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Canadian Research Ethics Board Leadership Attitudes to the Return of Genetic Research Results to Individuals and their Families

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Précis

Genomic research may uncover results that have direct actionable benefit to the individual. An emerging debate is the degree to which researchers may have responsibility to offer results to the biological relatives of the research participant. In a companion study to one carried out in the United States, we describe the attitudes of Canadian Research Ethics Board (REB) chairs to this issue and their opinions as to the role of the REB in developing related policy.

Introduction

The return of individual genetic results to research participants has been widely discussed in the context of an explosion of genetic research utilizing an ever more rapid and inexpensive array of sequencing and bioinformatics platforms.[1] To date, a number of consensus statements guide researchers as to the breadth and limits of their obligations for offering genomic research results to participants.[2] Typically these recommendations are rooted in the result's clinical validity, actionability, and potential health consequences, and are predicated on the informed consent of the participant. An emerging discussion is the challenging question of the degree to which researchers may additionally have responsibility for offering results to family members of the research participant. Some have argued that ethical obligations to relatives intensify as the significance and actionability of the result increase,[3] while others claim that obligations to next of kin should follow the clinical model where the decision to share genetic results falls to the patient.[4] A detailed reflection on the many ethical issues that arise in considering whether such a responsibility exists, and if so how to honor it, is presented in this issue of *JLME* by Wolf et al.[5]

Human research protection bodies clearly need to be engaged in the oversight of genomic research including the return of research results. Review of publically available documents from Institutional Review Boards (IRB) and Research Ethics Boards (REB) generally shows a paucity of guidance on this topic.[6] While researchers are often supportive of the concept of returning meaningful results to participants,[7] recommendations from regulatory bodies provide limited guidance.[6] In the United States, federal regulations do not directly speak to the return of research findings; in contrast some countries have regulatory requirements on

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this topic.[8] For example, European regulations (2005) require a plan for return of results.[9] Similarly, the Canadian TriCouncil Policy for Human Research version 2 (2014) (hereafter referred to as TCPS v2), specifically calls on researchers to offer participants any research result with material significance, to have a prospective plan to do so in the context of genomic research, and to present the plan to their REB for approval. Despite these requirements, a detailed means to operationalize the return of results is not set out, even in the TCPS v2.

In this environment of uncertainty, the leadership of both U.S. and Canadian research ethics review boards are often asked to provide guidance. However, little is known about REB leadership opinions' and attitudes' as to REB roles in establishing a framework of oversight, nor about the degree of responsibility an REB can or should take on in determining what results should be returned to the individual participant or extended family members.

In this issue of *JLME*, Beskow and O'Rourke report the results of a survey utilizing a hypothetical scenario constructed to probe the opinions of IRB chairs from member institutions of the American Association of Medical Colleges regarding the return of genetic results to participants and family members.[10] In addition, they examined the views of IRB chairs as to the proper role of the IRB with regard to responsibility for policies, procedures, and oversight. This undertaking presented an opportunity to compare and contrast Canadian REB chair attitudes in a national landscape distinct from the regulatory environment in the United States. Thus, we used the same survey instrument to query Canadian REB chairs and present here the findings from a Canadian perspective as a companion to the U.S. findings.

Methods

This research project was approved by the IWK Health Centre Research Ethics Board, Dalhousie University, Halifax, Canada.

A. Participants

Names, postal addresses and email contacts for REB chairs, co-chairs and vice-chairs linked with REBs affiliated with all 17 universities associated with medical schools in Canada were identified from publicly accessible websites.

B. Survey method

The survey was distributed via email through Fluid Surveys (https://fluidsurveys.com)[11] and followed up by a mailed postal survey. To conduct the survey, we sent a preannouncement and then one week later an email invitation with an initial cover letter that served as the consent document. Consent was assumed by return of the survey. Two email follow-up reminders were sent to non-responders who had not expressly elected to opt out. A final mailed copy of the survey was sent with a pre-stamped return envelope. No participant incentive was offered for response. Participation was promoted in the consent document by assuring confidentiality, sending reminders to non-responders, and emphasizing our ultimate goal of generating empirical data that could assist REBs and researchers.

