PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Understanding care when cure is not likely for young adults who face cancer: a realist analysis of data from patients, families and healthcare professionals.
AUTHORS	Kenten, Charlotte; Ngwenya, Nothando; Gibson, Faith; Flatley, Mary; Jones, Louise; Pearce, Susie; Wong, Geoff; Black, Kath; Haig, Sue; Hough, Rachael; Hurlow, Adam; Stirling, Caroline; Taylor, Rachel; Tookman, Adrian; Whelan, Jeremy

VERSION 1 – REVIEW

REVIEWER	Emily Haines Gillings School of Global Public Health, University of North Carolina- Chapel Hill, RTI International, USA
REVIEW RETURNED	12-Jun-2018

GENERAL COMMENTS	Dr. Edward Sucksmith, Thank you for the opportunity to review “Understanding care when cure is not likely for young adults who face cancer: a realist analysis of data from patients, families and healthcare professionals”. This study addresses a hugely important topic that has been understudied in this population. Strengths of this study include its important focus, its consideration of multiple stakeholder perspectives, and its extensive data collection effort. Rich qualitative data have yielded really important insights about the experiences of this population. However, I do have several concerns with this manuscript which I described in further detail, below. Sincerely, Emily Haines Analyst, End-of-Life, Palliative, and Hospice Care RTI International 3040 Cornwallis Road PO Box 12194 Research Triangle Park, NC 27709-2194 (919) 316-3933 | ehaines@rti.org Study background and contribution Authors should consider providing a more robust background description of their study context. For example, in Figure 1, they offer a helpful summary of project phases, but it would be good if they briefly touched on the overall goals/contribution of the project within the background text. What are the gaps in the current literature on the needs and experiences of young adults with cancer? How does this project help address those gaps? Authors could make a much more compelling case for the importance of this study. Authors may also consider elaborating on some of the points made in Paragraph 2. For example, how does the avoidance of

end-of-life discussions impact quality of care? How are the challenges faced by providers similar/different in delivering care to young adults versus other populations? This would help provide context for the manuscript moving forward and justify the importance of their research topic.

The information about their realist evaluation approach and preliminary program theory could be moved to the “methods” section, or broken out into a separate conceptual model/theory section.

Realist evaluation approach

As someone who is unfamiliar with a realist evaluation approach, the manuscript does not completely clarify this process for me. First, the term “preliminary programme theory” warrants further explanation. Authors note that this theory informs the development of interview and workshop topics but offers no further detail on how it is used to derive data collection instruments or data analysis. Of note, their preliminary programme theory does not capture the perspective of HCPs which seems to be a major focus of data collection and analysis.

The language around “realist logic of analysis” and “CMO configurations” should be clarified so that it makes sense to a reader who is unfamiliar with the realist evaluation approach. Authors describe their CMO configurations in Table 3 of their “Results” section. However, the process of deriving these configurations needs to be clearly described in the “Methods” section.

Methods

I’m uncertain as to whether the distinction between cohorts is meaningful. Since recruitment for Cohort 1 was expanded, and the sample size for Cohort 2 is only 3, authors might consider reporting results in combination rather than making this distinction in the text and in Table 2. In the first paragraph of the “Methods” section (line 23/24) and in the “Discussion” section, authors distinguish between age groups 16-24 and 25-40. Perhaps this is the more meaningful distinction to make in Table 2. If this was their initial thinking, authors should briefly describe why these two age groups may be different and consider contrasting the experiences of these groups more in their summary of results.

Page 7, Lines 33/34: why these 4 cancer groups in particular?

Authors note that they included patients with “an expected prognosis of less than one year”. How was this determined?

What was the objective of the second round of interviews for Cohort 1?

The “Methods” section would benefit from a more robust description of the development and content of interview and workshop materials. For example, how was the topic guide for interviews developed? Was it piloted before actual data collection began? Additionally, authors should describe the purpose and development of the Workshop scenarios. Finally, in the “Patient Involvement” section, authors mention “patient information sheets”; these should be described further in the “Data Collection” section.

In general, the purpose and procedure for the Workshops warrants further explanation.

Page 8, Line 15: authors note that HCPs were recruited by “the sites”. Which sites?

In the “Data analysis” section, authors note that, for Stage One, “Charmaz’s approach was used”. I suggest revising this to “Charmaz’s grounded theory approach was used”.

Results

Cohort 1 participant details are included twice.

	Some of the quotes are a bit lengthy and, if cut down, would more concisely illustrate the points being made. Authors should be more explicit about exactly how the 7 themes they identified fed into their refined programme theory. Discussion This section needs to be condensed considerably. It seems to me that much of the information presented here belongs in the “Results” section. The “discussion” section should be reserved for commenting on the results of the study in the context of the existing literature and highlighting implications and future directions. Specifically, they might comment on the results of this study versus extant literature on other age groups, given that the stated objective of their study is to understand what experiences may be specific to the 16-40 age group. Right now, they don’t make a strong case that the challenges they describe are, in fact, specific to this age group although this is a stated conclusion. Limitations Authors do not discuss that prognostication is imperfect, especially for young people, and thus, their sample may not truly reflect those at the end of their life. While this is not a limitation so long as they use the language “young adults with cancer for whom a cure is unlikely”, it should be addressed given that they draw conclusions about “end-of-life care”. Further, it is unclear how they identified patients with a prognosis of less than 1 year, making this limitation more concerning.

REVIEWER	Dr Stephanie Johnson Wellcome Centre for Ethics and Humanities, University of Oxford, UK
REVIEW RETURNED	13-Jun-2018

GENERAL COMMENTS	Overall, a thoughtful analysis that raises some important points and adds to the literature. I have made a few suggestions that I hope will add to the manuscript. These mainly related to making a clear statement regarding the research aims and adding detail to the study methods. Abstract 1. Please provide more detail on the ‘workshop’ in the abstract– its not clear what this means e.g. who were the participants? Background: 1. The background should present some of the existing research in the field, and at present is lacking detail in this regard. For example, I would be interested to hear a little more about the specific challenges of young people already identified in the literature, to ‘set the stage’ for this research. 2. Its not really clear what the research questions are? The objective as stated in the abstract: “To understand the experiences of young adults with cancer”, seems rather broad, as does the statement in the background section: “To gain a deep understanding of the contexts that may be specific to this age group”. Was the point to test the validity of preliminary theory? Or to assume its validity and provide further details on its specific components? Method: The methods section lacks some necessary detail. This includes: 1. Why were participants selected from those four cancer groups? 2. Analysis – who undertook the coding? Were transcripts double coded? Who discussed and decided upon themes (text says ‘we’) and how was consensus on themes reached? 3. Why was recruitment stopped? Was data saturation achieved?

