

In IPRO 319, our design was to assist with the resuscitation of a person undergoing cardiac arrest. In assessing the ethical aspects of our design the seven steps as indicated by the IPRO department were followed. The steps were to State the problem, to check the facts, to state the specifications, to develop a list of five options, to test the options (harm test, publicity test, defensibility test, reversibility test, virtue test, professional test, colleague test, organization test). Finally, to make a tentative choice and a final choice. The conflict of interest that existed was what the role of our project would be in terms of usability in the bigger scheme of the current CPR process (ie. how could we feasibly test our project, when the cause of resuscitation had not been established in animal models). Diversity of specialization moderated each team members conceptualization of the purpose of the machine. Through extensive communication, a final project was established to meet the mutual needs of the group.

IPRO 319 had team members that had different understandings of what could be accomplished within the semesters time that was granted. Some members believed that research should be accomplished to further understand why the animal models worked to resuscitate the heart, and then to establish the differences between the animal models and the human application. These members also wanted to devise ways to make the machine testable. Other members wanted to construct a device that would be able to replicate the shaking pattern of the animal model without actually testing it on a subject. Finally there was a third group that wanted the project to address the applications of an ideal machine that would resuscitate a person. Everyone had the opportunity to explore a tiny fraction of their interest and integrate the ideas into a workable mock up for the end of the semester. Ideas that conflicted with others required checking background information.

The second step as outlined by the IPRO office was to check the facts. Research from previous semesters, patents, as well as published research was obtained. It was found that with our research there were no tests that had been conducted on people in the same manner as the animal tests had been. We were left to make assumptions, and build based on the frequency specifications by the research, and the weight measurements of a grown adult. Given the financial constraints of the IPRO, a platform and a cooling unit were constructed. Finally, instead of trying to build a bed that would be for a human, testing on a turkey would yield its own results that could be used by future researchers. We decided that we could create ideal situations where the bed could be utilized, as a suggestion, should the bed be found effective in humans in the future. Our end product is geared towards medical researchers first, with the capability for modification in the future for everyday use.

The third step was to state specifications. The bed would be utilized by medical researchers for human participants. We built our bed based on the weight and the height of the average person. The mattress was based on the temperature of the average person and the conductance was made in that regard. The functional test was specified for a turkey model that is similar to a human in terms of cellular material. Due to the NIH specifications, we were not allowed to conduct human or animal experiments.

If the project were progressed, the ethical consequences would be discussed only

after extensive in lab research with the actual human subjects. This is the most important aspect of the project. It isn't possible to project its usability if it is unknown if its beneficial or detrimental to cardiac arrest victims. Further specifications could be made so that good Samaritans would be able to utilize the machine.