C. Survey instrument

The details of the instrument development and validation are presented in Beskow and O'Rourke.[10] Briefly, the 34 item survey instrument was organized in two main sections. The first focused on opinions about a hypothetical scenario in which researchers using a pancreatic cancer biobank discover a link to a gene called *CDKN2A* that may also increase risk of melanoma. The second gathered opinions about the role of oversight bodies such as IRBs or REBs in guideline development, decision making, and oversight of return of results processes. The instrument used to survey Canadian REB chairs was identical to the one used by Beskow and O'Rourke except for the deletion of one question not relevant to the Canadian context. The survey instrument is available from the corresponding author.

D. Analysis

The data were collated as part of the Fluid Surveys software and analyzed descriptively using Excel.

Results

A. Respondents

The response rate was 22/52 (42%); of these, 5 did not complete the full survey. Respondents were 41% female, 32% male with 27% missing. Approximately half described their primary professional background as medicine or nursing (45%) with 4 (18%) having a bioethics background. Two respondents described themselves as having a participant or community background. Most of those who responded were over 50 years of age (n=11) and of European ancestry (n=13). They had a mean of 8 years' experience as Chair or Vice Chair (range 1-19 years) and 17/22 (73%) described their REB as primarily biomedical. Most (65%, n=14/22) described themselves as familiar or very familiar with reviewing human genetics research protocols.

From a personal standpoint, 8/22 (36%) REB chairs described themselves as interested or very interested in receiving genetic information about themselves; 3/22 (14%) were somewhat interested; and 6/22 (27%) said they were not at all or not too interested.

B. Hypothetical scenario exploration

The hypothetical scenario described a patient taking part in a non-therapeutic biobank called the Pancreatic Biospecimen Resource (verbatim text available in Beskow and O'Rourke[10]). In this scenario, researchers using the biobank resource find a pancreas cancer-related gene (CDKN2A) that is also associated with predisposition to melanoma. The cumulative risk of melanoma was predicted to be approximately 40% by age 80 years with a pancreatic cancer risk of approximately 60%. The clinical utility of this gene variant was described as possible but not established because the benefit of screening for either pancreatic cancer or melanoma is unproven. The consent form used in the scenario indicated, "If a researcher finds that results obtained from the genetic research performed on your sample may be useful for your health care or your family members' health care, you may be contacted and given the choice to learn your results." Given this scenario, 15/22 (68%) thought that the participant probably or definitely should be offered this result. If the participant could not be reached, only 7/22

(32%) felt that the family should be contacted in order to find the participant, and even fewer [1/22 (5%)] thought that the family should be given the genetic information in an attempt to get the information to the participant.

With regard to offering results directly to family members due to potentially significant implications for blood relatives: 18/22 (82%) would not share the result with a family member if the participant were alive but could not be contacted. If the participant was deceased, many (10/22, 45%) still would not share the finding with family; only 6/22 (27%) said the result should probably be offered to the family if the participant was deceased.

We examined whether varying the content of consent disclosures for the Pancreatic Biospecimen Resource study would have an impact on REB Chair's opinions. Recall from above that most respondents would not be in favour of returning results to family members. Compared to the baseline scenario in which the consent form said participants may be contacted if a genetic research finding might be useful to their or their families' health:

- If the consent form had been silent as to return of results, and the participant cannot now be reached, most respondents would be even less likely to share results with family members (11/22, 50%) or would be unchanged in their original opinion (8/22, 36%).
- If the consent form had indicated that the results would only be given to the participant, and the participant cannot now be reached, one half of the respondents would be less likely to share results (11/22, 50%) or indicated it would have no effect on their original opinion (6/22, 27%).
- If the consent form had been proactive in contemplating the permissive sharing of results with family members, respondents indicated that they were more likely to favor disclosure (15/22, 68%), including in the circumstance where the participant was deceased (14/22, 64%).

We also examined Chairs' opinions as to whether and what kinds of choices about return of genetic results should be offered in the consent process for participants themselves and for family members. In general, respondents favored giving the participant choices (Table 1). Assuming that a participant in the hypothetical Pancreatic Biospecimen Resource had been asked whether she wanted family members to receive her results and she said "no," 17/22 (77%) chairs said that her decision should be followed even if she were now deceased. Only 1/22 (5%) thought her decision could be over-ruled after death.

