

**Supplemental Table 1** *Table of the decisions that were made (chronologically) throughout the development and piloting of the OnVaCT intervention*

| No.  | Element                | Decision  | Rationale   | Based on                       |
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| <b>Step 1: Identifying existing theoretical and empirical evidence</b> |                        |   |   |                                |
| 1  | Design                 | The OnVaCT intervention will be embedded in shared decision-making theory   | Shared decision-making is essential in the context of the complex decision regarding whether to participate in early phase clinical trials.   | Presumption from application   |
| 2  | Design                 | Both early phase clinical trial participation and palliative care are considered among the options that patients can decide to pursue   | Early phase oncological trials are a major prerequisite for the further development of efficacious anticancer therapies. However, the majority of patients fail to benefit from participation in such trials. Furthermore, participation in these trials may postpone their preparation for end-of-life. It is known that these patients are aware of palliative care services at the end of life but also that they may not consider them in terms of their potential impact on life closure. Consequently, in the decision regarding whether or not to participate in early phase clinical trials, it is important to explore not only trial participation as an option but also palliative care. | Presumption from application   |
| 3  | Design                 | Oncologists must be able to discuss (not only information but also) patient values  | Eliciting patients' values and preferences is a key part of the shared decision-making process according to widely used shared decision-making models. However, previous studies have shown that oncologists do not always address their patients' values. It is thus important for oncologists to invite patients to discuss their values during the preceding shared decision-making process. In this way, patient-oncologist communication can become a more patient-based and value-centered dialog.  | Presumption from application   |
| 4  | Communication training | A communication training module for oncologists will be developed   | The outcomes of the value clarification tool must be discussed if it is to affect the decision-making process. Oncologists should be prepared for what they can expect from patients who have used the tool to allow them to support such a process more effectively. This approach facilitates the shared decision-making process.   | Presumption from application   |
| 5  | Design                 | Patients must be empowered to think about early phase clinical trials, palliative care, and their values when considering their options | Simply inviting patients to discuss their values may not be sufficient to actually facilitate such a discussion. Previous studies have shown that patients can experience difficulties in sharing their values with oncologists. It is thus important to think of other ways in which patients can be empowered to reflect on their personal values in the context of both early phase clinical trial participation and palliative care.  | Presumption from application   |
| 6  | Design                 | The value clarification tool will provide a variety of different perspectives   | It is important for the tool to be sensitive to the personal values and beliefs of each patient as well as to the changes that may occur in those values and beliefs. Although it does not seem to be feasible to make the tool personalized/unique with respect to each patient, it remains important to offer a variety of options to the patients and to give them something to which they can relate (or not). Accordingly, the tool will at least provide a variety of different perspectives.   | Presumption from application   |
| 7  | Design                 | The look and feel of the value clarification tool will be warm and neutral  | Instead of the look and feel of the tool, we wanted patients to truly focus and reflect on the different characters (and their narratives) included in the tool. For instance, if the colors and design of the tool were excessively exuberant, dark or childish, they could potentially evoke (strong) emotions from the patient that would not (necessarily) be helpful in the process of deliberation. Thus, we aimed to ensure a warm and neutral look and feel.  | Canvas session with IT company |
| 8  | Design                 | The value clarification tool will consist of narratives   | The best way to consider values is through dialog (which is easier than, e.g., introspection). Because it is not possible to have direct conversations with patients, the second-best way to approach such a dialog is through narratives.  | Canvas session with IT company |
| 9  | Design                 | The narratives will be offered to patients during a virtual walk, and patients will be allowed to choose an avatar                      | The context of the tool should facilitate a pleasant dialog, and patients should have the feeling that they are experiencing the narrative for themselves. These goals can be accomplished in the form of a user journey, which can be visualized as a virtual walk. A walk offers the possibility of providing warm, neutral environments/surroundings that can be found anywhere, so that patients can actually imagine walking around in a similar setting. Furthermore, this setting enables patients to choose their own avatar to   | Canvas session with IT company |