4. The authors refer to their ‘thematic analysis’ in the results section. This needs to be explicitly stated and described in the methods section.

Results

1. Page 13 Line 54 - Professionals Need Support: the authors state that HCPs find caring for young adults challenging and burdensome. This statement lacks clarity. The quotes suggest they find it emotionally burdensome but I’m unsure if it is challenging or burdensome in other ways also (e.g. clinical decision-making may be difficult?). Please provide further detail.
2. Page 15 Line 54 - I’m not familiar with the Context-Mechanisms-Outcome (CMO) configurations technique, and found the presented explanation unclear (“We attempted to identify mechanisms (generative causal processes) that are activated in the contexts we had found within the themes we uncovered.” Can the authors revise this statement for clarity and provide more detail. This should be included in the methods section. I found the examples in the table helpful, perhaps this could be used in text.
3. Page 16 Line 4 – the authors state, “we deliberately drew on the extensive content expertise of the project team”. While I recognize that this manuscript has been submitted to a medical journal, and the role of reflexivity in qualitative research is often omitted in these types of manuscripts, the study design relies heavily on the contribution of the expert advisory group (they developed the preliminary theory, which informed the interview questions and then contributed extensively to the data analysis). This warrants at least a brief reflexive statement about the expert group - what was their expertise? And how may this have influenced the study? Again, this belongs in the methods section, not results.

Discussion

I present some comments on the manuscript discussion for the author’s consideration.

1. Page 22 line 26 – the authors present ‘age specific concerns’. However, they haven’t done any work to show that these needs are specific to this age-group, only that these needs exist in this age group. This would require some discussion of the broader literature.

2. Page 22 Line 15-16, please provide references to support this statement

3. Page 22. Line 48 “Adaptation is a mechanism through which there is a recognition of what can no longer be achieved due to disease progression. (16) An adapted normality can be achieved together with a sense of control, allowing for realistic goal setting. (17)” In this section, the authors discuss issues of dissonance, loss of independence, and uncertainty. While the authors offer that enhanced control, in particular in the form of advance care planning may help to ameliorate this experience, I remain unconvinced that this is a adequate solution to address complex issues of identity and loss.

4. Page 23 Line 54 the burdens for healthcare professionals– there seems to be issues of complex workflows, work cultures, resources (work load) and emotional and social skill at play here. This seems like an untapped body of work, whereby the implementation of HCP training programs (or similar, as suggested

	here) would need to be preceded by a better understanding of the issues at play and ways to address them. Strengths and limitations 1. Page 25 Line 15. The study limitations are appropriately acknowledged, but are lacking an evaluative statement about the impact of the limitations. For example, these factors limit the conclusions that can be drawn from the data in regards to 16-24 year olds, and may not be applicable to patients with hematological cancers, those who are most unwell, or those unwilling to engage in EoL discussions. Please add an evaluative statement to the study limitations section of the manuscript. Conclusion This would be stronger if it included an outline of the key recommendations arising from this research. In general, a good paper that I enjoyed reading and makes a contribution to the understanding of EoL care needs of younger adults with cancer.

VERSION 1 – AUTHOR RESPONSE

Manuscript ID bmjopen-2018-024397

Understanding care when cure is not likely for young adults who face cancer: a realist analysis of data from patients, families and healthcare professionals.

Response to reviewers' comments

Reviewer Comment	Authors' response
Reviewer 1 (Emily Haines) Comments for the Authors... Thank you for the opportunity to review "Understanding care when cure is not likely for young adults who face cancer: a realist analysis of data from patients, families and healthcare professionals". This study addresses a hugely important topic that has been understudied in this population. Strengths of this study include its important focus, its consideration of multiple stakeholder perspectives, and its extensive data collection effort. Rich qualitative data have yielded really important insights about the experiences of this population.	We thank the reviewer and appreciate these positive responses.

Study background and contribution Authors should consider providing a more robust background description of their study context. For example, in Figure 1, they offer a helpful summary of project phases, but it would be good if they briefly touched on the overall goals/contribution of the project within the background text. What are the gaps in the current literature on the needs and experiences of young adults with cancer? How does this project help address those gaps? Authors could make a much more compelling case for the importance of this study. Authors may also consider elaborating on some of the points made in Paragraph 2. For example, how does the avoidance of end-of-life discussions impact quality of care? How are the challenges faced by providers similar/different in delivering care to young adults versus other populations? This would help provide context for the manuscript moving forward and justify the importance of their research topic. The information about their realist evaluation approach and preliminary program theory could be moved to the "methods" section, or broken out into a separate conceptual model/theory section.	Please see in addition comments below to Dr Stephanie Johnson (reviewer 2) The study team has undertaken a literature review of existing research and we hoped the subsequent publication (reference #4, Ngwenya et al.) serves to 'set the stage' along with reference to a major and very current textbook specific to AYA. This work does identify the gaps in the literature and evidence base. In order to expand the background, we have added the following text and additional references to the introduction. *Studies of adults with cancer usually cover a wide age range with most participants aged over 40 years. The existing literature tends to summarise good practice and, where studies have been undertaken, little evidence comes directly from people with cancer. (6-9) Given the identified gap in current literature, this research aims to contribute to Ngwenya's conclusion that "Future research should focus on age-specific evidence about the end-of-life experiences and preferences for young adults with cancer and their informal carers". (4)* We question whether further expansion of the context beyond this in the introduction improves the balance of an already long manuscript and so had prioritised the results and of course, discussion where some of these points are perhaps more appropriately elaborated with additional advantage of reference to the new data contained within the paper. In contrast, we feel introducing the realist approach in the introduction is helpful for the very reason given in Emily Haines' next point, that there may be other readers, too, who are unfamiliar with this methodology.
Realist evaluation approach As someone who is unfamiliar with a realist evaluation approach, the manuscript does not completely clarify this process for me. First, the term "preliminary programme theory" warrants further explanation. Authors note that this theory informs the development of interview and workshop topics but offers no further detail on how it	This additional text below has been included and should help readers new to the methodology who can in addition use the references added to access relevant resources that provide much more detail. This may be more appropriate for those researchers who may to understand more theory, for example to undertake realist evaluation themselves. This we hope also assists in

