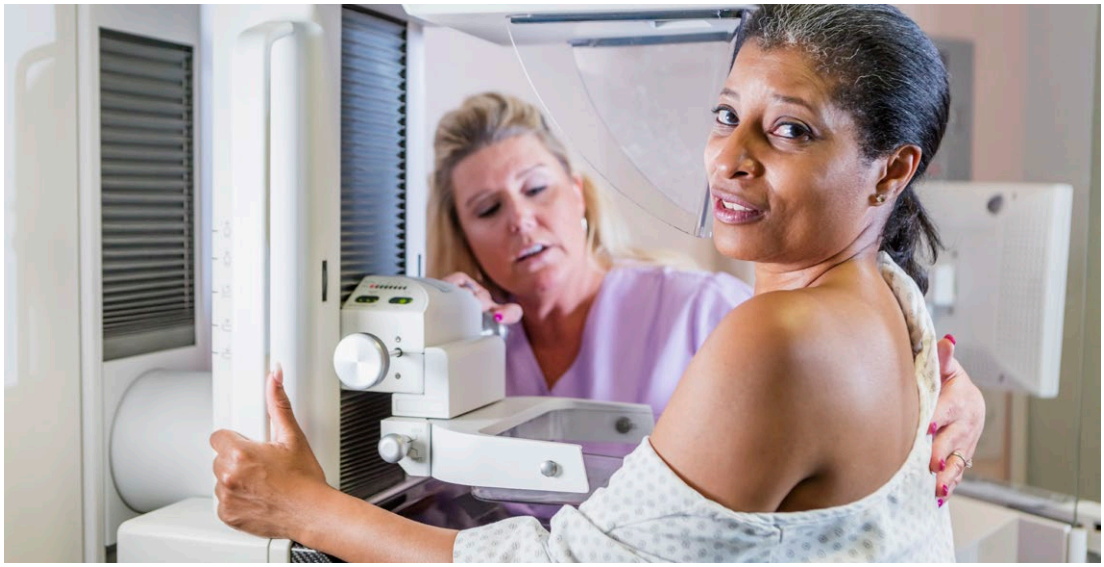
BREAST CANCER SCREENING

THE BREAST CANCER SCREENING PROGRAMME IN FINLAND

ANNUAL REVIEW 2022



The breast cancer screening programme indicators vary widely by region and population group. In the future, it will be highly important to elaborate dimensions of inequality as part of screening statistics. Based on screening data, the impact of the Covid-19 pandemic on participation was relatively slight. Nevertheless, the impact of the pandemic needs to be assessed more broadly, for example in terms of breast cancers detected between screenings.

SUMMARY

The breast cancer screening programme sent out altogether 362,000 invitations in 2020. A total of 292,000 women (81%) were enrolled in the programme, with 1,945 cases of breast cancer and breast in situ carcinoma detected, or seven cases per 1,000 screened. Participation in screening has gradually declined from 87% in 2005 to between 81% and 82% in the 2000s. In 2020, screening uptake was significantly lower than in the rest of the population for the non-working population, the lowest educational level and for people whose mother tongue is a non-domestic language. There was also a wide variation in participation rates (73–87%) and malignancy rates (0.4–0.8%) between hospital districts between 2016 and 2020.

The impact of the Covid-19 pandemic on breast cancer screening programme participation was relatively small based on 2020 screening data. Participation in screening decreased by 1.1 percentage points compared to 2019. However, participation in screening was later than average up to summer 2021, so the pandemic may have an impact on the prevalence of breast cancers detected during screening.

Finnish Cancer Registry

1. INTRODUCTION

This annual review of breast cancer screening includes results from the most recent screening statistics for 2020 and information on current breast cancer screening research and development projects. The Covid-19 pandemic that broke out in early 2020 has hampered the implementation of cancer screening. It may have reduced participation of women in the worst affected areas and made it more difficult to carry out follow-up screening and treatment.
The 2020 screening statistics will allow a systematic review of the impact of Covid-19.

The work of the expert group on breast cancer screening, set up within the framework of the National Steering Group for Cancer Screening, will start this year. The aim is to produce a quality standard for breast cancer screening, which will enable screening to be carried out consistently and effectively. The European Union (EU) is also renewing its plans and recommendations for cancer screening. Already today, EU-wide quality assurance guidelines recommend that consideration be given to extending breast cancer screening to 45–49 and/or 70–74-year-olds (European Commission 2022; European Commission 2022). It is therefore important to assess the impact and cost-effectiveness of screening in these age groups also in Finland.

The inequalities in the implementation of cancer screening have been recognised both in Finland and in Europe at large. Inequalities and social inequality are reflected in participation in screening, use of non-programme breast cancer services, breast cancer treatment prognosis and life expectancy. For this reason, it is essential to develop cancer and screening statistics that reflect the dimensions of inequality.

2. BREAST CANCER SCREENING IN FINLAND

The national breast cancer screening programme in Finland was launched in 1987 and expanded to the current target group, women aged 50–69, in 2015–2016. The target population is invited for screening every two years in accordance with a government decree. The screening protocol – the screening interval, the age groups to be screened and the test – has been selected based on national and international research evidence.

