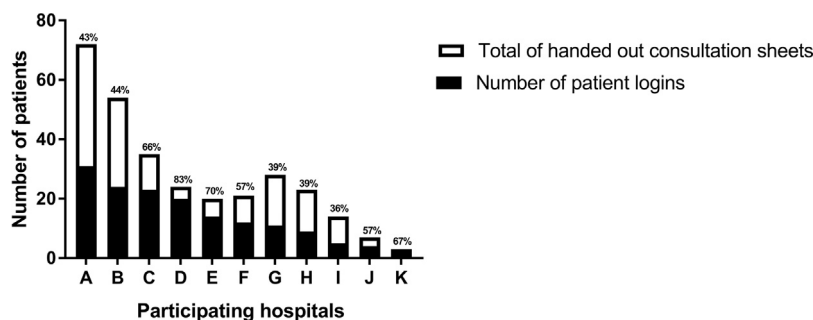


Fig. 1. Overview of hospital participation and patients' login rates.

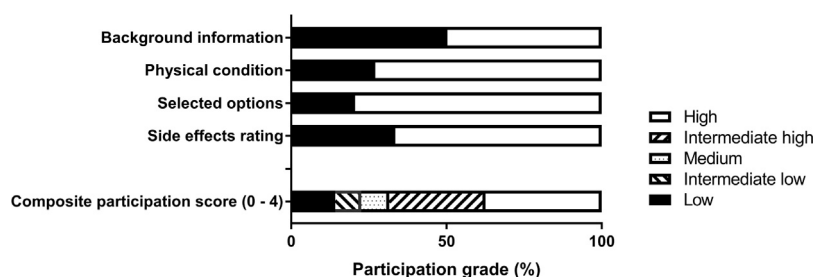


Fig. 2. Overview of patients' participation rate based on 4 different online decision support domains. Participation for 4 different domains was classified as low (black) or high (white) with the following cut off values: Background information (more than 5 out of 10 read FAQ's); filled in questions about physical condition (at least 1), selected treatment options (at least 1) and side effect ratings (at least 1). Composite participation score: 1 point was allocated per domain in case of high participation. Sum of scores: Low: 0 points; Intermediate low: 1 point; Medium: 2 points; Intermediate high: 3 points; High: 4 points.

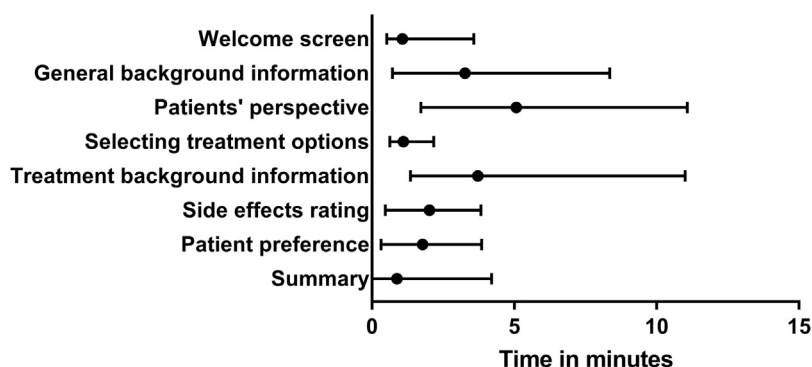


Fig. 3. Overview of patients' time spent during decision support. Median and interquartile ranges during different domains of online decision support.

3.4. Patient and provider satisfaction

In total, 50 patients gave their feedback during decision support. The majority (76%) was satisfied or very satisfied. Patient satisfaction did not differ between hospital type (academic, teaching or regional) or individual hospitals. Patients who were very satisfied had a trend for a longer median overall time spent ($n=8$; median: 65 min; IQR: 48–188) compared to patients who were satisfied ($n=24$; median: 40 min; IQR: 23–60) or neutral ($n=8$; median: 40 min; IQR: 21–59).