is used to derive data collection instruments or data analysis. Of note, their preliminary programme theory does not capture the perspective of HCPs which seems to be a major focus of data collection and analysis. The language around “realist logic of analysis” and “CMO configurations” should be clarified so that it makes sense to a reader who is unfamiliar with the realist evaluation approach. Authors describe their CMO configurations in Table 3 of their “Results” section. However, the process of deriving these configurations needs to be clearly described in the “Methods” section.	addressing Dr Stephanie Johnson’s point 2, Results, Page 15 Line 54 (vide infra). Consistent with the realist *evaluation approach, we began our research with a preliminary programme theory. A programme theory is a description, in words or diagrams, of what is supposed to be done in a policy or programme (theory of action) and how and why that is expected to work (theory of change). (13) Details about how to develop programme theories is beyond the scope of this paper but methodological guidance is available.(14) Our preliminary programme theory was* informed by expert opinion within our research team which was led by clinical academic specialists in the care of young adults with cancer. And *That is, our preliminary programme theory sets out our initial hypotheses of the differences we thought were likely to set apart the end-of-life care experiences and preferences for younger people. Our interviews were thus developed by the project team in such a way as to be able to gather data that would enable us to confirm, refute or refine aspects of our programme theory. For example, because we hypothesised that a sense of control might influence end-of-life care experiences, we deliberately developed interview questions that asked about this issue. An important point about our initial programme theory is that it was refined as the evaluation progressed based on data gathered. As such, our expectation was that our preliminary programme theory would need to be refined to have adequate explanatory value.* And In this paper, we describe data arising from these interviews and workshops. We used our data analysis to further explore and develop *realist causal explanations* that may explain parts of our preliminary programme theory. *As is expected in realist evaluations, as the evaluation progressed,* we developed a revised programme theory that can be used to underpin recommendations for policy and practice and inform future research.
Methods I’m uncertain as to whether the distinction between cohorts is meaningful. Since recruitment for Cohort 1 was expanded,	We have not drawn meaning from the two cohorts but feel it is important to report what was planned. We present as a limitation the difficulties associated

and the sample size for Cohort 2 is only 3, authors might consider reporting results in combination rather than making this distinction in the text and in Table 2.	with recruiting 16-24 year olds and believe this population still requires further study to determine needs and whether end of life care is effectively delivered.
In the first paragraph of the “Methods” section (line 23/24) and in the “Discussion” section, authors distinguish between age groups 16-24 and 25-40. Perhaps this is the more meaningful distinction to make in Table 2. If this was their initial thinking, authors should briefly describe why these two age groups may be different and consider contrasting the experiences of these groups more in their summary of results.	The data presented in Table 2 reports the recruitment by cohort and is consistent with the approach originally planned in the protocol. We acknowledge that presenting this split by the discrete age ranges is an alternative, but the challenges of specifically recruiting those aged 16-24 may be less visible and is an important issue to highlight. The recruitment of the two age cohorts, 16-24 and 16-40 reflects possible differences in the model of care provided with those aged 16-24 more likely to fall under the ‘Teenage (or Adolescent) and Young Adult’ model and those who also cover this age range and beyond 16-40 receiving adult care. The data was analysed to reflect this rather than by re-grouping via age ranges.
Page 7, Lines 33/34: why these 4 cancer groups in particular?	These histologies account for a very significant proportion of cancer in this age group. We selected them to ensure that our sample was reasonably representative *, which account for more than three quarters of cancer occurring in this age group.*
Authors note that they included patients with “an expected prognosis of less than one year”. How was this determined?	The expected prognosis of less than one year meant that participants would (or should) be receiving end of life care. We acknowledge this it is not always possible to accurately predict life expectancy in this context. At each site, clinicians involved in screening and identifying patients for the study would use the patient’s notes, their own clinical knowledge of disease progression and liaising with members of the patient’s clinical team to confirm, at the time of approach, the patient’s prognosis was likely to be less than one year.
What was the objective of the second round of interviews for Cohort 1?	The objective of the second round of interviews for cohort 1 was to see over time what, if anything, had changed about the participants experiences of care or personal experience. Additionally, these would have provided the opportunity to fill any conceptual gaps identified following the analysis of the first

	interviews. Unfortunately, it was not possible to conduct any of the intended second interviews.
The “Methods” section would benefit from a more robust description of the development and content of interview and workshop materials. For example, how was the topic guide for interviews developed?	More detail has been added to the methods section to explain that the interview topic guide was developed from our review of the literature, the clinical and academic expertise of the research team and PPI input. The following has been added to the Methods: *The topic guide was developed from a review of the limited existing literature for the 16-40 age range (4) and the clinical and academic expertise within the project team who work directly with this population. We sought patient and public involvement (PPI) input to refine the topic guide coverage and phrasing of the questions, which* explored medical, social, communication and decision-making experiences for people with cancer and their families.
Was it piloted before actual data collection began? Additionally, authors should describe the purpose and development of the Workshop scenarios. Finally, in the “Patient Involvement” section, authors mention “patient information sheets”; these should be described further in the “Data Collection” section.	Workshops: The scenarios were fictional constructions of patients drawing on the experiences of multiple patients who participated in the interviews. The different ages, gender and social situations were deliberate to explore a wider range of issues. This has been added to the text: *Two s*cenarios were developed *from initial interview analysis and reported experiences (Table 1) to present contrasting fictional patients differing by age, gender and social situations which raised a number of common issues arising from the interview data that the workshop* participants *were asked to discuss*. The following has been added regarding Participant Information Sheets, informed consent and the recording and transcription of the data: *All patient, family and HCP participants were provided with a Participant Information Sheet which outlined the study, their expected involvement and the right to withdraw at any point. Written informed consent was obtained from all those who participated in the study. Interviews and workshops were audio-recorded, transcribed verbatim and anonymised before analysis.*
In general, the purpose and procedure for the Workshops warrants further explanation.	Further detail has been added to the text around the procedure for the workshops:

