PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	When to break the news and whose responsibility is it? A cross-sectional qualitative study of health professionals' views regarding disclosure of BRCA genetic cancer risk
AUTHORS	Young, Alison Luk; Butow, Phyllis; Tucker, Katherine; Wakefield, Claire; Healey, Emma; Williams, Rachel

VERSION 1 – REVIEW

REVIEWER	Álvaro Mendes UnIGENe and CGPP, IBMC - i3S, University of Porto; Portugal
REVIEW RETURNED	18-Sep-2019

GENERAL COMMENTS	This paper provides a qualitative analysis of genetic health professionals (GHPs) opinions about their role in assisting families with disclosure of BRCA genetic cancer risk. It specifically focuses on the timing for disclosure to offspring and the GHPs responsibilities to at-risk relatives. The theme is a longstanding issue for clinical genetics practitioners and therefore, this paper addresses a timely topic for scientific publication. Overall, I found the paper engaging and well written; the authors provide a clear rationale for the study and rightly identify a gap in research; and the analysis of the data is compelling and makes a worthwhile contribution. I only have some minor comments, which I think are worth considering before publication. The introduction sets the study up nicely, particularly in terms of the relevance in studying these topics. I do think, however, that this section could cover the literature in more detail as related to research on familial disclosure by GHPs. For example, reference on pag. 5 (Wolf et al., 2015) pertains to research participants. The reference on pag. 6 on the Royal College of Physicians's report on consent and confidentiality is outdated. The authors should update the citation (3rd edition, from July 2019) and include accordingly any new relevant recommendations that may be stated in the document. Likewise, the depth of the paper could be improved if the authors could add in some references to the work of Lucassen and colleagues on the 'joint account model' of sharing genetic information; it may be worth considering and then building in into the discussion as well. The method section does a nice job laying out the context of the study and describing the sample/participants, as well as how the data was analyzed. As the authors state that they have looked into the differences in relation to the experiences discussed in focus groups and in interviews, I wonder whether they had found any differences worth reporting? The findings are presented thoroughly and the authors provide informative quotes/excerpts from the participants illustrating each (sub-)theme. The Table provided with examples of techniques

	reported by GHPs to facilitate disclosure in the family is very helpful. I think, however, that there are instances where the authors could perhaps provide further clarification. For example, did the GHPs further developed the idea of encouraging informing children in an “age appropriate-manner” was (pag. 8)? In pag. 10 please check phrasing of footnote. The discussion usefully connects the findings to relevant literature. The authors provide support to previous work in the field, while also pointing out how this study extends the area of research and its implications for the provision of health care. I have a couple of suggestions. As per earlier comment/suggestion, this section could perhaps be improved by discussing the GHPs accounts on their responsibilities in sharing genetic information with at-risk relatives from the perspective of Lucassen’s ‘joint account model’. As the authors rightly state, consideration of familial disclosure may need to be made more explicit in cancer risk management; how this relates with consent conversations and with GHPs’ need of weighing up the harms of breaching confidentiality with the potential benefits of doing so?

REVIEWER	Danya Vears University of Melbourne, Australia
REVIEW RETURNED	09-Oct-2019

GENERAL COMMENTS	This paper aims to understand the role of genetic health professionals in assisting families with disclosure of cancer risk using focus groups to explore genetic health professionals’ views on this topic. The paper is generally well written (apart from a few grammatical errors) and the study contributes an important addition to the field. I have the follow specific comments: Strengths and limitations Point 3: BRCA1 and BRCA2 should be in italics Introduction Page 4, line 15 – the literature covered in this paragraph mainly refers to communication of risk information to children but it is unclear from the introduction (or the abstract for that matter) whether the focus of disclosure to offspring is in childhood or adulthood. Maybe clarify so the reader is not left wondering? Methods: Page 6, line 38 – The authors state that they recruited eligible genetic health professions, yet this group includes nurses, surgeons and psychiatrists/psychologists. Therefore, I don’t think it is appropriate to call this group GHPs as it implies they all have specialised genetics training. Perhaps health professionals working with patients/families with BRCA1/2 be more appropriate? Change throughout the manuscript. Also, what made them eligible? And can we assume that the geneticists were clinical geneticists, rather than molecular geneticists? Probably worth specifying. Discussion Page 13, line 22 – I wonder whether it is really appropriate to compare disclosure of carrier status for CF with being a carrier of BRCA1/2. The implications are very different! Page 14, line 49 – What kinds of benefits are the authors referring to?