Municipalities organise the screening. They select the screening provider, which may be the municipality itself or a private operator tendered by the municipality. The screening service sends out screening invitations and performs mammography examinations and, if necessary, confirmatory examinations. Diagnostic confirmation of breast cancer and surgical intervention are carried out in specialised medical care. Mammography and confirmatory examinations in the screening units are free of charge for those invited. For treatments and examinations carried out in specialised medical care, the patient is charged the fees and the municipality is charged according to the hospital's fee.

Individual data on all stages of screening are submitted electronically to the Finnish Cancer Registry's Mass Screening Registry for quality and effectiveness evaluation. Comprehensive data capture also allows for the detection and rectification of programme deficiencies and problems.

THE SCREENING PROCESS

Screening includes a personal invitation, a mammogram as the primary screening test and, if necessary, confirmatory tests

(additional mammography, ultrasound and needle biopsy) and referral to specialised medical care. Mammograms are taken in two directions of both breasts. The images are interpreted by two independent radiologists. If cancer is suspected in either breast, a co-reading is performed. The results of the screening are communicated by letter and, if necessary, a personal invitation is sent for a confirmatory examination.

MAIN FINDINGS 2020

The coverage of screening invitations in 2020 was 100% (Table 1), meaning that all municipalities invited women aged 50–69 years for breast cancer screening over a two-year period. A total of 362,000 screening invitations were sent out and 292,000 women (81%, Table 2) participated in the programme. Of those screened, 97% received a normal screening result and 3% were recommended for confirmatory examinations. About 2,400 (0.8% of those screened) were referred for surgery or another procedure in specialised medical care (Table 3). Altogether, 1,945 cases of breast cancer or breast carcinoma in situ were detected in the programme, about seven cases per 1,000 women screened. In addition, eight other cancers were found at screening. About 2% of those referred for surgery lack a definitive, histologically confirmed diagnosis (n = 60). As inadequate diagnoses were also confirmed by the Cancer Registry, it is likely that the majority of such diagnoses were benign.

COMPARISON WITH PREVIOUS YEARS

The expansion of the breast cancer screening target population to all 50–69-year-olds started in 2007 and was fully realised in 2016. Invitation coverage thus increased in the female population aged over 60 until 2016, when virtually everyone in the target population was invited for breast cancer screening every two years (Figure 1).

Screening uptake, on the other hand, has declined, falling from around 87% in 1992 to 81% in 2020 (Figure 1). There are no precise data on the reasons for this decline in participation. However, the decline in participation rates has been similar across all age groups.

The rates of screening and cancer detection in the 2010s have remained at the same level as in previous years. However, the expansion of the target age group is reflected in the total number of breast cancers detected by screening, which peaked in 2015 and 2016.

More detailed effects of the Covid-19 pandemic on screening are discussed in Chapter 5.

3. BREAST CANCER SCREENING BY HOSPITAL DISTRICT

Participation in screening varied quite a lot by hospital district. From 2016 to 2020, the age-standardised participation rate ranged from 73% to 87% (Figure 2, Table 4). Participation is known to be lower in large cities than in the rest of Finland. As in previous years, the lowest participation rate in 2020 was in Helsinki, where only 73% of those invited attended screening.

There has also been variation in screening results between hospital districtsä (Figure 3, Figure 4, Table 5). Between 2016 and 2020, the proportion of people invited for confirmatory examinations ranged from 1.8%-4.6%, the proportion of surgical referrals from 0.5%-1.2% and the proportion of cancer and in situ findings from 0.4%

to 0.8%. Regional differences are due to variations in the background risk of breast cancer and differences in practice and quality of diagnostics.

4. BREAST CANCER SCREENING BY POPULATION GROUP

Breast cancer screening statistics were also produced according to demographic group for the years 2019–2020. The variables examined were mother tongue, socio-economic status and educational level based on data from the Digital and Population Data Services Agency and Statistics Finland.

Those invited for breast cancer screening were classified into two groups according to mother tongue. The domestic languages were Finnish, Swedish and Sami. Insufficient data on mother tongue were excluded from the analysis.

Data on socio-economic status and educational level were determined by data prior to the year of recruitment. People whose socio-economic group could not be determined were considered to be of unknown socio-economic status. Information on qualifications was only available from secondary level upwards, so the basic level and missing educational data were classified in the same group.

LANGUAGE GROUPS

The age-standardised screening participation rate was significantly lower in the non-domestic language population group (62%) than in the domestic language group (82%) (Table 6). Referral rates to follow-up (2.5% vs. 2.9% of participants) and specialised medical care (0.6% vs. 0.8%) and cancer diagnoses (0.5% vs. 0.7%) were also slightly lower in this language group than in the domestic language group. The differences in referral rates and cancer diagnoses are likely to be due to differences in breast cancer risk factors between the population groups.

SOCIOECONOMIC STATUS

There are worrying differences in participation rates among women outside the labour force (students, long-term unemployed, retired, socio-economic status unknown) and those in the labour force (self-employed, white-collar employees, workers) (60–86%, Table 7). There were only small differences in the rates of follow-up (2.4–3.3%), referral to specialised medical care (0.6-1–0%) and cancer detection (0.6-0.8%) between these population groups.

