Walker Poston

Dr. Sean Hayes

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The Therac-25 was a "computer-controlled radiation machine" that was involved in six accidents that resulted in serious injuries to the patients who were treated with them ("Therac-25"). In these accidents, the patients were given extremely high doses of radiation, which resulted in death or serious injury. In the six accidents that involved the Therac-25, they were all the result of a different error that the machine produced. The incident in Ontario Canada produced a "H-tilt" error message while the incident in Texas produced a "Malfunction 54" error message.

With the same machine running into so many different problems, it brings to question whether or not this machine had been thoroughly tested enough before being put into hospitals to be used on patients. The amount of testing depends on what the product will be doing. Testing for medical equipment, like the Therac-25, might need to be longer and more thorough than testing for a computer system, but testing is costly and can make using the machine more expensive for patients. But just because it may cost more for the patient to use does not mean it should sacrifice the reliability of the machine. If a machine like the Therac-25 were developed today, it would violate the IEEE Code of Ethics because it would not "hold paramount the safety, health and welfare of the public" (IEEE Code of Ethics). The purpose of the Therac-25 is to save someone's life by treating their cancer, not deliver fatal doses of radiation that will ultimately

end killing the patient later. It says in the Bible to “do to others as you would have them do to you” (*NIV*, Luke 6.31). The staff in charge of running the Therac-25 knew it had problems but still used it on patients. If I knew or was told about the Therac-25 being faulty and it could possibly give me a extremely high dose of radiation, I would definitely not use it.

According to the article “the software for the Therac-25 was developed by a single person, using PDP 11 assembly language, over the course of several years” (Leveson and Turner). Most engineers are required to go through a certification process to become a licensed engineer, but there is no such process for Software Engineers. I believe that there should be certification process for software engineers only if their software will be used in products that could have life-threatening consequences if a bug or failure in the software were to occur. For example, software a video game or for a mobile app should not require an engineering license, but for software that is in self-driving vehicles, airplanes or medical equipment like the Therac-25 should require some sort of license. Thinking about it now, it does not seem right for a software engineer, who has no certification or license to be able to create software for products like the Therac-25.

References

"IEEE Code of Ethics." IEEE, https://www.ieee.org/about/corporate/governance/p7-8.html.

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"Therac-25." Wikipedia, Wikimedia Foundation, 10 Sept. 2022, https://en.wikipedia.org/wiki/Therac-25.

The Bible. New International Version.