	Page 15, line 12 – What does “effectively completed” mean Practice implications: The current approaches in Australia appear to be very ad hoc, even within States. Do you think there should be more guidance and standardisation of practices?

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1
Reviewer Name: Álvaro Mendes
Institution and Country: UnIGENe and CGPP, IBMC - i3S, University of Porto; Portugal Please state any competing interests or state ‘None declared’: None declared.

Please leave your comments for the authors below

This paper provides a qualitative analysis of genetic health professionals (GHPs) opinions about their role in assisting families with disclosure of BRCA genetic cancer risk. It specifically focuses on the timing for disclosure to offspring and the GHPs responsibilities to at-risk relatives. The theme is a longstanding issue for clinical genetics practitioners and therefore, this paper addresses a timely topic for scientific publication. Overall, I found the paper engaging and well written; the authors provide a clear rationale for the study and rightly identify a gap in research; and the analysis of the data is compelling and makes a worthwhile contribution. I only have some minor comments, which I think are worth considering before publication.

7. **The introduction sets the study up nicely, particularly in terms of the relevance in studying these topics. I do think, however, that this section could cover the literature in more detail as related to research on familial disclosure by GHPs. For example, reference on pag. 5 (Wolf et al., 2015) pertains to research participants. The reference on pag. 6 on the Royal College of Physicians’s report on consent and confidentiality is outdated. The authors should update the citation (3rd edition, from July 2019) and include accordingly any new relevant recommendations that may be stated in the document.**

We have omitted Wolf et al. given that we would like to keep the topic relevant and have updated the edition for the Royal College of Physicians’ report.

GHPs in the UK were concerned about the difficulty in distinguishing between genetic and personal information therefore potentially breaching confidentiality through disclosure and more broadly, reported a need for national consensus on following the UK guidelines from the Joint Committee on Medical Genetics. According to these guidelines, GHPs explore family relationships, encourage family communication, and assume that responsibility of disclosure lies with the patient.
Under the legislative guidelines of some countries, when patients do not provide consent for the disclosure of genetic information, GHPs can make contact with at-risk relatives. ~~Across 10 countries, there are eight that accommodate exceptions to confidentiality, with Australia, Canada, Israel and Japan providing explicit circumstances surrounding disclosure without consent (i.e., serious, treatable or preventable) [1].~~
Both Australian and UK guidelines ~~-~~encourage GHPs to take reasonable steps to obtain consent and consider the potential consequences of disclosure when consent is not provided [2,3]. ~~Unlike the UK, Australia has clearer guidelines on genomic disclosure, but with elusive governance.~~ According to current Australian guidelines from the National Health and Medical Research Council, a GHP can disclose genetic information to an atrisk relative without the patient’s consent in specific circumstances. This exemption applies for “incurable” conditions which are “preventable” or include “treatable manifestations” (e.g., depression), in which “specific management” or “treatment” can “lessen or prevent” the threat of disease or distress [2; p.42]**.** ~~Nevertheless, both Australian and UK guidelines strongly encourage GHPs to take reasonable steps to obtain consent and consider the~~

~~potential consequences of disclosure when consent is not provided~~ [2,4]~~.~~ ~~However~~Nevertheless, there is a lack of uniformity across Australia in how these guidelines are followed and upheld in clinical practice [5]. South Australian (SA) genetic services [6], for example, provide family letters to at-risk relatives to inform them of an increased risk, with the patient's consent but without the recipient's consent, ~~-~~whereas the rest of Australia do not make provisions for direct contact with relatives. The extent to which Australian GHPs within public hospitals consider it their role to assist families with disclosure is currently unclear. The purpose of the current study was to understand the role of ~~genetic health professionals~~GHPs[1] in assisting families with disclosure of genetic cancer risk. Specifically, two research questions guided the study: (1) When is the best time to tell offspring about their genetic risk? and, (2) Who is responsible to inform relatives of their genetic risk?

8. **Likewise, the depth of the paper could be improved if the authors could add in some references to the work of Lucassen and colleagues on the 'joint account model' of sharing genetic information; it may be worth considering and then building in into the discussion as well.**

Thank you for informing us about the work of Lucassen; we have referenced and alluded to her work in the introduction and discussion (see comment 11).

