

# The Anesthesiology and VEX Connection

Team:190D

Woodland Middle School

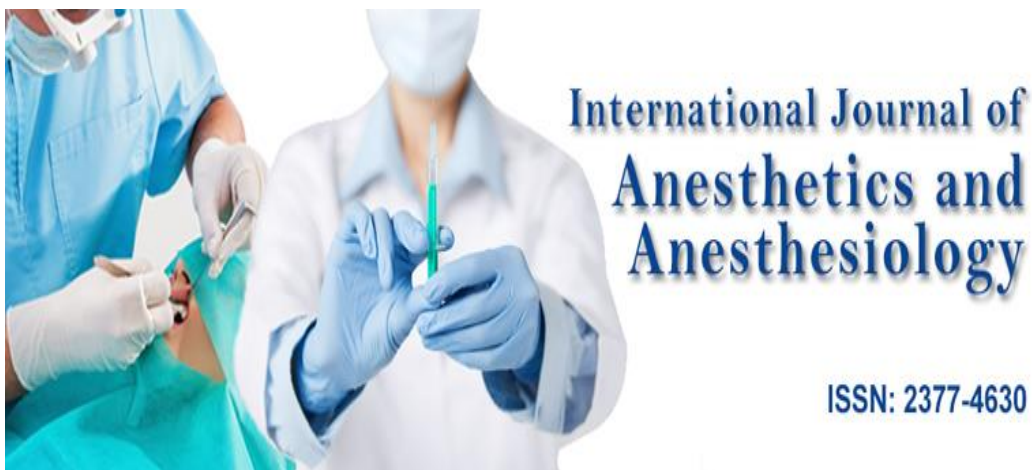
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Competing in VEX can help prepare you for a career in a STEM field. An anesthesiologist is a STEM career that is a special type of doctor that deals with anesthesia. Anesthesia is a type of medicine that causes people not to feel any pain when they have surgery and right after their surgery. Doctors need to know what effects anesthesia has on the human body based on the other medications they have in their system. Our team chose the career of anesthesiologist because anesthesiologists use the engineering design process (EDP) in every aspect of the job. Whether it is administering the anesthesia, using an oxygen mask to deliver the anesthetics, or using an anesthetic vaporizer to get rid of it. An anesthesiologist needs to know the EDP and utilize it to be successful in their career. In VEX robotics you must use all parts of the EDP while completing your tasks if you want your team and your robot to be successful and do what it is supposed to.

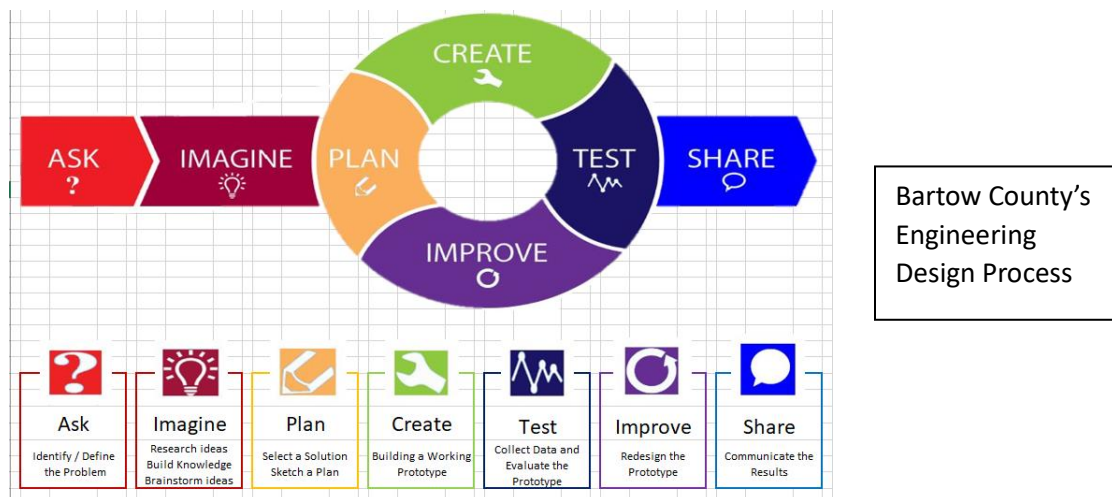


The engineering design process starts with “Ask.” The anesthesiologist needs to ask themselves how much anesthesia do I need, what type of anesthesia, what will the side effects be, how will the anesthesia interact with the person’s other medications, and what will those interactions do to them? This applies to our team because we must ask ourselves how our robot will work with the other teams’ robots during the sessions. The next part of the engineering design process is “imagine.” They need to imagine what will happen after the anesthesia is admitted into the body or what they will do if the anesthesia causes a reaction within the body that is harmful such as swelling, blockage of airways, or much worse. This section of the engineering design process plays a big part in our team while we are constructing our robot.

When we start building, we must imagine how our robot will work and how to build it to do that task. The next section is “Plan.” Anesthesiologists use the plan section every time they have a new patient. They must plan on how they are going to give out the anesthesia. Once they make their plan of action, they have to make sure that the plan is going to work correctly so it will not harm their patient. They must make sure it is the right amount for the certain procedure that is going to happen. Different procedures are different lengths of time and require different amounts of anesthesia. For our plan in robotics, we discussed how we wanted to conduct our missions based on what our partner teams might be doing. We came up with

several plans that our robot was capable of based on what our partner teams might be doing. We drew out our missions which is the create portion of the EDP. For an anesthesiologist, the “plan” would be for them to fill out their chart with the patient’s information and medication being administered.

The “improve” portion would be when the anesthesiologist reflects on what they could do better on the next patient and works to figure out how to administer the anesthesia quicker and easier. Our team uses the improve part of the EDP to make our robot better. There are many times when we had to go back to fix what we had imagined and try something new. Sometimes we built an entire robot, only to rebuild a completely different robot because it wasn’t doing what we wanted to accomplish with our missions. We also discussed what we needed our teammates to do better at our next competition and what we needed to fix with our codes and robot design. For the “share” portion of the EDP, an anesthesiologist collaborates with fellow colleagues about what when right and what when wrong in surgeries in order to fix an issues that might come up in the future. In the share portion for our team, we share what we think we need to work on with our coach and all discuss what our future goals should be.



Vex competitions prepare you for future career opportunities in many ways. The first way would be having to work with a random set of teammates that you only met minutes before. When an anesthesiologist first starts, they do not know anyone that they are going to be working with, but they must quickly learn and adapt. They could also be working at a new hospital or traveling to different hospitals to help out. Secondly, at VEX competitions you must be organized and ready. If you are not organized, you will not be prepared to do any of the missions. For example, if you need to use autonomous code and you do not have it, there is nothing you can do. Or if you forgot or cannot find your battery or remote, you cannot complete the driving part of the mission. When you’re an anesthesiologist you must be prepared with all the medical instruments and medication that will be needed for the procedure. You must be ready to utilize them to the best of your ability. Finally, working with a VEX team and VEX

competitions prepare you to be confident when going into something new with unknown people, crowds, and judges. When you are nervous it could make you mess up and not perform well or it may even make you do something incorrectly. If an anesthesiologist is nervous before the operation, they could do something incorrectly and mess up administering the anesthesia. That could cause a reaction within the body that could be harmful, or they may not give enough anesthesia, and cause the person lots of pain, which could make them liable to have legal action taken against them. This is why anesthesiologists practice for so long and are very confident before they can do their job on their own. There are many things that connect anesthesiology and VEX when you consider the engineering design process.

