Su1043
Development and Validation of Predictive Model for Participation in Colorectal Cancer Screening in Korea
Chae Wung Huh, Jae Jun Park, Je-Hyun Kim, Young Hoon Yoon, Hyejin Park

Background: The number of individuals partaking in colorectal cancer (CRC) screening still remains to be low even after the implementation of the Korean Government’s National Cancer Screening Program for CRC. The aim of this study is to identify factors associated with participation in CRC screening and develop a model to predict participation.

Methods: The Korean National Health and Nutrition Examination Survey (KNHANES) 2007–2010 datasets were used to develop a predictive model. Logistic regression analysis was used to analyze the association between demographic factors, propensity to comply with CRC screening, and CRC screening participation.

Results: Out of 10,527 individuals selected, 5,754 (54.7%) responded to the survey and were included in the analysis. The AUC of the predictive model was 0.663, meanwhile the AUC of the self-reported compliance model was 0.743. The ANN produced better performing model than LR analysis based on 16 clinical variables. We then validated the models using the KNHANES 2011 and 2012 (n = 5986) datasets and compared them with each other.

Conclusion: The ANN produced better performing model than LR analysis based on 16 clinical variables. This model can be applied in CRC screening programs to predict screening participation.

Su1044
Knowledge of a Positive Cologuard™ Result Improves Yield and Quality of Colonscopy
David Johnson, John B. Kisiel, Kelli N. Burger, Douglas W. Mahoney, Mary E. Devens, David A. Ahlquist, Seth Sweetser

Background: Cologuard™ is a multi-target stool DNA test FDA-approved for colorectal cancer (CRC) screening. In practice, the impact of endoscopists’ knowledge of a positive Cologuard result on the yield and quality of diagnostic colonscopy is unknown. Aim: We compared neoplastic findings and withdrawal times at colonscopy between two Cologuard-positive groups: one from the practice setting in which endoscopists were aware of test result (unblinded group), and the other from a pre-approval study setting in which endoscopists were blinded to test result (blinded group). Methods: The unblinded group comprised all patients with positive Cologuard results from 9/1/14-8/30/15 at a single tertiary center. Patients for whom Cologuard was ordered off-label (neoplasia surveillance, anemia, bleeding) were excluded. The blinded group included Cologuard positive patients from the same institution who participated in a multicenter pre-approval screening trial (NEJM 2014;370:1287) in which endoscopists were unaware of stool test results. Colonoscopy findings were abstracted, including polyp number, size, histology, largest grade lesion on each side of the colorectum, and withdrawal time. Adenomatous or sessile serrated adenoma/polyps (SSAP) ≥10 mm, or with any villous component, high-grade dysplasia, or CRC were called advanced colorectal neoplasia (CRN). Hyperplastic polyps treated by polypectomy were included in total polyp count but not in CRN.

Results: Cologuard was positive in 225 of 1908 (11.8%) patients from the practice setting and 72/355 (20%) from the clinical trial subset, p<0.0001. Of 225 patients from practice setting, 168 met inclusion criteria for unblinded group and were compared to the 72 patients from blinded group (Table). Groups were demographically similar. Any polyp or hemorrhagic lesion was more commonly found in the unblinded (83%) than the blinded group (68%), p=0.016. Twice as many polyps were detected per unblinded than blinded colonoscopy, p>0.007. Significantly more patients were found to have CRN in unblinded (70%) than blinded group (53%), p<0.018. Advanced CRN and SSAP were similar between groups.

Su1045
Longitudinal Adherence (Participation) in Fecal Immunochemical Testing (FIT)-Based Colorectal Cancer (CRC) Screening Programs: Implications for Programmatic Effectiveness
Uri Ladabaum, Frank W. Chen, Ajitha Mannalithara

BACKGROUND: Longitudinal participation is required to translate the potential efficacy of FIT in decreasing CRC incidence and mortality into population-level effectiveness. Decision analytic modeling has been used to estimate long-term outcomes of CRC screening, but longitudinal adherence patterns have not been modeled in detail. Data to understand screening behavior patterns over time are only now becoming available. AIMS: To perform a systematic review of per-cycle participation rates in FIT-based programs for 3 or more cycles, and to compare these rates to rates in landmark randomized controlled trials (RCTs) of guaiac fecal occult blood testing (gFOBT). METHODS: We searched PubMed and Scopus with terms "fecal immunochemical" and ("uptake" or "adherence" or "participation" or "utilization" or "completion") and compared the results to RCTs. Two investigators reviewed titles and abstracts, and studies relevant to the aims were retrieved for full text review. We performed a supplementary search of abstracts from Digestive Disease Week 2013-2015 and included relevant abstracts. All reports on the 4 major gFOBT RCTs of gFOBT were retrieved. The most comprehensive reports from any specific cohort were used. We determined the proportions of the population behaving as "consistent screeners" (participation in 100% cycles), "intermittent screeners" (participation in at least one cycle but <100% of cycles, encompassing drop-outs, delayed starters, and intermittent re-screeners), and "consistent non-screeners" (never screened). Among 'screeners,' we determined the distribution of number of screening cycles completed.

RESULTS: The search yielded 297 unique full-length publications. Of these, 6 met our inclusion criteria, and we included an additional informative paper on gFOBT (Engeland Bowel Cancer Screening Program). Two relevant abstracts were found. Relevant abstracts were available from 3 of the 4 major gFOBT RCTs. Figure 1 displays the screening patterns: - Consistent screeners 38-60% (except outliers of 70% among self-selected persons from Hong Kong, and 14% in San Francisco safety-net population with navigation only on first cycle) - Intermittent screeners 14-53% (highest in San Francisco safety-net population) - Consistent non-responders 10-40% (except for outlier of 2% among self-selected persons from Hong Kong) Figure 2 displays the number of screening patterns among participants. - All cycles 45-72% (except for 21% in San Francisco safety-net population) Overall similar fractions of screeners and non-screeners in number of screening cycles, and mean number of screening cycles. CONCLUSIONS: Organized programs of FIT or gFOBT can achieve high rates of sustained participation over time, comparable to rates achieved in RCTs. However, cessation of an active outreach/navigation program may result in declines in participation rates. These findings can inform modeling studies, public policy, and clinical practice.