Colon Cancer Screening in the United States: Current Status and Effectiveness

D. A. Lieberman (Division of Gastroenterology, Oregon Health and Science University)

Colorectal Cancer (CRC) is a leading cause of cancer death. Worldwide, there are more than 875,000 cases per year. Survival is directly related to stage at diagnosis. CRC is usually asymptomatic until late stage disease. Therefore the key to early discovery is the identification of patients before symptoms develop. Most cancers develop from adenoma precursors. There is now evidence that detection and removal of adenomas can prevent incident cancers. Since most polyps and cancers are asymptomatic, expert groups from around the world have advocated screening asymptomatic individuals. High-Risk Individuals include patients with hereditary syndromes (familial polyposis or hereditary non-polyposis colorectal cancer syndrome) and familial risk (first degree relative with CRC). Screening should be performed at a younger age, preferably with colonoscopy. Average-risk individuals should be screened, beginning at age 50 years. Several screening tests are recommended in the United States, and each has advantages and limitations.

Fecal occult blood test (FOBT) Randomized controlled trials have demonstrated mortality reduction of 30-40% in adherent individuals. However, one-time testing is not sensitive for advanced neoplasia, and the test needs to be repeated at regular intervals. Compliance with repeat testing is poor. In addition, if tests are positive, colonoscopy should be recommended - however in many cases (30% in USA), physicians do not follow guidelines. These factors reduce the effectiveness of FOBT programs in real-life practice. Fecal DNA tests have been studied and prove that it is possible to identify mutations in stool samples. Flexible Sigmoidoscopy (FS) Case control studies have demonstrated benefit of sigmoidoscopy and potential mortality reduction of 50% or more. However, recent data suggest that the test is less effective in women, compared to men, and is less effective with increasing age because of the increasing prevalence of proximal neoplasia. Colonoscopy The National Polyp Study demonstrated the ability of colonoscopy with polypectomy to reduce incidence of CRC. Several large studies have demonstrated the feasibility of screening with colonoscopy. Currently, colonoscopy offers the most effective test for CRC prevention. If colonoscopy is used for screening it should be performed with high quality and low risk to patients. CT colonography is an evolving technology which continues to improve. Key issues are: 1) sensitivity; 2) threshold for referral to colonoscopy; 3) implications and cost of extracolonic findings. Summary: Screening can reduce the mortality and incidence of colorectal cancer and is cost-effective relative to other medical interventions.