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The Ethics of Risk Displacement in Research and Public Policy

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Abstract

We identify three distinct ethical problems that can arise with risk displacement. Risk displacement is the shifting of extant risk from one or more individuals to other individual(s) such that the reduction of risk to the first group is causally implicated in increasing risk to the second group. These problems are concentration of risk in inequitable ways; transfer of risk to already vulnerable or disadvantaged populations; and exercise of undue influence over potential research participants. The first two are possible in both public policy and research initiatives, whereas the third is a special concern that only applies to research initiatives. We argue that when one or more of these is of high magnitude, then the study or policy intervention may be ethically wrong. Finally, we conclude that although some risk displacement is ethically permissible, researchers and policy makers still have ethical reasons to reduce the magnitude of these problems.

Keywords

Research Ethics; Risk Assessment; Third Party Consent; Public Policy; Research Nonparticipant; Clinical Trials

Much of the bioethics literature on the ethics of bystander risk exposure – where bystanders are defined as nonparticipants in a research study or public policy intervention – focuses on research studies that expose bystanders to newly created risks. However, research studies and policy interventions may also displace risk from one group to another. We define *risk displacement* as the *shifting* of extant risk from one or more individuals or populations to other individual(s) or populations such that the reduction of risk to the first group is causally implicated in increasing risk to the second group. We show that risk displacement onto bystanders can pose three ethical challenges: concentration of risk in inequitable ways; transfer of risk to already vulnerable or disadvantaged populations; and exercise of undue influence over potential research participants. We argue that when one or more of these is of high magnitude (i.e. risk becomes hyper-concentrated, is transferred to highly vulnerable or disadvantaged populations, and/or exercises strong undue influence over potential participants), then the study or policy intervention may be ethically wrong. Finally, we conclude that although some risk displacement is ethically permissible, researchers and

policy makers still have ethical reasons to reduce the magnitude of these ethically problematic features.

Risk Displacement

In the standard bioethics bystander cases that have been discussed in this research ethics symposium, the risks to bystanders are *created* by the research. For example, consider challenge trial researchers who intentionally infect research participants with contagious viruses such as norovirus in populations where those viruses are not already endemic and as a result, bystanders' probability of being infected with those viruses increases. Because of the resulting risk of contagion, researchers will have created a new risk to bystanders.¹

Both research studies and policy initiatives, however, can also increase bystander risk in another way: namely, by *displacing* extant risk from the target population (i.e., the treatment arm of a study, or the group intended to benefit from a policy intervention) to a bystander population. Risk displacement may occur under a variety of circumstances; in this paper, we focus on foreseeable risk displacement caused by shifts in supply under conditions of roughly constant demand.

For example, consider an initiative that increases police presence in certain parts of the city that are beset by crime. There is some evidence that criminals exhibit roughly constant "demand" for certain kinds of crimes such as simple burglary and thefts from cars.² By increasing patrols in Area A, therefore, the police may reduce those residents' risk of being victimized by crime, but only by increasing the concentration of crime—and hence risk to those other residents—elsewhere in the city. The police have displaced risk of crime from Area A to Area B.³

Or, consider a trial in an HIV endemic area that enrolls adolescent girls in school, partly to reduce their likelihood of engaging in unprotected sex (because they are better educated, not on the streets, more empowered, etc.) and hence reduce their risk of contracting HIV. If girls are having unprotected sex in part because of male demand, and if male demand for unprotected sex remains roughly constant, then girls not enrolled in the trial are now at greater risk of having unprotected sex (and hence also of contracting HIV) than they would be if the pool of sexually-available girls had not shrunk due to the trial.⁴

Both of these cases displace risk from one population—that which receives the presumptive benefit of increased police presence or education—to another population—that which does not. In the research cases, the risk is displaced from the population enrolled in the treatment arm of the trial onto both those in the control arm and bystanders.

The Ethics of Risk Displacement

On its own, an instance of risk displacement is not necessarily ethically wrong. For example, it is ethically permissible for a town's government to increase local police patrols of areas in which burglary is known to occur even if there is significant evidence that constant criminal demand will simply displace those burglaries to a neighboring town. Similarly, it is not unethical for girls to accept grants to attend school simply because their risks of coerced

unprotected sex and HIV infection might be displaced onto others. Nor would it necessarily be ethically wrong for public policymakers who are working under conditions of scarcity to provide only some girls with school vouchers, or some towns with additional police patrols, even though doing so may predictably displace risk to nonbeneficiaries. Policy makers fund such initiatives all the time, and we do not think that they always raise ethical concerns, all things considered.

