The article, "Useless Studies, Real Harm" by Carl Elliott, discusses a type of scientific research study known as a "seeding trial" which he considers wasteful. His proposition is that this kind of research is only used to promote drugs of pharmaceutical companies since the companies employ doctors to use their drugs, making them more likely to prescribe them in their future career time. This type of experiment has no scientific benefit but profit, making doctors familiar with new drugs. The volunteers "naively sign up, unaware of the ways in which they are being used" (para.4); they are hoping that they have contributed to generate knowledge about the drugs that will help improving the development of the drugs.

Carl Elliott believes in the idea of the categorical imperative, a concept of ethics proposed by Immanuel Kant, an influential German philosopher in the 17th century. Elliot argues that "when a company deceives [patients] into volunteering for a useless study, it cynically exploits their good will, undermining the cause of legitimate research everywhere" (para.10). The action of the company violates the Formulas of Humanity and Autonomy, which state that every rational being, the volunteering patients in this case, has their own will, to contribute generating knowledge about the drug, which is their source of rational action to volunteer. In addition, constraining others and treating free willing agents as a means, which is using the patients as a medium for increasing the sale and production of the drug, also contradicts the Formula of Universality. If this becomes a universal law that every pharmaceutical company implements the seeding trial to promote its drugs, the number of patients volunteering for scientific study will reduce, which hinders the process of drug development in general. Public enthusiasm will diminish on account of the exposure of seeding trial in which authorized pharmaceutical companies deceive people, lying to the public for profit, the money. Because of the lack of volunteers, the real research studies for side effects of a new drug at its developing stage on human beings cannot be concluded thoroughly.

Nevertheless, one can argue that the seeding trial could possibly result in a positive long-term consequence. Considering utilitarianism, a seeding trial might be the fastest way to promote a new type of drug, as customers and doctors tend not to accept it when it just enters the market. They will continue to use the old ones, the ones they trust, the ones that have reputations; they might not even notice the existence of the new drug. The seeding trial, in this case, acts as the medium for the doctors to be introduced to the new drug which may be better. It is certainly true

that certain precondition does take place. The type of drug used in the seeding trial must be first approved by the F.D.A, the Food and Drug Administration so that its safety is confirmed.

If the new drug is in fact, more beneficial and effective with a cheaper cost than any of the similar drugs on market, seeding trial might be necessary for many of the doctors to know the existence of the drug. Even if some doctors already know of its existence, they would not have the opportunity to properly understand the performance of the drug. In ordinary clinic setting, the only source of getting knowledge of the effectiveness of a drug for the doctors is to gain feedbacks from their patients during their next referrals. The doctors take years to know the effectiveness the drug, and placebo effects would likely occur on patients. Seeding trials also control the placebo effects so that the doctors would gain a sufficient understanding of the effects of the drug in a short period of time. They would be able to help constructing the reputation of the new drug more rapidly, which leads to a better drug usage faster, benefiting the patients faster by lowering their cost of buying medication and enhancing the effectiveness of the medication. The difference between the time it takes to promote a new drug with and without a seeding trial can cause a large disparity in the degree of benefits. Seeding trials could actually maximize these benefits.

Although the example given in the article, "a seeding trial of the pain reliever Vioxx conducted by Merck" (para.6) has caused the death of three subjects and heat attacks of five more subjects, utilitarianism argues that benefiting the greatest amount of people, the millions of potential patients who suffer under pain and rely on pain relievers in the future, outweighs the deaths of few individuals. The action, "seeding trial", under consequentialism, is good since it brings the greatest good to the greatest amount of people as if the drug used in the seeding trial performs better and benefits more patients while being promoted. Furthermore, the doctors who cannot gain hands-on experiences to test new types of drugs are provided the chance of getting employed to gain the training. These doctors then become more professional and more experienced, who also benefit their future patients to receive better-quality appointments and treatments.

To conclude, both the categorical imperative and utilitarianism, two concepts of ethics, have their own standing point. Viewing under the ethics theory of the categorical imperative, seeding trial is undeniably, pointless and destructive. It violates volunteers' will and uses them as a means for profit. However, viewing under another idea of ethics, utilitarianism, a branch of the

consequentialism, seeding trial is acceptable and useful to promote new drugs and could possibly advantage the usage of medication for the patients, reducing the cost of the drugs that have a greater curing capability. Nowadays, the majority of the public has a combination of ethics theories, whereas some people cannot accept seeding trials at all, and others believe that seeding trails are reasonable under certain restrictions.

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