



The Organized Colorectal Cancer Screening Program: Is It Achieving Its Intended Objectives?

National evaluation team colorectal cancer screening program (LECO)
Erasmus MC, department of Public Health

Date: 19 November 2025

Introduction

Since 2014, the national organized colorectal cancer (CRC) screening program has been implemented aiming to reduce long-term CRC incidence and mortality. The program has been operating for over a decade and fully implemented since 2019. All men and women aged 55 to 75 are biennially invited to participate in the screening program. Until now, it has not been possible to determine whether the screening program is achieving its long-term goals, because the effect on mortality takes several years to become measurable. This study aimed to evaluate whether the screening program is achieving its intended goals by conducting a case-control study.



Research questions

1. What is the effect of the organized CRC screening program on CRC-related mortality in the Netherlands?
2. What is the effect of the organized CRC screening program on late-stage (stage III and IV) CRC incidence in the Netherlands?



Methods

Through linkage between Statistics Netherlands, the Netherlands Cancer Registry and the national screening program, we identified individuals with a late-stage CRC diagnoses or CRC-related death (cases) and without a late-stage CRC diagnoses or CRC-related death (controls). Cases and controls were comparable in sex, age and first invitation to screening. Next, they were compared through statistical testing (conditional logistic regression analysis) to determine the relative risk (RR) of participating in the national CRC screening program on both CRC-related death and late-stage CRC incidence. It is known that participants are generally healthier than non-participants. To account for this selection bias, estimated effect was adjusted accordingly.¹

1. Duffy SW, Cuzick J, Tabar L, Vitak B, Chen TH-H, Yen M-F, et al. Correcting for non-compliance bias in case-control studies to evaluate cancer screening programmes. *Journal of the Royal Statistical Society Series C: Applied Statistics*. 2002;51(2):235-43.



Main results

Participating in the organized CRC screening program is associated with a 45% lower risk of dying from CRC compared to individuals who did not participate (Figure 1). Participating in the organized CRC screening program is associated with a 21% lower risk of being diagnosed with a late-stage (III/IV) CRC compared to individuals who did not participate.

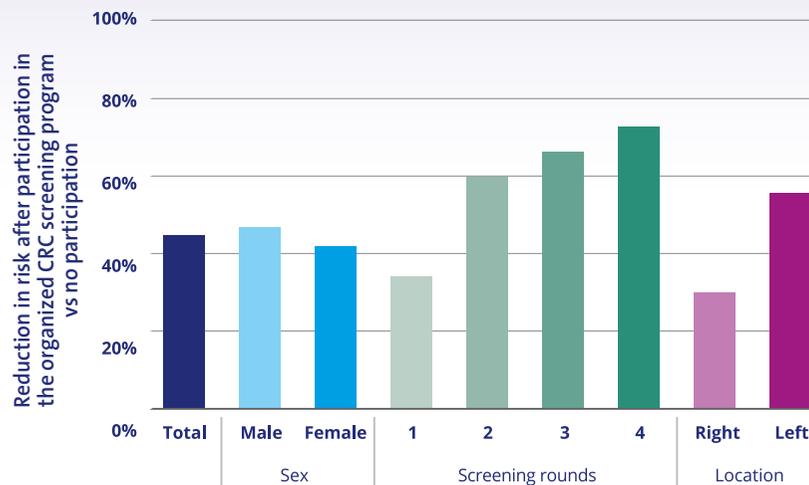
The effect was slightly larger for males compared to females. Repeated participation was associated with a greater risk reduction. Last, the effect was different by tumor location at diagnosis: the risk reduction was larger for left-sided CRCs compared to right-sided CRCs.

Conclusion

Participating in the organized CRC screening program is associated with a lower risk of dying from CRC or being diagnosed with a late-stage (III/IV) CRC. These findings provide evidence for the effectiveness of the organized CRC screening program.

Figure 1 / Reduction in risk of (a) CRC-related death and (b) late-stage CRC incidence after participation in the organized CRC screening program vs no participation.

a) CRC-related mortality



b) Late-stage CRC