LEVEL OF EDUCATION

Age-standardised screening participation also differed by educational level: the higher the level of education, the higher the participation rate (67–85%, Table 8). Similar differences were not seen in the referral rate for follow-up (2.8–3.0%) and specialised medical care (0.8–0.9%) or in the detection rate (0.6–0.7%).

5. IMPACT OF THE COVID-19 PANDEMIC ON BREAST CANCER SCREENING

In spring 2020, some municipalities temporarily suspended cancer screening due to the Covid-19 pandemic. According to a survey by the Finnish Cancer Registry, breast cancer screening was suspended in at least 19 municipalities, and some municipalities only started inviting people for screening in the autumn. The Cancer Registry urged municipalities and screening centres to send out re-invitations to those who did not

participate and to give them the opportunity to participate in screening until summer 2021. Health security was also emphasised in the screenings, and people with the flu-like symptoms were encouraged to postpone their screening appointments themselves.

Despite the suspension of screening, the increased health security and concerns about the Covid-19 situation, by spring 2021, 80.5% of women invited in 2020 had undergone breast cancer screening (Figure 5). In the previous screening year, 2019, the corresponding participation rate was 81.6%, a decrease of only a few percentage points overall. Compared to the two previous screening years, it is precisely from March 2020 onwards that participation decreased. At that time, Finland was hit by a large-scale Covid-19 lockdown and screening was suspended in some municipalities. The gap in participation was closed in summer 2020 and early 2021. The extension of the screening year 2020 until summer 2021 seemed to have reduced the impact of Covid-19 on participation.

The drop in participation was largest in the oldest age group, 65–69, where it fell by 2.0 percentage points compared to 2019. This may be explained by the recommendation to avoid contact, which was weighted towards the elderly. In the youngest age group, 50–54 years old, the participation rate decreased by only 0.4 percentage points compared to 2019. In previous years, participation in screening had been more active the older the age group. The first year of the pandemic therefore levelled out the differences in participation rates between age groups.

Regionally, the largest absolute decrease in age-standardised participation was in Itä-Savo, where it was 2.5 percentage points lower in 2020 compared to the previous year (Figure 6). In Kainuu, on the other hand, screening participation even increased by 1.0 percentage point. In the other health regions, participation decreased by 0.2–2.4 percentage points. Participation in screening decreased by only 0.6 percentage points in the Helsinki and Uusimaa Hospital District, where the incidence of Covid-19 was highest almost all the time. It therefore appears that screening uptake was not directly related to the severity of the pandemic.

In the first year of the pandemic, screening participants were referred for follow-up equally well as in previous years (Table 9). The median delay between screening test and first follow-up, 14 days, was the same in 2019 and 2020. The median delay between first follow-up and surgical intervention, 34 days, was even shorter than in 2019 (41 days).

There was no change in screening outcomes, such as the proportion of malignant tumours, between 2019 and 2020.

Based on the screening data, the impact of the first coronary year on breast cancer screening was less than perhaps expected. However, this topic requires further investigation (see Recommendations and Conclusions).

6. COST-EFFECTIVENESS OF BREAST CANCER SCREENING

EU recommendations propose that extending the target age of screening to younger and/or older women aged 45–49 and/or 70–74 should be considered (European Commission 2022; European Commission 2022). However, healthcare resources are limited. Therefore, the benefits of changing the target age, i.e. additional life

years, need to be assessed in relation to the costs of the change. This is referred to as cost-effectiveness.

Cost-effectiveness is used to support decision-making when changes to current practice are desired. As a general rule, the more common the disease and the more expensive it is to treat, the lower the cost of the additional life-years that can be gained by the change. The prevalence of cancer and the cost of cancer treatment and screening vary widely from country to country, so the cost of an extra year of life must also be estimated on a national basis. In European cancer screening, the accepted threshold price for an extra year of life has varied between €9 000 and €50 000.

Cost-effectiveness is often estimated by modelling alternative screening strategies for a population that is followed until death. The life years and costs of different screening strategies are estimated and compared with the situation without screening. If screening has been in place for several decades, it is difficult to assess the situation without screening. In such cases, it is natural to compare screening strategies primarily with current screening. This is also the case in Finland, where the national breast cancer screening programme started already in 1992.

The study, a collaboration between the Finnish Cancer Registry and Aalto University, assesses the cost-effectiveness of expanding the screening coverage in Finland. The estimates are based on an approach developed for this study. The first results will be published in autumn 2022.

7. SOCIAL INEQUALITIES IN THE USE OF MAMMOGRAPHY SERVICES IN EUROPE

The joint European study, carried out by the EU-TOPIA consortium (EU-TOPIA 2022), looked at social inequalities in the use of screening and non-screening tests in Europe. Data on the use of health services, such as mammograms, were obtained from the European Health Interview Survey (EHIS) from 2013 to 2015. Socio-economic differences were examined by family income level and by individuals' education level, employment, socio-demographic factors, perceived health status and smoking status (Bozhar et al. 2022). Data on mammography use were restricted to the female population aged 50–69 years at the time of response. Particularly in countries where there was already an established breast cancer screening programme, the majority of mammograms for women of this age were performed in screening programmes.