Yet~~,~~ the extent to which~~of~~ GHPs are responsible~~ility~~ for ensuring appropriate disclosure is a matter of debate. According to Parker and Lucassen [8] considering who owns genetic information is a matter of two viewpoints, namely, as belonging to the individual (personal account model) or belonging to the family (joint-account model). From a personal account standpoint, genetic information is *confidential* unless there is strong reason for disclosure, whereas from a joint-account viewpoint, genetic information is *familial* information, assuming justice to all members, and is communicable unless there is strong reason for non-disclosure. In Australia, the latter is not a widespread viewpoint.

9. **The method section does a nice job laying out the context of the study and describing the sample/participants, as well as how the data was analyzed. As the authors state that they have looked into the differences in relation to the experiences discussed in focus groups and in interviews, I wonder whether they had found any differences worth reporting?**

The main difference was that participants who participated in an individual interview were more likely to be from rural hospitals and therefore raised unique concerns, which is reported in the methods section.

10. **The findings are presented thoroughly and the authors provide informative quotes/excerpts from the participants illustrating each (sub-)theme. The Table provided with examples of techniques reported by GHPs to facilitate disclosure in the family is very helpful. I think, however, that there are instances where the authors could perhaps provide further clarification. For example, did the GHPs further developed the idea of encouraging informing children in an "age appropriate-manner" was (pag. 8)? In pag. 10 please check phrasing of footnote.**

Thank you for your request for further elaboration. Within Table II we provided an example of what GHPs were referring to when requestion that information is discussed in an "age appropriate-manner" (see Table II).

We have fixed the footnote.

11. **The discussion usefully connects the findings to relevant literature. The authors provide support to previous work in the field, while also pointing out how this study extends the area of research and its implications for the provision of health care. I have a couple of suggestions. As per earlier comment/suggestion, this section could perhaps be improved by discussing the GHPs accounts on their responsibilities in sharing genetic information with at-risk relatives from the perspective of Lucassen's**

'joint account model'. As the authors rightly state, consideration of familial disclosure may need to be made more explicit in cancer risk management; how this relates with consent conversations and with GHPs' need of weighing up the harms of breaching confidentiality with the potential benefits of doing so?

We appreciate your suggestion to allude to Lucassen's 'joint account model' given that we have touched on similar sentiments.

Nurse-led initiation of contact with at-risk relatives, despite non-consent from probands, ~~was effectively completed~~allowed for the identification of carriers in first-, second- and third-degree relatives [34]. Recently GHPs working in French genetic clinics are legally permitted to offer a written document informing at-risk relatives of their risk, yet guidance about to whom this requirement extends to and how GHPs responsibility will be defined remains elusive [35]. Yet~~,~~ GHPs are still apprehensive about changing their practices [36], highlighting that a shift towards a 'joint-account model' is not only a matter of legislative changes but also a matter of shifting viewpoints.

Practice Implications: A multidisciplinary approach to genomic medicine has been proposed to be effective in tackling the challenge of disclosure [30, 43]. GHPs are currently supporting young at-risk relatives within high-risk clinics in Australia, but can also potentially allow for ongoing support of families struggling with disclosure difficulties. It is possible that during the consent conversation with an index patient GHPs can provide the 'joint-account' viewpoint towards familial information using the analogy of family members owning a joint bank account and having equal rights to the funds (information) [8].
Funding regulators are to emphasis fiscal and institutional backing of genetic clinics in order to sustain a multidisciplinary team approach and to manage the future role of GHPs in the preventive health of their patient's relatives. GHPs need to be having discussions, amongst themselves, but ideally nationally with policymakers, legal services and government, to advocate for more clarity about who owns genetic information – the patient or the family (personal vs joint-account model) and~~G~~ greater clarity is needed on the definition of 'at-risk relatives', and the extent to which GHPs are responsible to inform them. The current approaches recommended to address disclosure of cancer risk in Australia are ad hoc; more guidance and standardisation of practices is needed by modifying guidelines that are better suited to local regulatory needs.

Reviewer: 2
Reviewer Name: Danya Vears
Institution and Country: University of Melbourne, Australia
Please state any competing interests or state 'None declared': None declared

Please leave your comments for the authors below
This paper aims to understand the role of genetic health professionals in assisting families with disclosure of cancer risk using focus groups to explore genetic health professionals' views on this topic. The paper is generally well written (apart from a few grammatical errors) and the study contributes an important addition to the field. I have the follow specific comments:

Strengths and limitations

12. Point 3: BRCA1 and BRCA2 should be in italics

This is changed.

Introduction

13. Page 4, line 15 – the literature covered in this paragraph mainly refers to communication of risk information to children but it is unclear from the introduction (or

the abstract for that matter) whether the focus of disclosure to offspring is in childhood or adulthood. Maybe clarify so the reader is not left wondering?