There are, however, at least three conditions under which risk displacement does raise ethical concerns. The first two of these apply to both public policy interventions and research studies, namely: (1) the inequitable concentration of risk, and (2) the displacement of risk to an already vulnerable or disadvantaged subset of the population. The third concern, which arises in the context of research ethics in particular, is (3) undue influence on the incentives and disincentives of research participation. We discuss each of these in turn.

Concentration of Risk

First, risk displacement may be ethically problematic when it concentrates risk within a subset of the population. All other things being equal,⁵ we may have reason to prefer that risk is more rather than less equally distributed within a population. Risk displacement, however, can often concentrate risk in a subset of the population by decreasing risk to the treatment or intervention group while increasing risk to others. In public policy, risk is concentrated in the group not receiving the benefit; in the case of research, risk is concentrated in the control group plus bystanders. In situations where, prior to the trial or intervention, participants or beneficiaries have a higher risk than bystanders, risk displacement may reduce risk concentration in the participant groups and help equalize their risk with that of bystanders. Under other circumstances, however, risk displacement may worsen risk concentration and contribute to inequalities.

Norman Daniels offers a useful account of the ethical importance of concentrated risk, presenting a variant of a scarce health benefit allocation case where only the concentration of risk varies between the two possible options.⁶ We relay the case as follows:

Treatment/Prevention: You have five pills. These five pills can be used in one of only two ways: (1) you can give all five pills to one individual, Anna, and doing so will cure Anna of a parasitic disease that is guaranteed to be fatal; or (2) you can give one pill each to Betty, Celine, Diane, Edna and Frances, all of whom have been exposed to Anna. Each pill will effectively protect them from the parasite and thus the disease. Without this protection, the parasite will infect and kill exactly one of the five exposed individuals. There are no other ethically relevant differences between the individuals (e.g. they are all innocent strangers and they all stand to lose the same amount by dying).

Daniels argues that we have more ethical reason to treat Anna than protect the other five individuals. This is because while both uses of the pills will prevent the death of exactly one individual, there is a difference in the risk of dying from the parasitic disease. Prior to intervention, the risk is more highly concentrated in Anna. She has a 100% probability of dying without intervention whereas the risks to the other five individuals is less concentrated, as each only has a 20% probability of dying without intervention. We have

ethical reason to cure Anna instead of protecting the five, Daniels argues, because doing so reduces Anna's highly concentrated risk from 100% to 0% instead of reducing the risk of five others from 20% to 0%.⁷ If a view like Daniels' is true, then there is a distinctive ethical objection to risk displacement cases involving risk concentration.

Vulnerable and Disadvantaged Populations

While risk concentration may matter morally even in cases like Treatment/Prevention where none of the six individuals is more vulnerable or disadvantaged than any other in ways other than the health risk in question, it is even more problematic when the risk is further concentrated in, or simply displaced to, a disadvantaged or already vulnerable population such as a stigmatized racial group or a particularly impoverished neighborhood.⁸ This is because displacing risk to and concentrating it among a vulnerable or already disadvantaged population piles further inequity on prior inequity. All else equal, we have stronger reason to prevent inequity from befalling those already undergoing inequity than from those not undergoing inequity (or undergoing less inequity). Policies and research studies should help the least advantaged, not further worsen their lot.⁹

These research and policy interventions are also ethically problematic because vulnerable and disadvantaged populations are least likely to be able to cope if their increased risk turns to actual harm. All else equal, we have stronger reason to avoid increasing risk to those less able to cope if those risks actualize. Consider again our examples of displaced risks: crime and HIV infection. Each constitutes a significant harm in and of itself; each is much harder to overcome or even manage, however, if one is impoverished, part of a stigmatized group, or otherwise marginalized. Finally, disadvantaged populations are also more likely to be on the receiving end of risk displacement. When crime is displaced, for example, it rarely moves from low-income neighborhoods to wealthier neighborhoods. Rather, criminals find even worse-off areas (e.g. inner-ring suburbs) in which to ply their trade. Similarly, it is unlikely that the risk of unprotected sex with HIV-infected men would be displaced onto girls with significant resources; rather, any risk displacement would most likely be onto girls who already lack power or social standing.

