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Evaluating utilization patterns of colorectal cancer screening in a US Healthcare System

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Abstract

Introduction: In the United States (US), colorectal cancer (CRC) is the second leading cause of cancer mortality. Early diagnosis of CRC improves patient prognosis; nevertheless, CRC screening is underused, with only 68.8% of eligible adults up-to-date in 2018. Structural visualization (e.g. colonoscopy) and stool-based testing (e.g. multitarget stool DNA (mt-sDNA), fecal immunochemical tests (FIT), or guaiac-based fecal occult blood tests (gFOBT)) are recommended CRC screening modalities.

Hypothesis: Trends in CRC screening participation and test use among average-risk, screen-eligible individuals in the St Elizabeth Healthcare system have changed with the adoption of mt-sDNA.

Methods: Electronic medical records from 2015 to 2019 of people aged 50 to 75 were analyzed to identify average-risk and screen-eligible individuals. During the measurement period, various CRC screening initiatives were introduced including offering mt-sDNA as a non-invasive screening option. We calculated the proportion of those who were up-to-date with a United States Preventive Services Task Force (USPSTF) recommended screening strategy; the number of screening tests performed in each study year; and the distribution of screening modalities. Regression analysis was used to analyze temporal patterns.

Results: A total of 195,122 individuals aged 50 to 75 were included in the analysis cohort. When considering all individuals up-to-date and screened in the measurement year, overall adherence increased significantly over the 5-year study period, from 22,073 to 41,378 patients or from 26% to 49% ($p<0.0001$). Between 2015 and 2019, screening incidence decreased by 68.5% for gFOBT and FIT, from 38.68 to 12.19 tests per 1,000 persons ($p<0.1$). For mt-sDNA, screening incidence increased from 1.99 to 79.55 tests per 1,000 persons ($p<0.05$), a 40-fold increase. During the same period, screening incidence of colonoscopy remained nearly constant, with an average of 60.11 tests per 1,000 persons per year.

Conclusion: Our results suggest that the growing adoption of mt-sDNA may be correlated with an increase in overall screening in this average-risk population. Further research is needed to corroborate the findings suggested by this evaluation in a single US health system.