Large differences were found between EU Member States in the proportion of mammograms. The proportion of women who had a mammogram in the previous two years was very low, particularly in Eastern Europe and in Northern European countries, especially in the Baltic States. The proportion of people who had a mammogram was also lower than for the rest of the population among those born in non-EU countries, divorcees, widows, people with primary and secondary education, people in low-income groups and daily smokers.

The results provide a basis for developing new interventions and working models to reduce inequalities. Inequalities in screening participation appear to persist despite the fact that the entire target population has been offered free screening. Further action

is therefore needed among disadvantaged or special groups, as differences in the use of screening services between population groups are also likely to have consequences for treatment prognosis and cancer burden.

8. RECOMMENDATIONS AND CONCLUSIONS

Based on screening data, the impact of the Covid-19 pandemic on breast cancer screening uptake was relatively slight. The clearest difference between screening years 2019 and 2020 was a decrease in participation of 1.1 percentage points. However, the largest decrease in participation was in the oldest age group (65–69 years), which has the highest incidence of breast cancer. If the detection rate had remained at the previous year's 2019 level, the decrease in participation would have resulted in a calculated 30 breast cancers not being detected, half of them in the oldest age group. These undetected breast cancers represent a low proportion (<2%) of all malignant tumours detected at screening.

The extension of the screening year 2020 to summer 2021 appeared to reduce the impact of the age limit on participation. However, for those who participated in 2021, the time since the previous screening was longer than usual, so latent breast cancers have had more time to develop. It is therefore possible that the prevalence of breast cancers detected at screening is not as favourable as in previous years. Therefore, the pandemic may reduce the effectiveness of breast cancer screening, even if the screening data suggests that the impact is small. According to statistics from the Finnish Cancer Registry, the number of breast cancers diagnosed in women aged 50–69 in 2020 was as much as 8% lower than expected (Finnish Cancer Registry 2022). Therefore, the assessment of the impact will require further investigation, for example in relation to breast cancers detected between screenings.

A breast cancer screening programme can only be effective in reducing breast cancer mortality if those invited participate in the screening. It is therefore important to ensure that the screening test is accessible and easy to get to, that the test can be easily rescheduled if necessary, and that alternative test dates are available. However, these means and the traditional invitation to screening are not always sufficient, as there are also differences in participation between population groups. The proportion of women whose mother tongue is a non-native language has increased in Finland since the 2000s (Statistics Finland), so reaching them is becoming increasingly important. The Finnish Cancer Registry, together with Moniheli, has been distributing screening data to this female population since 2018. Moniheli works to promote health equality for migrants and foreign-language speakers and its network includes more than 100 organisations in Finland. Reaching other low-participation groups, such as people not in work and those with the lowest levels of education, also requires cooperation with other networks.

Reducing screening quality gaps and improving quality predict an effective screening programme. National guidelines covering the screening chain from invitation to follow-up and surgical intervention can harmonise quality implementation. Such guidelines have so far been lacking in Finland. The National Steering Group for Cancer Screening and its expert group on breast cancer screening will design and

implement a quality manual for breast cancer screening, funded by the Ministry of Social Affairs and Health, by the end of 2022. The project started in May 2022, so the timetable is tight.

The Finnish Cancer Registry has been working on a data model reform for cancer screening, which will harmonise the national delivery of screening data and enable near real-time viewing of screening data. For breast cancer screening, the reform will cover a large proportion of operators by the end of 2022. At the beginning of 2023, the responsibility for organising cancer screening will be transferred from the municipalities to the wellbeing services counties as part of other social and health services. The organisation of the wellbeing services counties is a major undertaking and cancer screening will be one activity among others. It is good that the Finnish Cancer Registry can monitor the quality of breast cancer screening in near real time during the transition, so that any problems in the processes can be detected and corrected as quickly as possible. In the long run, the reduction in the number of cancer screening providers and the national quality manuals will facilitate the management of cancer screening.

The breast cancer screening programme must continue to be effective in the future. One option is to better target screening on the basis of risk, whereby, for example, women at higher risk of breast cancer could be invited for screening more often than women at low risk. Three large randomised trials are currently investigating the effectiveness of high-risk screening (Allweis et al. 2021). International modelling studies of risk screening have already yielded promising results, so it is worthwhile to continue to investigate this topic in Finland too.

AUTHORS

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LINKS AND PUBLICATIONS

FINNISH CANCER REGISTRY
https://cancerregistry.fi

SCREENING STATISTICS
https://cancerregistry.fi/statistics/screening-statistics/

CANCER STATISTICS
https://cancerregistry.fi/statistics/cancer-statistics/

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TERMINOLOGY

BIOPSY
Tissue sample (core needle or open biopsy) or cell sample (fine needle aspiration biopsy). Histological confirmation of the diagnosis is always made from a tissue sample. Surgical referral is usually based on a core-needle biopsy, but the final diagnosis of breast cancer is usually made by open biopsy.

CANCER INCIDENCE
The number of new cancer cases in relation to the population over a given period.