Most (12/22, 55%) chairs felt that if data were submitted from the Pancreatic Biospecimen Resource into NIH's dbGaP, commitments made in the original consent form regarding return of results should be upheld, i.e., users of dbGaP should be expected to contact the Biospecimen Resource if they discover returnable information.

Finally, we asked several questions in the context of a general (rather than disease-specific) biobank. Given this setting, 10/22 (45%) respondents agreed there might be circumstances in which family members should be offered a deceased participant's individual genetic research results, while 5/22 (23%) said there were no such circumstances, and 3/22 (14%) were

unsure. Survey findings regarding the importance of various factors to a decision for offering return of results are provided in Table 2.

C. Role of the Research Ethics Board in developing policies and considering return of specific results

We asked a series of questions examining Chair opinions about the extent to which REBs should be involved in the development of institutional policies or formal guidelines concerning the disclosure of individual genetic research results. Brief examples explaining the theme of the question were provided. The results are shown in Table 3.

With respect to the role of the REB in determining if a genetic result meets the criteria for disclosure, 9/22 (41%) indicated that the REB should have the ultimate authority, 6/22 (27%) indicated that the REB should have input but not be determinative, and 2/22 (9%) indicated that the REB should not be involved. Among those who indicated the REB should not be involved or their input not determinative, no entity was consistently identified as the one that should have ultimate authority.

In considering the proper role of the REB in determining the specific process for contacting participants or family members to offer genetic results, respondents were split: 8/22 (36%) indicated that the REB should have ultimate authority, and an equal number said the REB should provide input in a non-determinative way; none said the REB should not be involved. Among those who said the REB's input should not be determinative, half (4/8) said that another official or entity at their institution should have ultimate authority.

D. Role of the Research Ethics Board in oversight of offering individual genetic results to research participants

Respondents indicated that researchers should proactively provide detailed information to the REB regarding plans to disclose individual genetic results to participants. The majority (13/22, 59%) felt this should be required on a routine basis, with a smaller number (3/22, 14%) indicating this was required only if an offer is likely to be made. Similar results were seen with regard to plans for disclosing individual genetic results to family members either routinely (12/22, 55%), versus only if an offer is likely to be made (5/22, 23%).

When researchers have generated results that they believe should be offered to participants and/or family members, most respondents (15/22, 68%) said researchers should only be required to consult with the IRB in situations involving a modification to their originally approved plan.

Discussion

We found that among our Canadian Research Ethics Board chair respondents, a majority were supportive of offering genetic research results to participants. This mirrors previously published work from the perspective of Research Ethics Board leadership, studies of researchers, and studies of participants themselves.[12] In the context of our pancreatic biobank scenario, REB chairs endorsed the return of a genetic research result that was associated with a significant although not absolute risk for cancer, despite the explicit

statement in the study scenario that “The clinical utility of knowing whether one has a CDKN2A mutation has not been established.” The fact that there is no proven course of action to prevent pancreatic cancer or melanoma would appear to be inconsistent with multiple recommendations suggesting only sharing results with known actionability; this finding is, however, consistent with the expressed preferences of research participants surveyed and with other published work on IRB chairs’ views of sharing.[13]

Of note, our survey respondents were much less apt to extend the same support for offering these results to family members, even though they might be of potential benefit to these persons. This opposition to sharing with next of kin included not contacting the family to find the participant, and not sharing results with the family in the hope of getting the results to the participant. This applied to a somewhat lesser extent when the participant was deceased. This points to a limit of what the researcher can reasonably be expected to take on. Some of these limits are identical to those applied in standard clinical practice, which precludes sharing genetic information directly with family members, while some are more specific to the research setting. These limits to sharing with kin include concern (legal and moral) for privacy of the proband even after his or her death, logistical concerns – the not trivial matter of identifying and locating relatives, concerns about duration of such an obligation – should it exist, cost constraints in diverting resources from the research enterprise, and the limits of obtaining adequate permission to offer genetic research information to family members who were never part of the research in the first place.[14] Our respondents did indicate, both in the setting of the hypothetical scenario of a disease-specific biobank and in the setting of a general biobank, that participants should be offered a menu of options for return of results. When participants are offered a choice, most Chairs indicated that these choices should be respected, even if the participant indicated they did not want a potentially beneficial result to be shared with next of kin.[15]