Page 8, Line 15: authors note that HCPs were recruited by “the sites”. Which sites?	*The workshops involved the participants sitting as one group. One clinical member of the team acted as the facilitator for the HCP workshops and two clinical members of the team were co-facilitators for the bereaved relative workshops. The co-facilitation meant that if someone from the group needed to leave or have a break from the discussion they could be supported by one of the co-facilitators whilst the workshop was able to continue. At the start of the workshop the facilitator introduced the study, outlined the workshop and informed consent obtained. The HCP workshops focused around the scenarios and the perspectives of different professional roles. The bereaved relative groups were guided by one of the facilitators with the participants sharing narratives around their experiences with other participants either supporting the narrative or outlining how their experience differed.* And *The use of scenarios for this group were felt to be too abstract and so these workshops focused on the relatives’ individual experiences.* This refers to the participating sites introduced on page 7. We have inserted ‘*participating*’ for clarity
Results Cohort 1 participant details are included twice. Some of the quotes are a bit lengthy and, if cut down, would more concisely illustrate the points being made. Authors should be more explicit about exactly how the 7 themes they identified fed into their refined programme theory.	Apologies – a second version of Table 1 was retained in error and has been deleted. We agree with the reviewer that finding a balance for participant quotes can be tricky to ensure that content effectively conveys meaning. We have been highly selective from a large dataset to try to achieve this balance. We feel that embedding these data in the text rather than ‘relegation’ to an appendix is of most value but felt retaining the integrity of the selected quotes was also important. We suggest that this may be an area in which one can’t be ‘right’ for all readers.
Discussion This section needs to be condensed considerably.	We have taken these comments together with those referring to the Discussion from the second reviewer. The suggestions mostly ask for more information rather than less, so considerable condensing of the Discussion without reference to

It seems to me that much of the information presented here belongs in the "Results" section. The "discussion" section should be reserved for commenting on the results of the study in the context of the existing literature and highlighting implications and future directions. Specifically, they might comment on the results of this study versus extant literature on other age groups, given that the stated objective of their study is to understand what experiences may be specific to the 16-40 age group. Right now, they don't make a strong case that the challenges they describe are, in fact, specific to this age group although this is a stated conclusion.	the content seen to be superfluous is challenging. We note the Journal's guidance of about 5 paragraphs for Discussion and that ours contains 6. The authors have re-read the Discussion with care and are challenged too to uncover where 'results' are reported here rather than in the Results section. The Discussion currently includes multiple references (12) to extant literature which has discussed in the Introduction is sparse. We have addressed the specific points as follows and trust that this will meet the concerns of both reviewers.
Limitations Authors do not discuss that prognostication is imperfect, especially for young people, and thus, their sample may not truly reflect those at the end of their life. While this is not a limitation so long as they use the language "young adults with cancer for whom a cure is unlikely", it should be addressed given that they draw conclusions about "end-of-life care". Further, it is unclear how they identified patients with a prognosis of less than 1 year, making this limitation more concerning.	Please see above where in response to the reviewer's earlier comment we have clarified the issues surrounding prognostication and hence the selection of patients for inclusion. We endeavoured as far as possible to include patients who, in the opinion of the clinical team caring for them, were reasonably anticipated to be likely to die within 12 months.
Reviewer 2 (Dr Stephanie Johnson) Comments for the Authors... Overall, a thoughtful analysis that raises some important points and adds to the literature. In general, a good paper that I enjoyed reading and makes a contribution to the understanding of EoL care needs of younger adults with cancer.	We thank the reviewer and appreciate these positive responses.
Abstract 1. Please provide more detail on the 'workshop' in the abstract– its not clear what this means e.g. who were the participants?	The detail in the abstract is constrained by the word limit. We hope that workshop conveys sufficient information as a source of data and is of course expanded on in the Methods section (see additions in response to reviewer 1). We haven't found it easy to identify other content of the abstract which could be omitted for an expansion of the detail of

	Workshops and recommend this stands unless the BMJO editorial team indicate otherwise.
Background: 1. The background should present some of the existing research in the field, and at present is lacking detail in this regard. For example, I would be interested to hear a little more about the specific challenges of young people already identified in the literature, to ‘set the stage’ for this research.	Please see the comments on the extent of presentation of context in the Introduction given above in response to Emily Haines (reviewer 1).
Background: 2. Its not really clear what the research questions are? The objective as stated in the abstract: “To understand the experiences of young adults with cancer”, seems rather broad, as does the statement in the background section: “To gain a deep understanding of the contexts that may be specific to this age group”. Was the point to test the validity of preliminary theory? Or to assume its validity and provide further details on its specific components?	Given the relative sparseness of evidence relevant to the experience of young people facing death from cancer, there is perhaps inevitably a broad approach needed. This is set out in detail in the accompanying material (File: BRIGHTLIGHT When Cure Is Not Likely Protocol, page 7) and we make clear that this paper reports on elements of this project.
Method: The methods section lacks some necessary detail. This includes: 1. Why were participants selected from those four cancer groups? 2. Analysis – who undertook the coding? Were transcripts double coded? Who discussed and decided upon themes (text says ‘we’) and how was consensus on themes reached? 3. Why was recruitment stopped? Was data saturation achieved? 4. The authors refer to their ‘thematic analysis’ in the results section. This needs to be explicitly stated and described in the methods section	See also comment to reviewer 1 above Authors CK and NN undertook analysis and then worked with authors LJ, FG, SP and GW in data analysis meetings (see page 11). There is additional detail in the submitted supplementary documents. We chose the number of participants based on expectation of the extent of data to be generated from each interview, the time available for the study recruitment and analysis determined by the funding agency. This is also now expanded in the new Supplementary file 3 - Our approach to a realist logic of analysis.
Results 1. Page 13 Line 54 - Professionals Need Support: the authors state that HCPs find caring for young adults challenging and burdensome. This statement lacks clarity. The quotes suggest they find it emotionally burdensome but I’m unsure if it is challenging or burdensome in other ways	We have added some further detail about the experience of professionals needing support, which was reported to have both a professional and personal impact. Part of this section has been moderately expanded as follows: Professionals found caring for young adults as they deteriorated both *professionally and emotionally*

