

Study shows how to lower costs, waiting times for colonoscopies

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Colorectal cancer is a leading cause of cancer-related deaths in the United States, leading to over 50,000 fatalities every year. But it can be prevented with early screening using a procedure called a colonoscopy. Now researchers from North Carolina State University, Mayo Clinic and the University of Massachusetts at Amherst (UMass) have created a tool to help colonoscopy facilities operate more efficiently, ultimately lowering costs and leading to shorter waiting times for patients.

The researchers have created a [computer model](#) that "helps people who manage [colonoscopy](#) facilities, such as hospitals and clinics, find the best combination of physicians, staff, rooms and equipment needed to cater to the number of patients they can expect," says Bjorn Berg, lead author of the paper outlining the new tool and a Ph.D. student in the Edward P. Fitts Department of Industrial & Systems Engineering at NC State. The model can also be used to determine the optimum number of patients a facility can see in any given day.

"Colonoscopy facility managers can try out different ideas in the model to see how they work before trying them in the real world - which is an expensive place to experiment," says Dr. Brian Denton, an assistant professor of industrial and systems engineering at NC State and co-author of the paper. "For example, a manager could see whether it is worthwhile to hire another endoscopist who can perform colonoscopies, hire another nurse, or add another recovery bed for the facility."

Denton explains that finding the right combination of staff, equipment

and rooms can be particularly challenging for colonoscopy facilities because of uncertainties related to how long it takes to perform the procedure and how long it takes a patient to recover from it.

The model could be a boon for patients, because "it could lead to efficiency gains for practices," Denton says, "and ultimately lower the cost for patients." It also predicts the amount of time patients will spend waiting for the procedure, and can be used to improve scheduling.

The researchers utilized operations research methods to develop their model, which uses mathematics as a way of studying systems in order to make them more efficient and effective. They are now working with University of North Carolina Hospitals to implement the model, and ultimately hope to make it available for general use.

More information: The paper, "A Discrete Event Simulation Model to Evaluate Operational Performance of a Colonoscopy Suite," was published online by the journal *Medical Decision Making*.

Source: North Carolina State University ([news](#) : [web](#))

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