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The time has come for nursing engineering

By William "Ike" Eisenhower

With apologies to an old popular television advertisement from my youth: "You got your nursing specialty in my engineering program. No, you got your engineering classes in my nursing program."

Enough is enough. Enough years of exploration into the symbiosis of engineers in the healthcare domain have passed since the Institutes of Medicine and National Academy of Engineering report was released. There have been resounding successes in many healthcare systems as engineers and healthcare professionals have collaborated to improve patient experience and the performance of the entire system. However, after more than 10 years we still do not have a truly integrated educational/professional program to take advantage of these successes.

Before you start wondering if I have gone off the deep end, I am not talking about healthcare systems engineers, or industrial engineering with a healthcare focus, or even a nurse or physician who has an undergraduate in engineering. I am calling for a fully integrated discipline of "nursing engineering."

Sure, a few universities, including the University of Alabama in Huntsville, have been successful at integrating industrial engineering or lean and Six Sigma courses into their nursing programs, and even fewer, such as Duquesne University, have gone as far as offering students dual degrees in nursing and, typically, biomedical engineering.

While laudable, these efforts still fall short of a true "nursing engineering" offering. What we need, ideally, is not simply a Frankenstein-like meshing or bolting on of a nursing degree to a technical degree, but a new profession from the ground up that looks at modern nursing practice and all of its complexity. Such a specialty degree needs to be done with the systemic perspective and framework of treating nursing not as an application domain, but as a full disci-

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pline of engineering in its own right.

Transforming complementary academic disciplines into a new, combined degree has precedence. For example, an aerospace engineering degree is no longer a mechanical engineering degree with a specialization in aerodynamics, but a full discipline unique and distinct from its historical roots. It is time to recognize that nursing engineering can and should be a unique offering that transcends the traditional nursing degree as well as the traditional industrial or biomedical engineering degree. Only after this is accepted can we progress to a new profession that is ready to address the modern healthcare system and modern healthcare participants.

You may wonder what is the dif-

ference or the advantage of doing this. Why not just keep it as a specialized track within the primary degree? Well, first off, which is the primary degree? Is the nursing engineer a nurse with an engineering degree or an engineer who has had training as a nurse?

Neither is the answer, as nursing engineers are "sui generis," or in a class by themselves and not able to be defined solely in terms of their predecessors. Combining the systemic disciplines of both domains will allow this new breed of researchers and practitioners to focus on implementing and sustaining the protection, promotion and optimization requirements of modern healthcare.

This cannot be done by just mixing and stirring two degree programs. Instead, it requires a deep look into the professional needs and motivations of those whose calling is nursing engineer and the modern healthcare system that desperately needs them.

So healthcare and educational organizations, are you ready to create a new modern engineering discipline? ❖

William "Ike" Eisenhower is an engineering professor at Portland State University and national director of the Veterans Engineering Resource Centers for the Veterans Health Administration. His interests are integrating engineering and healthcare professionals to increase the value of health systems and advancing engineering science to address healthcare delivery challenges. He can be reached at wde@pdx.edu.

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