also (e.g. clinical decision-making may be difficult?). Please provide further detail.	challenging and burdensome, *as witness to young people prematurely reaching the end of their lives coupled with a weight of expectation to do more.*
Results 2. Page 15 Line 54 - I'm not familiar with the Context-Mechanisms-Outcome (CMO) configurations technique, and found the presented explanation unclear ("We attempted to identify mechanisms (generative causal processes) that are activated in the contexts we had found within the themes we uncovered." Can the authors revise this statement for clarity and provide more detail. This should be included in the methods section. I found the examples in the table helpful, perhaps this could be used in text.	We hope that with additional clarity now available around realist evaluation (see responses to reviewers' comments on the content of the Introduction) and the additional new Supplementary file 3 - Our approach to a realist logic of analysis, that this will now also be clearer and serve well as an introduction to Table 3 which we agree is very important for clear presentation of the findings.
Results 3. Page 16 Line 4 – the authors state, "we deliberately drew on the extensive content expertise of the project team". While I recognize that this manuscript has been submitted to a medical journal, and the role of reflexivity in qualitative research is often omitted in these types of manuscripts, the study design relies heavily on the contribution of the expert advisory group (they developed the preliminary theory, which informed the interview questions and then contributed extensively to the data analysis). This warrants at least a brief reflexive statement about the expert group - what was their expertise? And how may this have influenced the study? Again, this belongs in the methods section, not results.	The project team contained those with clinical expertise from Drs and nurses from oncology, haematology and palliative care. Those who work or have worked clinically have direct experience of providing care to the 16-40 year olds in the circumstances reported in the paper. This expertise has been noted in a revision to the methods section under recruitment and participants. *The first-hand clinical experience of many in the project team aided the development of the study, knowing that this is an under-researched population within the context of the study and drawing on professional experience to guide data collection, analysis and interpretation.*
Discussion 1. Page 22 line 26 – the authors present 'age specific concerns'. However, they haven't done any work to show that these needs are specific to this age-group, only that these needs exist in this age group. This would require some discussion of the broader literature.	The features discussed in the section 'Life course and not age matters' (to which we think the reviewer is referring) are those widely associated with adolescence and young adulthood, namely arising from developmental changes, education, career and relationship lifetasks. It is beyond the scope of this paper to address these.

Discussion 2. Page 22 Line 15-16, please provide references to support this statement	Added Beerbower, E., et al. (2018). "Bio-psycho-social-spiritual needs of adolescents and young adults with life-threatening illnesses: Implications for social work practice." Soc Work Health Care **57**(4): 250-266.
Discussion 3. Page 22. Line 48 "Adaptation is a mechanism through which there is a recognition of what can no longer be achieved due to disease progression. (16) An adapted normality can be achieved together with a sense of control, allowing for realistic goal setting. (17)" In this section, the authors discuss issues of dissonance, loss of independence, and uncertainty. While the authors offer that enhanced control, in particular in the form of advance care planning may help to ameliorate this experience, I remain unconvinced that this is a adequate solution to address complex issues of identity and loss.	Thank you for this comment. We agree that approaches such as advanced care planning will not by themselves resolve complex responses to end-of-life but the more widespread use of such tools will offer opportunities to identify areas for support such as maintaining employment for as long as possible.
Discussion 4. Page 23 Line 54 the burdens for healthcare professionals– there seems to be issues of complex workflows, work cultures, resources (work load) and emotional and social skill at play here. This seems like an untapped body of work, whereby the implementation of HCP training programs (or similar, as suggested here) would need to be preceded by a better understanding of the issues at play and ways to address them.	We strongly agree that the influences and tensions surrounding healthcare professionals working in this field are very likely to be incompletely identified by this research alone and agree further that more work is needed. This work does however permit initial recognition of problems that lie in this area, with acknowledgement that there are challenges being a valuable first step towards better support. See also our response above to comment on Results 1. Page 13 Line 54
Strengths and limitations 1. Page 25 Line 15. The study limitations are appropriately acknowledged, but are lacking an evaluative statement about the impact of the limitations. For example, these factors limit the conclusions that can be drawn from the data in regards to 16-24 year olds, and may not be applicable to patients with hematological cancers, those who are most unwell, or those unwilling to engage in EoL discussions. Please add an evaluative statement to the study limitations section of the manuscript.	The following change has been made to recognise that the data presented may not reflect the experiences of those with haematological cancers or those aged 16-24 years: *We cannot be certain that the data presented in this paper wholly reflects the experiences of these two populations, therefore* further research is needed to explore the needs of those often described as 'hard to reach', those with haematological cancers and those aged 16-24 years.

