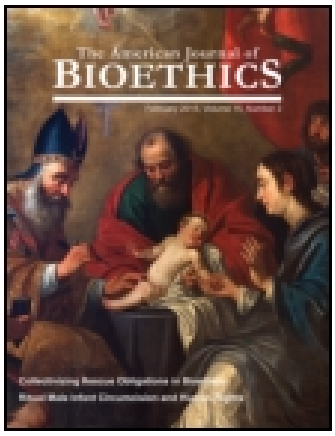

The American Journal of Bioethics
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/uajb20

Rescue Obligations and Collective Approaches: Complexities in Genomics

Angela Fenwick[a], Sandi Dheensa[a], Gillian Crawford[b], Shiri Shkedi-Rafid[b] & Anneke Lucassen[b]
[a] Clinical Ethics and Law, University of Southampton
[b] Clinical Ethics and Law, University of Southampton and Wessex Clinical Genetics Service, University Hospitals Southampton NHS Foundation Trust
Published online: 12 Feb 2015.

To cite this article: Angela Fenwick, Sandi Dheensa, Gillian Crawford, Shiri Shkedi-Rafid & Anneke Lucassen (2015) Rescue Obligations and Collective Approaches: Complexities in Genomics, The American Journal of Bioethics, 15:2, 23-25, DOI: 10.1080/15265161.2014.990763

To link to this article: http://dx.doi.org/10.1080/15265161.2014.990763

Rescue Obligations and Collective Approaches: Complexities in Genomics

Angela Fenwick, Clinical Ethics and Law, University of Southampton
Sandi Dheensa, Clinical Ethics and Law, University of Southampton
Gillian Crawford, Clinical Ethics and Law, University of Southampton and Wessex Clinical Genetics Service, University Hospitals Southampton NHS Foundation Trust
Shiri Shkedi-Rafid, Clinical Ethics and Law, University of Southampton and Wessex Clinical Genetics Service, University Hospitals Southampton NHS Foundation Trust
Anneke Lucassen, Clinical Ethics and Law, University of Southampton and Wessex Clinical Genetics Service, University Hospitals Southampton NHS Foundation Trust

We agree with Garrett (2015) that too hasty an application of a duty to rescue in a wide variety of cases should be questioned and that the "purported duty to regularly return incidental findings in genomic and genetic research" is problematic. But we would argue that the "regular" return of incidental findings cannot be seen as a rescue obligation, precisely because such genomic findings are not random or unpredictable—a prerequisite of the rescue paradigm. Once something becomes regular it becomes, to some extent, anticipatable; a collectivized proactive approach is then also more appropriate than a rescue response.

The example of a genomic researcher discovering significant information about a research participant is interesting not only because it calls into question whether rescue obligations are engaged but because the raising of the question itself could be seen as an example of genetic determinism at play. That is, inappropriate amounts of predictive powers are attached to genetic findings. Development of new-generation sequencing technologies means that genetic or genomic research (and indeed clinical practice) has shifted from "fishing" for specific genes to "trawling" through the entire genetic code. Because this can reveal so much more information about a person than could be gleaned by the previous techniques, researchers are more likely to stumble upon something about which their research participant is completely unaware. As Garrett highlights, many have argued that genomic researchers are then obligated to "rescue" their research participants (Bredenoord et al. 2011; Ulrich 2013), but the regularity with which such situations arise depends on how deterministic genomic information is thought to be. The chances of finding a strongly predictive finding in genomic research that (a) is a reproducible result, (b) is not already known about by the participant through signs, symptoms, or a family history, and (c) has an associated intervention that would prevent a harm from arising, are much smaller than the phrase "regular return of incidental findings" would suggest.

If researchers are the trawlers, then rescue of those in danger is appropriate if their trawling net catches something dangerous and unpredictable, perhaps an unexploded bomb or a fish that is known to be extremely poisonous. However, although early trawlers may have worried about what unexpected things their catch would yield that day, today they can anticipate most types of catches, and—to mix analogies—ensure that children near water always have buoyancy aids or qualified lifeguards nearby. Notwithstanding difficulties in defining exactly what is meant by incidental findings in genomic research (that is, if you are researching a whole genome, then no finding can be said to be truly incidental; Shkedi-Rafid et al. 2014), we and others (Shkedi-Rafid et al. 2014; Weiner 2014) have previously argued that such findings should not be treated as if their occurrence is random and unpredictable; rather, they should be anticipated and their management should be planned in advance. This strategy fits with those outlined by Garrett in the collectivized approach, but would be applied in situations that could not be classed as true rescue ones.

