

# A Star Trek exploration into the usage of data obtained from unethical medical experiments

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## Abstract

Although the medical community has conclusively agreed that unethical research should not be performed, it is less clear what to do with data obtained from previous unethical experiments. It is difficult to discard data that may hold potential to improve or even save lives; unfortunately, the data will never exist separately from the unethical conditions in which it was generated. Using a relevant *Star Trek: Voyager* episode as a framework, this paper considers how to be ethical stewards of data that was obtained unethically.

*Keywords: medical ethics, medical research, data stewardship*

*Star Trek: Voyager* is a futuristic television series set in outer space. The show features an episode titled *Nothing Human* in which the central premise is the ethical struggle between wanting to save a life but having no means to do so other than to use a therapy developed through unethical experimentation. In this episode, one of the characters, Lieutenant Torres, is attacked by a fatal alien virus for which the lieutenant's physician, known as 'The Doctor,' has no treatment. It becomes apparent that without urgent medical therapy Lieutenant Torres will suffer an untimely death. All hope in saving Lieutenant Torres appears lost until The Doctor learns that an astrobiologist, Crell Moset, holds knowledge of a treatment that will save Torres. However, The Doctor faces an ethical dilemma: Moset discovered this treatment by performing grossly unethical experiments on test subjects – specifically, he had intentionally infected his test subjects with the fatal virus to perform his experiments

Though fictional in nature, this scenario parallels unethical human experiments such as those carried out by Nazi Germany (the Nuremberg experiments) and the Japanese (Unit 731) during World War II. The decision to use or to not use data sourced from unethical experimentation remains contentious when the resultant data could be of potential benefit to humankind. Some argue that the use of unethically-obtained knowledge is justified by the moral obligation to treat those in need, whereas others contend that the use of such knowledge sets a dangerous precedent for future research, and further disrespects the victims of these experiments. Using the ethical dilemma established in *Nothing Human* as a framework, this paper will explore three questions

regarding the use of data obtained from unethical experimentation: (1) Should The Doctor treat Lieutenant Torres with the therapy provided by Moset? (2) Should the data collected by Moset be released to the public? and (3) Is there a proverbial tipping point of benefit versus harm at which it becomes morally acceptable to use data obtained from unethical experimentation?

## 1 Should the Doctor treat Lieutenant Torres?

*In Nothing Human, The Doctor cannot bring himself to let Torres die and chooses to use the information from Moset to save her life.*

The development of the life-saving therapy used to treat Lieutenant Torres in *Star Trek Voyager* involved research performed on humans who were coerced into giving up their lives or well-being. Specifically, these individuals were enemies of Moset, whose lives were deemed to have no value. The unethical experimentation presented in *Star Trek* mirrors that which has occurred in real life. During WWII, several armies across the world were reported to have performed medical experiments on their prisoners. For example, investigations into potential effective treatments for hypothermia were performed by subjecting human prisoners to sub-physiological temperatures, and then rewarming these individuals via various re-heating methods.<sup>1</sup> By today's standards, it would be considered unethical to try to replicate these experiments. However, some scientists believe that the data obtained from these experiments could be highly beneficial in guiding modern hypothermia treatment;<sup>2</sup> others have questioned the va-

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lidity of these experiments.<sup>1</sup>

Physicians have a moral obligation to hold their patient's best interests in mind. Formally, this describes the ethical principle of *beneficence* — the goal of maximally promoting the welfare of the patient. If a patient was on the verge of death, it would be tragic if a lifesaving treatment was available, but withheld. Extrapolating from that situation — if lifesaving medical knowledge could be gained from data collected unethically during World War II, would it be “wrong” to use it now, knowing the suffering that occurred in generating it? Or is it ethically preferable to try to achieve some good at the present time, since the harm to the experimental subjects has already been done? Then there is the question of how best to honour the experimental subjects. Some suggest that we should decline to use the experimental information out of respect, while others propose that using the information for benevolent purposes constitutes a form of respect. We might also consider that if we decline to learn what we can from the experiments conducted, to what extent are we inadvertently “punishing” the people whose lives could be saved or improved by resultant treatments?

Beneficence may suggest that ethical violations in the past do not give license in the present to withhold, forsake, or fail to develop effective treatments. However, the principle of *justice* may suggest a different course of action. A Justice framework should be considerate of the extreme human rights violations and the severe physical and emotional trauma experienced by many prisoners of war during the mid-twentieth century conflicts. Although use of the data may provide benefit to patients now, such data will always be tainted by its means of collection.