Conclusion This would be stronger if it included an outline of the key recommendations arising from this research.	We acknowledge that an appropriate next step is to use the data generated to develop recommendations for practice and learning. This was a planned stage of the research project and is referred to (page 7, line 26). This will be reported separately in order to fully and adequately describe the methodology used and the subsequent recommendations.
Additional editorial comments We recommend using the RAMESES checklist rather than SRQR. RAMESES is designed to improve the reporting of realist syntheses (https://www.equator-network.org/reporting-guidelines/rameses-publication-standards-realist-syntheses/).	The SRQR was completed as prompted by the Penelope submission aid. In addition we have referenced our use of the Rameses reporting standards (see page 7, line 25) in the preparation of this manuscript. Our co-author, Geoff Wong, is also first author on much of the Rameses output and reports that this wasn't designed for use to be submitted with a manuscript but more for critical appraisal or internal use by a project team to judge quality. We have therefore 'self-assessed' and highlighted in yellow in the PDF attached. The original document itself is at http://ramesesproject.org/media/RE_Quality_Standards_for_evaluators_and_peer_reviewers.pdf
We have noticed that you have uploaded the files "BRIGHTLIGHT When Cure is Not Likely Protocol.pdf & WCINL methodology protocol and iview topic guide.pdf not cited" under 'supplementary file'. However, we can't see any citation for this file within the main text. If this file needs to be published as supplementary file, please cite it as 'supplementary file' in the main text. Otherwise, kindly change its file designation to 'Supplementary file for editors only'.	These are now referenced (page 7, line 35)
We have implemented an additional requirement to all articles to include 'Patient and Public Involvement' statement within the main text of your main document. Please refer below for more information regarding this new instruction: Authors must include a statement in the methods section of the manuscript under the sub-heading 'Patient and Public	This section was included in the manuscript submitted originally (see Page 10 line 12) but has been expanded in line with guidance given.

Involvement'. This should provide a brief response to the following questions: How was the development of the research question and outcome measures informed by patients' priorities, experience, and preferences? How did you involve patients in the design of this study? Were patients involved in the recruitment to and conduct of the study? How will the results be disseminated to study participants? For randomised controlled trials, was the burden of the intervention assessed by patients themselves? Patient advisers should also be thanked in the contributorship statement/acknowledgements. If patients and or public were not involved please state this.	

VERSION 2 – REVIEW

REVIEWER	Emily Haines The University of North Carolina at Chapel Hill, Chapel Hill, NC, United States
REVIEW RETURNED	28-Sep-2018

GENERAL COMMENTS	9/28/18 Dr. Edward Sucksmith, Thank you for the opportunity to review the revised "Understanding care when cure is not likely for young adults who face cancer: a realist analysis of data from patients, families and healthcare professionals". Although the revised manuscript is improved, authors did not address a number of reviewer comments. Sincerely, Emily Haines Analyst, End-of-Life, Palliative, and Hospice Care RTI International 3040 Cornwallis Road PO Box 12194 Research Triangle Park, NC 27709-2194 (919) 316-3933 | ehaines@rti.org Study background and contribution I do not think that authors have adequately addressed reviewer comments with respect to clearly stating their study objectives in the context of existing gaps in the literature. The text they added in this revised section describes the literature for adults with cancer, and is rather vague.

I would have been more interested in more details about of the preceding sentence: “Despite increasing empirical evidence of the specific needs of young adults in specialist cancer care, there is little evidence about their experiences at the end-of-life.(4, 5)” or more discussion of the literature which supports the quotation from Ngwenya et al.

For example, what evidence do we have about the specific needs of young adults in specialist cancer care/ how those needs differ from the general population? There is a lot of literature authors could have brought in here (see just a few articles, below).
Tsangaris E, Johnson J, Taylor R, et al. Identifying the supportive care needs of adolescent and young adult survivors of cancer: a qualitative analysis and systematic literature review. Supportive Care in Cancer. 2014;22(4):947-959.
Mercadante S, Vitrano V, Catania V. Sexual issues in early and late stage cancer: a review. Supportive Care in Cancer. 2010;18(6):659-665.
Fan S-Y, Eiser C. Body image of children and adolescents with cancer: A systematic review. Body image. 2009;6(4):247-256.
Parsons HM, Harlan LC, Lynch CF, et al. Impact of cancer on work and education among adolescent and young adult cancer survivors. Journal of Clinical Oncology. 2012;30(19):2393.
Smith A, Parsons H, Kent E, et al. Unmet Support Service Needs and Health-Related Quality of Life among Adolescents and Young Adults with Cancer: The AYA HOPE Study. Frontiers in Oncology. 2013;3(75).
Zebrack B. Information and service needs for young adult cancer patients. Supportive Care in Cancer. 2008;16(12):1353-1360.

What evidence exists with respect to palliative, hospice, and EOL care for this population? This is where authors could talk about what we know about how HCPs approach EOL conversations and care for this population, but the lack of information directly from patients.

Why is obtaining information directly from patients so critical? For example, because providers and patients have different perceptions of needs/ experiences.

Snyder CF, Dy SM, Hendricks DE, et al. Asking the right questions: investigating needs assessments and health-related quality-of-life questionnaires for use in oncology clinical practice. Supportive Care in Cancer. 2007;15(9):1075-1085.
Kirchhoff AC, Fowler B, Warner EL, et al. Supporting Adolescents and Young Adults with Cancer: Oncology Provider Perceptions of Adolescent and Young Adult Unmet Needs. Journal of adolescent and young adult oncology. 2017;6(4):519-523.

And then, they could state that their work intends to address 2 known gaps in the literature: a) we are lacking information about AYA end-of-life experiences, and b) we need this information from the perspective of patients. Walking the reader through existing literature in this manner would be far more compelling that just quoting Nwengya et al.

Furthermore, authors didn't address Reviewer 2's comment: "Its not really clear what the research questions are? The objective as stated in the abstract: "To understand the experiences of young adults with cancer", seems rather broad, as does the statement in the background section: "To gain a deep understanding of the contexts that may be specific to this age group". Was the point to test the validity of preliminary theory? Or to assume its validity and provide further details on its specific components?" While a broad, more descriptive approach is fine, authors need to justify this in the paper and not rely on supplemental materials to position this particular study in the context of larger research objectives.