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| 10  | Design                 | The characters included in the value clarification tool will be patients and/or relatives rather than, e.g., oncologists  | engage in dialog with other characters in the tool. We wanted patients to be able to easily relate to the characters included in the tool. We believed that this goal would be achieved more easily by identifying the characters as patients and/or their relatives (i.e., 'people like me' who are facing a similarly uncertain situation) than, e.g., oncologists or other health care professionals.   | Canvas session with IT company                 |
| 11  | Design                 | The value clarification tool will include a central 'virtual coach' who can introduce the tool and guide patients through it  | It is important to provide a good introduction to the tool (both within the OnVaCT itself as well as beforehand). Patients require an understanding of what is expected from them, what they may achieve using the tool (i.e., receiving only little information, with the main focus being the exploration of values), and why this process is important. A central dialog partner may help achieve this goal.  | Canvas session with IT company                 |
| <b>Step 2: Collecting additional evidence</b> |                        |   |  |  |
| 12  | Content                | The values to be included in the value clarification tool include hope, trust, quantity/quality of life, altruism, perseverance, risk tolerance, humanity, social adherence, autonomy, reconciliation with or acceptance of one's fate (including faith), and bodily preservation (later: corporeality) | The tool must – accurately – reflect the diverse set of patients from different backgrounds, with different values, etc., that oncologists will encounter.   | Systematic review and interviews with patients |
| 13  | Content and design     | In total, 8 different characters with narratives were 'created' for the prototype value clarification tool, with every character having 3 different short narratives and every narrative focusing on different (sets of) values   | To ensure sufficient diversity (in terms of both patients and their values), it was necessary to create multiple characters and narratives. By including 8 characters, it was possible to focus on all values and subthemes (see also no. 12), with each patient's narrative focusing on (sets of) values. Major themes can occur in the narratives of multiple patients.  | Systematic review and interviews with patients |
| 14  | Content                | The introduction of the value clarification tool will discuss patients' current situation and upcoming consultation, the decision they will face, and the importance of integrating patient values into this decision   | From the interviews conducted with patients prior to their initial consultation regarding early phase clinical trials, it became clear that not all patients were aware of their current situation and the aim of their upcoming consultation (i.e., the fact that and the reason why they were referred to an oncologist specializing in early phase clinical trials) or of the decision that they might face (i.e., the decision to participate in early phase clinical trials). Therefore, we considered it to be important to provide this perspective in the introduction of the value clarification tool, as such an understanding of the relevant context is necessary for patients to put their values into context. N.B. We wanted the introduction to be applicable to all patients; therefore, we did not personalize the information provided. In any case, personalization of the information with regard to a patients' individual situation would occur during the patient's consultation with the oncologist (once again emphasizing the fact that a discussion with the oncologist is essential). | Interviews with patients                       |
| 15  | Design                 | Oncologists will not receive output from the value clarification tool   | Although we initially intended to provide the oncologists with output from the tool, we decided not to do so because they strongly emphasized the fact that they had little available time; accordingly, we did not want to aggravate their workload. Furthermore, oncologists indicated that they preferred to hear patients' values directly from the patients themselves (possibly supported by a list/summary provided by the patients) instead of obtaining output that may (unintentionally) be interpreted incorrectly.   | Interviews and focus groups with oncologists   |
| 16  | Communication training | The communication training addresses, among other topics, how to discuss the (results from the) tool during the consultation  | We did not want to place a higher workload on oncologists (i.e., by providing them with output from the value clarification tool); however, we still considered it to be important for them to have a dialog with patients regarding the patients' values. The interviews and focus  | Interviews and focus groups with oncologists   |