## 2 Should the data collected by Moset be released to the public?

*In Nothing Human, it is decided that the experiments were too brutal to justify releasing the information to public.*

Thus far this paper has explored the ethical considerations of using unethically sourced medical knowledge at an individual patient level. What are the effects at the population level? Releasing such data to the public may implicitly validate the unethical experimentation. This can be particularly harmful to the individuals and groups who have been wronged in the past by unethical experimentation. For instance, despite the Tuskegee syphilis experiment having been terminated in 1972, the negative effects from this unethical experiment still resonate today; it is hypothesized that the negative sequelae have fostered a distrust of the healthcare system within the African American community (which some researchers believe has been experimentally detected).<sup>3</sup> Thus it is reasonable to conclude that public distribution of unethically sourced medical information, such as that which was procured during WWII, could lead the public to perceive the healthcare system as condoning unethical research on vulnerable individuals.

The release of data obtained from unethical medical experiments may also set a dangerous precedent for future research. In *Nothing Human*, the cure for Torres's viral infection was obtained by Moset by intentionally infecting Bajorans, a humanoid extraterrestrial species, in the experimental process. This scenario mirrors the development of the first ever vaccine, created by Dr. Edward Jenner.<sup>4</sup> Jenner, often referred to as the father of immunology, made the observation that milkmaids exposed to the cowpox virus were less likely to be infected by smallpox. To prove that prior inoculation with cowpox rendered individuals immune to smallpox, Jenner inoculated his gardener's son with cowpox and then exposed the child to the deadly smallpox virus. (Perhaps Jenner considered his gardener's son to be more expendable than his own children, mirroring Moset's selection of experimental subjects.) Such an experiment would certainly be deemed unethical by today's standards; however, Jenner's experiments saved countless lives and pioneered the concept of a vaccine. While Jenner's methods lie within a moral grey area, especially by modern standards, it is reasonable to assume that most people, and certainly most physicians, support the continued use of vaccines. Most would agree that ethics are (at least partially) relative to the society in which they arise; a large amount of medical knowledge would have to be withheld if we chose to disregard all research conducted in a manner unethical by today's standards.

## 3 Is there a proverbial tipping point at which it becomes morally acceptable to implement medical knowledge obtained from unethical experimentation?

There are numerous considerations to be made in determining if the data collected from previously-conducted, unethical medical research should be used to guide current medical practice. Firstly, while all research that disregards human rights is unethical, some research is more unethical than others. Thus we must consider the *degree* of egregiousness and disregard for ethical standards, as well as the extent of actual harm inflicted on the research participants. It is also worth noting that as society and technology have evolved, so too has medical ethics. Therefore, in considering whether or not it is appropriate to implement medical knowledge obtained by means considered unethical by today's standards, it may be prudent to view these scenarios under a lens of cultural relativism, rather than to simply judge the past as unethical based on today's expectations.

Secondly, the research in question should be critically assessed for its potential to improve patient quality of life and/or contribute to science. Jenner's method for creating immunity against smallpox was unethical by current standards, however, the alternative means for smallpox prevention at the time had been via variolation, a method that killed many individuals. Further,

Jenner's experiments were also performed prior to the development of formal codes of ethics, and the findings from his experiment were hugely beneficial. Conversely, the experiments performed on prisoners during WWII were particularly inhumane and in clear violation of the contemporaneous ethical standards. It is also not obvious that the data from the WWII experiments would have a significant impact on medicine or science. Despite these concerns, the WWII experiment data have been referenced in at least 45 written works.<sup>5</sup>

The ethics surrounding the practice of publishing such data remains unclear. As there is clearly a moral greyscale in assessing whether the results of a study can be used ethically, herein must lie a proverbial tipping point at which we decide "Yes, the information gained from this medical research should be used," or "No, it should not." Different people may perceive the tipping point to be in different locations, and it may be more of a "gradual transition" than "strict point," but there must be a place where the shades of grey begin to look more black than white. An in-depth philosophical or psychological examination of this transition point is beyond the scope of the paper; however, this would be a fascinating topic for future work.

## Conclusion

The medical community agrees that unethical research should not be performed. This is borne out by the rigorous scrutinizing that prospective research studies undergo when being assessed by research ethics committees. However, the ethics of when to use data obtained from previous unethical experiments are considerably less clear. It is rightfully challenging to discard data that could improve or save lives; unfortunately, this data will never exist separately from the unethical means by which it was obtained.

The medical experiments performed in *Nothing Hu-*

*man* were deplorable from a modern cultural perspective. However, the data from these experiments contained great potential to improve human health. Provided that Torres was presented information regarding the source of the data and given the opportunity to appropriately consent or not consent to the treatment, I agree with The Doctor's decision to treat her. This decision underscores the value of Torres's life, which I believe outweighs the potential downsides of using the data. However, releasing the data to the public would involve additional downsides, such as (1) setting a poor public precedent for future research, and (2) possibly contributing to further isolation of vulnerable individuals from the healthcare system. As such, I also agree with the decision in *Nothing Human* to withhold the data from the public.

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