Realist evaluation approach
While authors added detail about their preliminary programme theory, they did not respond to all of my previous comments including:
Of note, their preliminary programme theory does not capture the perspective of HCPs which seems to be a major focus of data collection and analysis.
Authors describe their CMO configurations in Table 3 of their "Results" section. However, the process of deriving these configurations needs to be clearly described in the "Methods" section.
Methods
Unaddressed comments:
Authors note that they included patients with "an expected prognosis of less than one year". How was this determined? □ this information should be included in the methods.
In the "Data analysis" section, authors note that, for Stage One, "Charmaz's approach was used". I suggest revising this to "Charmaz's grounded theory approach was used".
Results
This comment was not addressed: "Authors should be more explicit about exactly how the 7 themes they identified fed into their refined programme theory."
Discussion
Previous comment still stands: "Authors might comment on the results of this study versus extant literature on other age groups, given that the stated objective of their study is to understand what experiences may be specific to the 16-40 age group. Right now, they don't make a strong case that the challenges they describe are, in fact, specific to this age group although this is a stated conclusion."
Limitations
I previously made the comment that "Authors do not discuss that prognostication is imperfect, especially for young people, and thus, their sample may not truly reflect those at the end of their life. While this is not a limitation so long as they use the language "young adults with cancer for whom a cure is unlikely", it should be addressed given that they draw conclusions about "end-of-life care". Further, it is unclear how they identified patients with a prognosis of less than 1 year, making this limitation more concerning." Although their response indicated how this inclusion criterion was determined, this information has not been added into the manuscript and this has not been addressed as a limitation, so my previous comment still stands.

VERSION 2 – AUTHOR RESPONSE

Manuscript ID bmjopen-2018-024397

Understanding care when cure is not likely for young adults who face cancer: a realist analysis of data from patients, families and healthcare professionals.

Response to reviewers' further comments and additional editorial comments received 18Oct2018

Reviewer Comment	Authors' response
Reviewer 1 (Emily Haines) Comments for the Authors...	Thank you for the opportunity to respond to further thoughtful comments and suggestions. We have made further changes as detailed below and tracked in a new version of the manuscript. Here we have included the substantial text changes but additional smaller clarifications are to be found as tracked changes in the main manuscript. An additional change has been made (and tracked) to supplementary file 3.
Study background and contribution I do not think that authors have adequately addressed reviewer comments with respect to clearly stating their study objectives in the context of existing gaps in the literature. The text they added in this revised section describes the literature for adults with cancer, and is rather vague. I would have been more interested in more details about of the preceding sentence: "Despite increasing empirical evidence of the specific needs of young adults in specialist cancer care, there is little evidence about their experiences at the end-of-life.(4, 5)" or more discussion of the literature which supports the quotation from Ngwenya et al. For example, what evidence do we have about the specific needs of young adults in specialist cancer care/ how those needs differ from the general population? There is a lot of literature authors could have brought in here (see just a few articles, below). *Tsangaris E, Johnson J, Taylor R, et al. Identifying the supportive care needs of adolescent and young adult survivors of*	To address this substantial suggestion we would suggest the following comments and alterations are taken into account by the editorial team. We appreciate the extensive consideration given to the Introduction and the multiple references suggested. We agree that there is a considerable literature related to the specific needs of young adults in specialist cancer care but the references given albeit as examples appear highly selected and cannot comprehensively cover all the needs of young adults with cancer nor link specifically to end-of-life care. We propose that extensively referencing a broad range of topics related to young adult cancer care is neither essential nor enhancing for interpretation of the new data presented in this manuscript related to dying. We have however added a further reference reviewing this field and an additional paragraph to provide end-of-life context for the study. *Concerns about improving end-of-life care are not confined to young adults. A recent interdisciplinary report published by the Royal College of Physicians in the UK summarises the concerns expressed by professionals, patients, families and other stakeholders such as charities. This report*

cancer: a qualitative analysis and systematic literature review. Supportive Care in Cancer. 2014;22(4):947-959. *Mercadante S, Vitrano V, Catania V. Sexual issues in early and late stage cancer: a review. Supportive Care in Cancer. 2010;18(6):659-665.* *Fan S-Y, Eiser C. Body image of children and adolescents with cancer: A systematic review. Body image. 2009;6(4):247-256.* *Parsons HM, Harlan LC, Lynch CF, et al. Impact of cancer on work and education among adolescent and young adult cancer survivors. Journal of Clinical Oncology. 2012;30(19):2393.* *Smith A, Parsons H, Kent E, et al. Unmet Support Service Needs and Health-Related Quality of Life among Adolescents and Young Adults with Cancer: The AYA HOPE Study. Frontiers in Oncology. 2013;3(75).* *Zebrack B. Information and service needs for young adult cancer patients. Supportive Care in Cancer. 2008;16(12):1353-1360.* What evidence exists with respect to palliative, hospice, and EOL care for this population? This is where authors could talk about what we know about how HCPs approach EOL conversations and care for this population, but the lack of information directly from patients. Why is obtaining information directly from patients so critical? For example, because providers and patients have different perceptions of needs/ experiences. *Snyder CF, Dy SM, Hendricks DE, et al. Asking the right questions: investigating needs assessments and health-related quality-of-life questionnaires for use in oncology clinical practice. Supportive Care in Cancer. 2007;15(9):1075-1085.* *Kirchhoff AC, Fowler B, Warner EL, et al. Supporting Adolescents and Young Adults with Cancer: Oncology Provider Perceptions of Adolescent and Young Adult Unmet Needs. Journal of adolescent and young adult oncology. 2017;6(4):519-523.*	*suggests that much more can be done to overcome barriers and myths that have been long-identified. The value of the perspective brought by patients and families is highlighted as a means to bring timeliness and honesty to discussions about dying whilst at the same time accounting for and respecting specific circumstances set by factors such as underlying disease, faith and as addressed here, age. (11)* Ref 11 = Royal College of Physicians Our Future Health talking About Dying (report October 2018)