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|  |                                    |   | groups indicated that oncologists considered themselves to be counsellors who could indeed help the patients through such a dialog. A one-time investment during the training module seemed to be appropriate with regard to supporting oncologists in this task. Furthermore, the training module would play special attention to the possibility of 'doing more' (in terms of discussing patient values) in the same time frame that oncologists have for consultations.  |  |
| 17   | Content and communication training | The option to 'do nothing' is included and discussed in the OnVaCT intervention   | This choice was based on principle: although the oncologists indicated during the interviews and focus groups that they did not bear responsibility for discussing palliative care more extensively (but rather was the responsibility of patients' treating/referring oncologist or general practitioner), we believe that this option was essential to the decision-making process for early phase clinical trials (also see no. 2). Some patients indeed seriously consider pursuing this option, whereas other patients exhibit 'tunnel vision' with regard to continuing treatments. We thus believed it to be important to at least include this option in the OnVaCT intervention to either broaden or relate to patients' perspectives.   | Presumption from application as well as on interviews and focus groups with oncologists        |
| <b>Step 3: Modeling of the OnVaCT intervention</b> |                                    |   |   |  |
| 18   | Content                            | The characters included in the value clarification tool will be patients who are facing the decision in question (who are thus in a similar situation as the patients using the tool) | Based on the patient interviews, one member started writing the early drafts for the characters' narratives and came to the conclusion that the perspective of patients themselves (rather than those of their relatives) was the only perspective about which we could write. Furthermore, writing about success or failure stories based on a decision would only give people more uncertainties to consider. Consequently, instead of focusing on the results of a potential decision, we decided to focus on the deliberation process itself and the uncertainties with which the patients are still dealing.   | Interviews with patients and insights obtained during the development process itself           |
| 19   | Design                             | The characters and virtual coach will be included in a carousel in which the patients can choose with whom they want to go on a virtual walk  | Other than the fact that a carousel was practical way to show patients the available characters in the tool, this presentation could also give them a stronger sense of being in control while using the tool. For instance, if patients were introduced to characters one-by-one during the virtual walk, this approach could cause them to experience a sense of frustration, especially if multiple characters in a row were not immediately relevant to the patient. With the carousel, patients can take the initiative for themselves, and easily return to other characters if they wish.  | Insights obtained during the development process in consultation with IT company               |
| 20   | Content and design                 | All characters will have a short, spoken introduction and some visual characteristics   | A short introduction and/or visual characteristics (e.g. sports equipment or a wine glass) would enable patients (users) to relate (or not) to the characters, thus allowing them to choose to go on a virtual walk (or not) with a specific character.   | Insights obtained during the development process in consultation with IT company               |
| 21   | Design                             | The value clarification tool will include a feature that allows patients to read 'subtitles' of the narratives  | The patient representatives suggested adding 'subtitles' to make the value clarification tool easier to follow (including for patients with, e.g., hearing impairments or lower health literacy).   | Focus group with patient representatives   |
| 22   | Training module                    | The training module consists of three parts: (1) web lecture, (2) individual feedback session, and (3) final group training   | Like the tool itself, the accompanying training module must be embedded in shared decision-making theory (see also no. 1 and 3). Furthermore, we had already decided that the training module would also address how to discuss the (results from the) tool during the consultation (see also no. 16). We decided to divide the training module into three parts <ol style="list-style-type: none"> <li>1. a web lecture in which a first introduction to shared decision-making theory (importantly including the need to discuss patient values) in the current context would be provided with initial ideas regarding how to implement the tool in these steps;</li> <li>2. one individual feedback session per oncologist, in which they would be asked to assess the steps of shared decision-making in one of their personal recorded consultations and to consider how they</li> </ol> | Presumption from application and all previous decisions regarding the value clarification tool |

- could improve these steps while integrating the tool (and discussing patient values); and
3. a final group training per participating center in which an experienced trainer/psychologist discussed general tips and ideas regarding how to discuss patient values and the tool, in which context oncologists were called upon to share and discuss their own ideas on this matter.

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**Step 4: Feasibility testing**