For all three of these reasons, then, we have special reason to reduce risk displacement when bystanders are part of a population that is disadvantaged or already-vulnerable.

Undue Influence on the Incentives to Participate in Research

Our third concern about risk displacement applies specifically to research ethics as it pertains to undue influence on the incentives to participate in research. Researchers may improperly influence potential participants' incentives in two relevant ways. First, researchers are typically causally responsible for the process by which the risk is displaced from research participants to bystanders. Were it not for the research trial, the risk would not be displaced from those enrolled in the treatment arm of the trial to bystanders and those enrolled in the control arm. Second, assuming that the trial will proceed regardless of whether or not any particular individual agrees to participate, risk displacement from research participants to bystanders may lead to undue and potentially coercive influence on individuals who are given the option to participate in the research. Given that the trial is

moving forward, every individual has a disincentive to refuse to participate because if they do their risk will increase. They also have a positive incentive to agree to participate in the trial because if they do so their risk will be reduced.

This conjunction of sufficiently strong incentive(s) and disincentive(s) is ethically problematic in ways that an isolated incentive to participate in research alone is not. Having a reasonable incentive to participate in a research trial is not ethically problematic on its own, as is evident in the widespread and in our view acceptable practice of appropriate monetary payments to research participants.¹⁰ However, the conjunction of this incentive with a disincentive for research non-participation is ethically problematic because researchers effectively create a penalty for research non-participation while also increasing the magnitude of the difference in incentives between research participation and non-participation.¹¹ In cases when the penalty is significant in magnitude and the magnitude of the difference in incentives is excessive,¹² and the researchers choose to pursue the trial despite this risk displacement, the offer to participate in that trial may be impermissibly coercive.¹³

For example, consider the HIV study described above, which aims to test a causal hypothesis: namely, that sending girls to school reduces their risk of HIV infection due to lower rates of unprotected sex. Imagine that the investigator plans to enroll 80% of eligible girls in a village in the study, splitting them equally between the treatment and control arms. Those in the treatment arm will have their school fees fully paid for two years. Those in the control arm as well as those not enrolled (i.e. bystanders) will not receive any benefits.

Assume, as we outlined at the beginning of this paper, that girls have unprotected sex in part in response to male demand, and that male demand stays roughly constant. If the aforementioned hypothesis is also right – that girls in school have less unprotected sex – then that means that the girls in the control arm, girls who are bystanders, and non-adherent girls in the treatment arm are at greater risk of being solicited by men for unprotected sex.

Now, consider the incentives at work when researchers are trying to recruit trial participants: *If you enroll in this research study and the intervention has the impact we hope for, then you have a 35% chance of having a substantially decreased risk of contracting HIV over the next 15 years, and a 65% chance of having a moderately increased risk of contracting HIV over the next 15 years. Overall, your risk of HIV infection would be slightly reduced if you enroll.* Depending on her level and direction of risk aversion, it seems reasonable for any individual girl to enroll or to choose not to enroll in the study. This is clearly not coercive.

Bystanders, however, face a different calculus.¹⁴ If the researchers are transparent and forthcoming about the risks they foresee to girls who are not enrolled in the trial, they must explain:¹⁵ *If we conduct this research study in your community and the intervention has the impact we hope for, then the entire community may see a slight decrease in the rate of HIV infection, but your personal risk of contracting HIV over the next 15 years will moderately increase by up to 20%, since you are not enrolled in the study.* Under this description, bystanders have self-interested reasons to oppose the study. Unless they are particularly altruistic, they are unlikely to support the research study in their village. If this research

project were subject to approval through a community consultation, it would presumably never get off the ground.

Now let us assume, however, that the research study has been approved to take place. Now girls' calculations about whether or not to participate necessarily shift in a way that reveals their diminished autonomy thanks to manipulated incentives. As researchers describe the study, they explain: *If the intervention has the impact we hope for, then the entire community may see a slight decrease in the rate of HIV infection. If you choose not to enroll in the study, however, your personal risk of contracting HIV over the next 15 years will increase by up to 20%. If you choose to enroll, your personal risk may still increase by the same amount (20%), but you also have a 35% chance of having a significantly decreased risk of HIV infection.* Under this description—which, it is important to note, is mathematically identical to the previous two descriptions; nothing about the research study or its anticipated outcomes has changed—it no longer makes sense for a girl to choose not to enroll in the study. Her personal risk aversion notwithstanding, the *only* rational choice for her to make is to enroll in the study and hope she gets assigned to the treatment arm.

