**Initial Evaluation of Rectal Bleeding in Young Persons: A Cost-Effectiveness Analysis**

**What is the problem and what is known about it so far?**
Medical conditions that cause visible blood in bowel movements (rectal bleeding) include harmless conditions, such as hemorrhoids (swollen blood vessels in the anus), and more serious conditions, such as colorectal cancer. Tests used to evaluate rectal bleeding include anoscopy, barium enema, flexible sigmoidoscopy, and colonoscopy. Anoscopy uses a small plastic tube to examine the anus. Barium enema involves administrative barium, a white substance, to outline the large intestine on a special x-ray. Flexible sigmoidoscopy uses a fiberoptic instrument to examine the surface of the rectum and lower colon. Colonoscopy uses a similar but longer instrument to look at the entire colon and enables doctors to take samples from suspicious areas for laboratory testing. Because cancer is common in older people, examination of the rectum and colon (large intestine) is widely recommended for any patient older than 45 years of age with rectal bleeding. However, complete examination of the large intestine may not be necessary in patients 25 to 45 years of age with rectal bleeding unless they also have other symptoms.

**Why did the researchers do this particular study?**
To determine the costs and benefits of evaluating 25- to 45-year-old patients with no bowel symptoms except visible blood in their bowel movements.

**Who was studied?**
Rather than study actual patients, the researchers used computers to simulate what would happen to a group of patients aged 25 to 45 years who had rectal bleeding but no other bowel symptoms.

**How was the study done?**
Using published information, the computer model simulated what would happen to patients evaluated with the following strategies: no tests, anoscopy, barium enema, flexible sigmoidoscopy, colonoscopy, and combinations of these tests. The computer model also considered the costs associated with each strategy. The researchers measured the cost-effectiveness of each diagnostic strategy as the cost per year of life saved by using each strategy compared with another evaluation strategy.

**What did the researchers find?**
Compared with no evaluation, the extra cost per year of life saved was $2923 for flexible sigmoidoscopy. Compared with flexible sigmoidoscopy, the extra cost per year of life saved was $23,100 for flexible sigmoidoscopy plus barium enema and $45,750 for colonoscopy. However, these cost-effectiveness estimates varied substantially depending on patient age. For example, compared with flexible sigmoidoscopy, colonoscopy cost about $275,000 per year of life gained for a 25-year-old person compared with about $9360 for a 45-year-old person.

**What were the limitations of the study?**
Because this was a computer simulation, we cannot be sure what the results would be with actual patients. Studies of this problem using actual patients are unlikely to be done soon, however.

**What are the implications of the study?**
The cost-effectiveness of evaluating the colon in patients 25 to 45 years of age who develop rectal bleeding without other symptoms is within the range that our society typically considers acceptable for health care interventions.