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| 23 | Content            | The introduction will strongly emphasize the fact that the value clarification tool is intended to help explore/organize patients' personal thoughts/beliefs (concerning their values)   | Patients (representatives) indicated that the main aim of the tool could be made clearer. Some participants still had the feeling that the tool would mainly offer them information. Because the intention of this process was to make the tool easily understandable to all patients, we investigated whether the eventual introduction was sufficiently clear for the patients during the think aloud sessions.                       | Focus group with patient representatives and think aloud sessions |
| 24 | Content            | During and/or at the end of all characters' narratives (after a phrase referring to a value), the patient (user) will be asked a (rhetorical) question   | Some patients (representatives) indicated that the prototype did not yet cause them to (feel invited to) consider their own values. By adding questions that were directed at the patient/user, we attempted to make the dialog (see also no. 3 and 8) more explicit.   | Focus group with patient representatives and think aloud sessions |
| 25 | Content            | The value clarification tool will use the formal form of address ('u' in Dutch)  | Most patients did not have a preference for the formal ('u') or informal ('jij') form of address with regard to the term 'you' in in Dutch. The few patients who expressed such a preference preferred the formal form of address.  | Focus group with patient representatives and think aloud sessions |
| 26 | Content and design | The tool will have an 'end screen', and an 'I am ready' button on which patients can click to reach this screen will be placed above the carousel  | During the think aloud sessions, some patients indicated the tool lacked a clear endpoint. Therefore, an end screen was added featuring brief feedback regarding the general aim of the tool was discussed.   | Focus group with patient representatives and think aloud sessions |
| 27 | Design             | The value clarification tool will include 5 different characters with whom patients can choose to go on a virtual walk, with every character featuring 3 different short narratives  | To ensure sufficient diversity (in terms of both patients and their values), patients indicated that 3 characters would be too few. Moreover, patients considered 8 different characters to be too many. Therefore, we chose not to develop 3 different characters further (see also no. 13) - thereby 'removing' 3 characters that had the most overlap with other personalities in terms of their (sets of) values (see also no. 12). | Think aloud sessions  |
| 28 | Design             | The subtitles will be placed on the right side of the screen, with not only an icon but also text indicating this feature. Navigation buttons (i.e., 'previous', 'pause/play', 'stop' and 'next', featuring both icons and text) will be clustered in the bottom center of the screen. | Several design choices were made based on suggestions of the patients concerning how to improve the usability of the tool. For instance, some patients indicated that they needed to be able to pause the narrative to take notes. Furthermore, in the prototype, the navigation buttons were placed on the top and bottom of the screen; however, this placement was considered to be excessively unclear by the patients.             | Think aloud sessions  |
| 29 | Content            | The introduction of the value clarification tool will emphasize the fact that patients can choose freely with whom they would (or would not) like to go on a virtual walk  | Some patients indicated that it was unclear to them that they had freedom of choice within the tool; for instance, it was unclear that they could also choose not to do something.  | Think aloud sessions  |
| 30 | Design             | The font sized used in the value clarification tool will be relatively large   | Not all patients were able to easily read the text in the tool.   | Think aloud sessions  |
| 31 | Design             | The difference between the coach and the other characters was made more visible and indicated more strongly in the coach's introduction in the carousel  | Some patients thought that the 'virtual coach' was also one of the characters with whom they could walk and were then negatively surprised when they discovered that selecting this character sent them back to the introduction to the tool.   | Think aloud sessions  |
| 32 | Design             | In the carousel, it was made visible (using a  | Patients were unable to identify the characters with whom they had already gone on a virtual walk.  | Think aloud sessions  |

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|    |                           | checked/unchecked box)<br>whether patients had<br>already listened to the<br>narratives regarding the<br>character |  |  |
| 33 | Content and<br>design     | The value clarification tool<br>will not include a note-<br>taking feature   | Several choices were made based on practical<br>considerations. The available budget did not provide an<br>opportunity to include unlimited features in the tool. For<br>instance, the presence of 5 characters was considered to<br>be more essential than a feature that would enable<br>patients to, e.g., take notes in the tool. Instead, in the<br>introduction to the tool, patients would be requested to<br>take notes for themselves. In this way, they could also<br>satisfy the oncologists' preferences for patients to make<br>their own preparations (see also no. 15). Furthermore,<br>taking notes in a notebook and physically bringing those<br>notes to the oncologist may feel more natural than taking<br>digital notes (especially because taking digital notes also<br>requires sufficient digital skills on the part of the patient). | Think aloud<br>sessions and<br>wrap-up |
| 34 | Design                    | Bugs in the design were<br>fixed   | Bugs (e.g. hitches in the flow or buttons that did not<br>function correctly) that were identified during the think<br>aloud sessions or the wrap-up of the tool were<br>removed/resolved as appropriate.  | Think aloud<br>sessions and<br>wrap-up |
| 35 | Communication<br>training | The final value clarification<br>tool was integrated into the<br>communication training                            | After finalizing the value clarification tool itself, it became<br>possible to integrate it into the communication training<br>and to ensure that the actual steps addressing the tool<br>would fit with the final tool that patients would use. For<br>that purpose, we decided that oncologists would be asked<br>to watch the value clarification tool prior to their individual<br>feedback session to make it easier to explore with the<br>trainer how the tool could be integrated into their<br>discussions with patients.   | Wrap-up                                |

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