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The full report is titled “Comparative Evaluation of Immunochemical Fecal Occult Blood Tests for Colorectal Adenoma Detection.” It is in the 3 February 2009 issue of *Annals of Internal Medicine* (volume 150, pages 162-169). The authors are S. Hundt, U. Haug, and H. Brenner.

## Immunochemical Fecal Occult Blood Tests

### What is the problem and what is known about it so far?

Screening for colorectal cancer can lower the risk for dying of colorectal cancer by finding growths (adenomas) before they become cancer or by finding cancer at an early, curable stage. One commonly used screening test for colorectal lesions is the fecal occult blood test (FOBT). The traditional guaiac-based FOBT uses a chemical reaction on a paper card to find traces of blood that leak from adenomas and cancer into the stool. The guaiac-based FOBT result can be positive when there is no source of bleeding (false-positive) if, for example, a person has recently eaten undercooked meats. The guaiac-based FOBT result may also be negative when there is a source of bleeding (false-negative) if a person has been taking vitamin C supplements.

Several new immunochemical FOBTs use specific antibodies against human blood components to detect traces of blood in the stool. Some of these newer tests may have fewer false-positive and false-negative results than the guaiac-based FOBT. However, many immunochemical FOBTs use different antibodies to detect blood components, and we do not know whether they all have similar ability to detect precancerous lesions that leak blood into the stool.

### Why did the researchers do this particular study?

To compare characteristics of 6 qualitative immunochemical FOBTs and 1 guaiac-based FOBT for identifying colorectal adenomas in adults at average risk for colorectal cancer.

### Who was studied?

1319 adults who attended screening colonoscopy examinations. None had symptoms of colorectal cancer.

### How was the study done?

All patients brought a single guaiac-based test card and a stool sample that had been collected at home to their clinic visits. Physician assistants analyzed the test cards. The stool samples were frozen and sent to a central laboratory for immunochemical analysis. All patients then had a complete examination of the colon with a flexible tube (colonoscopy) to look for polyps and cancer. Persons who analyzed FOBTs did not know colonoscopy results. Physicians who did the colonoscopies did not know FOBT results.

### What did the researchers find?

The FOBTs varied widely in their ability to detect adenomas that were found with colonoscopy. Sensitivity and specificity for detecting advanced adenoma ranged from 25% to 72% and from 70% to 97% for the 6 qualitative immunochemical tests. The sensitivity and specificity of the guaiac-based test for detecting advanced adenoma were 9% and 96%.

### What were the limitations of the study?

Stool samples from 1 day rather than several days were used. Stool was frozen before immunochemical testing. Colonoscopy may have failed to detect colorectal cancer or large polyps in some patients.

### What are the implications of the study?

Qualitative immunochemical FOBTs vary markedly in their ability to detect precancerous colorectal lesions. Some, but not all, of these newer tests may be promising alternatives to guaiac-based FOBTs.

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