Age, sex and place of residence predicted the diagnosis of late stage colorectal cancer in Estonia

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Background
The proportion of new primary colorectal cancer (CRC) with distant metastasis at diagnosis in Estonia has been around 30% for several decades and survival from CRC remains lower than in Europe overall. In 2016, a pilot phase for CRC screening with faecal blood test was initiated, targeting 60-year old people. The objective of this study was to examine the risk of advanced stage CRC in association with age, sex and place of residence.

Methods
Estonian Cancer Registry provided data on all adult (age ≥15 years) cases of colorectal cancer (ICD-10 C18–21). TNM stage at diagnosis (UICC version 7) was based on information reported by the hospitals. Death certificate only cases, autopsy cases and cases with unknown stage were excluded. We examined the risk of stage IV CRC in relation to available sociodemographic factors, site and period of diagnosis. Logistic regression was used to calculate crude and adjusted odds ratios (OR) with 95% confidence intervals (CI).

Results
In multivariate logistic regression analysis, the risk of stage IV was significantly higher among people living in North-Eastern industrial region (OR 1.19, 95% CI 1.06–1.34) and Southern rural region (OR 1.26, 95% CI 1.12–1.41) compared with Tallinn (the capital). Increased risk was also associated with male sex (OR 1.09, 95% CI 1.01–1.18) and age 50–59 years compared with age 60–69 years (OR 1.19, 95% CI 1.04–1.33). Risk was higher for colon vs. rectal cancer (OR 1.27, 95% CI 1.18–1.38) and decreased over time.

Conclusions
Increased odds of stage IV CRC in the Southern rural and North-Eastern industrial region of Estonia may be partly explained by patient delay, related to lower educational level and awareness, and partly by reduced access to medical care due to unemployment, lack of health insurance and living in remote areas. Explanation for the observed age differences could be legislative, as health insurance in Estonia is guaranteed for all retired persons – currently from age 63.

Key messages:
• The results point to the need to educate the public about early alarm symptoms of CRC.
• An effective screening program with high adherence needs to be introduced in Estonia.