The response rate to our provider survey was 56% (22 out of 39). Additionally, 21 other healthcare providers (oncologists in training, nurse practitioners, oncology nurses) completed the survey. The majority of medical oncologists (59%; $n=13$) reported that the use of the decision tool was not time-consuming, of whom 3 (14%) reported time-saving. They concluded that the decision tool included all relevant information (73%; $n=16$) and the content of the tool was reliable (86%; $n=19$). The average rating of our decision support tool (on a scale of 0–10) was 7.8 ($n=21$) by medical oncologists and 7.3 by other health care providers, respectively. The majority of medical oncologists (86%) and other healthcare providers (95%) would recommend our decision tool to colleagues. We identified several barriers for decision support implementation during the interviews with medical oncologists. These barriers consisted of specific individual hospital or medical oncologists' preferences regarding systemic therapies, forgetting to hand out consultation sheets due to busy consultation hours and we also discovered resistance against shared decision-making values. Furthermore, several medical oncologists reported enough confidence in applying shared decision-making concepts and did not acknowledge the need for a decision aid.

4. Discussion and conclusion

4.1. Discussion

We developed a decision support tool consisting of a consultation sheet and online tailored information to improve shared decision-making in the palliative setting of mCRC. Our results suggest that implementation was successful, but we identified remarkable differences in implementation rates between participating hospitals. Patients' participation rates were generally high while providers' participation was variable. Patients' and medical oncologists' satisfaction was sufficient.

The challenge of decision support tool implementation is a recognized problem [4,6]. Several barriers for effective implementation have been described. The fear of losing time by the use of decision support tools and shared decision-making is often reported [2]. Several participating medical oncologists were

hesitant to lose additional time before the start of the implementation phase. However, the majority of medical oncologists (59%) in our evaluation did not indicate our decision support tool to be additionally time-consuming, some even reported time gain. Specific other barriers for the implementation are lack of confidence in the content of decision support interventions and disruption of established workflows [6]. The content of our decision support tool seemed to contain all relevant information and was evaluated as reliable (86%). We supported implementation of decision support in established workflows by an extra instruction sheet and paid special attention to involvement of all kind of healthcare providers.

We identified a discrepancy in the need of additional decision support between patients (100%) and medical oncologists (56%). This may explain the remarkable differences in implementation rates for participating hospitals as not every participating medical oncologist was convinced that our decision support would add value to the clinical process. Overall, patients' needs for additional decision support were high, the satisfaction rates of both patients and medical oncologists were high and the content of our tool was judged as reliable. Therefore, we suggest that medical oncologists should be further convinced of the need and usefulness of additional decision support which will improve structural implementation of the tool.

There was a wide range in login rates to the online part of our decision support tool (36%–83%). We do not expect that variation in internet access may explain this range as internet access was an inclusion criteria to participate in our study. Moreover, patients with login problems were adequately supported by our helpdesk. We hypothesize that differences in login rates may be explained by the information that medical oncologists provide to their patients when handing out the decision support tool. For example, if a provider asks a patient to login to the online tool and discusses the results during the next consultation, this will lead to a higher probability of using the tool compared to a provider who hands out the consultation sheet without any further instruction. We noticed differences in the explanation of the tool between providers during the structural interviews at the end of the implementation trajectory and concluded that providers should be instructed adequately to optimize implementation.

We did not obligate patients to give a rating, but approximately one third of all participating patients gave their comments so we were able to make a reliable evaluation of patient satisfaction and medical oncologist participation. It would have been interesting to examine whether decision support may have led to different treatment decisions. However, we were not able to obtain informed consent for interviewing participating patients, in order to minimize possible barriers for patients to use decision support. This also means that we do not have information about the characteristics of the patients who utilized decision support and

we were not able to compare patients who logged in versus patients who refrained from logging in. However, the primary aim of our study was to evaluate the implementation rates of our tool, but further research on patient characteristics is justified.

