

Estimating the effect of Colorectal Cancer screening on mortality using a Regression *Discontinuity* Design



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BACKGROUND

- Colorectal cancer (CRC) screening was initiated in Denmark in 2014 using the Fecal Immunochemical Test (FIT) with the cut-off 20 µg/g feces for colonoscopy referral
- Around the cut-off, it is random if a test result falls immediately below or above the cut-off

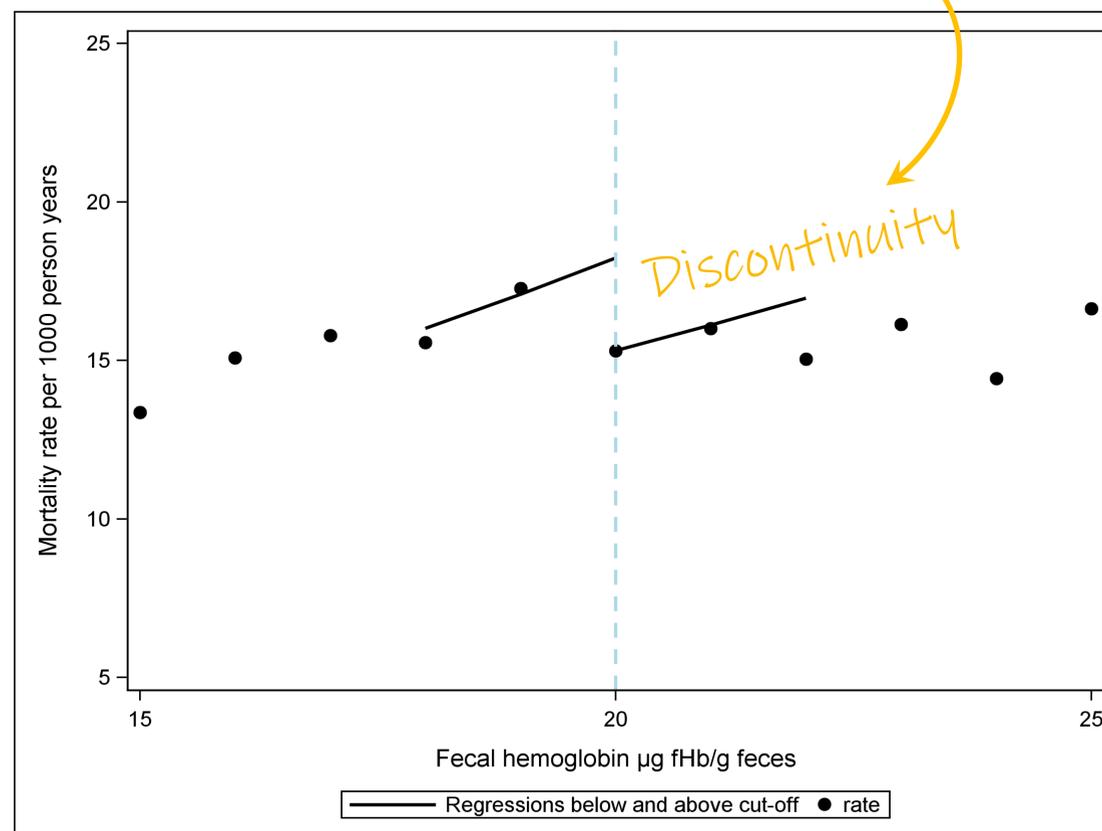
AIM: To estimate the effect of screening on mortality using the quasi-experimental regression discontinuity design

CONCLUSION: FIT screening with the cut-off 20 µg/g and colonoscopy referral lowers mortality

RESULTS

All-cause mortality is 16% lower above the cut-off compared with below

Hazard ratio: 0.84 (95% CI: 0.64-1.08)



REGRESSION DISCONTINUITY DESIGN

- Initial participation in the Danish CRC screening program 2014-2019
- Outcome: all-cause mortality
- Cox regressions modelled for 17.5-19 and 20-22.5 µg fHb/g - the difference in the intercepts is a measure of screening effect

TABLE 1 *Balanced - the assumption of randomness holds ✓*

	Below cut-off 17.5-19	Above cut-off 20-22.5
Women	47.3 %	47.1 %
Age 50-59	35.2 %	34.8 %
60-69	37.2 %	38.5 %
70-75	27.6 %	26.7 %