Even when the difference in incentives between research participation and non-participation is much smaller than this, there are still reasons for researchers to reduce the risk displacement to bystanders. These reasons are independent from and in addition to the general reasons everyone has to reduce harm and potential harm. In virtue of the fact that the researchers are displacing these risks towards bystanders, reduction in those risks will not only reduce the harm and potential harm, but also reduce the undue influence researchers have on potential research participants.

Conclusion

As other entries in this symposium have shown, the ethics of risks to bystanders of research is an important but under-theorized part of research ethics. One important step towards better understanding this important part of research ethics—and also of public policy ethics—is establishing ethically-relevant subcategories of bystander risk. This paper has argued that risk displacement may be ethically problematic due to three features: its inequitable concentration of risk in a subset of the population; its imposition of additional risk specifically on already vulnerable or disadvantaged populations; and its undue influence on the incentive structure so as to effectively diminish people's autonomy in deciding whether or not to participate in a research study. When the magnitude of any, let alone each, of these features is excessive, pursuing the research trial or public policy may be ethically wrong. Even when all three are low or moderate, researchers and policy makers still have reason to try to reduce their magnitude further. These are in addition to the reasons everyone has in general to reduce risks on others, but special to the public policy and professional research contexts where policymakers or researchers displace risk from participants to bystanders.

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Biography

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References

1. Cohen J. Studies that intentionally infect people with disease-causing bugs are on the rise. *Science* 2016; doi:10.1126/science.aaf5726
2. For evidence of this phenomenon at work in Switzerland and Chicago, see Grossrieder Lionel, Chopin Julien, Jendly Manon, Genessay Thibault, Baechler Simon (2017) “Nothing is permanent except change: A case study of crime displacement in Switzerland.” *Security Journal* 30: 749–771. Link: 10.1057/sj.2015.24; Melsness David and Weichelt Ryan. “Spatial Crime Displacement on Chicago’s South Side.” *The Geographical Bulletin* 55: 63–80. Link: <https://gammathetaupsilon.org/the-geographical-bulletin/2010s/volume55-2/article1.pdf>
3. It is worth noting that the most recent meta-analysis of studies of increased policing in crime “hot spots” has concluded that crime displacement is relatively uncommon, and that the overall reduction in crime outweighs the risk of geographic displacement of crime. Nonetheless, displacement is also a risk under some circumstances. See Braga Anthony A., et al. (2019) “Hot spots policing and crime reduction: an update of an ongoing systematic review and meta-analysis.” *Journal of Experimental Criminology*: 1–23. Link: 10.1007/s11292-019-09372-3
4. Note that this is a hypothetical example; although two trials have examined the effect of conditional cash transfers on sexual behavior and HIV risk, there is no published data one way or the other about the degree to which girls’ unprotected sex is driven by male demand, nor how male demand for unprotected sex with school-age girls plays out in practice when girls’ availability changes. See Baird, Sarah J Garfein, Richard S McIntosh, Craig T, and Özler Berk. Effect of a cash transfer programme for schooling on prevalence of HIV and herpes simplex type 2 in Malawi: a cluster randomised trial. *The Lancet* 379, ISSUE 9823, pp. 1320–1329, 4 07, 2012. Doi: 10.1016/S0140-6736(11)61709-1; Pettifor A, MacPhail C, Hughes JP, Selin A, Wang J, Gomez-Olive FX, . . . Kahn K. (2016). The effect of a conditional cash transfer on HIV incidence in young women in rural South Africa (HPTN 068): a phase 3, randomised controlled trial. *Lancet Glob Health*, 4(12), e978–e988. doi:10.1016/s2214-109x(16)30253-4. [PubMed: 27815148] Extensive work has been done, however, on the methodology to measure such effects: Baird, Sarah and Bohren, J. Aislinn and McIntosh, Craig and Ozler, Berk, Designing Experiments to Measure Spillover Effects, Second Version (June 17, 2015). PIER Working Paper No. 15–021. Available at SSRN: See also a recent model of the possible effect of conditional cash transfers on risk displacement: McCormick AW, Abuelezam NN, Fussell T, Seage III GR, & Lipsitch M. (2017). Displacement of sexual partnerships in trials of sexual behavior interventions: a model-based assessment of consequences. *Epidemics*, 20, 94–101. [PubMed: 28416219]
5. For example, assuming people are equally morally responsible for and would be equally harmed by their risk exposure, and that increased risk exposure does not yield increased possible benefits of other sorts, such as income or jobs.
6. Daniels Norman. ‘Can There be Moral Force to Favoring an Identified over a Statistical Life?’ in Cohen IG, Daniels N, & Eyal NM (Eds.). (2015). *Identified versus statistical lives: an interdisciplinary perspective*. Oxford University Press.