CONFIRMATORY TESTS
Breast cancer screening follow-up tests include additional mammography, ultrasound, pneumocystography, ductography, and fineneedle (cell sample) and core-needle (tissue sample) examination or a combination of these.

FALSE POSITIVE MAMMOGRAPHY RESULT
A false positive mammography test result is a result (usually after a co-reading) in which a woman is invited to a screening centre for confirmatory tests, but the result of confirmatory and other follow-up examinations is negative (no breast cancer or breast carcinoma in situ).

MALIGNANT FINDINGS IN BREAST CANCER SCREENING

CARCINOMA *IN SITU*
A tumour in which malignant cells have not penetrated deeper into the breast tissue but occur within the duct or lobule (ICD-10: D05).

INVASIVE BREAST CANCER
Breast cancer (ICD-10: C50).

MAMMOGRAPHY MORTALITY
Breast cancer (ICD-10: C50).

MAMMOGRAPHY
X-ray imaging of the breasts.

MORTALITY
The number of deaths in a given period relative to the population.

A tumour in which malignant cells have not penetrated deeper into the breast tissue but occur within the duct or lobule (ICD-10: D05).

Breast cancer (ICD-10: C50).

OVERDIAGNOSIS OF BREAST CANCER SCREENING
Diagnosis of a latent breast cancer or carcinoma in situ that untreated would not affect the person's health during her lifetime.

SCREENING CHAIN
The progress of the screening process from the identification of the target population and the sending of invitations to testing and possible follow-up examinations, treatments and post-treatment follow-up.

SCREENING COVERAGE
Proportion of the target population invited for screening (invitation coverage) or percentage of the target population screened (inspection coverage)

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FIGURE 1: **Participation in breast cancer screening (%) and invitation coverage (%) 1992–2020.**

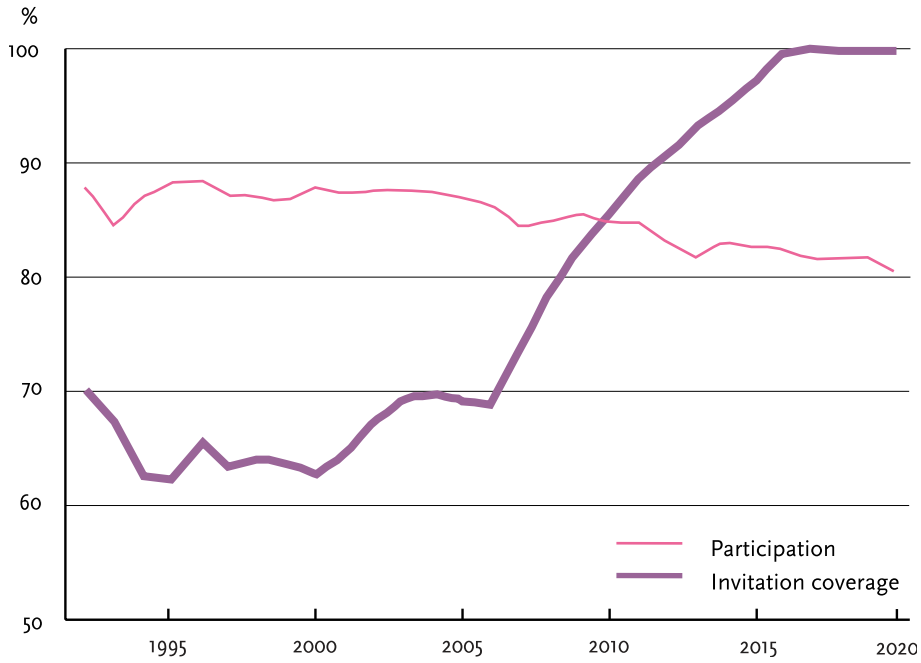

FIGURE 2: **Participation in breast cancer screening (%) by hospital district, 2016–2020 (age-standardised, Finland 2014)**

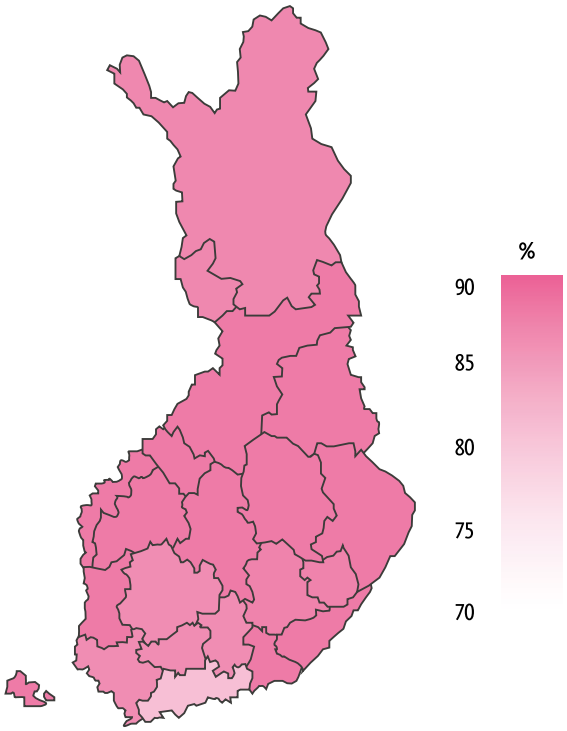

FIGURE 3: **Breast cancer screening recalls (%) by hospital district in 2016–2020 (age-standardised, Finland 2014)**