The Canadian results are similar to the views of U.S. IRBs leaders presented in this issue of JLME by Beskow and O'Rourke.[16] In general, these indicate that while some obligation to offer results to participants appears to be agreed upon, Chairs recognize that there are, and should be, limits to that obligation. This may reflect an internationally recognized normative understanding that there are limits to the extent to which genetic research findings should be shared with participants. . Although there has been debate, most clinical geneticists would agree that they can encourage patients to share meaningful results with family members but are themselves not obligated to do so (unless there is imminent danger, a high and debated standard in genetics).[17] This restriction is due in part to respecting patients’ privacy. Setting forth an obligation to share results with research participants’ families that is not found in the clinic setting would seem in most circumstances to be an unreasonable burden to researchers, overstretch any putative duties and be at odds with the obligation to protect participant's privacy.

Where U.S. and Canadian IRB/REBs leaders do slightly diverge is in their view of the proper role of their review boards with regard to policies and procedures for offering results. U.S. IRB Chairs were more likely to see their boards as the ultimate authority in defining the process by which results should be offered to participants and family members, but to have a more limited role with regard to scientific and medical questions (such as determining

whether a genetic result meets the threshold established for disclosure). In contrast, Canadian REB leaders more commonly saw their boards as less involved in process issues, and having more authority with regard to medical and scientific questions. In part, this may be due to the fact that Canadian national regulations already define the need for a process of return. In Canada, the TCPS v2 specifically names in article 3.4 that "the researcher has an obligation to disclose to the participant any material findings discovered in the course of research," and later, in the chapter specific to Human Genetic Research, requires the researcher to develop a plan for managing genetic discovery.[18] The U.S. Common Rule does not address this issue, although some national funding agencies do.[19]

We also examined Chairs' attitudes to the role of the IRB or REB defining itself as the ultimate authority in determining the criteria by which genetic results should be offered to participants (e.g. actionability), the circumstances under which they should be offered to family, and what results ultimately meet the criteria. Canadian REB respondents were somewhat more likely than their U.S. counterparts to see themselves as ultimate decision makers in areas of medicine and science; roughly half of Canadian respondents reflected this stance compared to a third of U.S. IRB respondents. This is despite the fact that the majority of Chairs had a science background. Given the highly specialized nature of interpreting genetic information, the rapidly expanding use of high-throughput genomics technologies that reveal variants of unknown significance, and the sheer volume of data generated, it makes sense that REBs contribute to the framework of determining what ought to be shared. However, they cannot be expected to maintain the technical expertise to assess the merits of sharing individual genetic variants.[20] A variety of mechanisms could be considered including standing or ad hoc committees specific to the institution from which the REB could draw advice, or a national body perhaps affiliated with either the CIHR Institute of Genetics or Canadian College of Medical Geneticists.

There are some significant limits to our findings. We surveyed all REBs associated with medical schools in Canadian universities, but this starting sample size was small and less than half of those invited responded. Although the response rate is in line with that expected from similar surveys, these results should be considered as more hypothesis generating for future research than definitive. It is possible that some of the boards predominantly reviewed social sciences rather than biomedical research, or reviewed genetic studies less frequently —which could have contributed to a lower response rate. We asked the opinions of individual REB chairs but do not know if their opinions are reflective of current practice. This study was conducted in the fall of 2013. Since that time, the literature has continued to evolve, including in response to the American College of Medical Genetics (ACMG) guidelines for clinical testing and disclosure of genetic results.[21] In this fast paced environment, it is possible that attitudes may have shifted; this would need to be tested by repeating the survey at one or more points in the future. However, it is worth noting that although the ACMG recommendations stimulated strident debate, these ethical challenges have been the subject of intense conversation for many years.

Conclusions

Canadian REB Chairs share many of the same attitudes about the offer of genetic research results to participants and their families as their IRB counterparts in the United States. They endorsed offering to participants the results depicted in our hypothetical scenario, which are described as clinically valid and potentially clinically relevant, but with no proven actionability. Both groups were less likely to endorse researchers sharing such genetic information directly with family members. Further assessing the nuances of IRB and REB opinions with regard to genetic research results with other scenarios reflecting situations with varying combinations of validity and utility is an important area for future research.