Address correspondence to Dr. Sandi Dheensa, Clinical Ethics and Law, Room AB203, MP801, University of Southampton, Southampton General Hospital, South Academic Block, Tremona Road, Southampton, SO16 6YD, United Kingdom. E-mail: s.dheensa@soton.ac.uk

LIKELIHOOD THAT GENOMIC TESTING WILL FIND SOMETHING TO RESCUE

Making an assumption that the genomic researcher will find clear and certain information is problematic because not only will cases of the genomic "drowning child" be rare, but at present—and for the foreseeable future—the vast amount of data from whole genome studies will have unknown or uncertain implications for individual participants. Variable expressivity (type or severity of symptoms) and variable penetrance (chance that a person with this finding will ever show signs or symptoms from it) mean that it may not be at all clear what sort of rescue, if any, could be made. Other findings will appear possibly pathogenic, but the evidence for pathogenicity will not be convincing enough. The routinization of comparative microarray technologies has shown that deletions or duplications of parts of the genetic code are relatively common and often have no apparent health consequences, although early laboratory reports might have labeled such findings as "likely pathogenic" (Lucassen and Houlston 2014). Determining whether findings are clinically significant or not may depend on a clinical interaction (clinical examination, family history analysis, radiology investigations) (Crawford et al. 2013) that cannot be carried out by a researcher and that would, in any case, mean that a collectivized approach between researcher and clinician is required before the need for any rescue can be determined. Our point here is that those who argue genomic researchers have a duty to regularly return incidental findings may themselves have fallen into a genetic determinism trap.

WHO IS BEING RESCUED AND WHEN?

Garrett's argument for a focus on justice and social utility is well made. The genomic context upsets the conventional rescue paradigm that considers "just two individuals, the rescuer and the endangered" anyway, because any significant risk may also be shared by the participant's family members. Hence, any duty to rescue may also then be a duty to that person's relatives. By rescuing the one drowning child you stumble upon, you are also committed to rescuing other children who may be at risk.

Consideration is needed of not just to whom the obligation might be owed, but also when. For example, if the research participant is a child, one might argue that a BRCA1 finding (indicating a high risk of breast and/or ovarian cancer in adulthood, but an effectively zero risk in childhood) is not a rescue situation, because there exists no immediate harm-avoiding benefit for the child (i.e., ameliorative treatments or screening). Should action then be deferred to some future time when interventions are available (Shkedi-Rafid et al. 2014)? Others have argued that even if there is no immediate action option for the participant (or patient), disclosure might still be appropriate because the child's mother might be at risk and she might therefore need rescuing (Lucassen, et al. 2014). If this is the case, then might an obligation to act also be engaged by findings that reveal someone is a carrier of a condition—not because they will likely develop any features of it themselves, but because they might have an increased chance of having children with the condition? These are all important questions that highlight how extremely unlikely the encapsulated individual rescuer/individual endangered scenario is in genomics.

SHOULD GENOMIC RESEARCHERS EVER BE THE RESCUER?

If a child is truly drowning in an isolated spot with no one else around, then a rescue obligation does kick in. However, if the rescuer leaps in too quickly—tries to rescue a child who is not drowning and whose mother is better positioned to do so—then a rescue could be inappropriate and have unfortunate consequences. We therefore concur with Garrett that if research participants are to be told about certain research findings because the findings carry health implications, then this should be managed by those in the best position to facilitate the next steps. Rescue incurred by genomics will necessitate medical interventions, surveillance, or perhaps chemoprevention, all tools that in any case are not at the researcher's disposal.

It is worth noting, however, that in the genomic setting, the researcher–clinician boundary is not always distinct. Some researchers are also clinicians and some test providers will have a dual role as a clinician and researcher—for example, when participation in research is offered to a patient to obtain a test not presently available through the health service (Hallowell et al. 2009).

CONCLUSION

Our aim in this commentary has been to illustrate the complexity involved with considering obligations to rescue in the genomic context. While a genome may indeed reveal predictions about health or disease that are completely unexpected for the research participant, the chance of a prediction that is so accurate and from which a person can truly be rescued is extremely small. Most highly predictive genomic alterations will have already given some hint of their presence, either in signs or symptoms or in a family history of their features.

When the very rare rescuable situation does occur, we contend that this should be done by those most qualified to do so—health professionals—alerted appropriately by the researcher with careful attention to optimal timing of rescue and as to whether there are any other drowning children in the pool at the same time.

ACKNOWLEDGMENT

This work was funded in part by a grant from the Wellcome Trust. Reference number: WT088581MF. ■

REFERENCES

Bredenoord, A. L., H. Y. Kroes, E. Cuppen, M. Parker, and J. J. van Delden. 2011. Disclosure of individual genetic data to research

participants: The debate reconsidered. *Trends in Genetics* 27(2):41–47. Available at: http://dx.doi.org/10.1016/j.tig.2010.11.004.