And then, they could state that their work intends to address 2 known gaps in the literature: a) we are lacking information about AYA end-of-life experiences, and b) we need this information from the perspective of patients. Walking the reader through existing literature in this manner would be far more compelling that just quoting Ngwenya et al.	New text included *This work considers both the problem of limited data available in the literature and the desirability of understanding the experience of facing a poor prognosis at a young age from multiple perspectives.*
Furthermore, authors didn't address Reviewer 2's comment: "*Its not really clear what the research questions are? The objective as stated in the abstract: "To understand the experiences of young adults with cancer", seems rather broad, as does the statement in the background section: "To gain a deep understanding of the contexts that may be specific to this age group". Was the point to test the validity of preliminary theory? Or to assume its validity and provide further details on its specific components?"* While a broad, more descriptive approach is fine, authors need to justify this in the paper and not rely on supplemental materials to position this particular study in the context of larger research objectives.	To give additional clarity of the underlying research questions the following paragraph has been added to the Introduction *We wished to understand what were the core components in the pathways of care in the last year of life for people with cancer aged 16-40 years; whether there were any differences between the experiences of people with cancer from the age ranges 16-24 and 25-40 years; how young adults and their families can be supported in the last year of life to achieve their preferences for care; and what challenges exist for health and social care professionals providing care.*
Realist evaluation approach While authors added detail about their preliminary programme theory, they did not respond to all of my previous comments including: *Of note, their preliminary programme theory does not capture the perspective of HCPs which seems to be a major focus of data collection and analysis.* *Authors describe their CMO configurations in Table 3 of their "Results" section. However, the process of deriving these configurations needs to be clearly described in the "Methods" section.*	We would like to highlight that any programme theory development is iterative. We have avoided making any claims that the programme theory we have provided here is 'definitive' and rather that, as is expected when using any realist approaches, that it is a programme theory that will need further refinements in future work, including incorporation of HCP perspectives. This has been expanded by inclusion of further text *A preliminary programme theory provides an initial framework of understanding for the area of research being considered. Being preliminary it is, by definition, subject to iterative change and refinement based on the data we collected and analysed. We anticipated that some elements of our preliminary programme theory may be strengthened and others refuted; indeed, new elements may emerge that require significant additions to what is thought to be our best understanding at the outset. At the end of the project our expectation was that we would be able to develop and confirm, refute or refine aspects of preliminary programme theory and ensure that it is more realist in nature. That is, we wanted to ensure that at the close of the project we had a programme theory that contained as many realist causal*

	explanations (i.e. consisting of embedded Context-Mechanism-Outcome configurations) within it as was possible. Further clarification has been added to the data analysis section of methods as well as changes to the supplementary file. The previously submitted Supplementary File 3 summarises how the CMO configurations were derived. This is referenced in the Methods section under the subsection Data Analysis.
Methods Unaddressed comments: *Authors note that they included patients with “an expected prognosis of less than one year”. How was this determined? □this information should be included in the methods.* *In the “Data analysis” section, authors note that, for Stage One, “Charmaz’s approach was used”. I suggest revising this to “Charmaz’s grounded theory approach was used”.*	We have included additional text in the Methods subsection, Recruitment and Participants (page 8) *Estimation of prognosis was made at each site by clinicians involved in screening and identifying people with cancer for the study. They used clinical records, their own clinical knowledge of disease progression and liaised with other members of the clinical team to confirm, at the time of approach, that the prognosis for each individual was likely to be less than one year.* *Grounded theory* has been inserted as suggested.
Results This comment was not addressed: “*Authors should be more explicit about exactly how the 7 themes they identified fed into their refined programme theory.”*	Supplementary file 3, previously submitted, has been updated. This file outlines how the themes moved to the Context-Mechanism-Outcome configurations. Additionally, in the Methods section under Data Analysis, the text has been revised to state that the themes were reanalysed and reinterpreted to develop the Context-Mechanism-Outcome configuration.
Discussion Previous comment still stands: “*Authors might comment on the results of this study versus extant literature on other age groups, given that the stated objective of their study is to understand what experiences may be specific to the 16-40 age group. Right now, they don’t make a strong case that the challenges they describe are, in fact, specific to this age group although this is a stated conclusion.”*	Overall, consistent with other literature, we would argue that age is not particularly helpful when we want to think about what is the same or indeed different, our preference has been to focus on life stage, see page 22, line 12-14: *However, rather than being wholly defined by age, the stages in a young person’s life course may be a better way to approach, understand and support these differences.*

	So rather than reflect on 'age', we are suggesting that it is better to consider where an individual is on their life course, see page 23, lines 1-15 *for example being in education, maintaining a career, having children or caring responsibilities.* These factors are not defined by 'age' wholly, more stage in a life course, so based on that, we detail, and refer to published work, that helps to describe what might be different and the same.
Limitations I previously made the comment that *"Authors do not discuss that prognostication is imperfect, especially for young people, and thus, their sample may not truly reflect those at the end of their life. While this is not a limitation so long as they use the language "young adults with cancer for whom a cure is unlikely", it should be addressed given that they draw conclusions about "end-of-life care". Further, it is unclear how they identified patients with a prognosis of less than 1 year, making this limitation more concerning."* Although their response indicated how this inclusion criterion was determined, this information has not been added into the manuscript and this has not been addressed as a limitation, so my previous comment still stands.	We have added information to the Methods section about determining prognosis (see above) and added additional text to the Limitations section (page 25) *A further limitation arises from the recognised difficulties in determining life expectancy so that study participants could not be accurately assessed as being within the last year of life and so some caution about their representativeness is necessary.*
Editorial Comments: We can't see where you responded to the following comments from reviewer 2: "Why were participants selected from those four cancer groups?" and "Was data saturation achieved?" Can you please clarify these queries and discuss them in your paper?	Please see page 5 of the previously submitted Author response table where we made the following comment and added text: 'These histologies account for a very significant proportion of cancer in this age group. We selected them to ensure that our sample was reasonably representative *, which account for more than three quarters of cancer occurring in this age group.'* We also addressed this point previously in the same section. 'Was data saturation achieved?' was a subsidiary question coupled to a question about the sample size:

	3. Why was recruitment stopped? Was data saturation achieved? To which we replied ‘We chose the number of participants based on expectation of the extent of data to be generated from each interview, the time available for the study recruitment and analysis determined by the funding agency.’ Data saturation was not used to determine sample size and hence does not appear in the Methods, we have however made this point clearer, in terms of our original recruitment plan, see page 8 and 9, and in our limitations section, page 26, and we have added a further publication to support our claim that conceptual depth was reached, avoiding the often complex and debated term ‘data saturation’.