7. Daniels Norman. 'Can There be Moral Force to Favoring an Identified over a Statistical Life?' and Frick, Johann. 'Treatment versus Prevention in the Fight against HIV/AIDS and the Problem of Identified versus Statistical Lives' in Cohen IG, Daniels N, & Eyal NM (Eds.). (2015). Identified versus statistical lives: an interdisciplinary perspective. Oxford University Press. Daniels While and Frick believe that we have ethical reasons to reduce risk concentration, some argue the opposite. See, for example, Eyal, Nir. 'Concentrated Risk, the Coventry Blitz, Chamberlain's Cancer' in Cohen IG, Daniels N, & Eyal NM (Eds.). (2015). Identified versus statistical lives: an interdisciplinary perspective. Oxford University Press. We do not take a position on the debate here, except to note that those who care about risk concentration should also therefore care about the potential concentrating effects of risk displacement.
8. Displacing risk to disadvantaged or already vulnerable populations is sometimes a form of risk concentration, insofar as the total amount of risk is now more highly concentrated in this population. However, it merits separate analysis because the effects of displacing a specific risk onto a vulnerable or disadvantaged population have ethical import independent of the total amount and concentration of risk of all kinds. For example, a population can be disadvantaged relative to another population without there being any difference in their risk exposure by simply being worse off in terms of their wellbeing. We are grateful to Nir Eyal for raising this point with us.
9. This is similar to Harris's 'double jeopardy' objection. Harris J. (1987). QALYfying the value of life. *Journal of medical ethics*, 13(3), 117–123. [PubMed: 3669036]
10. Dickert N, & Grady C. (1999). What's the Price of a Research Subject? Approaches to Payment for Research Participation. *New England Journal of Medicine*, 341, 198–203 DOI: 10.1056/NEJM199907153410312. Wilkinson M, & Moore A. (1997). Inducement in research. *Bioethics*, 11(5), 373–389. [PubMed: 11655117] Largent EA, & Lynch HF (2017). Paying research participants: Regulatory uncertainty, conceptual confusion, and a path forward. *Yale journal of health policy, law, and ethics*, 17(1), 61–141.
11. It should be noted that research that does not displace risk but creates risks for bystanders and involves monetary incentives for participants will also have this unethical incentive/disincentive structure.
12. What is excessive is a matter for further debate and is beyond the scope of this paper. We can, however, say more about what the threshold will depend on. The threshold between excessive and non-excessive will depend on both the probability of the risk (i.e. how likely the risk will eventuate), as well as the severity of the risk once it eventuates (i.e. the magnitude of the adverse effect). In addition, the threshold will depend not only on the risks, but also the (potential) benefits of the trial. Research without significant potential benefits is harder to justify than research with significant potential benefits.
13. Furthermore, insofar as offers to participate in the trial are necessary conditions for the trial to go ahead, the trial itself may also be rendered ethically impermissible.
14. Note that while some girls may have the option to choose between being a research participant or a bystander, some may not have this option available because it is not feasible to conduct research on the entire population. This optionless group does not suffer from the conjunction of incentive and disincentive discussed here, but is potentially subject to the two other ethical problems raised in this paper as well as other ethical concerns (e.g. regarding consent) beyond the scope of this paper.
15. On researchers' ethical requirement to engage with the community beyond merely potential and actual research participants, see King KF, Kolopack P, Merritt MW, & Lavery JV (2014). Community engagement and the human infrastructure of global health research. *BMC medical ethics*, 15(1), 84. [PubMed: 25495054]