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Inequalities in colorectal cancer screening uptake

PERSPECTIVES

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Participation in colorectal screening varies between different sociodemographic groups. In a colorectal cancer screening trial (Bowel Cancer Screening in Norway (BCSN)), participation has been compared over the past ten years among those who were screened at home and those who attended hospital for a sigmoidoscopy. The findings can be used to develop the screening programme.

The aim of cancer screening is to reduce mortality and the incidence of the type of cancer being screened for. Screening programmes are effective if a large proportion of those invited participate, particularly those at highest risk of contracting the disease. The benefits of colorectal screening are largely dependent on the number of cancer cases that are detected at an early stage and possible precursors to colorectal cancer (polyps) that are found and removed. Over the past decade, a major national colorectal cancer screening trial (BCSN) has been underway at Østfold Hospital and in selected municipalities in Vestre Viken.

We will comment on some of the findings relating to participation and how participation has varied among different sociodemographic groups. One of the key principles in Norway's health service is equality for all. The introduction of screening should reduce, not *increase,* socioeconomic differences. There has been a particular wish for vulnerable groups with a high cancer risk to participate in the screening programme.

Testing of two screening methods

We examined attendance among 117 000 people who were invited to take part in the colorectal cancer screening trial (1). The trial was designed as a randomised controlled trial and was funded by Parliament in the national budget. This in itself shows the depth of political understanding of the need for a randomised approach to the introduction of a new healthcare provision.

In the trial, participants were invited to once-only sigmoidoscopy screening at a screening centre or to repeated faecal immunochemical testing (FIT) (2). FIT was carried out at home. The participants were sent test kits and had to return their sample to the laboratory for analysis. Participation was approximately 60 % after the initial invitation for the group that was offered FIT, and approximately 52 % in the sigmoidoscopy group. Participants with a positive test result (cancer or a high risk of polyps detected by sigmoidoscopy or over 15

µg of haemoglobin per gram of faeces in FIT, corresponding to 75 ng/mL sample/buffer solution) were referred for a follow-up colonoscopy at a screening centre. Around 8 % of the FIT participants received a positive test result. Among those who received a sigmoidoscopy, around 9 % were referred.

Greater inequalities with invasive methods

The results indicated that if participation in colorectal screening requires attendance at a hospital, certain socioeconomic groups are more likely to refrain from participating. The study showed that participation in both sigmoidoscopy and FIT had a correlation to socioeconomic status: participation was lowest among those with the lowest levels of income and education. Living without a partner, being born outside Norway and a driving time of more than 20 minutes to a screening centre were also associated with low participation (1, 3). In addition, comorbidity, particularly diabetes and mental disorders, was associated with lower participation in both sigmoidoscopy screening and FIT (1, 4). This has already been demonstrated in international studies (5–10), and we have now shown that it also applies to the Norwegian context.

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The new finding that is worth noting is that socioeconomic status had a greater impact on participation in sigmoidoscopy screening than FIT. The difference in attendance between those with the highest and lowest incomes was greater for sigmoidoscopy. This was also the case for people born abroad versus in Norway and for those with a long versus short drive to the screening centre. Participation among those with the highest socioeconomic status and of Norwegian origin was almost the same regardless of screening method, while participation among those with the opposite characteristics was higher for FIT than sigmoidoscopy screening. The trial was carried out in areas with no rural municipalities, and the driving time to the screening centre was well within two hours for the vast majority (11).

Our study suggested that screening method impacted on inequalities in the colorectal screening programme. The results showed that screening with a requirement to attend a screening centre for an invasive examination created greater inequalities than FIT, which was done at home. Some of the differences in attendance also applied to the follow-up examination after a positive result from FIT.

Highest risk of colorectal cancer

Being aware of inequalities in screening participation is particularly important because the incidence of colorectal cancer is higher among those with the lowest socioeconomic status (12). In Norway, this particularly applies to ethnic Norwegians, because the incidence of colorectal cancer is lower in all groups born abroad compared to ethnic Norwegians (13).

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There is an enormous potential for preventing colorectal cancer through healthy lifestyles. We have previously shown that the fewer health recommendations a participant in colorectal screening adheres to in terms of smoking, physical activity, body weight, alcohol consumption and consumption of processed and red meat, the greater the probability of being diagnosed with colorectal cancer or bowel cancer precursors at screening (14–16). We have also shown that those who pay least attention to the health advice are also most likely to skip one or more rounds of FIT (17).

National screening programme

A national colorectal screening programme is currently being rolled out in Norway. The initial screening entails FIT. Test kits are sent out to people in the year they turn 55, and screening takes place every two years, up to five times.

Parliament has decided that a one-off colonoscopy at the age of 55 will gradually replace FIT as the primary screening method as sufficient endoscopy resources become available at the hospital trusts. It will be important to follow the distribution of who attends and who does not attend colonoscopy screening, since one of the goals in the Nordic welfare model is universal access to health services (18). Whether colonoscopy will be a more beneficial screening method from a public health perspective is currently unclear. The shift from FIT to colonoscopy as the primary screening method is designed to enable evaluations of, inter alia, participation in the two methods. One suggestion could be to consider other screening, for example FIT, for the part of the population that fails to attend colonoscopy screening.

Conclusion

Results from the major colorectal screening trial show that participation in colorectal screening was lower in those with a low socioeconomic status, high comorbidity and long driving time to the screening centre, and in people born

abroad. We also found that the screening method impacted on participation among the groups with the lowest participation. Participation was higher in these groups if they were invited to FIT at home rather than a sigmoidoscopy at a hospital.

> ***«Participation in colorectal screening was lower in those with a low socioeconomic status, high comorbidity and long driving time to the screening centre, and in people born abroad»***

Introducing colonoscopy as a primary screening method will require the colon to be emptied before the examination. This may raise the participation threshold even further, and can potentially reinforce rather than equalise the socioeconomic differences found in the screening trial. Conversely, there are many advantages to having just one round of screening (colonoscopy) rather than every two years (FIT). When introducing a national colorectal screening programme, it is important to continuously monitor and evaluate participation and findings in both screening methods as primary colonoscopy screening is gradually rolled out. There may be local differences in participation in areas where a large proportion of the population has a low socioeconomic status or lives some distance from the screening centre.

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