At least half of Canadian ethics board respondents to our survey do not feel that REBs should be the final arbiters of what results should be shared. Frameworks to do this are in development and should be further supported. Many questions remain about practical and cost aspects of offering and returning genomic results. The Canadian Panel on Research Ethics recently convened a committee to examine modifying the guidance in the Tri-Council Policy v2, and to explicitly examine the implementation of existing recommendations to offer results of research with material findings. This should assist researchers in developing a uniform approach to the challenging questions that arise and add clarity to the role of the REB in oversight.

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References

1. Beskow LM, Burke W. Offering Individual Genetic Research Results: Context Matters. Science Translational Medicine. 2010; 2(38):38cm20.Biesecker LG. Secondary Variants and Human Subjects Research. Genetics in Medicine. 2013; 15(2):157. [PubMed: 23386183] Bovenberg J, Meulenkamp T, Smets E, Gevers S. Biobank Research: Reporting Results to Individual Participants. European Journal of Health Law. 2009; 16(3):229–247. [PubMed: 19788002] Clayton EW. Incidental Findings in Genetics Research Using Archived DNA. Journal of Law, Medicine & Ethics. 2008; 36(2):286–291.Evans JP. Editorial: Return of Results to the Families of Children in Genomic Sequencing: Tallying Risks and Benefits. Genetics in Medicine. 2013; 15(6):435–436. [PubMed: 23739673] Holm IA, et al. Guidelines for Return of Research Results from Pediatric Genomic Studies: Deliberations of the Boston Children's Hospital Gene Partnership Informed Cohort Oversight Board. Genetics in Medicine. 2014; 16(7):547–552. [PubMed: 24406460] McGuire AL, et al. Point-Counterpoint. Ethics and Genomic Incidental Findings. Science. 2013; 340(6136):1047–1048. [PubMed: 23686340] Wolf SM, et al. Managing Incidental Findings in Human Subjects Research: Analysis and Recommendations. Journal of Law, Medicine & Ethics. 2008; 36(2):219–248.Daack-Hirsch S, et al. Information Is Information: A Public Perspective on Incidental Findings in Clinical and Research Genome-Based Testing. Clinical Genetics. 2013; 84(1):11–18. [PubMed: 23590238]
2. Fabsitz RR, et al. Ethical and Practical Guidelines for Reporting Genetic Research Results. Circulation: Cardiovascular Genetics. 2010; 3(6):574–580. [PubMed: 21156933] Fullerton SM, et al. Meeting the Governance Challenges of Next-Generation Biorepository Research. Science Translational Medicine. 2010; 2(15):15cm3.Kaye J, et al. Managing Clinically Significant Findings in Research: The UK 10K Example. European Journal of Human Genetics. 2014; 22(9):1100–1104. [PubMed: 24424120] Knoppers BM, et al. Population Studies: Return of Research Results and Incidental Findings Policy Statement. European Journal of Human Genetics. 2013; 21(3):245–247. [PubMed: 22781095] Presidential Commission for the Study of Bioethical Issues, Anticipate and Communicate: Ethical Management of Incidental and Secondary Findings in the Clinical, Research, and Direct-to- Consumer Contexts. 2013. available at <http://bioethics.gov/sites/default/files/FINALAnticipateCommunicate_PCSBI_0.pdf> (last visited April 30, 2015)Levenson D. Guideline Support the Return of Incidental Genomic Findings. American Journal of Medical Genetics. 2013; 161(6):vii–viii.
3. McGuire AL, Caulfield T, Cho MK. Research Ethics and the Challenge of Whole-Genome Sequencing. Nature Reviews Genetics. 2008; 9(2):152–156.
4. Rothstein MA. Should Researchers Disclose Results to Descendants? American Journal of Bioethics. 2013; 13(10):64–65. [PubMed: 24024818] Stol YH, et al. Informing Family Members About a Hereditary Predisposition to Cancer: Attitudes and Practices Among Clinical Geneticists. Journal of Medical Ethics. 2010; 36(7):391–395. [PubMed: 20605992] Liao SM. Is There a Duty to Share Genetic Information? Journal of Medical Ethics. 2009; 35(5):306–309. [PubMed: 19407036]
5. Wolf SM, et al. Returning a Research Participant's Genomic Results to Relatives: Analysis and Recommendations. Journal of Law, Medicine & Ethics. 2015 __, no. __ __-__.
6. Fernandez CV, et al. Attitudes of Researchers to the Return to Participants of Incidental and Targeted Genomic Findings Obtained in a Research Setting. Genetics in Medicine. 2013; 15(7): 558–564. [PubMed: 23370450] Kozanczyn C, Collins K, Fernandez CV. Offering Results to

