

Deborah G. Johnson's Commentary on "But For the Fear of What You Might Find Out"

Commentary On
But For the Fear of What You Might Find Out

This case illustrates an extremely complex and difficult issue for researchers involved with the development of new technologies. At the heart of the case is uncertainty and the role uncertainty plays both in technological development and in ethics. Uncertainty makes for difficult decision making.

In one of the first textbooks on engineering ethics, Martin and Schinzinger, Michael, and Schinzinger, Ronald. *Ethics in Engineering*. New York: McGraw Hill, 1983, 1989. suggested that engineering should be understood as social experimentation. They argued that engineering should be seen on the model of medical experimentation since engineering always involves some degree of risk and uncertainty. Even if engineers are building something that has been built before, the new undertaking will involve differences that may affect the outcome ` a different environment, different materials, a different scale and so on. Martin and Schinzinger seemed to believe that the risk and uncertainty of engineering undertakings had not been sufficiently recognized. Consequently, those who are put at risk by an engineering endeavor are rarely involved in the decision making or given an opportunity to consent or withhold consent.

In this case, engineering and medical experimentation are fused. There is no distinction. Nevertheless, the fact that the engineering endeavor is framed as medical experimentation does not seem to make the ethical issue any clearer or easier. The powerful role played by uncertainty is quickly brought into focus when we compare this case to a hypothetical situation in which researchers use standard imaging modalities to test some other aspect of the machinery. Suppose, for example, that researchers are testing a new, ergonomic design for a machine that deploys standard imaging modalities. The researchers discover an anomaly in the

breast of a research participant. I believe the researchers would not hesitate to inform the patient and her doctor; they would be confident with regard to the significance of the finding.

The researchers hesitate in this case because they are uncertain of the meaning of their finding and they do not want to cause unnecessary stress to the participant. This response is understandable given that the engineers are so unsure about the validity of the imaging modalities.

The situation is actually not so uncommon in engineering. Often engineers and scientists have evidence, but the evidence is limited and doesn't give them the certainty they need to make a decision. This parallels the situation in which Roger Boisjoly found himself with regard to the launching of the Challenger. Boisjoly, Roger. "The Challenger Disaster: Moral Responsibility and the Working Engineer" in D.G. Johnson, *Ethical Issues in Engineering*. Englewood, N.J.: Prentice Hall, 1991. Boisjoly had some evidence that the O-rings behaved differently in extremely cold temperatures, but he had not had time to do further testing to establish how the O-rings would function. He had evidence, but he was unsure of the meaning or strength of the evidence. Was it strong enough to justify stopping the launch of the Challenger? Was it weak enough to be ignored? It just wasn't clear.

The parallel with this case should be obvious. Is the evidence strong enough to contact the participant or her physician? Weak enough to be ignored? It just isn't clear.

In situations of this kind, many factors come into play: the severity of the risk involved, the timeframe before outcome, details of the domain (spaceships, breast cancer, etc.), the possibility of gathering further evidence, and so on. In the case at hand, the severity of the risk of saying or doing nothing is high in the sense that a woman's life is at stake.

The engineers are reluctant to inform the woman for fear of causing her unnecessary stress. While this attitude is understandable, it also hints at paternalism. Their hesitation presumes that the woman is not capable of understanding the uncertainty of the data and the risks at stake. Thus, I believe the researchers did the right thing by telling the woman and her physician about their discovery, and I am inclined to think they should have done so earlier. Nevertheless, I admit this case is difficult because of the uncertainty of the data.