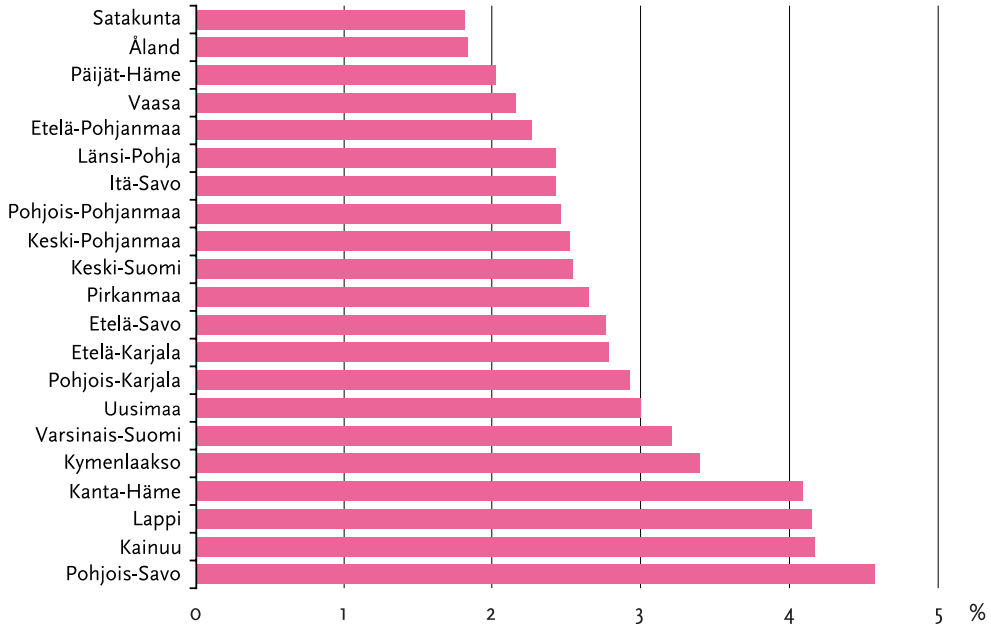

FIGURE 4: **Malignant findings of breast cancer screening (%) by hospital district 2016–2020 (age-standardised, Finland 2014)**

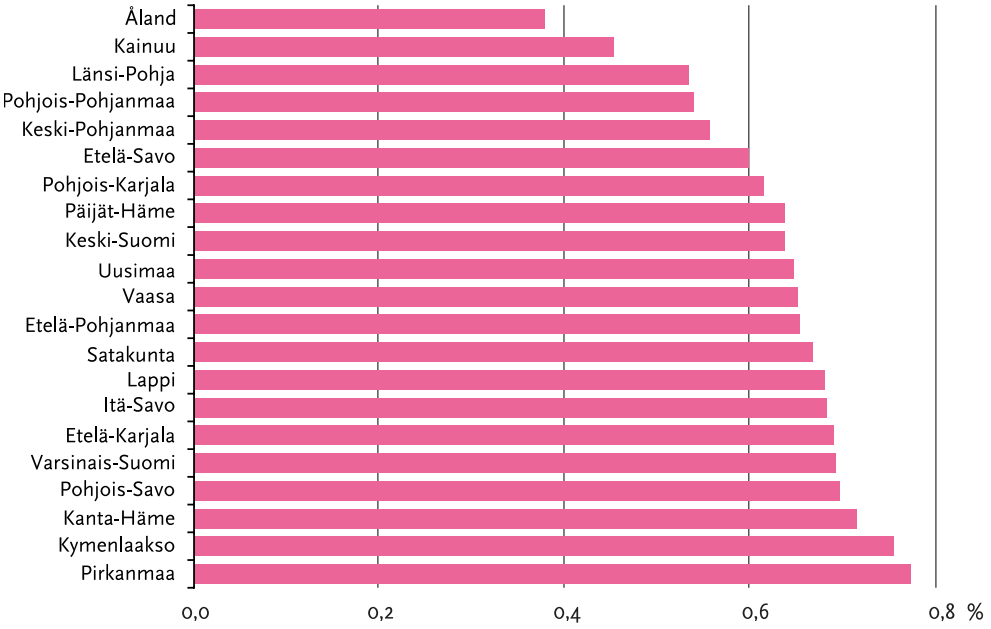

FIGURE 5: **Cumulative proportion of breast cancer screening participants among those invited (%) 2018–2020 by month of participation.**