Research Subjects: U.S. Institutional Review Board Policy. Accountability in Research. 2007; 14(4):255–267. [PubMed: 18246944] Simon CM, et al. Informed Consent and Genomic Incidental Findings: IRB Chair Perspectives. Journal of Empirical Research on Human Research Ethics. 2011; 6(4):53–67. [PubMed: 22228060] Williams JK, et al. Researcher and Institutional Review Board Chair Perspectives on Incidental Findings in Genomic Research. Genetic Testing and Molecular Biomarkers. 2012; 16(6):508–513. [PubMed: 22352737] Zawati MH, et al. Reporting Results From Whole-Genome and Whole-Exome Sequencing in Clinical Practice: A Proposal for Canada? Journal of Medical Genetics. 2013; 51(1):68–70. [PubMed: 24078715] MacNeil SD, Fernandez CV. Informing Research Participants of Research Results: Analysis of Canadian University Based Research Ethics Board Policies. Journal of Medical Ethics. 2006; 32(1):49–54. [PubMed: 16373524] Keane MA. Institutional Review Board Approaches to the Incidental Findings Problem. Journal of Law, Medicine & Ethics. 2008; 36(2):352–355.

7. Fernandez CV, et al. Attitudes of Canadian Researchers Toward the Return to Participants of Incidental and Targeted Genomic Findings Obtained in a Pediatric Research Setting. Genetics in Medicine. 2013; 15(7):558–564. [PubMed: 23370450] Henderson GE, et al. What Research Ethics Should Learn from Genomics and Society Research: Lessons from the ELSI Congress of 2011. Journal of Law, Medicine & Ethics. 2012; 40(4):1008–1024.Downing NR, et al. Genetics Specialists' Perspectives on Disclosure of Genomic Incidental Findings in the Clinical Setting. Patient Education and Counselling. 2013; 90(1):133–138.
8. Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada, and Social Sciences and Humanities Research Council of Canada. Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans. 2010. available at <http://www.pre.ethics.gc.ca/pdf/eng/tcps2/TCPS_2_FINAL_Web.pdf> (last visited January 13, 2015) [hereinafter Tri-Council Policy Statement]Council of Europe. Additional Protocol to the Convention on Human Rights and Biomedicine, Concerning Biomedical Research. 2005. available at <http://conventions.coe.int/Treaty/en/Treaties/Html/195.htm> (last visited January 13, 2015)National Institutes of Health (NIH). NCI Best Practices for Biospecimen Resources. 2011. available at <http://biospecimens.cancer.gov/practices/2011bp.asp> (last visited Jan. 14, 2015)
9. Beier, K., et al. The Ethical and Legal Regulation of Human Tissue and Biobank Research in Europe – Proceedings of the Tiss.EU Project (2011). available at <http://www.oapen.org/search?identifier=407336> (last visited January 13, 2015)Council of Europe, supra note 8
10. Beskow LM, O'Rourke PP. Return of Genetic Research Results to Participants and Families: IRB Perspectives and Roles. Journal of Law, Medicine &Ethics. 2015 __, no. __ __-__.
11. Fluid Surveys Ultra Version. available at <http://fluidsurveys.com/> (last visited January 14, 2015)
12. Beskow LM, Smolek SJ. Prospective Biorepository Participants' Perspectives on Access to Research Results. Journal of Empirical Research in Human Research Ethics. 2009; 4(3):99–111.Meacham MC, et al. Researcher Perspectives on Disclosure of Incidental Findings in Genetic Research. Journal of Empirical Research Human Research Ethics. 2010; 5(3):31–41.Halverson CME, Ross LF. Attitudes of African-American Parents about Biobank Participation and Return of Results for Themselves and Their Children. Journal of Medical Ethics. 2012; 38(9):561–566. [PubMed: 22573882] Murphy J, et al. Public Expectations for Return of Results from Large-Cohort Genetic Research. American Journal of Bioethics. 2008; 8(11):36–43. [PubMed: 19061108] Bui ET, et al. Do Participants in Genome Sequencing Studies of Psychiatric Disorders Wish To Be Informed of Their Results? A Survey Study. PLoS One. 2014; 9(7):e101111. at <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4077756/> (last visited January 13, 2015). [PubMed: 24983240] Beskow LM, et al. IRB Chairs' Perspectives on Genotype-Driven Recruitment. IRB. 2012; 34(3):1–10. [PubMed: 22830177]
13. Fernandez CV, et al. Attitudes of Parents Toward the Return of Targeted And Incidental Genomic Research Findings in Children. Genetics in Medicine. 2014; 16(8):633–640. [PubMed: 24434691] Meulenkamp TM, et al. Communication of Biobanks' Research Results: What Do (Potential) Participants Want? American Journal of Medical Genetics. 2010; 152A(10):2482–2492. [PubMed: 20799322] Tabor HK, et al. Genomics Really Gets Personal: How Exome and Whole Genome Sequencing Challenge the Ethical Framework of Human Genetics Research. American Journal of Medical Genetics. 2011; 155(12):2916–2924. [PubMed: 22038764] Trinidad SB, et al. Genomic Research and Wide Data Sharing: Views of Prospective Participants. Genetics in Medicine. 2010; 12(8):486–495. [PubMed: 20535021]