Crawford, G., N. Foulds, A. Fenwick, N. Hallowell, and A. Lucassen. 2013. Genetic medicine and incidental findings: It is more complicated than deciding whether to disclose or not. *Genetics in Medicine* 15(11): 896–899. Available at: http://dx.doi.org/10.1038/gim.2013.165.

Garrett, J. 2015. Collectivizing rescue obligations in bioethics. *American Journal of Bioethics* 15(2): 3–11.

Hallowell, N., S. Cooke, G. Crawford, A. Lucassen, and M. Parker. 2009. Distinguishing research from clinical care in cancer genetics: Theoretical justifications and practical strategies. *Social Science and Medicine* 68(11): 2010–2017. Available at: http://dx.doi.org/10.1016/j.socscimed.2009.03.010.

Lucassen, A., and R. S. Houlston. 2014. The challenges of genome analysis in the health care setting. *Genes* 5(3): 576–585. Available at: http://dx.doi.org/10.3390/genes5030576.

Lucassen, A., G. Widdershoven, S. Metselaar, A. Fenwick, and M. Parker. 2014. Genetic testing of children: The need for a family perspective. *American Journal of Bioethics* 14(3): 26–28. Available at: http://dx.doi.org/10.1080/15265161.2013.879950.

Shkedi-Rafid, S., S. Dheensa, G. Crawford, A. Fenwick, and A. Lucassen. 2014. Defining and managing incidental findings in genetic and genomic practice. *Journal of Medical Genetics* 51(11): 715–723. Available at: http://dx.doi.org/10.1136/jmedgenet-2014-102435.

Ulrich, M. 2013. The duty to rescue in genomic research. *American Journal of Bioethics* 13(2): 50–51. Available at: http://dx.doi.org/10.1080/15265161.2012.754067.

Weiner, C. 2014. Anticipate and communicate: Ethical management of incidental and secondary findings in the clinical, research, and direct-to-consumer contexts (December 2013 report of the Presidential Commission for the Study of Bioethical Issues). *American Journal of Epidemiology* 180(6): 562–564. Available at: http://dx.doi.org/10.1093/aje/kwu217.

The Preference Toward Identified Victims and Rescue Duties

Tomasz Żuradzki, Jagiellonian University

Jeremy R. Garrett claims that the nature and scope of our rescue duties cannot be properly understood and addressed without reference to social context or institutional background conditions. In my comment I focus not on social or institutional but on psychological background conditions that are also necessary for the conceptualization of rescue cases. These additional conditions are of crucial importance since an entire paradigm of "rescue medicine" is founded, as Garret notices, on the powerful and immediate "impulse to rescue" (Garrett 2015). I understand this "impulse" as the preference toward identified victims, and I argue that it may sometimes distort genuine moral judgments in rescue cases.

It is empirically verified that people do not value lives consistently, prefer to rescue identified individuals rather than statistical (Jenni and Loewenstein 1997), and believe that they should prefer them because of moral reasons. The phenomena were confirmed in idealized situations in which there were no personalizing information details about victims like name, gender, or age (Small and Loewenstein 2003). Therefore, "the identifiability of the victim *per se*" could be isolated as an independent factor that influences some rescue decisions. This means that the different reactions to statistical and identified victims do not come down to the amount of information an agent has about victims or to any special relation between an agent and victims (some authors disagree with this last condition; Sheehan 2007).

The most accurate definition of a statistical individual appeals to a "counterfactually open process." This is a process in which "there is no fact of the matter about what its outcome would have been if we had not initiated it" (Hare 2012). For example, let us assume that an agent helps some statistical persons by distributing vaccines against a fatal disease that attacks some population. It means that there is no fact of the matter about what would have happened if vaccines had not been distributed. Admittedly, there is a very high probability that some proportion of the population would have died prematurely, but there is no identified healthy vaccinated person who would have died for sure. Roughly speaking, rescuing a statistical person we cannot expect that there will be a particular person saved by our action who, for example, could thank us for saving her life.

This pure preference toward identified victims is an important factor (although not the only one) in explaining why people are relatively strongly motivated to rescue children drowning in ponds in hypothetical situations discussed by philosophers, but relatively weakly motivated to send money to charities. In medical contexts this

Address correspondence to Tomasz Żuradzki, Jagiellonian University, Institute of Philosophy, ul. Grodzka 52, Krakow, 31-044 Poland. E-mail: t.zuradzki@uj.edu.pl