

e-Appendix 2: Description of our search strategy and the segmental unblinding technique

Two independent reviewers performed a PubMed literature search (covering articles published from 1990 through March 2005) to identify high-quality prospective studies evaluating the test performance characteristics of CT colonography and colonoscopy for polyps 6–9 mm and ≥ 10 mm in size. Our search included *colonoscopy*, *computed tomography* and *cancer* as search terms, and was restricted to studies reported in English. Both reviewers critiqued each abstract; individual papers were pulled for further review if they met the criteria or if

the methodology was not clearly stated. The bibliographies of these papers and selected recent reviews were examined to ensure that important studies were not omitted. Two external-content experts were consulted (Peter Cotton, Medical University of South Carolina, Charleston, SC, and Benoit Pineau, Wake Forest University, Winston–Salem, NC) to ascertain that no other published or unpublished studies were overlooked.

We aimed to identify prospective studies evaluating the sensitivity and specificity of CT colonography for polyps 6–9 mm and ≥ 10 mm in size, in patient populations with low lesion prevalence. For this, we considered same-day colonoscopy with segmental unblinding (described in detail elsewhere)¹ to be the “gold standard.” The segmental unblinding technique involves reinsertion of the colonoscope into colon segments determined to be polyp-free by colonoscopy but shown to contain a lesion by CT colonography; it minimizes information bias through misclassification (i.e., false-negative results on colonoscopy recorded incorrectly as false-positive CT results).

In addition

to segmental unblinding studies, we also identified studies of back-to-back colonoscopy by 2 independent, blinded endoscopists^{2,3} to determine the sensitivity and specificity of colonoscopy for identifying polyps 6–9 mm and ≥ 10 mm in size.

1. Pineau BC, Paskett ED, Chen GJ, Durkalski VL, Espeland MA, Vining DJ. Validation of virtual colonoscopy in the detection of colorectal polyps and masses: rationale for proper study design. *Int J Gastrointest Cancer* 2001;30:133–40.

2. Hixson LJ, Fennerty MB, Sampliner RE, McGee D, Garewal H. Prospective study of the frequency and size distribution of polyps missed by colonoscopy. *J Natl Cancer Inst* 1990;82:1769–72.

3. Rex DK, Cutler CS, Lemmel GT, Rahmani EY, Clark DW, Helper DJ, et al. Colonoscopic miss rates of adenomas determined by back-to-back colonoscopies. *Gastroenterology* 1997;112:24–8.