The rating of our decision support tool was 7.8 (scale of 1–10) among medical oncologists as evaluated by a survey with a response rate of 53%. A higher response rate would have led to more reliable satisfaction rates. Non-responders may be medical oncologists who were less satisfied or did not fully participate during the implementation phase. However, the combination of an evaluation survey in combination with structured interviewing provided us with enough information about barriers and facilitators during our study.

4.2. Conclusion

We successfully implemented a decision support tool with adequate patient participation and patient and medical oncologist satisfaction. However, hospital participation and patients' login rates differed considerably between hospitals. Several implementation barriers were successfully conquered, but the challenge is to overcome remaining barriers and to aim for a successful and structural implementation of our decision support tool.

4.3. Practice implications

Requirements for structural implementation are to overcome remaining thresholds and increase awareness among providers of patients' unmet needs regarding additional decision support. Facilitators to optimize implementation of decision support would be integration of decision support in care pathways and the possibility to invite and remind patients to use decision support by using electronic health records. Future research should focus on the characteristics of patients who utilized decision support and the impact of decision support tools on decision-making. Structural implementation requires breaking through still existing barriers: specific individual hospital or oncologists' preferences regarding systemic therapies, resistance against the values of shared decision-making, overestimation of already applying shared decision-making concepts in daily practice and omitting shared decision-making due to lack of time.

Role of funding source

This work was supported by the Dutch Digestive Foundation.

Declaration of interest

Lotte Keikes declares that she has no conflict of interest.

Judith de Vos-Geelen has acted in advisory boards for Amgen, Servier, Ipsen and Celgene.

Jan Willem B. de Groot has acted in advisory boards for Amgen, Bayer, Bristol Myers Squibb, Merck-Serono, MSD, Nordic Pharma, Roche and Servier.

Cornelis J.A. Punt has acted in advisory boards for Nordic Pharma and Servier.

Lieke H.J. Simkens declares that she has no conflict of interest.

Marija Trajkovic-Vidakovic declares that she has no conflict of interest.

Johanneke E.A. Portielje declares that she has no conflict of interest.

Allert H. Vos declares that he has no conflict of interest.

Cornelis B. Hunting declares that he has no conflict of interest.

Laurens V. Beerepoot declares that he has no conflict of interest.

Miriam Koopman declares that he has no conflict of interest.

Martijn G.H. van Oijen has received unrestricted research funding from Amgen, Bayer, Lilly, Merck-Serono, Nordic and Roche.

Acknowledgements

We want to thank all patients who participated in our study. We also want to thank the Dutch Digestive Foundation (Anneke K. Mels, PhD) and Zorgkeuzelab (Regina The, MSc and Klemens Karszen, MSc) for initiating and co-developing the decision support tool that was evaluated in our study, and for their technical support during the study period.

Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:<https://doi.org/10.1016/j.pec.2019.02.020>.