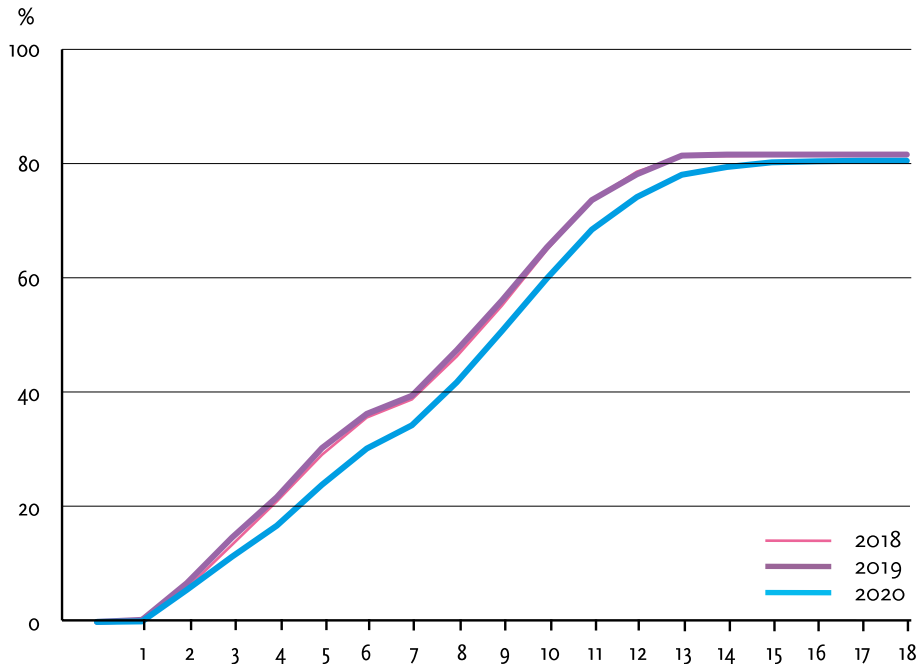

FIGURE 6: **Absolute change in age-standardised breast cancer screening uptake (% points) between 2019 and 2020 by hospital district.**

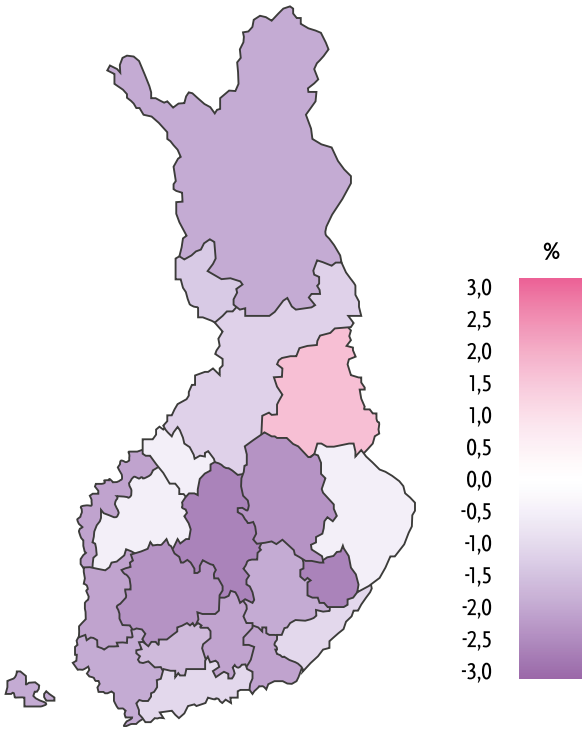

TABLE 1: **Coverage of breast cancer screening 2019–2020.**

Age group	Target population	Invited during the screening round	Population coverage
50–54	172406	172762	100.2
55–59	184771	185047	100.1
60–64	182916	183114	100.1
65–69	185516	185615	100.1
Total	725609	726538	100.1

TABLE 2: **Breast cancer screening invitations and examinations in 2020.**

Age group	Invited	Screened	
	n	n	%
50–54	103783	83555	80.5
55–59	73851	59161	80.1
60–64	109378	88518	82.2
65–69	75114	60292	80.3
Total	362126	291526	80.5

TABLE 3: **Breast cancer screening results by age group 2020.**

Age group	Screened	Recall		Core needle biopsy		Referral to specialised medical care		Malignant finding	
	n	n	%	n	%	n	%	n	%
50–54	83555	3540	4.2	961	1.2	585	0,7	386	0.5
55–59	59161	1433	2.4	463	0.8	392	0,7	309	0.5
60–64	88518	2177	2.5	830	0.9	790	0,9	670	0.8
65–69	60292	1573	2.6	712	1.2	659	1,1	588	1.0
Total	291526	8723	3.0	2966	1.0	2426	0,8	1953	0.7

TABLE 4: **Breast cancer screening invitations and examinations by hospital district 2016–2020.**

Hospital district	Invited	Screened	
	n	n	%*
Åland	10986	9529	86.8
Etelä-Karjala	48373	41180	85.1
Etelä-Pohjanmaa	66962	57183	85.4
Etelä-Savo	39073	32991	84.4
Itä-Savo	16780	14049	83.7
Kainuu	28484	24298	85.4
Kanta-Häme	61926	51242	82.7
Keski-Pohjanmaa	24982	21253	85.0
Keski-Suomi	81855	69970	85.5
Kymenlaakso	62995	53155	84.3
Lappi	22716	18613	81.9
Länsi-Pohja	43336	36102	83.2