14. Wolf SM. Return of Individual Research Results & Incidental Findings: Facing the Challenges of Translational Science. Annual Review of Genomic and Human Genomics. 2013; 14:557–577.Wright GE, et al. Ethical and Legal Implications of Whole Genome and Whole Exome Sequencing in African Populations. BMT Medical Ethics. 2013; 14(1):21–36.Fernandez CV, Kodish E, Weijer C. Returning Research Results to Subjects: An Ethical Imperative. IRB: Ethics & Human Research. 2003; 25(3):12–19. [PubMed: 14569989] Avard D, et al. Researchers' Perceptions of the Ethical Implications of Pharmacogenomics Research with Children. Public Health Genomics. 2009; 12(3):191–201. [PubMed: 19204423] Costain G, Bassett AS. Incomplete Knowledge of the Clinical Context as a Barrier to Interpreting Incidental Genetic Research Findings. American Journal of Bioethics. 2013; 13(2):58–60. [PubMed: 23391068] Yu JH, et al. Attitudes of Genetics Professionals Toward the Return of Incidental Results from Exome and Whole-Genome Sequencing. American Journal of Human Genetics. 2014; 95(1):77–84. [PubMed: 24975944]

15. Kaufman D, et al. Public Opinion About the Importance of Privacy in Biobank Research. American Journal of Human Genetics. 2009; 85(5):643–654. [PubMed: 19878915] Jamal L, et al. Research Participants' Attitudes Towards the Confidentiality of Genomic Sequence Information. European Journal of Human Genetics. 2013; 22:964–968. [PubMed: 24281371] Milner LC, Liu EY, Garrison NA. Relationships Matter: Ethical Considerations for Returning Results to Family Members of Deceased Subjects. American Journal of Bioethics. 2013; 13(10):66–67. [PubMed: 24024819] American Medical Association Opinion 2.131 – Disclosure of Familial Risk in Genetic Testing. 2003. available at <http://www.ama-assn.org/ama/pub/physician-resources/medical-ethics/code-medical-ethics/opinion2131.page?> (last visited January 14, 2015)

16. See Beskow and O'Rourke, supra note 10.

17. Kohlmeier GZA. The Risky Business of Lifestyle Genetic Testing: Protecting Against Harmful Disclosure of Genetic Information. University of California Los Angeles Journal of Law and Technology. 2007; (11):5–57.National Health and Medical Research Council. Use and Disclosure of Genetic Information Without Consent: A Decision-Making Tool for Health Practitioners—Who, When, Why and How? Internal Medicine Journal. 2011; 41(8):634–638. [PubMed: 21615658]

18. Tri-Council Policy Statement, supra note 8.

19. Hoffman DE, Fortenberry E, Ravel J. Are Changes to the Common Rule Necessary to Address Evolving Areas of Research? A Case Study Focusing on the Human Microbiome Project. Journal of Law, Medicine & Ethics. 2013; 41(2):454–469.