The disclosure of genetic test results is in relation to adult offspring. However, GHPs were also asked about when they thought was the most effective time for disclosure. Many GHPs agreed that earlier was better, sometime during childhood and adolescence in an age-appropriate manner. In general, families who had open family discussions about cancer risk before the time of disclosure were better able to deal with the information. We have made changes throughout the manuscript referring to "offspring" instead of children.

Methods:

14. **Page 6, line 38 – The authors state that they recruited eligible genetic health professions, yet this group includes nurses, surgeons and psychiatrists/psychologists. Therefore, I don't think it is appropriate to call this group GHPs as it implies they all have specialised genetics training. Perhaps health professionals working with patients/families with BRCA1/2 be more appropriate? Change throughout the manuscript.**

We have decided to keep with our original terminology: GHPs given that majority of the health professionals that participated were genetic counsellor and from a genetic clinic. We have included a footnote in the Introduction to clarify. Footnote:

GHPs, in the context of this study, refers to clinical geneticists and genetic counsellors, and more broadly, health professionals who have worked closely with patients with a *BRCA1* or *BRCA2* genetic risk.

15. **Also, what made them eligible? And can we assume that the geneticists were clinical geneticists, rather than molecular geneticists? Probably worth specifying.**

We have now specified they were clinical geneticists.

Discussion

16. **Page 13, line 22 – I wonder whether it is really appropriate to compare disclosure of carrier status for CF with being a carrier of BRCA1/2. The implications are very different!**

We agree that the implications of CF and BRCA1/2 are very different; we have therefore changed the wording.

Hereditary cancer can be introduced into the family story with a simple explanation about genetics, cancer and the benefits of testing [21]. An example of such an explanation is that used for families with Cystic Fibrosis, terminology that normalised their condition ~~by informing~~such as, ~~childrenoffspring that~~ "everyone possesses disease causing genes" [22; p. 206]. This method of dissemination is modelling to ~~children~~offspring that coping and adjustment to such information is possible. Having more time to process, ~~talk~~ discuss, and ask questions during casual conversations is less anxiety-provoking than being informed unexpectedly at an age when immediate medical action is required [23].

17. **Page 14, line 49 – What kinds of benefits are the authors referring to?** The benefits of being mindful of an offspring's cognitive (understanding; health literacy) and emotional capacity is important. Parents can potentially be concerned about explaining information in an age-appropriate way while forgetting the emotional impact. We have changed the words used in the paragraph:

According to Piaget's theory of cognitive development, children at approximately 11 years old reach the stage of 'formal operational thought', at which hypothesis testing and abstract reasoning develop [24]. In theory, children at this stage can make inferences that if their parent is ill, then they too could become ill with the same illness [25, 26]. Thus, parents ~~will benefit from considering~~are recommended ~~often~~to consider their offspring's cognitive and emotional capacity before informing them about their risk [21], which may have different developmental trajectories depending on the temperament of the offspring [27]. Parental consideration of disclosure of genetic status with young adults involves consideration of poignant life-stage changes or communicating at certain junctures (e.g., impending marriage or pregnancy [e.g., impending marriage or pregnancy; 9]). Parental capacity to inform offspring [2, 22] and their own experience or level of satisfaction with genetic testing may hinder communication [28], warranting the facilitation of communication by GHPs [29].

18. **Page 15, line 12 – What does "effectively completed" mean**

Thank you for asking for clarification. We have changed the wording.

Nurse-led initiation of contact with at-risk relatives, despite non-consent from probands, ~~was effectively completed~~allowed for the identification of carriers in first-, second- and third-degree relatives [13].

19. **Practice implications: The current approaches in Australia appear to be very ad hoc, even within States. Do you think there should be more guidance and standardisation of practices?**

The current approaches recommended to address disclosure of cancer risk in Australia are ad hoc; more guidance and standardisation of practices is needed by modifying guidelines that are better suited to local regulatory needs.

VERSION 2 – REVIEW

REVIEWER	Álvaro Mendes i3S, UnIGENe and CGPP, University of Porto
REVIEW RETURNED	21-Nov-2019

GENERAL COMMENTS	I think the authors addressed all the points raised and so I am happy with the revision. I don't have any further requests or suggestions for the authors.

REVIEWER	Danya Vears University of Melbourne, Australia
REVIEW RETURNED	21-Nov-2019

GENERAL COMMENTS	I am satisfied that the authors have addressed my comments sufficiently.