References

- [1] D. Stacey, R. Samant, C. Bennett, Decision making in oncology: a review of patient decision aids to support patient participation, *CA Cancer J. Clin.* 58 (5) (2008) 293–304.
- [2] K. Gravel, F. Legare, I.D. Graham, Barriers and facilitators to implementing shared decision-making in clinical practice: a systematic review of health professionals' perceptions, *Implement. Sci.* 1 (2006) 16.
- [3] F. Legare, H.O. Witteman, Shared decision making: examining key elements and barriers to adoption into routine clinical practice, *Health Aff. (Millwood)* 32 (2) (2013) 276–284.
- [4] D. Stacey, F. Legare, K. Lewis, M.J. Barry, C.L. Bennett, K.B. Eden, M. Holmes-Rovner, H. Llewellyn-Thomas, A. Lyddiatt, R. Thomson, L. Trevena, Decision aids for people facing health treatment or screening decisions, *Cochrane Database Syst. Rev.* 4 (2017) CD001431.
- [5] A. LeBlanc, D.A. Kenny, A.M. O'Connor, F. Legare, Decisional conflict in patients and their physicians: a dyadic approach to shared decision making, *Med. Decis. Making* 29 (1) (2009) 61–68.
- [6] G. Elwyn, I. Scholl, C. Tietbohl, M. Mann, A.G. Edwards, C. Clay, F. Legare, T. van der Weijden, C.L. Lewis, R.M. Wexler, D.L. Frosch, "Many miles to go . . .": a systematic review of the implementation of patient decision support interventions into routine clinical practice, *BMC Med. Inf. Decis. Mak.* 13 (Suppl 2) (2013) S14.
- [7] N.B. Leighl, P.N. Butow, M.H. Tattersall, Treatment decision aids in advanced cancer: when the goal is not cure and the answer is not clear, *J. Clin. Oncol.* 22 (9) (2004) 1759–1762.
- [8] Dutch Colorectal Cancer Guideline, (2014) . <http://www.oncoline.nl/colorectaalcarcinoom>.
- [9] A. Grothey, D. Sargent, R.M. Goldberg, H.J. Schmoll, Survival of patients with advanced colorectal cancer improves with the availability of fluorouracil-leucovorin, irinotecan, and oxaliplatin in the course of treatment, *J. Clin. Oncol.* 22 (7) (2004) 1209–1214.
- [10] M. Koopman, N.F. Antonini, J. Douma, J. Wals, A.H. Honkoop, F.L. Erdkamp, R.S. de Jong, C.J. Rodenburg, G. Vreugdenhil, O.J. Loosveld, A. van Bochove, H.A. Sinnige, G.J. Creemers, M.E. Tesselaar, P.H. Slee, M.J. Werter, L. Mol, O. Dalesio, C.J. Punt, Sequential versus combination chemotherapy with capecitabine, irinotecan, and oxaliplatin in advanced colorectal cancer (CAIRO): a phase III randomised controlled trial, *Lancet* 370 (9582) (2007) 135–142.
- [11] M.T. Seymour, T.S. Maughan, J.A. Ledermann, C. Topham, R. James, S.J. Gwyther, D.B. Smith, S. Shepherd, A. Maraveyas, D.R. Ferry, A.M. Meade, L. Thompson, G. O. Griffiths, M.K. Parmar, R.J. Stephens, F.T. Investigators, G. National Cancer Research Institute Colorectal Clinical Studies, Different strategies of sequential and combination chemotherapy for patients with poor prognosis advanced colorectal cancer (MRC FOCUS): a randomised controlled trial, *Lancet* 370 (9582) (2007) 143–152.
- [12] N.B. Leighl, H.L. Shepherd, P.N. Butow, S.J. Clarke, M. McJannett, P.J. Beale, N.R. Wilcken, M.J. Moore, E.X. Chen, D. Goldstein, L. Horvath, J.J. Knox, M. Krzyzanowska, A.M. Oza, R. Feld, D. Hedley, W. Xu, M.H. Tattersall, Supporting treatment decision making in advanced cancer: a randomized trial of a decision aid for patients with advanced colorectal cancer considering chemotherapy, *J. Clin. Oncol.* 29 (15) (2011) 2077–2084.
- [13] R.E. Lamers, M. Cuypers, M.M. Garvelink, M. de Vries, J.L. Bosch, P.J. Kil, Development of a decision aid for the treatment of benign prostatic hyperplasia: a four stage method using a Delphi consensus study, *Patient Educ. Couns.* 99 (7) (2016) 1249–1256.
- [14] M. Cuypers, R.E. Lamers, P.J. Kil, L.V. van de Poll-Franse, M. de Vries, Impact of a web-based treatment decision aid for early-stage prostate cancer on shared decision-making and health outcomes: study protocol for a randomized controlled trial, *Trials* 16 (2015) 231.