20. Thorogood A, et al. An Implementation Framework for the Feedback of Individual Research Results And Incidental Findings in Research. BMC Medical Ethics. 2014; 15(1):88. [PubMed: 25539799] Zawati et al., supra note 6; Henderson GE, et al. The Challenge of Informed Consent and Return of Results in Translational Genomics: Empirical Analysis and Recommendations. Journal of Law, Medicine & Ethics. 2014; 42(3):344–355.

21. Green RC, et al. ACMG Recommendations for Reporting of Incidental Findings in Clinical Exome and Genome Sequencing. Genetics in Medicine. 2013; 15(7):565–574. [PubMed: 23788249] Jarvik GP, et al. Return of Genomic Results To Research Participants: The Floor, the Ceiling, and the Choices in Between. American Journal of Human Genetics. 2014; 94(6):818–826. [PubMed: 24814192] Burke W, et al. Recommendations for Returning Genomic Incidental Findings? We Need to Talk! Genetics in Medicine. 2013; 15(11):854–859. [PubMed: 23907645] Ross LF, Rothstein MA, Clayton E. Mandatory Extended Searches in All Genome Sequencing: ‘Incidental Findings,' Patient Autonomy, and Shared Decision Making. JAMA. 2013; 310(4):367–368. [PubMed: 23917281]

Table 1

Research Ethics Board chair opinions about whether participants should be offered choices in the return of genetic results (n=22)

A. Consent form choices about receiving their own individual genetic research results	
No; they should simply be informed about what kind, if any, will be offered	0 (0%)
Yes; they should be informed about what kind could be offered and asked to indicate their choice (yes/no) about whether they want to receive them	4 (18)%
Yes; they should be informed about what kind could be offered and provided a menu of options to choose the types information they do and do not want to receive	14 (64)%
Unsure	1 (5)%
Missing	3 (14%)

B. Consent form choices about offering participants' results to family members	
No; family members should not be offered a participant's results	8 (36%)
No; participants should simply be informed that their results may be offered to family members	0 (0%)
Yes; participants should be informed that their results may be offered to family members and asked to indicate their choice(s) about this option	10 (45%)
Unsure	1 (5%)
Missing	3 (14%)

Table 2

Factors indicated by REB Chair as to whether individual genetic research results should be offered to the family members of a deceased participant in a general biobank.

	Not at all important	Somewhat important	Very important
a. Statements in the consent form regarding whether or not individual genetic research results might be disclosed to family members	0	0	10 (100%)
b. The level of clinical validity of the results	0	2 (20%)	8 (80%)
c. The level of clinical utility of the results	0	2 (20%)	8 (80%)
d. The reproductive implications associated with the results	0	5 (50%)	5 (50%)
e. The seriousness of the condition associated the results	0	3 (30%)	7 (70%)
f. Whether or not the results were generated (or confirmed) in a CLIA-certified or equivalent lab	1 (10%)	5 (50%)	4 (40%)

Table 3

REB Chair attitudes to the REB role in developing various policies for the return of genomic results.

	Define the general characteristics of individual genetic results that should be offered	Define the circumstances under which family members should be offered	Define acceptable processes for identifying and contacting family members	Define the research participant's role in the process of offering genetic results to family members
The REB should not be involved in the development of these policies	1 (5%)	0	1 (5%)	0
The REB should provide input, but not have ultimate authority to determine these policies	6 (27%)	9 (41%)	9 (41%)	9 (41%)
The REB should have ultimate authority to determine these policies	9 (41%)	8 (36%)	7 (32%)	8 (36%)
Institutional policies/guidelines should not be developed; decisions on a case-by-case basis	1 (5%)	0	0	0
Unsure	0	0	0	0
Missing	5 (23%)	5 (23%)	5 (23%)	5 (23%)