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Prospective Graduate Students

An Engineer's Reflection on Healthcare Operations

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As engineers, we often get lost in the maze of technical problems related to making something. We consider the final, functional device as our end product but how often do we consider our true end user?

In biomedical engineering and the related healthcare industry, the answer to that question is complex. For example, a medical device company manufactures an EKG diagnostic machine and sells it to a hospital who has specified a need for this machine.

But the end user is a physician, not the hospital, and the machine is used on a patient, not by the hospital. However, the hospital foots the bill. Thus, the price point is dictated by the financier (the hospital) but the functionality should be dictated by the user (physician and/or patient). The two don't often coincide. This is a simplified version of the industry but it illustrates one of the key challenges in healthcare, and subsequently for biomedical engineers, today.

This is why, when my Healthcare Operations Improvement class offered the chance to work on a quality improvement project at a local hospital, I decided to try it. Learning about the healthcare industry would give me an added perspective as a biomedical engineer.

At LAC+USC county hospital, I worked in the radiology department, focusing on understanding MRI scanner usage and the process of undergoing a scan for a patient in an effort to improve the MRI appointment backlog. The wait time from the day a physician orders an MRI to the day the patient actually comes in to get scanned is inordinately long.

While tackling a small chunk of this major issue, I realized that lack of standardization, lack of communication, scheduling, and staffing all affect how this process helps or hinders patients. However, the people and the machines are capable and competent so improving the process is critical to improving patient care.

The results of an improvement could mean anything from outsourcing to another company for scanning or purchasing an additional MRI scanner. Which scanner they purchase may have more to do with their internal patient care goals and budget than the innovative features of the scanner itself. Thus, as engineers, I think it's important to invite the context of the healthcare industry to sit on our shoulder and whisper in our ears as we develop ever better biomedical solutions.