Hospital district	Invited	Screened	
	n	n	%*
Pirkanmaa	77578	63794	82.2
Pohjois-Karjala	170920	140566	82.2
Pohjois-Pohjanmaa	61067	52092	85.3
Pohjois-Savo	124375	105705	84.9
Päijät-Häme	88689	75727	85.3
Satakunta	78777	67549	85.7
Uusimaa	533396	402109	75.5
Helsinki	200545	146827	73.4
Uusimaa without Helsinki	332851	255282	76.8
Vaasa	51446	43882	85.2
Varsinais-Suomi	164088	136207	83.0

*age-standardised, Finland 2014

TABLE 5: **Breast cancer screening results by hospital district 2016–2020.**

Hospital district	Screened	Recall		Referral to specialised medical care		Malignant finding	
	n	n	%*	n	%*	n	%*
Åland	9529	175	1.8	47	0.5	36	0.4
Etelä-Karjala	41180	1160	2.8	419	1.0	289	0.7
Etelä-Pohjanmaa	57183	1314	2.3	446	0.8	376	0.7
Etelä-Savo	32991	914	2.8	291	0.9	199	0.6
Itä-Savo	14049	341	2.4	129	0.9	97	0.7
Kainuu	24298	1013	4.2	146	0.6	110	0.5
Kanta-Häme	51242	2137	4.1	435	0.8	364	0.7
Keski-Pohjanmaa	21253	546	2.5	184	0.8	121	0.6
Keski-Suomi	69970	1807	2.5	612	0.9	444	0.6
Kymenlaakso	53155	1829	3.4	572	1.1	405	0.8
Lappi	18613	453	2.4	123	0.6	103	0.5
Länsi-Pohja	36102	1510	4.2	439	1.2	243	0.7
Pirkanmaa	63794	1296	2.0	468	0.7	412	0.6
Pohjois-Karjala	140566	3814	2.6	1252	0.9	1070	0.8
Pohjois-Pohjanmaa	52092	1520	2.9	357	0.7	323	0.6
Pohjois-Savo	105705	2645	2.5	710	0.7	565	0.5
Päijät-Häme	75727	3503	4.6	774	1.0	532	0.7
Satakunta	67549	1241	1.8	623	0.9	457	0.7
Uusimaa	402109	12556	3.0	2855	0.7	2521	0.6
Helsinki	146827	4722	3.1	1079	0.7	929	0.7
Uusimaa without Helsinki	255282	7834	2.9	1776	0.7	1592	0.6
Vaasa	43882	968	2.2	378	0.9	282	0.7
Varsinais-Suomi	136207	4493	3.2	1173	0.9	939	0.7

*age-standardised, Finland 2014

TABLE 6: **Breast cancer screening participation and results by native language 2019–2020.**

Mother tongue	Invited	Screened		Recall		Referral to specialised medical care		Malignant finding	
	n	n	%[1]*	n	%[2]*	n	%[2]*	n	%[2]*
Domestic	688589	565923	82.1	16805	2.9	4745	0.8	3828	0.7
Other	37047	23132	62.1	645	2.5	136	0.6	92	0.5

*age-standardised, Finland 2014 [1] percentage of invited [2] percentage of screened

TABLE 7: **Breast cancer screening participation and results by socio-economic status 2019–2020.**

Socio-economic status	Invited	Screened		Recall		Referral to specialised medical care		Malignant finding	
	n	n	%[1]*	n	%[2]*	n	%[2]*	n	%[2]*
Self-employed	38854	31682	81.1	967	2.8	232	0.9	184	0.7
Upper level white collar	107272	91420	84.7	3041	3.1	702	0.9	551	0.7
Lower level white collar	223966	193329	86.3	5870	2.9	1402	0.8	1088	0.7
Workers	77905	63196	81.5	1842	2.7	464	0.8	346	0.6
Students	5007	3591	73.4	116	3.3	24	0.9	17	0.8
Retired	212481	164928	70.5	4325	2.9	1705	1.0	1460	0.8
Unemployed	44680	31941	66.6	1013	2.4	274	0.6	217	0.5
Other / data missing	17681	10141	59.6	326	3.1	87	0.9	64	0.7

*age-standardised, Finland 2014 [1] percentage of invited [2] percentage of screened

TABLE 8: **Breast cancer screening participation and results by level of education 2019–2020.**

Educational level	Invited	Screened		Recall		Referral to specialised medical care		Malignant finding	
	n	n	%[1]*	n	%[2]*	n	%[2]*	n	%[2]*
Primary or data missing	105116	72362	66.9	1941	2.8	626	0.8	513	0.6
Secondary	303081	247369	81.6	7052	2.8	1990	0.8	1606	0.7
Higher	319649	270497	84.6	8507	3.0	2274	0.9	1808	0.7

*age-standardised, Finland 2014 [1] percentage of invited [2] percentage of screened

TABLE 9: **Median delay for breast cancer screening 2016–2020.**

Screening year	Median delay (days) between screening exam and recall	Median delay (days) between recall and surgical intervention
2016	13	39
2017	14	36
2018	15	35.5
2019	14	41
2020	14	34